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WASHINGTON 1846

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM

PROCEEDINGS

OF THE

UNITED STATES NATIONAL MUSEUM

VOLUME 91

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1943

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Alexander Wetmore,
Assistant Secretary, Smithsonian Institution.

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PROCEEDINGS OF THE UNITED STATES NATIONAL MUSEUM

issued by the

SMITHSONIAN INSTITUTION
U. S. NATIONAL MUSEUM

Vol. 91 Washington : 1941 No. 3121

THE MAMMALIAN FAUNAS OF THE PALEOCENE OF CENTRAL UTAH, WITH NOTES ON THE GEOLOGY

By C. Lewis Gazin

Further investigation of the Paleocene deposits of central Utah by the 1939 and 1940 Smithsonian Institution expeditions has added considerably to the collections representative of the upper portion of the North Horn deposits and has resulted in the discovery of a second and distinct horizon for mammals within the Paleocene series. The investigations of these years have led also to a better understanding of the geologic relations pertaining to the fossil-bearing deposits in and about Dragon Canyon and North Horn Mountain.

The area investigated lies within the region of the Manti National Forest and along the eastern part of the Wasatch Plateau. Physiographically, it belongs to the High Plateaus of Utah section of the Colorado Plateaus province, as defined by Fenneman and Johnson.

North Horn Mountain (T. 18 S., R. 6 E.), due west of the towns of Orangeville and Castledale, is an outlying remnant of the plateau to the west, being separated from it by the troughlike depression known as North or Upper Dragon. Dragon Canyon, or the Lower Dragon, lies principally in the western half of T. 19 S., R. 6 E., and together with North Dragon is primarily the result of a complex graben structure extending for a considerable distance both north and south.

The writer wishes to acknowledge the courtesy extended by Dr. Walter Granger and Dr. G. G. Simpson in permitting him to make further comparisons with Paleocene materials in the American Museum of Natural History. The drawings illustrating the specimens were made by Sydney Prentice.

HISTORY OF THE INVESTIGATION

The occurrence of fossil vertebrates in this region was first recognized in 1935 with the discovery, by Dr. J. B. Reeside, Jr., and Dr. E. M. Spieker, of the U. S. Geological Survey, of fragmentary dinosaur remains in exposures around North Horn Mountain and of incomplete mammalian remains at a locality high on Wagon Road Ridge across the Dragon depression, to the west of North Horn Mountain. These materials were all from beds that had been earlier regarded as "Wasatch" in geological investigations pertaining to coal resources of the region.

In 1937 a Smithsonian Institution expedition under the direction of C. W. Gilmore, and with the aid of Dr. Spieker, made a collection of dinosaurian remains from the Cretaceous of the region, and was also successful, through the particular efforts of George B. Pearce, a member of the party, in discovering a fruitful locality for Paleocene mammals in lower Dragon Canyon. A popular account of this expedition by C. W. Gilmore and a description of the Paleocene fossils by the writer were published in 1938.

During the summer season of 1938 a Smithsonian party under the writer's direction further investigated Paleocene and Cretaceous deposits and was successful in considerably enlarging the fauna known from the previously described Dragon Canyon locality. A popular description of the 1938 expedition and descriptions of the Paleocene collections by the writer were published in 1939.

The success of the parties in the 1937 and 1938 expeditions, and at the same time the fragmentary nature of many of the new finds discovered during these seasons, made it imperative that further work be done at these localities; hence, the 1939 and 1940 expeditions undertook more thorough investigations of both the Cretaceous and Paleocene. Accounts by the writer of the 1939 and 1940 expeditions were published in 1940 and 1941, respectively.

FAUNAL RELATIONS

Contributory to the more outstanding results of further investigation of the Paleocene in 1939 was the finding of a new fossiliferous locality in the upper portion of the North Horn series. The new locality is in a patch of exposures in the western half of section 7, T. 19 S., R. 6 E., about a mile nearly due west of the previously described Dragon Canyon locality, which is in the northwest portion of section 8. Fossils were found to occur at two levels in the new locality, the upper of which, though relatively less productive, is believed to represent the same stage as that at the old Dragon Canyon locality, the Dragon horizon, as indicated by the occurrence there of

Catopsalis utahensis, *Oxyclaenus pearcei*, *Haploconus inopinatus*, and *Ellipsodon* cf. *shepherdi*. The lower level, stratigraphically about 165 feet lower, has produced a new fauna that is more nearly equivalent to that of the Puerco but may be somewhat younger than the latter. This lower horizon, which may be known as the Wagonroad stage, is perhaps 10 or 15 feet above a level that may be arbitrarily defined as the base of the Paleocene in this region.

Lists of the forms recognized in the two faunas are given below:

DRAGON FAUNA	WAGONROAD FAUNA
MULTITUBERCULATA:	
Taeniolabididae:	
Catopsalis utahensis Gazin	*Taeniolabis* species
Ptilodontidae:	
Ptilodus ferronensis, new species	
INSECTIVORA:	
Pantolestidae:	
Aphronorus simpsoni Gazin	
Pantolestid (a), genus and species undetermined	
Pantolestid (b), genus and species undetermined	
Mixodectidae:	
Dracontolestes aphantus, new genus and species	
Mixodectid (a), genus and species undetermined	Mixodectid? (b), genus and species undetermined
TAENIODONTA:	
Stylinodontidae:	
Conoryctella dragonensis Gazin	
Stylinodont, near *Psittacotherium*	
CARNIVORA:	
Arctocyonidae:	
Protogonodon? *spiekeri* Gazin	*Protogonodon*? species
Protogonodon biatheles, new species	
Oxyclaenus pearcei, new species	*Oxyclaenus* species
Oxyclaenid	
Tricentes elassus, new species	
Coniacodon? species	
Miacidae:	
Didymictis? species	
CONDYLARTHRA:	
Hyopsodontidae:	
Dracoclaenus griphus Gazin	
Oxytomodon perissum, new genus and species	
Ellipsodon shepherdi Gazin	
Ellipsodon? *sternbergi* Gazin	
Ellipsodon? species (a)	*Ellipsodon*? species (b)
Jepsenia mantiensis Gazin	
Phenacodontidae:	
	Desmatoclaenus hermaeus, new genus and species
Desmatoclaenus cf. *paracreodus*	*Desmatoclaenus paracreodus*, new species
Periptychidae:	
	Ectoconus symbolus, new species
Periptychus gilmorei Gazin	*Carsioptychus hamaxitus*, new species
Anisonchus dracus Gazin	*Anisonchus oligistus*, new species
Anisonclus onostus Gazin	
Haploconus inopinatus Gazin	*Haploconus*? *elachistus*, new species

Indicative of an earlier age than that of the Dragon level and approaching more closely that of the Puerco is the presence in the Wagonroad fauna of forms representative of the genera *Taeniolabis*, *Ectoconus*, and *Carsioptychus*. However, the separation in time of the two levels in the Dragon Canyon area is not great, as a relationship between the two stages is seen in the materials of *Protogonodon*?, *Haploconus*, and of the new form *Desmatoclaenus*. The Wagonroad is obviously more nearly comparable to the Puerco stage than it is to that of the Torrejon.

Reviewing the list of forms now known from the Dragon it would seem that the fauna was closely related to that of the Torrejon or Crazy Mountain Fort Union; however, a closer study of the individual forms in many cases shows them to be less distinctly removed from related types in the Puerco. This is noticeable in the periptychids, certain of the carnivores, and most markedly in the taeniodonts, the latter group apparently having undergone considerable change in at least two lines during lower Paleocene time. Many of the forms present, such as the multituberculates and insectivores, can be compared only with later types as ancestral stages of these are not known in the Puerco. The conclusion is that the Dragon fauna is intermediate between Puerco and Torrejon faunas in stage of development, perhaps a trifle closer to the Torrejon, whereas the Wagonroad fauna is definitely closer, if not equivalent, to that of the Puerco.

GEOLOGIC RELATIONS

Work during the summer season of 1939 included an investigation of the geologic relations existing in and around the Dragon in order to show the distribution of certain formations and to account for the otherwise anomalous position of many of the fossil localities. For this purpose a small map has been prepared (fig. 1), using an enlargement of a portion of the topographic and geologic map of E. M. Spieker as a base. The later Cretaceous and Paleocene beds previously undifferentiated are here distinguished and the distribution of these together with that of the Flagstaff limestone and later deposits is more accurately shown. Moreover, a greater refinement of the fault pattern is indicated.

Stratigraphy.—The older rocks, including the Blackhawk and Price River formation, and a limited exposure of Star Point sandstone in Ferron Canyon are all of Cretaceous age and have not been distinguished on the map. They consist principally of massive buff sandstones with interbedded clay shale, sandy clay, and coal (in the lower part), and with a certain amount of conglomeratic material in the Price River formation.

A, View northwestward of principal fossiliferous exposures of Dragon Paleocene in Dragon Canyon (loc. 2 in fig. 1 and pl. 2, *B*), $NW^1/_4$ sec. 8, T. 19 S., R. 6 E.

B, View northward in northerly pocket of exposure seen in upper photograph. Figure in middle foreground is approximately at fossiliferous horizon. A large portion of the remains of the Dragon fauna was found in the small area shown in this view. Caprock of Flagstaff limestone is seen in right background.

A, General view northward of Wagon Road Ridge locality, near Sanpete-Emery County line and probably in sec. 36, T. 18 S., R. 5 E. The first Paleocene materials from this region, though fragmentary and undeterminable, were discovered at this locality by Drs. Reeside and Spieker in 1935. Subsequent small collections are indicative of the Dragon horizon.

B, General view northward across Ferron Canyon and up Dragon Canyon, showing the principal localities for fossil vertebrates, numbered as on the geologic map (fig. 1): (1) Cretaceous exposures at southwest portion of North Horn Mountain, which produced sauropod and ceratopsian dinosaur remains; (2) principal Dragon Canyon Paleocene locality, Dragon horizon (pl. 1); (3) Cretaceous exposures in lower part of Dragon Canyon, which produced the fossil lizard collection; (4) new Paleocene locality, with both Dragon and Wagonroad horizons (pl. 3). Original discovery locality, shown above, is indicated by arrow in left background on Wagon Road Ridge.

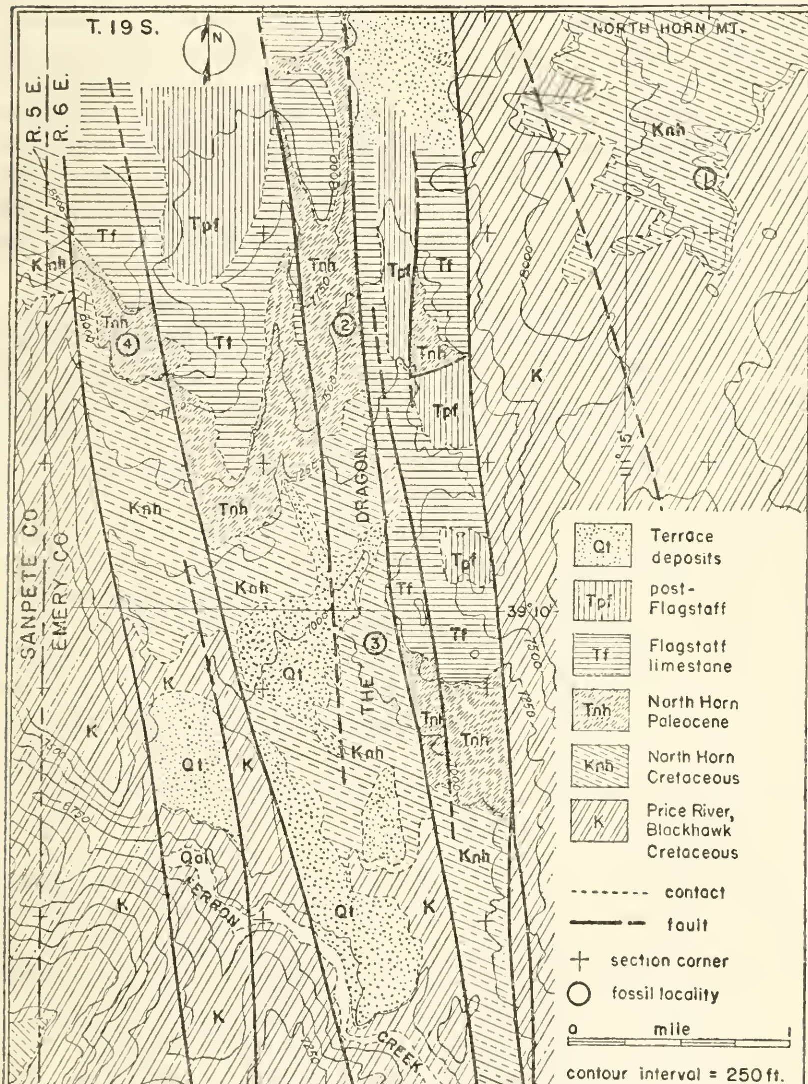


FIGURE 1.—Geologic map of the Dragon Canyon area, showing principal fossil localities.

Overlying the Price River formation, apparently in conformable relation, is the fossiliferous series of clays, sandy clays, and sandstones that have been designated by Spieker as the North Horn formation. The use of this name should in the opinion of the writer have been restricted so as to include only the Cretaceous or Paleocene beds and not both. However, since the U. S. Geological Survey has adopted the more inclusive definition for North Horn, the name Joes Valley is proposed as a member to include the Paleocene portion of the North Horn formation. The clays and sandy clays in the Cretaceous portion of the North Horn are varied in color with thick beds of gray, green, and brown shades of clay with occasional thinner zones of more reddish clay. Near the top the buff sandstones become more conspicuous, forming cliffs below the Paleocene deposits.

The Joes Valley member exposed high on the mountain slopes adjacent to Joes Valley has been more critically observed farther south on North Horn Mountain, and particularly in Dragon Canyon, where the Paleocene fossils occur. The member is defined as beginning with the highly colored clay and sandy clay, locally black carbonaceous shales, resting abruptly but without apparent disconformity on the massive sandstones capping the dinosaur-bearing North Horn beds. The variegated clays of the Paleocene series resemble those in the lower portion of the North Horn formation but are usually not so thick and appear to be more gaudily colored and with conspicuous white channel sands. The upper portion of the Joes Valley member, above both of the fossil levels, is not so markedly variegated and includes a greater quantity of buff sandstone, with thicker zones of more uniformly colored sandy clay, ending abruptly beneath the Flagstaff limestone. The thickness of the Joes Valley member was not measured, but it clearly amounts to several hundred feet. Apparently, however, it is not so thick as the lower portion of the North Horn.

The Flagstaff limestone, overlying the Joes Valley member, contains numerous fresh-water shells, but it has produced no vertebrate remains. Its age is not certainly determined, but it may be within the limits of the Paleocene. Overlying the limestone in various places in Dragon Canyon is a series of soft clays that on weathered surfaces show brick red alternating with much lighter colors. Interbedded with the clay are occasional thin beds of limestone. This material is designated on the map as post-Flagstaff. No fossils were found in these beds.

Structure.—Dragon Canyon is essentially part of a graben that extends a considerable distance north and south. The downdropped block is highly faulted and amounts simply to a zone of faulting in which the slices are all depressed below the relatively undisturbed masses to the east and west. The principal fault along the east side of the zone has had displacement exceeding 2,000 feet in places, as indicated by the extent to which the Flagstaff limestone has been depressed. To the west across Dragon Canyon this displacement has been taken up along three principal surfaces of faulting, but with minor fractures along which displacement has been in an opposite direction.

Throughout most of the region the rocks are nearly level lying, but within the depressed zone the sediments are noticeably disturbed, particularly adjacent to the faults, where strong drag folding was observed. Certain of the slices, particularly the most easterly block, are depressed northward, and this together with the effect of drag along the bounding faults has in these cases resulted in an average northeasterly dip to the various deposits. The slice on which localities 2 and 3 are shown has been raised relative to both blocks immediately adjacent; hence the sediments are more nearly level, but with a noticeable downward drag adjacent to the westerly fault in the vicinity of locality 3. On the other hand, a very strong upward drag is apparent along the westerly margin of the two westerly slices, near locality 4.

Fossil localities.—Four localities have been indicated on the map. These show the general location of the principal occurrences of fossil vertebrates with the exception of a locality for Paleocene mammals on Wagon Road Ridge some distance to the north of the area shown on the map. and of several sites around North Horn Mountain, which cannot be shown on the map, from which dinosaur remains have been recovered.

Those that have been indicated are as follows: (1) A locality in Cretaceous rock on North Horn Mountain where the greater part of a sauropod dinosaur was discovered in 1937, near the line between sections 3 and 4, T. 19 S., R. 6 E. (2) The original Paleocene locality in Dragon Canyon from which most of the Dragon collection was obtained; NW¼ sec. 8, T. 19 S., R. 6 E. (3) A Cretaceous locality in the lower part of Dragon Canyon, which produced the unique fossil lizard collection; S½ sec. 17, T. 19 S., R. 6 E. (4) The new Paleocene locality where mammalian fossils were discovered at two distinct levels: W½ sec. 7, T. 19 S., R. 6 E.

SYSTEMATIC DESCRIPTION OF THE MATERIAL

MULTITUBERCULATA

Genus TAENIOLABIS Cope

TAENIOLABIS species

The genus *Taeniolabis* is apparently represented in the collection from the Wagonroad horizon by the posterior half of a first lower molar, U.S.N.M. No. 16172 (fig. 2, *a*). In size and appearance the specimen closely resembles this portion of M_1 in *Taeniolabis taöensis* from the Puerco of New Mexico. The form present in the Wagonroad horizon may represent this species, but in the absence of better material, showing at least something of the cusp formula, no specific reference is made.

Although our knowledge of the history or development of the Taeniolabididae is very incomplete, the presence of *Taeniolabis* and the absence of *Catopsalis* in the Wagonroad fauna are significant in indicating a relationship to the Puercan stage.

In the structure of the molars *Catopsalis* would appear to be ancestral to *Taeniolabis*, but since their known positions in time are the reverse the two must be regarded as representing separate phyla, and that having the less specialized molars surviving here longer, or reaching this region at a later date.

Genus CATOPSALIS Cope

CATOPSALIS UTAHENSIS Gazin

Catopsalis utahensis Gazin, 1939b, p. 275.

The type of *Catopsalis utahensis*, U.S.N.M. No. 15757, from the Dragon horizon, as represented at the principal Dragon Canyon locality (loc. 2 in fig. 1), consists of a single first lower molar (fig. 2, *b*). The specimen exhibits the simple type of pattern seen in *Catopsalis* from the Torrejon rather than the more specialized dental structure of the Puerco *Taeniolabis*. It differs from M_1 in specimens of *Catopsalis* known from the Torrejon of the San Juan Basin in having the cusp formula 6:4. In the type of *Catopsalis foliatus* it is 5:4, and in the type of *C. fissidens* the formula is 6:5, or better. Moreover, the tooth is relatively wider than in either of the Torrejon specimens. *Catopsalis calgariensis* from the Paskapoo was described by Russell from a second lower molar; hence no satisfactory comparison with the type of *C. utahensis* is possible.

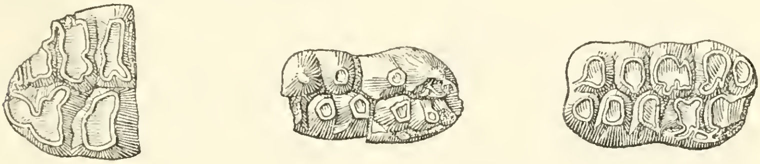
From additional material of this form collected in 1939 it is seen that the lower molars are distinctly wider than in either *C. fissidens* or *C. foliatus*. In an M_1 (fig. 2, *c*), No. 16185, from the upper or Dragon horizon at the new locality (loc. 4 in fig. 1), slightly more

View northward over newly discovered Paleocene locality in the western part of Dragon Canyon (loc. 4, fig. 1 and pl. 2, *B*), W½ sec. 7, T. 19 S., R. 6 E. Almost the entire Wagonroad collection was obtained from exposures in the foreground, limited upward approximately by the dashed line. A small collection of materials considered to be of Dragon age was obtained from exposures in the background at the level indicated by the solid line, stratigraphically about 165 feet above the Wagonroad horizon. The exposures around the distant ridge in the left background are of Cretaceous age, the Paleocene having been faulted down adjacent to these older rocks.

worn than the type, the posterointernal cusp is further divided for a part of its height so that the inner row has five cusps instead of four. Wear has obscured the posterior portion of the outer row so that it is uncertain as to whether there were five or six cusps, and the formula may be 5 : 5 or 6 : 5. The tooth is slightly larger than the type of *C. utahensis*.

The posterior portion of another M_1, No. 16211, shows a cusp division suggestive of the formula 7 : 5 or possibly 6 : 5. The latter tooth portion is about the size of the type and comes from the original Dragon Canyon locality.

An incomplete tooth portion, No. 16210, which has only four cusps preserved, is relatively large and may be the anterior portion of M_1, in which case it approaches in size small specimens of *Taeniolabis*. However, it may be the posterior portion of an M_2 of *C. utahensis*.



a b c

FIGURE 2.—*a*, *Taeniolabis* sp., lower molar portion (U.S.N.M. No. 16172), occlusal view, Wagonroad Paleocene, Utah; *b*, *Catopsalis utahensis* Gazin, M_1 (U.S.N.M. No. 15757), type specimen, occlusal view, Dragon Paleocene, Utah, *c*, *C. utahensis*, M_1 (U.S.N.M. No. 16185), occlusal view, Dragon Paleocene, Utah. All × 2.

A right lower jaw, No. 16209, in the Dragon collection has both M_1 and M_2 but unfortunately the teeth are checked and partially obscured by an ironlike matrix.

Material of *Catopsalis* is particularly rare, there being but about three known specimens outside of the material herein described, and one of these, an M_2, the type of *Catopsalis calgariensis* from the Paskapoo, has been lost, although a cast of it is in the collections of the American Museum of Natural History. The other two, the types of *C. foliatus* and *C. fissidens*, are lower dentitions from the Torrejon. The material of *C. utahensis* though more than doubling the number of specimens representing *Catopsalis* does not seem to present any significant evidence as to the ancestral stages in the development of this genus. It is interesting to note, however, that *C. utahensis*, especially as represented by No. 16185 and No. 16210, appears somewhat less distinctly removed from *Taeniolabis* than do the Torrejon forms.

The anteroposterior and transverse diameters of the type, No. 15757, are 12 (approximately) and 6.5 mm., respectively. In No. 16185 these diameters are 13 and 7.3 mm., respectively.

Genus PTILODUS Cope

PTILODUS FERRONENSIS,[1] new species

Type.—Fragment of right ramus of mandible with P_4, U.S.N.M. No. 16176.

Horizon and locality.—Dragon Paleocene, Dragon Canyon, Emery County, Utah.

Specific characters.—Near *Ptilodus mediaevus* in size. P_4 in type longer, with crest less elevated posteriorly. About 12 serrations, as indicated by ridges on lateral surface of tooth. Notch between anterior and posterior roots not so acute and buccal wall of crown not extending down root portion so far. P^1 in referred material relatively shorter and wider and P^2 slightly wider than in *P. mediaevus.* Cusps in P^1 and P^2 less elevated and less distinct. Outer row of cusps on referred M^1 less developed posteriorly.

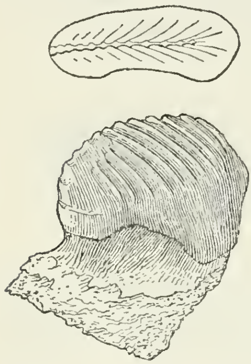


FIGURE 3.—*Ptilodus ferronensis*, new species: Jaw fragment with P_4 (U.S.N.M. No. 16176), type specimen, lateral and occlusal views, × 3, Dragon Paleocene, Utah.

Description.—Included in the material representing *Ptilodus ferronensis* are five lower jaw fragments with P_4, a maxillary fragment with P^1 and P^2, and an incomplete, isolated M^1. P_4 in No. 16176 (fig. 3), the type of *P. ferronensis*, is a little longer than in *Ptilodus mediaevus* and has the posterior portion of the crest a little less elevated. The notch between the anterior and posterior roots is not so acute, as viewed from the outer surface, and the buccal wall of the tooth does not extend so far down on the roots in the type. The notch between the roots of P_4 in No. 16225, referred to *P. ferronensis*, does not appear to be so obtuse. The number of serrations on the crown of P_4 in the type is about 12, as indicated in part by the ridges on the lateral surface of the tooth, apparently less by a similar method of counting than in certain specimens of *P. mediaevus* examined, although 12 is the median figure given by Simpson for the Torrejon form.

P^1 and P^2 in No. 16212 compare favorably in size with *Ptilodus mediaevus* (Amer. Mus. Nat. Hist. Nos. 3033 and 16533), but P^1 is relatively shorter and wider than in the Torrejon material, and P^2, though incomplete posteriorly, is a little wider than in Amer. Mus. Nat. Hist. No. 3033. The cusps of these two teeth in the Utah specimen are not so markedly separated and are less elevated than in the Torrejon material.

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[1] Named from Ferron Canyon in Emery and Sanpete Counties, Utah.

An incomplete M^1 in the collection, No. 16216, shows the outer row of cusps less developed posteriorly than in Amer. Mus. Nat. Hist. No. 3033 from the Torrejon.

The length of P_4 in the type, No. 16176, of *Ptilodus ferronensis* is 9 mm. In No. 16212 P^1 is 3.3 mm. long and 2.8 wide, and P^2 is 3.5 mm. wide.

INSECTIVORA

Genus APHRONORUS Simpson

APHRONORUS SIMPSONI[2] Gazin

Aphronorus simpsoni Gazin, 1938, p. 273.

About 19 specimens, consisting of isolated teeth or jaw fragments with one to four teeth, from the Dragon level are considered to represent *Aphronorus*. All but three of these, upper premolars, are lower jaw remains. The upper molar earlier (Gazin, 1939b, p. 275) thought to be of *Aphronorus simpsoni* is now cited herein as pantolestid (b).

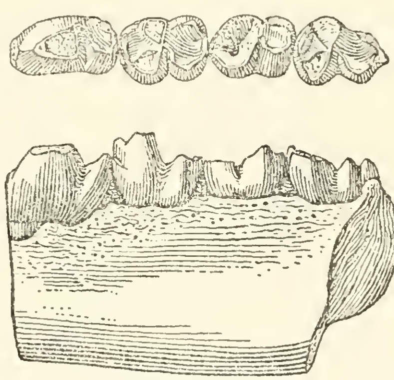

Figure 4.—*Aphronorus simpsoni* Gazin: Left ramus of mandible with P_4–M_3 (U.S.N.M. No. 15539), type specimen, lateral and occlusal views, × 4, Dragon Paleocene, Utah.

Aphronorus simpsoni is close in size to *A. fraudator* from the Crazy Mountain Fort Union but differs from this species in certain relative proportions, which are outside the limits given by Simpson for the middle Paleocene form. The ramus, No. 15539 (fig. 4), made the type, is slightly deeper than in the several Fort Union specimens that the writer examined, a difference more noticeable in the posterior portion. Also, the posterior molars are relatively larger, particularly M_3, which is larger than in any of the Fort Union specimens examined. However, the teeth are relatively slender. This is most noticeable in P_4, which combines the greatest length with the least width given by Simpson for *A. fraudator*. Moreover, the posterior wall or shear of the trigonid in the molars is not so distinctly transverse, but directed slightly more forward externally. In P_4 the shear is more nearly transverse though somewhat irregular as a slight ridge extends down the posterior wall of the metaconid and unites with the hypoconid crest.

[2] Named for Dr. G. G. Simpson.

TABLE 1.—*Measurements (in millimeters) of lower teeth of* Aphronorus simpsoni

Measurement	P_4	M_1	M_2	M_3
Anteroposterior diameter	3.8	3.0	3.0	3.2
Transverse diameter	2.0	2.1	2.2?	2.2

Pantolestid (a), genus and species undetermined

A maxillary portion (fig. 5), No. 16184, with M^2 and M^3, represents a pantolestid insectivore near *Bessoecetor.* The teeth are relatively wide transversely, M^2 being about one-fourth wider than in *Bessoecetor thomsoni.* Anteroposteriorly the tooth is about the same, or possibly as much as a sixth greater than in *B. thomsoni.* The hypocone is markedly lingual in position and the anteroexternal angle, though partially broken away, is seen to be much heavier than in M^2 of the Scarritt Quarry form. The anterior wall of M^2 shows a somewhat heavier cingulum and the posterior wall does not show so acute a notch adjacent to the metaconule. M^3, though poorly preserved, appears to be anteroposteriorly compressed. Both teeth are much more reduced anteroposteriorly than in *Aphronorus*, and the external styles are directed more as in *Bessoecetor.* Moreover, the teeth are much smaller than in *Palaeosinopa senior*, also recorded from the Scarritt Quarry in the Crazy Mountain field of Montana.

FIGURE 5.—Pantolestid (a), gen. and sp. undet.: Maxillary portion with M^2 and M^3 (U. S. N. M. No. 16184), occlusal view, $\times$ 4, Dragon Paleocene, Utah.

A lower jaw portion, No. 16219, with M_3 preserved may belong to this form. M_3 has the trigonid structure much as in *Bessoecetor*, or even *Aphronorus*, but the talonid is more reduced than in *B. diluculi*, somewhat as in *B. thomsoni.* However, its size is such as to suggest a relationship to the form represented by the upper molars described above, and the reduced talonid is quite in accord with the anteroposterior reduction of M^3 in No. 16184.

The anteroposterior and greatest transverse diameters of M^2, No. 16184, are 2.5 (approximately) and 4.9 mm., respectively; of M_3, No. 16219, 2.7 and 2.0 mm.

Pantolestid (b), genus and species undetermined

A single upper molar, No. 15791, provisionally referred to *Aphronorus simpsoni*, seems on further consideration to represent not *Aphronorus* but a pantolestid type closer to *Bessoecetor.* The tooth is about a third smaller than the M^2 in the form herein described as pantolestid (a), hence somewhat smaller than either of the first two molars in *B. thomsoni* or in *B. diluculi.* However, this tooth more closely resembles *Bessoecetor* in its proportions and outline than it does the larger Dragon pantolestid (a).

DRACONTOLESTES,[3] new genus

Type.—*Dracontolestes aphantus*, new species.

Generic characters.—Lingual cusps of lower molars slightly more elevated than outer. Trigonid moderately elevated. Paraconid crest extends to a markedly lingual point. Talonid basin closed lingually. Crest extending forward from hypoconid joins trigonid at a distinctly lateral point. No external cingulum on M_2 and M_3.

DRACONTOLESTES APHANTUS,[4] new species

Type.—Left ramus of mandible, U.S.N.M. No. 16180, with M_3 and part of M_2.

Horizon and locality.—Dragon Paleocene, Dragon Canyon, Emery County, Utah.

Specific characters.—Much smaller than known species of *Eudaemonema* and *Elpidophorus*. Teeth about the size of those in *Aphronorus simpsoni*.

Description.—The lower jaw with M_3 and part of M_2, No. 16180 (fig. 6), represents a species in the Dragon level which is clearly mixodectid, but cannot be certainly referred to any of the known genera. The form is much smaller than species of *Eudaemonema* and *Elpidophorus*, being distinctly smaller than *Elpidophorus minor* from the Crazy Mountain Fort Union.

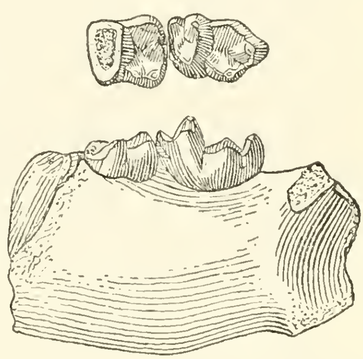

FIGURE 6.—*Dracontolestes aphantus*, new genus and species: Left ramus of mandible with M_2–M_3 (U.S.N.M. No. 16180), type specimen, lateral and occlusal views, ×4, Dragon Paleocene, Utah.

The inner cusps are only slightly more elevated than the outer, such as observed in some material of *Eudaemonema cuspidata*, not so accentuated in this respect as in *Elpidophorus*. The trigonid portion is elevated with respect to the talonid but the cusps in general, though sharp, are not so elevated as in *Eudaemonema cuspidata*. The crest carrying the paraconid extends lingually even more than in *Elpidophorus patratus* somewhat as in *Elpidophorus minor*, not extending forward or so median in position as characteristic of *Eudaemonema*. Moreover, the talonid basin is closed lingually by

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[3] δράκων, dragon + λῃστής, thief.

[4] ἄφαντος, obscure.

the crest extending forward from the entoconid to the metaconid, and the crest forward from the hypoconid joins the posterior wall of the trigonid at a point distinctly more external than in either of the above genera. The talonid basin is well excavated and in M_3 is not so restricted by the flexure of the outer wall anterior to the hypoconid as in *Elpidophorus patratus*. The hypoconulid in M_2, though weak, is placed almost as close to the entoconid as in the Crazy Mountain forms. It may be further noted that the two molars do not show evidence of an external cingulum such as exists in *Elpidophorus* material.

The anteroposterior diameter of M_3 in No. 16180 is 3.5 mm. The transverse diameters of M_2 and M_3 are 2.3 and 2.0 mm., respectively.

This new form is possibly closest to the *Elpidophorus* line but differs most notably in the less accentuated elevation of the inner cusps and in the more widely basined talonids. The differences from *Eudaemonema* that are significant, though not striking, in determining the relationship of this form lie principally in the position of the paraconid and in the distinctly closed talonid basins. The lateral position of the crest joining the hypoconid with the trigonid wall is distinctive with respect to both.

Specimen No. 15719, which includes an incomplete lower molar, earlier described (Gazin, 1939b, p. 276) as belonging possibly to a primate, closely resembles M_2 in the above described type, so that in the absence of additional material demonstrating more certainly the presence of a primate in the fauna this specimen is referred to *Dracontolestes aphantus*.

Mixodectid (a), genus and species undetermined

A jaw fragment, No. 16220, with a single molar is seen to represent a second mixodectid type of insectivore in the Dragon fauna. The tooth is almost as large as in *Eudaemonema cuspidata* and apparently a little larger than in *Elpidophorus minor*. The protoconid and metaconid are broken, and although the inner of the two may possibly have been the larger, in the talonid the entoconid is not higher than the hypoconid, suggesting *Eudaemonema* rather than *Elpidophorus*, and the talonid basin opens internally with almost, but not quite, as broad an opening as in specimens of *Eudaemonema*. The tooth also lacks the distinct external cingulum seen in material of *Elpidophorus*. However, the paraconid is markedly internal in position, and not so low or projecting so forward as in *Eudaemonema cuspidata*. The paraconid is placed somewhat as appears to be the case in M_2 of *Elpidophorus minor*. The tooth, though a little shorter, is relatively wider than in *Eudaemonema cuspidata*, suggesting *Elpidophorus* in this respect, but is slightly lower crowned than in either. It may be further noted that the hypoconulid, rising from a slight posterior cingulum, does not appear to be placed quite so far internally, and the outer walls of the protoconid and hypoconid are not so nearly vertical as in *Eudaemonema* and *Elpidophorus*, but seem to be more sloping, causing at least the talonid basin to appear slightly narrower with respect to the width of the tooth.

The anteroposterior and transverse diameters of the lower molar, No. 16220, are 3.4 and 2.9 mm., respectively.

Mixodectid ? (b), genus and species undetermined

A maxillary portion, No. 16200, with an upper molar, possibly M^2 (fig. 7), and part of the next succeeding tooth may represent a small mixodectid in the Wagonroad fauna. The molar shows a well-developed shelflike cingulum external to the paracone and metacone and acute external styles. The hypocone is markedly lingual in position and a cingulum is continuous around the inner portion of the protocone, not including the hypocone but apparently terminating posteriorly and upward between the protocone and hypocone. A posterior cingulum extends laterally from the hypocone. The lingual position of the hypocone suggests a relationship to *Eudaemonema*, inasmuch as in *Elpidophorus* the hypocone is not placed so far inward. The cingular shelf on the outer side of the tooth seems more prominent than in either of the Crazy Mountain forms.

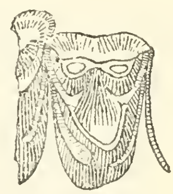

Figure 7.—Mixodectid? (b): Maxillary portion with one upper molar and part of another (U.S.N.M. No. 16200), occlusal view, × 4, Wagonroad Paleocene, Utah.

The occurrence of this small form in the Wagonroad fauna is of interest, being unlike anything in the Puerco and if found to represent a mixodectid it is the earliest known.

The tooth measures about 3.3 and 5.4 mm., anteroposteriorly and transversely.

TAENIODONTA

Genus CONORYCTELLA[5] Gazin

CONORYCTELLA DRAGONENSIS[6] Gazin

Conoryctella dragonensis Gazin, 1939b, p. 276.

A conoryctid type of taeniodont is recognized in the Dragon collections by a maxillary portion with three teeth, P^4 to M^2, and a lower jaw fragment with a single molar obtained in 1938, and two additional lower molars found in 1939.

The upper teeth, No. 15704, made the type of *Conoryctella dragonensis* (fig. 8), are seen, as previously described, to be a little smaller

[5] *Conoryctes*+*ella*, a small conoryctid.

[6] Named for Dragon Canyon.

than in *Conoryctes comma* but distinctly larger than in *Onychodectes tisonensis.* The Dragon form is about intermediate between these two species in degree of hypsodonty. P^4 is not so nearly molariform as in *C. comma* and has the lingual portion more compressed anteroposteriorly. The protocone and deuterocone are prominent conical cusps, and the tritocone, though damaged, is seen to be but weakly developed as compared to the other two cusps. The lingual portion of this tooth does not appear crescentic; nevertheless, a low crest or cingulum extends along the posterior portion between the deuterocone and tritocone.

The paracone and metacone in the first two molars, as far as preserved, are seen to be conical and low and are separated from the outer margin of the teeth by a heavy cingulum. The mesostyle, though present, is not so strongly developed as in *C. comma.* It is absent in *O. tisonensis.* The anteroexternal and posteroexternal angles of the teeth are more rounded than in *O. tisonensis* and do not exhibit styles at these points as in the Puerco form.

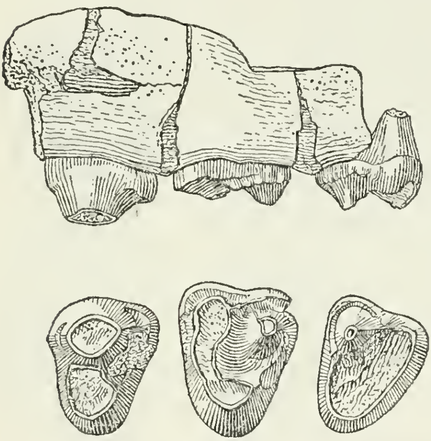

FIGURE 8.—*Conoryctella dragonensis* Gazin: Maxillary portion with P^4–M^2 (U.S.N.M. No. 15704), type specimen, lateral and occlusal views, × 2, Dragon Paleocene, Utah.

The anteroposterior diameters of the upper teeth, P^4 to M^2, are approximately 7.5, 8.2, and 7.4 mm., respectively. Any transverse measurements would be highly arbitrary.

The lower jaw fragment, No. 15722, with a molar tooth, apparently M_1, may represent *Conoryctella dragonensis*, although it is from an individual somewhat smaller than the type. The tooth is about intermediate between *O. tisonensis* and *C. comma* in hypsodonty but apparently a little nearer *O. tisonensis* in size. The trigonid of the tooth possesses a moderately developed paraconid situated much as in M_1 of *O. tisonensis.* The heel or talonid, though partially obscured by matrix, is relatively broad, appears to be deeply basined and to have a somewhat cuspidate crest, approaching the condition seen in *C. comma.*

The two lower molars, No. 16173, added to the collection in 1939, exhibit an arrangement of the cusps around the margin of the talonid very much as in *Onychodectes*, without the greater number of accessory cuspules seen in *Conoryctes.* The teeth are relatively a little wider and the heel more basined than in *Onychodectes* and as with other material known of the form the two teeth are intermediate between *O. tisonensis* and *C. comma* in size and hypsodonty.

The Dragon lower teeth do not exhibit the basal accessory cuspule anteroexternal to the hypocone characterizing *Onychodectes rarus*.

Stylinodont, near Psittacotherium

A single incisor tooth, No. 16204, apparently lower, seems most certainly to belong to a stylinodont type of taeniodont. The tooth is moderately worn but shows evidence of a conical labial portion and a marked lingual shelf, and exhibits a heavy, transversely flattened root. The tooth is about intermediate in size between corresponding teeth in the types of the Puerco and Torrejon species, *Wortmania otariidens* and *Psittacotherium multifragum*. The lingual shelf seems more extended than in *Wortmania* but is not so prominent or so broadened as in *Psittacotherium*, and the enamel does not extend down the labial wall of the tooth for so great a distance as in the latter genus.

The occurrence of a stylinodont in the Dragon fauna was to be expected since this family is represented in both the Puerco and Torrejon stages; in fact the line appears to be continuous through the Paleocene, and into Eocene time where it is represented by the genera *Ectoganus* and *Stylinodon*.

CARNIVORA

Genus PROTOGONODON Scott

PROTOGONODON? SPIEKERI[7] Gazin

Protogonodon? spiekeri Gazin, 1938, p. 274.

The species *Protogonodon? spiekeri* was described from a right lower jaw portion with M_1, M_2, and part of M_3 in the Dragon collection obtained in 1937. Subsequent material includes a lower jaw portion with M_2 and isolated portions of lower molars. Upper jaw material, including an M^3 and a maxillary portion with part of M^3 and the root portion of M^2, was referred to this species, but the recognition of a second species, *Protogonodon biatheles*, from lower-jaw material obtained from the Dragon horizon in 1939 makes doubtful the reference of these upper teeth to *P.? spiekeri*, in the absence of any association between upper and lower teeth.

The lower molars of *Protogonodon? spiekeri*, as represented by the type, No. 15538 (fig. 9), correspond closely in size to those of *P.*

[7] Named for Dr. Edmund M. Spieker.

pentacus from the Puerco but exhibit more rugose enamel. The paraconid, which is preserved in only the first two molars, is more lingual in position and not so distinct from the metaconid. The cusps around the talonid, however, though low, are somewhat more distinct from those adjacent than in *P. pentacus*, with less development of a crest and basin. The trigonid portions of the teeth are somewhat more elevated with respect to the talonids than is usual in *P. pentacus*.

In the reduction and position of the paraconid and in the rugosity of the enamel the Dragon form makes a definite approach toward the condition seen in the Torrejon specimens referred to *Claenodon corrugatus* (*C. ferox*). The paraconid in M_2, and perhaps M_1, of *P.? spiekeri* is better developed and more distinctly separated from the metaconid than in *C. corrugatus* although it is placed nearly as far

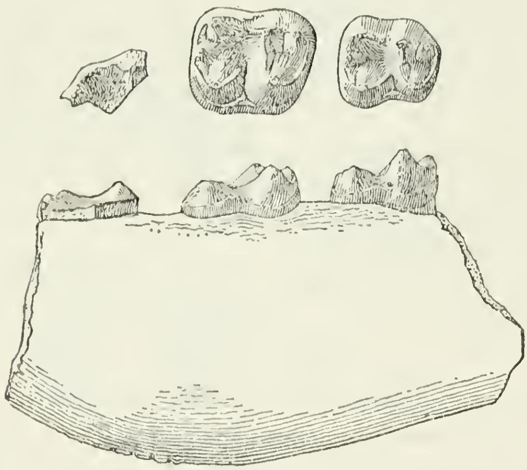

FIGURE 9.—*Protogonodon? spiekeri* Gazin: Right ramus of mandible with M_1, M_2, and part of M_3 (U.S.N.M. No. 15538), type specimen, lateral and occlusal views, × 1½, Dragon Paleocene, Utah.

lingually as in the Torrejon material. The union or ridge between the protoconid and metaconid is simple and not double as frequently seen in the more coarsely rugose teeth of *Claenodon corrugatus*. On the talonid the hypoconulid is more distinct from the entoconid, whereas in *C. corrugatus* these two form a more conspicuous ridge, which usually continues with the cingulum around the hypoconid. The cusps in general are lower and more distinct than in *Claenodon*, with a less distinctly basined talonid, with fewer accessory cuspules, and a finer quality of rugosity.

M_3 in the type, though incomplete, is much less elongate than in *C. corrugatus*, as indicated by the spacing of the metaconid, entoconid, and hypoconulid.

The maxillary fragment, No. 15541, tentatively referred to *Protogonodon? spiekeri*, shows no important characters other than a relatively great difference in size between M^2 and M^3. The isolated M^3 is complete and shows a slight development of a mesostyle, not nearly so prominent, however, as in *Deuterogonodon montanus*, and the slight hypocone is not nearly so lingual in position.

In most respects, especially in the character of the trigonid of the lower molars, *P.? spiekeri* stands in a relation nearly intermediate between *Protogonodon* and *Claenodon*, with perhaps a slightly greater resemblance to *Protogonodon*. It is distinct from *Deuterogonodon montanus*, as represented by the paratype, in the lowness of the cusps, the far less developed crest and basin of the talonid, and in the relatively greater importance of the entoconid.

The anteroposterior diameters of the first and second lower molars are 10 and 11 mm., respectively. The transverse diameters are 8 and 9.3 mm.

PROTOGONODON BIATHELES, new species

Type.—Portions of both rami of the mandible with M_1 and M_2, U.S.N.M. No. 16181.

Horizon and locality.—Dragon Paleocene, Dragon Canyon, Emery County, Utah.

Specific characters.—M_1 and M_2 slightly larger than *Protogonodon? spiekeri*. Paraconid median in position. Talonid relatively wide. Teeth slightly rugose.

Description.—Fragments of both rami of the mandible, No. 16181 (fig. 10), with M_1 and M_2, found in a mass of barite crystals together with well-worn upper teeth of *Desmatoclaenus paracreodus* in the Dragon horizon, appear to represent a species of *Protogonodon* distinct from *P.? spiekeri*. The molars are only slightly larger than those in *P.? spiekeri*, but in contrast with this form the paraconid is much more median in position, even in comparison with *Protogonodon pentacus*. The trigonid portion is relatively narrow, and the talonid, especially of M_2, is markedly wider and more basined than in either *P.? spiekeri* or *P. pentacus*. This specialization is directly opposite to that seen in *Protogonodon kimbetovius* where the talonid is relatively narrow. The enamel of the teeth is very slightly rugose, much less so in the talonid basin in comparison with *P.? spiekeri*, although the teeth appear to be about as unworn as in the type of the latter.

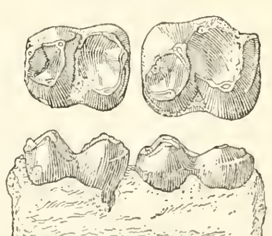

FIGURE 10.—*Protogonodon biatheles*, new species: Left ramus of mandible with M_1 and M_2 (U.S.N.M. No. 16181), type specimen, lateral and occlusal views, × 1½, Dragon Paleocene, Utah.

Considerable doubt attaches to the assignment of any upper teeth to this species. Those tentatively assigned to *P.? spiekeri* may belong to *P. biatheles;* however, the reduced size of M_3 suggested in the type of *P.? spiekeri* indicates allocation of the preserved third upper molars to that species.

PROTOGONODON? species

A maxillary portion, No. 16193 (fig. 11), including M^3 and a much damaged M^2, in the Wagonroad collection strongly resembles material in the Dragon collections referred to *Protogonodon? spiekeri.* M^3 is rounded and the cingulum, which appears to extend entirely around the tooth, is rugose, whereas the central basin is smooth. Arising from the cingulum is a hypocone about as in the Dragon M^3 but between the paracone and metacone and separate from the cingulum a much-worn accessory cuspule or mesostyle is developed to an extent approaching that in *Deuterogonodon montanus.* In M^3, No. 15733, referred to *P.? spiekeri* from the Dragon horizon, there is a slight cuspule in this position.

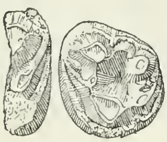

FIGURE 11.—*Protogonodon?* sp.: Left maxillary portion with M^3 and part of M^2 (U. S. N. M. No. 16193), occlusal view, × 1½, Wagonroad Paleocene, Utah.

The anteroposterior and transverse diameters of M^3, No. 16193, are about 9.5 and 10.5 mm., respectively.

Other incomplete portions of teeth in the collections from the Wagonroad horizon probably represent the same form as No. 16193, or a closely related type. All show evidence of a moderately heavy cingulum but none of the upper tooth fragments exhibit a mesostyle as in No. 16193.

A single last lower molar, No. 16344, in the small collection from the original Wagon Road Ridge locality (the equivalence of which to either the Wagonroad or Dragon horizons is uncertain) may represent a species of *Protogonodon.* The elevation of the trigonid suggests *Eoconodon* but differs from that form in having the paraconid so nearly median in position.

Genus OXYCLAENUS Cope

OXYCLAENUS PEARCEI,[8] new species

Type.—Portions of right and left rami of the mandible with M_2 and M_3, U.S.N.M. No. 16186.

Horizon and locality.—Dragon Paleocene, Dragon Canyon, Emery County, Utah.

[8] Named for Franklin Pearce, in recognition of his field assistance.

Specific characters.—Size near *Oxyclaenus simplex.* Talonid of M_2 relatively wide. Paraconid directed forward and more distinct from protoconid and metaconid. M_3 unreduced.

Description.—Several lower jaw fragments from the Dragon horizon represent a species of *Oxyclaenus* near *O. simplex.* M_2 in the type specimen, No. 16186 (fig. 12), from the upper or Dragon level at the new locality in the western part of the canyon is about the same size as the single lower molar belonging with the type of *O. simplex*, being smaller and not so high crowned as in *Oxyclaenus cuspidatus.* It differs from *O. simplex* principally in having a wider talonid portion and a narrower trigonid, somewhat as in *Loxolophus* but with the talonid basin more open internally; however, the teeth are relatively slender and exhibit a well-defined external cingulum as in *Oxyclaenus.* The paraconid is directed more forward than in *Oxyclaenus* and separated from both the protoconid and metaconid by a more distinct notch.

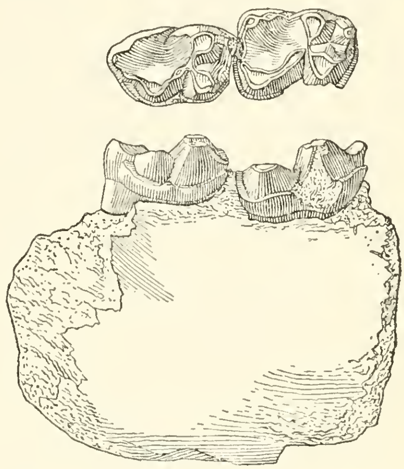

FIGURE 12.—*Oxyclaenus pearcei*, new species: Right ramus of mandible with M_2–M_3 (U.S.N.M. No. 16186), type specimen, lateral and occlusal views; × 3, Dragon Paleocene, Utah.

M_3 in the type exhibits a trigonid portion much as in M_2, but the tooth is fully as large as M_2, not showing the reduction seen in Puerco specimens referred to *O. simplex* (Amer. Mus. Nat. Hist. No. 16347) and *O. cuspidatus* (Amer. Mus. Nat. Hist. No. 16346).

An upper molar fragment, No. 15736, which includes only the inner portion may represent this form, and is characterized by a prominent lingually placed hypocone and an equivalent protostyle symmetrically placed.

The anteroposterior diameters of M_2 and M_3 in No. 16186 are 5.7 and 6.0 mm., respectively. The transverse diameters are 4.1 and 3.5 mm.

OXYCLAENUS species

A single upper molar, No. 16217, in the material from the Wagonroad level, is seen to correspond closely to M^1 in the type of *Oxyclaenus simplex* and may possibly represent *O. pearcei*, the species described from the Dragon horizon. The tooth differs from M^1 of *O. simplex* only in being slightly narrower transversely and in having cusps, which appear to be somewhat more acute, although this tooth in the type of *O. simplex* is rather well worn. The tooth, No. 16217, measures 4.8 mm. anteroposteriorly across the styles and 5.2 mm. transversely.

Oxyclaenid?

An isolated upper molar, possibly M², No. 15546, in the 1937 collection from the Dragon level, may be from an oxyclaenid type of carnivore. The tooth is too large to belong to *Oxyclaenus pearcei* and differs somewhat from the *Oxyclaenus* type of tooth. Although exhibiting a parastyle, the external angles are not so acute as in either *Oxyclaenus* or *Chriacus*. The hypocone is more lingual than in *Oxyclaenus* and a slight protostyle is present at the lingual extremity of the anterior cingulum. The hypocone, however, is not developed as in *Chriacus*, the cusps in general are more nearly conical, and the cingulum does not extend entirely across the lingual wall of the protocone. Moreover, the protoconule and metaconule are more distinctly separated from the outer cusps than in any of the oxyclaenid material examined.

Some resemblance is seen between this tooth and M² in the condylarth *Dracoclaenus griphus*, with which it corresponds closely in size, but there is no mesostyle, the hypocone is more lingual in position, there is a slight protostyle, and, as in comparison with the oxyclaenids, the protoconule and metaconule are too widely separated from the paracone and metacone, respectively.

The anteroposterior diameter of the tooth is about 6.2 mm. and the transverse diameter 7.6 mm.

Genus TRICENTES Cope

TRICENTES ELASSUS,[9] new species

Type.—Upper molar, M¹, U.S.N.M. No. 16178.

Horizon and locality.—Dragon Paleocene, Dragon Canyon, Emery County, Utah.

Specific characters.—A little smaller than *Tricentes subtrigonus*. Cusps and outer angles of upper molars somewhat more acute. Cingulum does not extend around lingual wall of protocone on M¹.

Description.—At least three isolated upper molars and a lower molar in the Dragon collection are recognized as belonging to *Tricentes*. The upper molars are a little smaller than in material referred to *Tricentes crassicolidens* and about a fifth smaller than in the type of *Tricentes subtrigonus;* however, certain specimens from the Torrejon are nearly as small as the Dragon form. The outer angles of the upper molars are somewhat more acute, and the cusps in general

[9] 'ελάσσων, small, in allusion to its size.

have a weaker, less inflated appearance. The posterior portion of the external cingulum of M^1, Nos. 16178 (fig. 13) and 15783, rises forward on the protocone much as in the Torrejon material of *Tricentes*, but the inner cingulum does not extend around the protocone as is common, though not invariable, in *Tricentes subtrigonus*. In M^2, No. 16179 (fig. 13), the cingulum appears to be continuous around the protocone. The enamel is weakly rugose on both M^1 and M^2, but there is no indication of a mesostyle on the cingulum or between the paracone and metacone on these teeth.

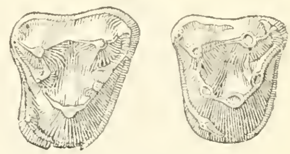

FIGURE 13.—*Tricentes elassus*, new species: M^1 (U.S.N.M. No. 16178), type specimen (on right), and M^2 (U.S.N.M. No. 16179), occlusal views, × 3, Dragon Paleocene, Utah.

A maxillary portion with M^3 and an incomplete M^2, No. 16206, may represent *Tricentes elassus*. The teeth are a little smaller than in *T. subtrigonus* but otherwise show no importance differences. The enamel is somewhat more smooth than in the type but the teeth are well worn. The inner portion of M^2 shows a slightly heavier cingulum around the protocone than in the isolated M^2 described above.

The lower molar, No. 16215, in the collection shows no important differences from material of *Tricentes subtrigonus* except that the paraconid is perhaps a little more lingual in position.

The anteroposterior and transverse diameters of the type, M^1, are 5.1 and 5.6 mm., respectively.

Genus GONIACODON Cope

GONIACODON? species

An upper molar, U.S.N.M. No. 16207, closely resembles M^1 in *Goniacodon levisanus*, equaling in size this tooth in individuals having somewhat smaller teeth than the average in the known material. The only apparent distinction lies in the extension of the cingulum on the anterior wall of the tooth to a more lingual point than in *Goniacodon levisanus*. The anteroexternal and posteroexternal styles are broken off so that the direction or extent of these angles cannot be determined. The tooth is not greatly different from M^2 in *Claenodon procyonoides*, but the resemblance between the Utah specimen and M^1 in *G. levisanus* is more striking.

An isolated upper premolar, No. 16208, resembles P^4 in *Goniacodon levisanus* so closely that it may well belong to the same form as that represented by the molar. The principal cusp is broken down, but the deuteroconid portion is preserved and corresponds closely to that in *G. levisanus*, except in being a little more restricted anteroposteriorly. The outer portion of the tooth is somewhat distorted, but it appears as if this portion may not have extended so far anteroposteriorly as in *G. levisanus.*

The anteroposterior diameter of the upper molar, No. 16207, cannot be measured, but the transverse diameter is about 9 mm.

Genus DIDYMICTIS Cope

DIDYMICTIS? species

A fourth lower premolar, U.S.N.M. No. 15763, apparently represents the genus *Didymictis.* The tooth is only slightly smaller than in *Didymictis haydenianus* from the Torrejon but does not have the first cuspule posterior to the large cusp so distinctly set off from this primary cusp. The cuspules of the talonid are more nearly in the median line of the tooth than was observed in *D. haydenianus.* The tooth is distinctly larger than in *D. microlestes* from the Crazy Mountain locality in the Fort Union of Montana.

An isolated fourth upper premolar may possibly belong to *Didymictis* but is too small to belong to the form represented by the lower tooth. Moreover, the deuterocone portion does not extend forward so markedly as in the Torrejon material of *Didymictis,* a condition suggestive of *Ictidopappus,* but the posterior cusp, though prominent, is not developed into so nearly a shearing blade as in either *Didymictis* or *Ictidopappus.*

A fragment of the trigonid portion of a lower molar collected during the 1939 season may represent *Didymictis,* but it adds little or nothing to our information regarding the form occurring in the Dragon.

CONDYLARTHRA

Genus DRACOCLAENUS[10] Gazin

DRACOCLAENUS GRIPHUS[11] Gazin

Dracoclaenus griphus GAZIN, 1939b, p. 281.

The material in the Dragon collection representing *Dracoclaenus griphus* most closely resembles that of the Torrejon form *Protoselene opisthacus* but differs from it in several respects. A relatively large number of specimens, though fragmentary, are referred to this form and four of these are figured (fig. 14).

P^4 (fig. 14, *d*) in specimen No. 15705 is larger and more inflated than in *P. opisthacus,* although there is much variation in P^4 of material referred to *P. opisthacus,* such as between Amer. Mus. Nat. Hist. Nos. 16614 and 3285. In size of P^4 *D. griphus* approaches *Mioclaenus turgidus,* but with less reduction of the cingulum and no

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[10] δρακων dragon+*claenus.*

[11] *Griphus,* an enigma.

"metaconule" such as usually is present in *M. turgidus*. The tritocone of P^4 in *Dracoclaenus griphus* is almost indistinct from the primary cusp, whereas this tooth in *P. opisthacus* (Amer. Mus. Nat. Hist. No. 16614) exhibits a division of the main outer cusp into a promi-

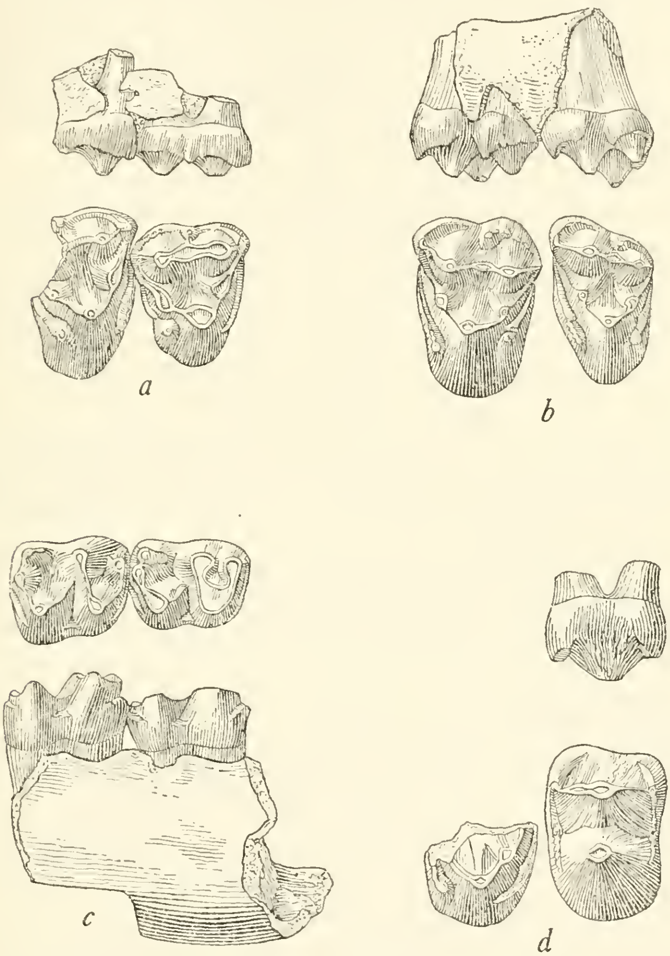


FIGURE 14.—*Dracoclaenus griphus* Gazin: *a*, M^1 and M^2 (U.S.N.M. No. 15789), type specimen, lateral and occlusal views; *b*, M^2 and M^3 (U.S.N.M. No. 16182), lateral and occlusal views; *c*, right ramus of mandible with M_1 and M_2 (U.S.N.M. No. 15773), lateral and occlusal views; *d*, P^4 and part of M^1 (U.S.N.M. No. 15705), lateral and occlusal views. × 3. Dragon Paleocene, Utah.

nent protocone and a lesser tritocone placed close together. The anteroexternal and posteroexternal styles are more prominent on P^4 of the Dragon form, and a slightly better developed cingulum, though discontinuous, is indicated on the outer surface.

The upper molars (type, fig. 14, *a*), M^1 and M^2, in No. 15789 resemble closely those in *Protoselene opisthacus*, but the difference in size between these teeth is more noticeable than in the Torrejon form, with M^2 distinctly larger than in *P. opisthacus*. The external cingulum is more prominent and more markedly crescentic about both the paracone and metacone. The mesostyle is well developed as in certain specimens of *P. opisthacus* but more conical and distinctly separated from the crest which extends between the paracone and metacone. In *P. opisthacus* the mesostyle extends outward as a spur or projection from this crest.

Additional material obtained in 1939 includes several more isolated teeth, but in particular two maxillary portions: No. 16203 with M^1 and M^2 and No. 16182 with M^2 and M^3 (fig. 14, *b*). The newly acquired upper teeth show *Dracoclaenus griphus* to run somewhat larger than *P. opisthacus*. The two forms are most nearly alike in M^1, but the posterior upper molars show less resemblance. To the greater size of M^2 is further added a much better development of the parastyle than in *P. opisthacus*. M^3, not hitherto known, is seen to be more like M^2 than in *P. opisthacus*. This tooth is relatively larger than in the Torrejon form and, although approaching a triangular outline, shows a more distinct hypocone and much better developed protoconule and metaconule.

A somewhat distinctive upper dentition from the Wagon Road Ridge locality, including P^4–M^2, No. 15703, resembles the type in most characters of the molars but has a weaker hypocone on both molars and a very weak metaconule on M^2. The anteroexternal angle of M^2 extends forward even somewhat more, suggestive of the oxyclaenids, but has the mesostyle, particularly in M^1, as in No. 15789. The external cingulum is not so crescentic around the outer cusps, the outer wall being more nearly straight. P^4 is similar but a little smaller than in Nos. 15705 and 15780. This specimen, No. 15703, may represent a distinct species of *Dracoclaenus* or may possibly be an oxyclaenid, close in size to *Oxyclaenus simplex;* however, P^4 and M^1 more closely resemble the *Dracoclaenus* material.

The lower jaw portion, No. 15773 (fig. 14, *c*), considered by comparison to represent *Dracoclaenus griphus*, also resembles material of *Protoselene*. It corresponds closely in size to *P. opisthacus* but has the paraconid on M_1 and M_2 more internal in position, and in M_2 it is not placed so low and is less reduced than in *P. opisthacus*. The talonid basin is apparently not so deep and is narrower between the hypoconid and entoconid. A slight accessory cusp is present on the anterior crest of the entoconid nearly as prominent as in *P. opisthacus*.

An M_3, No. 15752, in the collection, possibly belonging to this form, does not so closely resemble *P. opisthacus*. The paraconid, though low, is placed more internal than is usual in the Torrejon form. Moreover, the entoconid is not so simple as usual in *P. opisthacus*, exhibiting three small cusps in this position, and the hypoconulid is more distinctly separated from the hypoconid.

TABLE 2.—*Measurements (in millimeters) of upper and lower teeth of* Dracoclaenus griphus

Measurement	U.S.N.M. No.—						
	15705	15789 (type)		16182		15773	
	P^4	M^1	M^2	M^2	M^3	M_1	M_2
Anteroposterior diameter	5.7	5.4	--------	5.8	4.6	5.3	5.3
Transverse diameter	7.9	6.4	7.5	8.3	7.5	4	4.4

OXYTOMODON[12] new genus

Type.—*Oxytomodon perissum*, new species.

Generic characters.—Lower teeth slender with cusps high and distinct. Paraconid on M_2 and M_3 lingual in position and close to metaconid. Cingula absent or weakly developed and no crest from paraconid to lingual surface as in *Oxyacodon*. Hypoconulid less developed. M_3 unreduced.

OXYTOMODON PERISSUM,[13] new species

Type.—Left M_2 and M_3, U.S.N.M. No. 16183.

Horizon and locality.—Dragon Paleocene, Dragon Canyon, Emery County, Utah.

Specific characters.—Near *Oxyacodon priscilla* in size.

Description.—A jaw fragment, No. 16183 (fig. 15), with M_2 and M_3 and three additional specimens, which include only M_3, represent in the Dragon fauna a hyopsodont condylarth near *Oxyacodon*. *Oxytomodon perissum* is near *Oxyacodon priscilla* in size, but the paraconid on the lower molars is lingual in position, close to the metaconid, and does not exhibit a

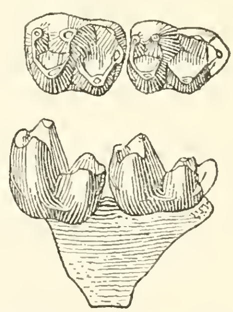


FIGURE 15.—*Oxytomodon perissum*, new genus and species: Fragment of left ramus of mandible with M_2 and M_3 (U.S.N.M. No. 16183), type specimen, lateral and occlusal views, × 4, Dragon Paleocene, Utah.

[12] 'οξυτόμος, sharp + 'οδους, tooth.

[13] περισσός, unnecessary or superfluous, in allusion to the considerable variety of small condylarths.

crest extending from the paraconid down to a weak inner cingulum around the metaconid as in *Oxyacodon.* The form resembles *Oxyacodon* and differs from *Ellipsodon* in having relatively high, distinct cusps, and M_3 is unreduced in size. However, the hypoconulid is not so well developed as in the lower molars of *Oxyacodon*, and in M_3 it is more reduced and less distinctly separated from the entoconid. The teeth are slenderer than in *O. priscilla* and show no marked cingula on either the lingual or buccal surfaces, except for one of the third molars, No. 15542, which has a slight cingulum on the outer surface.

Litomylus dissentaneus from the Crazy Mountain Fort Union exhibits characters close to those seen in *Oxytomodon perissum*, particularly in the sharpness of the cusps, but the paraconid in the lower molars of *L. dissentaneus* is much reduced and median in position.

The anteroposterior and transverse diameters of M_2 in No. 16183 are 3.5 and 2.7 mm., respectively. The transverse diameter of M_3 is 2.4 mm.

Genus ELLIPSODON Scott

ELLIPSODON SHEPHERDI[14] Gazin

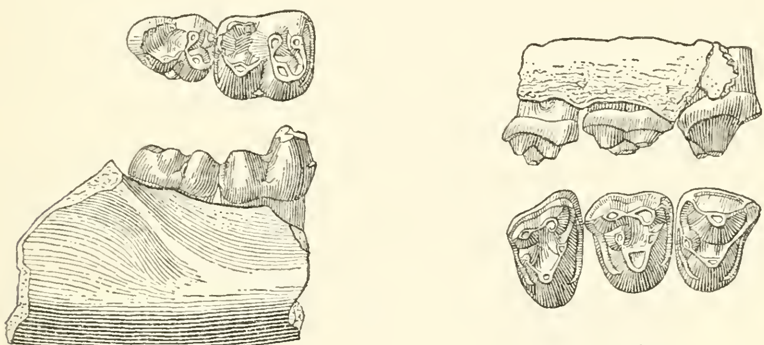
Ellipsodon shepherdi Gazin, 1939b, p. 283.

Ellipsodon shepherdi is comparatively well represented in the Dragon fauna. The collection now includes about 55 specimens comprised of isolated teeth and lower jaw and maxillary portions having one or more teeth.

This species, as indicated by the type lower jaw (fig. 16, *a*), is slightly smaller than *Ellipsodon lemuroides*, and the molars, M_2 and M_3, are relatively narrower. M_3 is reduced to about the same extent as in *E. lemuroides*, more reduced than in the smaller forms, *E. aequidens*, *E. acolytus*, and *E. aquilonius*, but less reduced than in the Puerco species, *E. priscus*, and possibly somewhat less reduced than in the genotype, *E. inaequidens.* The paraconid of the last two lower molars is more distinct in the Dragon form than in any of the previously known species of *Ellipsodon*, much better developed and more lingually placed than in *E. aequidens*, but only slightly more prominent than in *E. aquilonius.* The talonids of M_2 and M_3 are more distinctly basined than in Torrejon material referred to *E. inaequidens*, but less distinctly basined than in *E. aquilonius* from Montana; also, the talonid on M_3 is better developed than in the Puerco form *E. priscus.* Moreover, the talonid of M_2 in *E. shepherdi* does not exhibit so prominent a hypoconulid as in *E. aequidens*, but shows a more distinct entoconid than in *E. inaequidens.*

[14] Named for Harold Shepherd, in recognition of his field assistance.

Additional lower jaw material of *E. shepherdi* collected in 1939 includes two specimens, No. 16289 and No. 16303, in which P_4 is preserved in association with the molars, rendering more certain the reference of several isolated lower premolars to this species. P_4 is seen to be comparable in size to that in *E. lemuroides* but showing a distinct metaconid, a slight paraconid, and two cusps at the posterior margin of the talonid. These are variably developed in the premolars referred to *E. shepherdi*, but more distinct that in *E. lemuroides* and other species from the San Juan Basin. The metaconid is better developed than in specimens of the smaller *E. aquilonius* but not to the extent seen in *Litaletes disjunctus*, nor is the



a *b*

FIGURE 16.—*Ellipsodon shepherdi* Gazin: *a*, Portion of right ramus of mandible with M_2–M_3 (U.S.N.M. No. 15721), type specimen, lateral and occlusal views; *b*, right maxillary portion with P^4–M^2 (U.S.N.M. No. 15790), lateral and occlusal views. × 3. Dragon Paleocene, Utah.

paraconid of P_4 so well defined as in *Litaletes.* The moderately enlarged P_4 and the brachydont condition of the teeth, combined with the reduced size of M_3, indicate a closer relationship to certain of the species regarded as *Ellipsodon* than to *Litaletes disjunctus.*

The upper teeth, P^4 to M^2 in the maxilla, No. 15790 (fig. 16, *b*), referred to *Ellipsodon shepherdi* are relatively smaller than in the type lower jaw and approach somewhat closer to *E. acolytus* than to *E. lemuroides* in size; however, this difference within the Dragon material may not be greater than can be accounted for by individual variation.

P^4 shows a cusp in the position that would be occupied by the metaconule in the molars. This is absent in the somewhat smaller P^4 of the Puerco form, *E. priscus*, but was observed in certain specimens of the later material. P^4 is noticeably larger than in *E. aequidens*, and M^1 and M^2 are relatively longer.

An M_3, if properly referred, indicates this tooth to be more reduced than in *E. lemuroides* and much more reduced than in *E. acolytus*, *E. aequidens*, and *E. aquilonius*.

The upper cheek teeth do not closely resemble those in the genotype, *E. inaequidens*. The upper teeth in the latter exhibit smooth crests running to the protocone and weak or undeveloped cingula.

TABLE 3.—*Measurements (in millimeters) of upper teeth (U.S.N.M. No. 15790) and lower teeth (U.S.N.M. No. 15721) of* Ellipsodon shepherdi

Measurement	P^4	M^1	M^2	M_2	M_3
Anteroposterior diameter	3.7	3.9	3.6	4.4	3.8
Transverse diameter	4.5	4.9	[1] 5.8	4	2.9

[1] Greatest transverse diameter.

ELLIPSODON? STERNBERGI [15] Gazin

Ellipsodon? sternbergi GAZIN, 1939b, p. 284.

A species nearly intermediate in size between *Ellipsodon lemuroides* and *Mioclaenus turgidus* is represented by several fragmentary specimens from the Dragon horizon, including a jaw portion, No. 15755, with M_3 and a part of M_2, which was made the type of *Ellipsodon sternbergi* (fig. 17). M_2 is much larger and broader than in other species of *Ellipsodon;* however, it apparently shows no crenulation of the crest around the posterointernal margin of the talonid as seen in many, though not all, of the lower dentitions of *M. turgidus*. M_3 is a little larger than in *Ellipsodon shepherdi* and somewhat more rounded, being nearly oval in shape. The paraconid is lacking on M_3, with only a low crest extending across the front of the tooth, connecting the protoconid and metaconid. Though reduced, the paraconid is present in all specimens of *Mioclaenus turgidus* in which M_3 was observed.

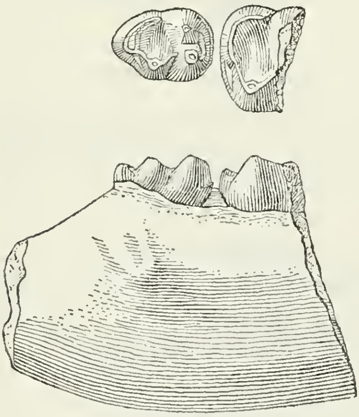


FIGURE 17.—*Ellipsodon sternbergi* Gazin: Portion of right ramus of mandible with M_3 and part of M_2 (U.S.N.M. No. 15755), type specimen, lateral and occlusal views, × 3, Dragon Paleocene, Utah.

Among the specimens referred to *E. sternbergi* is a jaw portion, No. 16339, having both M_1 and M_2 preserved. M_1 is but little larger

[15] Named for George F. Sternberg, in recognition of his field assistance.

than the corresponding tooth in *E. shepherdi* and closely resembles it in form. M_2 is considerably larger than *E. shepherdi* and is further characterized by having the talonid basin more restricted anteroposteriorly than was noted in other species. The paraconid is present on M_2, though not markedly developed. This cusp seems even less developed on M_2 in another referred specimen, No. 15769, in which only this tooth is preserved.

A few upper teeth may be referred questionably to this species, but these closely resemble upper teeth in *E. shepherdi* except for a somewhat greater transverse diameter and a more prominent protocone. The protocone, however, is not so broad as in M^2 of *Jepsenia mantiensis*. The reduced extent of the talonid basin of M_2 in *E. sternbergi* is opposed to the enlargement of the protocone in M^2 of *J. mantiensis*, although both of these teeth are large relative to other teeth in the series.

There is no certainty that this form represents the genus *Ellipsodon*, particularly since the premolars are not known. It is possible that a small species of *Mioclaenus* is represented. Moreover, the distinctions between *E. sternbergi* and *Jepsenia mantiensis* are not entirely satisfactory, being based for the most part on inference.

The transverse diameter of the second lower molar in the type is about 5 mm. The anteroposterior and transverse diameters of the third lower molar are 4.4 and 3.3 mm., respectively.

ELLIPSODON? species (a)

A lower jaw, U.S.N.M. No. 15781, from the Dragon horizon is unusual in that the two teeth preserved, M_1 and M_2, have rather blunt cusps, a flattened talonid, and a relatively undepressed area between the three cusps of the moderately elevated trigonid. It resembles somewhat specimens from the Torrejon that have been referred to *Ellipsodon inaequidens* but with the paraconid more distinctly set off, although this cusp is subdued as are the other cusps of the teeth. This may represent an unusual condition in *E. shepherdi* but probably represents a distinct form whose affinities are uncertain.

ELLIPSODON? species (b)

A small hyopsodont is represented in the Wagonroad horizon by a portion of an upper molar, a second lower molar, and two third lower molars. The upper molar portion, No. 16282, is larger than in *Ellipsodon shepherdi* and has a relatively more expanded protocone portion, somewhat as in *Jepsenia mantiensis* but with no evidence of a hypocone or protostyle although the tooth is noticeably worn. M_2, No. 16284, is almost identical in size with this tooth in the type of *E. shepherdi* but differs from it somewhat in that the trigonid portion appears slightly less inflated anteroposteriorly, permitting a somewhat longer talonid basin, suggestive of *Litaletes disjunctus* but with less acute cusps. M_2 also resembles that in Dragon material referred to *Jepsenia mantiensis* but is distinctly narrower and with somewhat better defined cusps on the crest of the talonid. The third molars, Nos. 16283 and 16285, which may also belong to the same type of condylarth, are reduced in size with respect to the second molar described above but not to the extent shown in *E. shepherdi.* The talonid basin is more excavated than in *E. shepherdi* and the hypoconulid is better defined, approaching the condition seen in *Litaletes*, quite opposed to the reduction seen in *Ellipsodon priscus.* M_3 is appreciably smaller and lower crowned than in *Litaletes disjunctus*, and the entoconid is not distinct as it is in the Crazy Mountain form.

The Wagonroad form, if all the above material can be regarded as representing the same type, appears to be a hyopsodont close to or within the genus *Ellipsodon*, but clearly distinct from the Dragon *E. shepherdi* and the nearly contemporaneous *E. priscus* from the Puerco.

The second lower molar, No. 16284, has an anteroposterior diameter of 4.6 mm. and a transverse diameter of 3.9 mm. M_3, No. 16285, is 4.2 and 3.0 mm., respectively.

Genus JEPSENIA [16] Gazin

JEPSENIA MANTIENSIS [17] Gazin

Jepsenia mantiensis Gazin, 1939b, p. 285.

Jepsenia mantiensis, from the Dragon horizon, makes the closest approach to *Litaletes disjunctus* of the various hyopsodont condylarths with which comparisons have been made. The upper molar series designated as the type, No. 15747 (fig. 18), is only slightly more robust than in the Montana form. M^1 has about the relative proportions of that in *L. disjunctus* and shows a distinct hypocone about as in that form. However, the lingual portion of M^2 is more expanded anteroposteriorly, and the hypocone on this tooth is weaker and represented only by the abrupt termination lingually of the posterior cingulum. Also, the midportion of the posterior cingulum on both M^1 and M^2 is not deflected upward toward the root portion of the teeth so much as in *L. disjunctus.* The cusps in the upper molars have a more nearly conical appearance, especially the protoconule and metaconule. Moreover, the protoconule and metaconule are distinctly better developed. A parastyle and mesostyle are present, more noticeable in M^2, although the cingulum is not so extended

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[16] Named for Dr. Glenn L. Jepsen.

[17] Named for the Manti National Forest.

at the anteroexternal portion of the molars. M^3 is relatively smaller than in *L. disjunctus* and the metacone, though distinct, is not so well developed, and the cingulum is less prominent and is discontinuous around the lingual and buccal surfaces of the tooth.

An M^2 with material numbered 15544 shows more acute anteroexternal and posteroexternal styles, no mesostyle, a lower protocone than in *L. disjunctus*, protoconule and metaconule relatively weak as in *L. disjunctus*, but the hypocone is much more lingual in position and is nearly matched by a protostyle on the anterolingual portion of the tooth, with the cingulum almost but not quite continuous around the inner margin of the protocone. M^1 in this material, though lacking a mesostyle, corresponds closely to that in the type of *Jepsenia mantiensis*. It is possible that the two molars, which were found close together, belong to the same individual and may represent a type distinct from the foregoing.

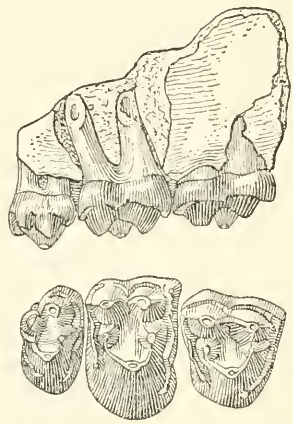

FIGURE 18.—*Jepsenia mantiensis* Gazin: Right maxillary portion with M^1–M^3 (U.S.N.M. No. 15747), type specimen, lateral and occlusal views, ×3, Dragon Paleocene, Utah.

Several isolated jaw fragments with single molars, one with M_2 and part of M_1, and several with portions or all of M_2 and M_3, are presumed to represent *Jepsenia mantiensis*. The lower teeth in general show a distinct paraconid in a lingual position and a basined talonid with a strong hypoconid, a moderate entoconid, and a weak hypoconulid which is the dorsal termination of a slight posterior cingulum rising from the posteroexternal portion of the tooth. The trigonid portion is not greatly different from that in *L. disjunctus*, but with less acute cusps. The entoconid on the heel of M_1 and of M_2 is less developed, and the small cuspule anterior to the entoconid is less evident than in *Litaletes*. M_3 is about the size of that in *Ellipsodon? sternbergi* but is narrower and shows a distinct paraconid, not, however, so distinct as in *E. shepherdi*. M_2 in *E.? sternbergi* is distinctly wider than in the material referred to *Jepsenia mantiensis* but the talonid basin is relatively smaller.

TABLE 4.—*Measurements (in millimeters) of upper teeth of* Jepsenia mantiensis

Measurement	M^1	M^2	M^3
Anteroposterior diameter	4.5	4.4	3
Transverse diameter	5.4	6.4	[1] 4.6

[1] Greatest transverse diameter.

DESMATOCLAENUS,[18] new genus

Perhaps one of the most interesting discoveries made by the 1939 expedition is the finding in both the Dragon and Wagonroad levels of a new *Tetraclaenodon*-like form which nearly bridges the gap between *Tetraclaenodon* and forms of *Protogonodon*. *Desmatoclaenus* is so nearly intermediate that its assignment to the condylarths rather than to the creodonts is entirely arbitrary.

Type.—Desmatoclaenus hermaeus, new species.

Generic characters.—P^3 with prominent deuterocone and no indication of tritocone. P^4 intermediate between *Protogonodon* and *Tetraclaenodon*. Anteroexternal portion of M^2 projects outward more than in *Protogonodon*. External cingulum discontinuous across paracone in M^1 and M^2, and there is no mesostyle between the outer cusps of these teeth. Hypocone, protoconule, and metaconule less developed than in *Tetraclaenodon*. Hypocone not so lingual in position as in *Protogonodon*. M^3 relatively small with prominent cingulum about protocone and without evidence of a hypocone. P_4 nearly as in *Tertaclaenodon* but relatively small. Lower molars with lingually placed paraconid much better defined than in *Tetraclaenodon*, and talonid basin not so broad as in *Protogonodon*. M_3 with cuspidate entoconid-hypoconulid crest.

DESMATOCLAENUS HERMAEUS[19] new species

Type.—Greater portion of upper and lower dentition, U.S.N.M. No. 16202.

Horizon and locality.—Wagonroad Paleocene. Dragon Canyon, Emery County, Utah.

Specific characters.—Size near *Protogonodon protogonioides*, slightly smaller than *Tetraclaenodon puercensis*.

Description.—The specimen comprising the best material is an assortment of 14 more or less complete upper and lower teeth, clearly from one individual, No. 16202 (fig. 19), found in the Wagonroad horizon. The inclusion in the material of upper and lower premolars was extremely fortunate in that the approach to *Tetraclaenodon* is more distinctly shown.

P^3, though incomplete anteriorly, is much like that in *Tetraclaenodon*, with the principal cusp somewhat flattened transversely and exhibiting a sloping posterior crest but with no indication of a tritocone—the principal cusp is higher and more conical in *Protogonodon*. The deuterocone, a distinct cuspule almost as well developed as in *Tertaclaenodon*, is placed somewhat farther forward than in this form, about in the position occupied by a suggestion of a

[18] *δέσμα*, a chain or link + *claenus*.

[19] *'έρμαιον*, a lucky find.

deuterocone in P^3 of *Protogonodon*. The posterointernal cingulum is better developed than in *Protogonodon*, but not so shelflike as in *Tetraclaenodon*.

P^4 is somewhat more worn but shows the principal cusp to be slightly less conical than in *Protogonodon* with a more distinct posterior crest. The presence or absence of a tritocone cannot be determined because of wear, but if present it was not developed to the extent seen in *Tetraclaenodon*. The deuterocone portion is restricted anteroposteriorly more than in *Tetraclaenodon*, approaching *Protogonodon*, but a cingulum not seen in *Protogonodon* is developed along the anterior and posterior walls of this cusp, separate from the shelf or crest joining the deuterocone to the outer extremities of the tooth. The cingulum and shelf are not developed to the extent seen in *Tetraclaenodon*, nor is there certain evidence of a protoconule or metaconule on the crest; however, wear may have obliterated an incipient development of these. The parastyle, as in *Tetraclaenodon*, is directed more externally than in *Protogonodon*.

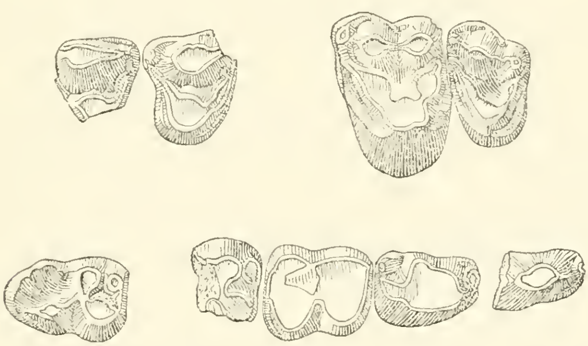

FIGURE 19.—*Desmatoclaenus hermaeus*, new genus and species: Left upper dentition, including P^3, P^4, M^2, M^3, and right lower dentition, including P_3–M_1, M_3, and part of M_2 U.S.N.M. No. 16202), type specimen, occlusal views, × 2, Wagonroad Paleocene, Utah.

M^1 is not preserved in the material of this individual but is included in a maxilla of another and larger specimen, which presumably represents a distinct species and is described elsewhere.

M^2 is rather well worn but was evidently low cusped and had a weak hypocone as compared with this tooth in *Protogonodon* and in contrast to the marked development of the cusp in *Tetraclaenodon*. However, this cusp is located directly posterior to the protocone as in *Tetraclaenodon*, occupying a position in the flexure between the protocone and metaconule, and not so lingual in position as noted in *Protogonodon*. The protoconule and metaconule appear to be less developed relative to the primary cusps than in *Tetraclaenodon*, in which the six principal cusps approach equality. In *Protogonodon* the protocone is more prominent and somewhat overshadows the protoconule and metaconule. The anterior portion of the tooth is relatively wide and projects outward somewhat as in *Tetraclaenodon* and shows a prominent parastyle. The external cingulum is much weaker than in *Protogonodon* and is peculiar in being discontinuous across the postero-external portion of the paracone; however, there is no mesostyle such as observed in *Tetraclaenodon* and the cingulum is perhaps a little better developed postero-external to the metacone than in *Tetraclaenodon.*

M^3 is relatively small as in *Tetraclaenodon*, more reduced than in *Protogonodon*, but the cingulum is continuous around the inner wall of the protocone as in the latter and there appears to be little or no evidence of a distinct hypocone.

The lower teeth of the type are from both rami and between them include a representation of the series from P_3 to M_3. Although rather well worn, many characters can be ascertained showing, as with the upper dentition, the structural position that this form holds between *Protogonodon* and *Tetraclaenodon.*

P_3, though incomplete posteriorly, is seen to be small and narrow, comparable in this respect to *Protogonodon*, but with a more gently sloping posterior crest.

P_4, though slender and relatively small, shows a marked resemblance to *Tetraclaenodon.* The parastylid is high, prominent, and deflected inward from the anterior crest of the protoconid about as in *Tetraclaenodon.* The tooth is well worn, but from the outline of the occluding surface there is little doubt that a pronounced metaconid was present. The heel structure is nearly as in *Tetraclaenodon* but with less anteroposterior extent and a less distinct entoconid.

M_1 is too worn to show any important characters but as in the succeeding tooth shows the talonid to be less widely basined than in *Protogonodon.*

In M_2 the trigonid portion exhibits a more prominent paraconid than in *Tetraclaenodon*, which is perhaps not so close to the metaconid, but as in the latter it is distinctly lingual in position and is joined by an arcuate crest to the anterior slope of the protoconid, forming a somewhat more distinct but anteroposteriorly restricted trigonid basin than in *Protogonodon pentacus.*

M_3 is relatively small as in *Tetraclaenodon* but with a much better developed paraconid. The trigonid is anteroposteriorly shortened and the paraconid more lingual in position than in *Protogonodon.* The talonid basin is relatively simple, with the entoconid and hypoconulid not actually distinct but forming a slightly cuspate crest.

Remarks.—The intermediate position of *Desmatoclaenus* between *Protogonodon* and *Tetraclaenodon* suggests that *Tetraclaenodon* may have arisen from *Protogonodon* through *Desmatoclaenus*. This may well be the case but the larger known forms such as *P. pentacus* or even *P. stenognathus* are probably not in the line. It is conceivable that a small form such as *P. protogonioides*, whose teeth are closer to *Desmatoclaenus* than are those of *P. pentacus* (especially P^3), may have given rise to *Desmatoclaenus*, assuming a somewhat earlier stage for the Puerco of the San Juan Basin.

TABLE 5.—*Measurements (in millimeters) of upper and lower teeth of* Desmatoclaenus hermaeus *(U. S. N. M. No. 16202)*

Measurement	P^4	M^2	M^3	P_3	P_4	M_1	M_2	M_3
Anteroposterior diameter	------	7.6	5.8	------	7.1	7.8	------	8.5
Transverse diameter	7.8	11.0	[1] 8.2	4.1	4.8	6.5	7.7	5.8

[1] Greatest transverse diameter.

DESMATOCLAENUS PARACREODUS,[20] new species

Type.—Right maxillary portion, U.S.N.M. No. 16201, with M^1–M^3.

Horizon and locality.—Wagonroad Paleocene, Dragon Canyon, Emery County, Utah.

Specific characters.—Larger than *Desmatoclaenus hermaeus*. Lingual portion of upper molars more inflated. M^3 relatively larger. Hypocone better developed.

Description.—A second and somewhat larger species is indicated by material apparently from both the Wagonroad and Dragon horizons. The specimen selected as the type, No. 16201 (fig. 20, *a*), was obtained from the Wagonroad level and includes M^1 to M^3. The teeth are much like those in *Desmatoclaenus hermaeus* in most characters of the molars, but the lingual portions of these teeth have a more inflated appearance and M^3 is relatively larger. Although slightly damaged at the posterointernal angle, M^3 shows better evidence for a hypocone than in *D. hermaeus*. The upper molars make an approach toward the conditions seen in *Protogonodon stenognathus*, but the differences, as in *D. hermaeus*, are in the direction of *Tetraclaenodon*.

A maxillary portion, No. 16177 (fig. 20, *b*), with M^2 and M^3 from the Dragon horizon corresponds closely to the type of *D. paracreodus*, but the teeth being less worn show characters not seen in the type. The external cingulum is weaker than in *Protogonodon*, and, as in the types of *D. hermaeus* and *D. paracreodus*, the cingulum is interrupted along the posteroexternal portion of the paracone in M^2, and the anteroexternal portion of both teeth projects outward promi-

[20] παρα, near + κρέας, flesh + ʼοδούς, tooth, in allusion to its resemblance to the carnivore *Protogonodon*.

nently. This portion of M^2 is slightly damaged, but the anterior cingulum becomes well developed laterally, suggesting a conspicuous parastyle as in *Tetraclaenodon*. The cusps are all low and conical in M^2 and the lingual portion, as in the type, is somewhat inflated anteroposteriorly, with no cingulum around the inner portion. The hypocone is weak and situated posterior to the protocone. In the early stage of wear represented by this specimen the protocone is seen to be divided, with a slight cuspule immediately adjacent and posterior to the principal cusp. This may have been the case in M^2 of the type of *D. hermaeus*, as indicated by the outline of the worn surface of occlusion.

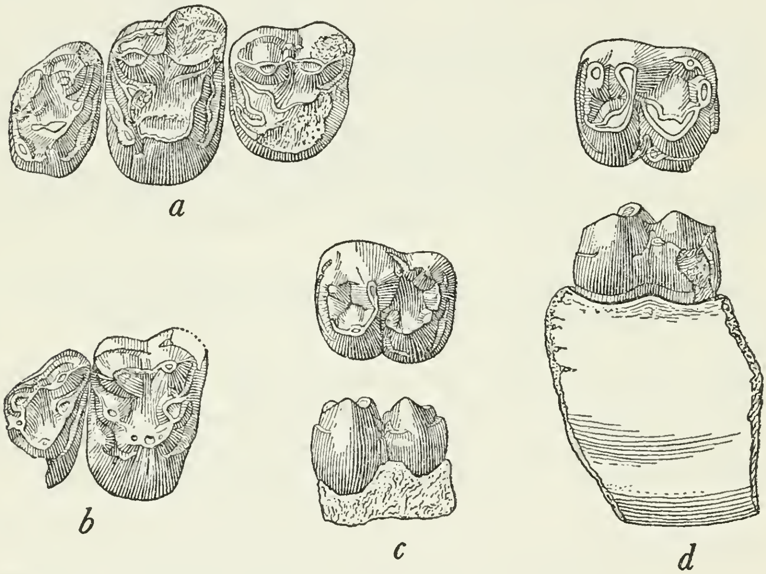

FIGURE 20.—*Desmatoclaenus paracreodus*, new species: *a*, M^1–M^3 (U.S.N.M. No. 16201) type specimen, occlusal view; *b*, M^2–M^3 (U.S.N.M. No. 16177), occlusal view; *c*, lower molar (U.S.N.M. No. 16196), lateral and occlusal views; *d*, lower molar (U.S.N.M. No. 16194), lateral and occlusal views. ×2. *a*, *c*, *d*, Wagonroad Paleocene, Utah; *b*, Dragon Paleocene, Utah.

M^3 of the Dragon specimen is somewhat distorted, but the cingulum is better developed than in M^2. The outer cusps are perhaps more compressed anteroposteriorly and the protocone seems relatively prominent. On both molars the enamel is relatively smooth, except for a noticeable rugosity around the lingual wall of the protocone near its peak.

Several isolated lower molars, including No. 16194 (fig. 20, *d*) and No. 16196 (fig. 20, *c*), from the Wagonroad level are referred to this species, being comparable to those of *D. hermaeus* in structure but are appreciably larger, even than in *Tetraclaenodon*, being about the size of those in *Protogonodon stenognathus.* The trigonids of these teeth show the paraconids to be entirely lingual in position, as in *Tetraclaenodon*, but better developed and perhaps not so close to the metaconid. The paraconid is more lingual and not so far forward as in *Protogonodon* material, and the crest from the paraconid to the anterior wall of the protoconid is higher, closing the trigonid basin anteriorly. Moreover, the talonid portion of the lower molars is relatively narrower than in *Protogonodon pentacus* with the basin restricted transversely, being more nearly comparable to the form of the talonid in the first two lower molars of *Tetraclaenodon.* A relatively narrow talonid was noted in the lower molars of the large *Protogonodon kimbetovius.*

A jaw portion with M_2, No. 16218, and an isolated portion of a lower molar in the collections from the Dragon level are considered to belong to *D. paracreodus.* These closely resemble the lower teeth from the Wagonroad level referred to *D. paracreodus.*

TABLE 6.—*Measurements (in millimeters) of upper teeth of* Desmatoclaenus paracreodus (*U. S. N. M. No. 16201*)

Measurement	M^1	M^2	M^3
Anteroposterior diameter	8.4	8.1	6.2
Transverse diameter	10.5	12	[1] 9.9

[1] Greatest transverse diameter.

Genus ECTOCONUS Cope

ECTOCONUS SYMBOLUS,[21] new species

Type.—Right maxillary portion, U.S.N.M. No. 16189, with M^1, M^2, and part of P^4.

Horizon and locality.—Wagonroad Paleocene, Dragon Canyon, Emery County, Utah.

Specific characters.—Molars smaller than in *Ectoconus ditrigonus.* Premolars relatively larger. No "protoconule" on P^4. Protostyle on upper molars weak. Parastyle on M^2 weak. Parastylid absent or weakly developed on lower molars.

Description.—Several specimens from the Wagonroad horizon, including maxillae and jaws with two teeth each, are found to represent a new species of *Ectoconus.* The molar teeth are seen to be distinctly smaller than in *E. ditrigonus*, hence much smaller than in *E. majusculus.* The premolars, however, are relatively larger and the anterior lower premolars, as indicated in referred specimens, are actually larger than in *E. ditrigonus.*

[21] *σύμβολον*, clue, in allusion to its importance in determining the age of the Wagonroad horizon.

The upper molars, No. 16189 (fig. 21, *b*), of which only M^1 and M^2 are known, closely resemble those in *E. ditrigonus* in structural details, but with perhaps a somewhat weaker protostyle. The posteroexternal portion of M^1 shows the cuspate condition characterizing upper molars in *Ectoconus.* The mesostyle, metastyle, and the large cusp external to the metacone are developed to about the same extent as in *E. ditrigonus;* however, the parastyle on M^2 appears weaker than in *E. ditrigonus.* P^4, No. 16188 (fig. 21, *c*), is of about the same width, or perhaps slightly wider transversely than M^1, and differs from that

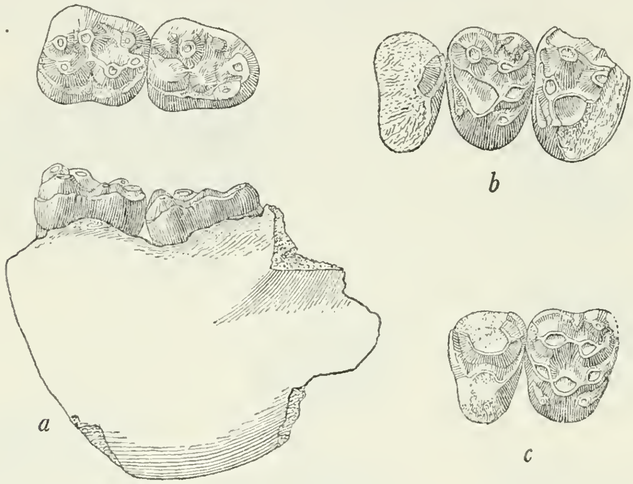

FIGURE 21.—*Ectoconus symbolus*, new species: *a*, Portion of left ramus of mandible with M_2–M_3 (U.S.N.M. No. 16190), lateral and occlusal views; *b*, M^1 and portions of P^4 and M^2 (U.S.N.M. No. 16189), type specimen, occlusal view; *c*, P^4–M^1 (U.S.N.M. No. 16188), occlusal view. × 1½. Wagonroad Paleocene, Utah.

in *E. ditrigonus* in the absence of an accessory cusp anteroexternal to the deuterocone, in about the position occupied by the protoconule in the molars.

The lower jaw material consists of three specimens which together give a representation of the dentition from P_2 to M_3, except for M_1. The premolars are relatively large, particularly P_2, No. 16213, but become relatively narrower posteriorly than in *E. ditrigonus.* The molars, No. 16190 (fig. 21, *a*), are smaller and relatively narrower than in *E. ditrigonus*, and there is but the slightest suggestion of a second paraconid or parastylid; however, the presence of this cuspule is not invariable in *E. ditrigonus.* M_2 and M_3 in *Ectoconus symbolus* are otherwise similar to those in *E. ditrigonus* in having low blunt cusps and a heavy external cingulum.

TABLE 7.—*Measurements (in millimeters) of upper and lower teeth of* Ectoconus symbolus

Measurement	U.S.N.M. No.—					
	16188		16189 (type)		16190	
	P^4	M^1	M^1	M^2	M_2	M_3
Anteroposterior diameter	6.8	8.4	8.1	[1] 8.7	9.6	10.6
Transverse diameter	[1] 10	10.0	10.5	[1] 12.5	8.8	8.2

[1] Approximate.

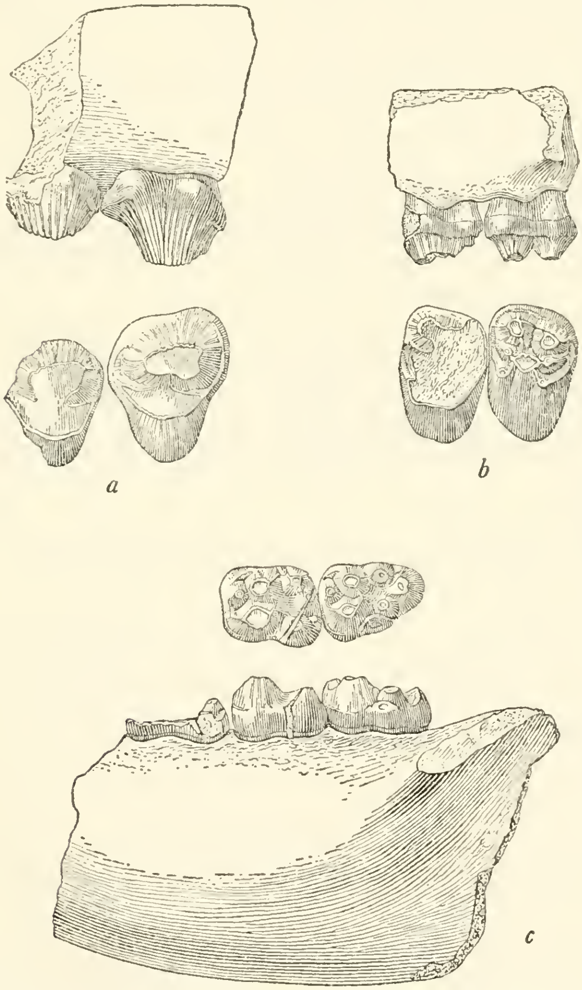

FIGURE 22—*Carsioptychus hamaxitus*, new species: *a*, Maxillary portion with two premolars (U.S.N.M. No. 16198), lateral and occlusal views; *b*, left maxillary portion with M^1 and M^2 (U.S.N.M. No. 16197), type specimen, lateral and occlusal views; *c*, portion of left ramus of mandible with M_2 and M_3 (U.S.N.M. No. 16195), lateral and occlusal views $\times 1\frac{1}{2}$. Wagonroad Paleocene, Utah.

Genus CARSIOPTYCHUS Simpson

CARSIOPTYCHUS HAMAXITUS,[22] new species

Type.—Left maxillary portion, U.S.N.M. No. 16197, with M^1 and M^2.

Horizon and locality.—Wagonroad Paleocene, Dragon Canyon, Emery County, Utah.

Specific characters.—Teeth smaller than in *Carsioptychus coarctatus.* Premolars slightly smaller with respect to molars than in *C. coarctatus* and upper teeth relatively a little narrower transversely than in the Puerco form. Lower premolars with slightly better developed anterior stylid.

Description.—Several specimens, including upper and lower teeth, from the Wagonroad level represent a small species of *Carsioptychus.* Though the teeth are small as compared to those in *Carsioptychus coarctatus*, the form is slightly more progressive toward *Periptychus* than is the Puerco species, but not so advanced as *Periptychus gilmorei* from the Dragon. The premolars are relatively smaller than in *C. coarctatus* and the upper molars, No. 16197 (fig. 22, *b*), and premolars, No. 16198 (fig. 22, *a*), are relatively narrower transversely. Moreover, the lower premolars show a slightly more advanced stage in the development of an anterior stylid. The lower molars (fig. 22, *c*) appear to be developed much as in *C. coarctatus*, and as in that species show no evidence of the seventh cuspule, near the center of the tooth, characterizing *Periptychus carinidens*, but seen only on M_3 of *P. gilmorei.*

TABLE 8.—*Measurements (in millimeters) of upper and lower teeth of* Carsioptychus hamaxitus

Measurement	U.S.N.M. No.—					
	16198		16197 (type)		16195	
	P^3?	P^4?	M^1	M^2	M_2	M_3
Anterior diameter	--------	10.8	[1] 7.8	8.2	8.0	9.5
Transverse diameter [2]	11.8	13.5	11.4	11.8	[1] 7.8	7.2

[1] Approximate.

[2] The transverse diameter of the upper teeth is taken from the external cingulum to the base of the ename lingually and at right angles to the direction of the tooth row.

[22] αμαξιτος, carriage road or wagon road, from the name of the horizon in which it was found and the name of the ridge, at the lower end of which the locality occurs.

Genus PERIPTYCHUS Cope

PERIPTYCHUS GILMOREI[23] Gazin

Periptychus gilmorei Gazin, 1938, p. 275.

The large periptychid, *P. gilmorei*, in the Dragon fauna is rather well represented in the collection, the best specimen being the type, No. 15537, and including portions of right and left maxillae with 14 teeth in all (fig. 23). Specimen No. 16228, obtained in 1939, includes portions of both maxillae with P^4–M^3 and a portion of the left ramus of the mandible with P_4–M_3, the lower teeth being partially embedded in barite. The lower dentition is best represented in specimen No. 15689 (fig. 24), which includes portions of right and left rami, exhibiting M_2–M_3 and P_4–M_2, respectively.

Figure 23.—*Periptychus gilmorei* Gazin: Right upper dentition including P^2–M^3 (U.S.N.M. No. 15537), type specimen, lateral and occlusal views, × 1½, Dragon Paleocene, Utah.

Periptychus gilmorei is intermediate between *Carsioptychus coarctatus* from the Puerco and *Periptychus carinidens* from the Torrejon in almost all characters of the upper dentition. The teeth are relatively wide transversely as compared with their length, and the premolars are only slightly larger than the molars. The premolars show the inner crescent developed almost as much as in *Periptychus carinidens*, but the deuterocone portion is more constricted anteroposteriorly, although not so much as in *Carsioptychus coarctatus.* Moreover, P^2 is much more like that in *Periptychus* than the simple condition observed in several specimens of *Carsioptychus*.

The molar teeth show a distinct resemblance to those in *Carsioptychus*, and in addition to their being relatively wide transversely they show a more distinct external cingulum than in *Periptychus.*

[23] Named for C. W. Gilmore, whose party discovered the first Dragon Canyon locality.

The hypocone and protostyle have a somewhat more lingual position, and the lingual walls of the molars (and premolars as well) appear to be more gently sloping than in *Periptychus*. The cusps and cuspules are somewhat less widely spaced than in *P. carinidens*, particularly the protoconule and metaconule, which are located very close to the protocone.

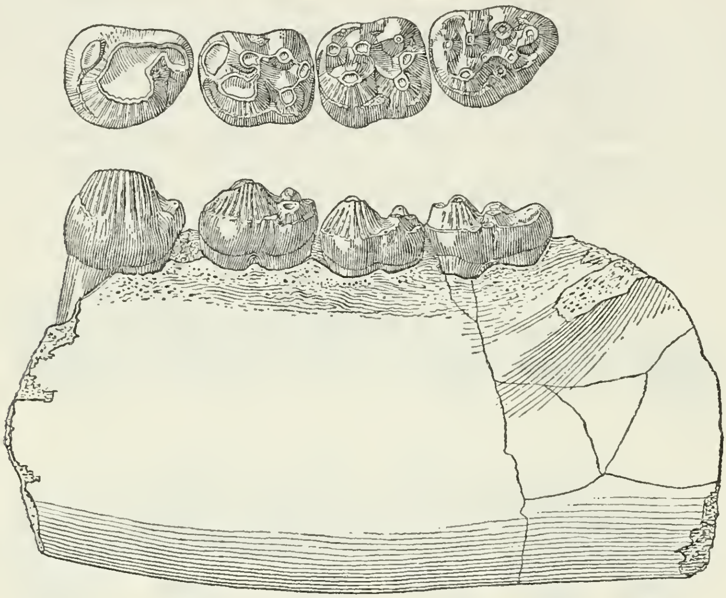

FIGURE 24.—*Periptychus gilmorei* Gazin: Left ramus of mandible, P_4–M_3 (U.S.N.M. No. 15689) (M_3 and posterior portion of jaw fragment restored from right ramus), lateral and occlusal views, × 1½, Dragon Paleocene, Utah.

An additional feature seen in the type of *Periptychus gilmorei*, but probably of no importance, as it was not observed in No. 16226, is the very slight development of a "protostyle" and "hypocone" on P^4. This was not observed in any of the Puerco or Torrejon material. Also, the third molar, on the right side only, is peculiar in that the lingual wall exhibits a cuspule median to the protocone, between the protostyle and hypocone.

The lower teeth of *Periptychus gilmorei*, as represented by specimen No. 15689, are also nearly intermediate in most respects between *Carsioptychus coarctatus* and *Periptychus carinidens*. The protoconid of P_4 is not directed posteriorly so markedly as in *C. coarctatus*, and a small anterointernal cusp is present, this being prominent in *P. carinidens* but usually absent in *C. coarctatus*. On the posterointernal portion of the tooth there is a small cusp; the talonid, however, is not developed so much as in *P. carinidens*. The extent to which a metaconid has become distinct from the protoconid cannot be exactly determined, owing to wear, but it is clearly not separated to the extent seen in *P. carinidens*.

The lower molars are wider than in the *Carsioptychus* material at hand but not so wide as is common in Torrejon material of *Periptychus*. These teeth show a slight cingulum around the external side, which was not observed in material of the other forms. The small seventh cusp located about in the center of the crown of the lower molars of *Periptychus carinidens* is not present in the first two molars of *P. gilmorei* but is weakly developed in M_3. This cusp is not known in *Carsioptychus*.

TABLE 9.—*Measurements (in millimeters) of upper teeth (U.S.N.M. No. 15537, type) and lower teeth (U.S.N.M. No. 15689) of* Periptychus gilmorei

Measurement	P^2	P^3	P^4	M^1	M^2	M^3	P_4	M_1	M_2	M_3
Anteroposterior diameter	11.6	11.7	10.5	9.2	9.5	8.8	11	10.3	10	11.5
Transverse diameter [1]	12.7	14.6	14.0	14.2	14.1	11.1	9.6	8.7	9.7	9

[1] The transverse diameter of the upper teeth is taken from the external cingulum to the base of the enamel lingually and at right angles to the direction of tooth row.

Genus ANISONCHUS Cope

ANISONCHUS DRACUS [24] Gazin

Anisonchus dracus GAZIN, 1939b, p. 278.

The larger of the two species of *Anisonchus* is represented in the Dragon collection by three maxillary portions with one to four teeth apiece and five lower jaw fragments with one or two molars each. The type, No. 15745, is a maxillary fragment with P^4 to M^3 preserved (fig. 25).

The upper teeth in No. 15745 are clearly of an *Anisonchus* type and are intermediate in observed characters between *A. gillianus* and *A. sectorius* of the Puerco and Torrejon, respectively; comparable in this respect to *Periptychus gilmorei* in its relationship to the two developmental stages occurring in the San Juan Basin, noticeably in the relation of the length to the width of the tooth crowns.

The Dragon form approaches *A. sectorius* in size but retains relatively wider teeth transversely, and longitudinally a little shorter, and the cusp pattern is not so restricted transversely. The upper teeth appear also to have a longer, more gradually sloping lingual wall, with a somewhat more lingually placed hypocone column. The

[24] δράκων, dragon, from Dragon Canyon.

lingual portion of P^4 seems more constricted anteroposteriorly and apparently has a less conspicuously developed lingual crescent.

A. gillianus has teeth relatively wide transversely, the length of the tooth row shorter, and the hypocone is placed more lingually with respect to the metacone, and to a certain extent with respect to the protocone, than in *A. sectorius.*

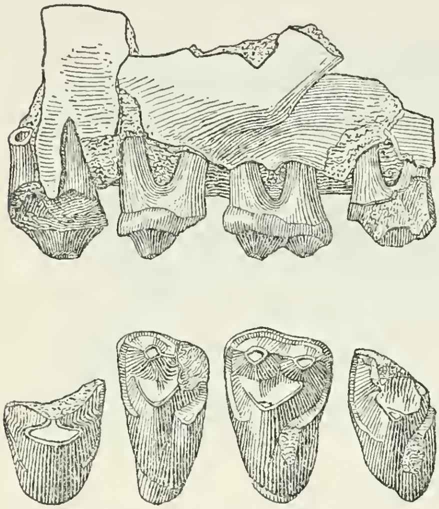

FIGURE 25.—*Anisonchus dracus* Gazin: Left maxillary portion with P^4–M^3 (U.S.N.M. No. 15745), type specimen, lateral and occlusal views, × 3. Dragon Paleocene, Utah.

The lower jaw fragments exhibit teeth comparable in size to those in *A. sectorius* and show no significant differences from them, nor are differences evident in the preserved material which would serve to clearly distinguish the Dragon form from *A. gillianus.* However, the crest connecting the hypoconid to the trigonid appears distinctly lower than that connecting the entoconid to the metaconid. This condition was noted in an M_1 of *A. gillianus* but not in other specimens of either this species or *A. sectorius.* Moreover, the hypoconulid does not project backward in the molars referred to *Anisonchus dracus* quite so far as in M_2 of *A. sectorius*, a condition approximated in M_2 of *A. gillianus*, though possibly of doubtful significance.

TABLE 10.—*Measurements (in millimeters) of upper teeth (U.S.N.M. No. 15745, type) and lower teeth (U.S.N.M. No. 16249) of* Anisonchus dracus

Measurement	P^4	M^1	M^2	M^3	M_1	M_2
Anteroposterior diameter	5?	4.4?	4.8	4?	5.2	5.2
Transverse diameter	--------	6.6?	7.8	--------	3.6	3.9

ANISONCHUS ONOSTUS [25] Gazin

Anisonchus onostus GAZIN, 1939b, p. 280.

The smaller of the two species of *Anisonchus* in the Dragon fauna is represented by the type, No. 15788 (fig. 26), which is a lower jaw portion with M_1 and M_2, and to the species is tentatively referred an upper premolar and a lower jaw fragment with the teeth P_4, M_1, and part of M_2 much worn.

[25] *Onostus*, despicable, in allusion to its size.

Anisonchus onostus is distinctly smaller than *A. dracus*, being very near the Puerco form, *A. gillianus*, in size but with the cusps on the talonid of both M_1 and M_2 slightly more widely spaced, though having the cut characterizing the anisonchines. This spacing of the cusps gives the teeth a wider appearance, whereas actually they are a trifle narrower than those in several specimens of *A. gillianus* with which comparisons were made. The teeth also appear somewhat lower crowned than those of *A. gillianus* exhibiting about the same wear.

The anteroposterior diameters of the first and second lower molars are 4.3 and 4.1 mm., respectively. The transverse diameters are 2.9 and 3.2 mm.

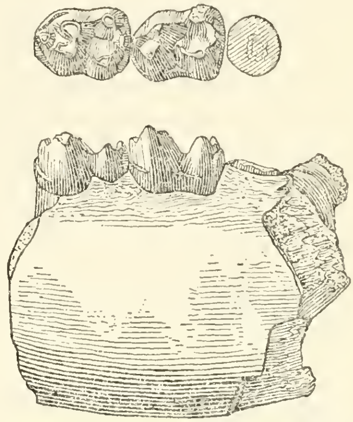

FIGURE 26.—*Anisonchus onostus* Gazin: Portion of left ramus of mandible with M_1–M_2 (U.S.N.M. No. 15788), type specimen, lateral and occlusal views, × 3, Dragon Paleocene, Utah.

ANISONCHUS OLIGISTUS,[26] new species

Type.—Left maxillary portion with M^1 and M^2 associated portion of left ramus of mandible with M_1 and M_2, U.S.N.M. No. 16192.

Horizon and locality.—Wagonroad Paleocene, Dragon Canyon, Emery County, Utah.

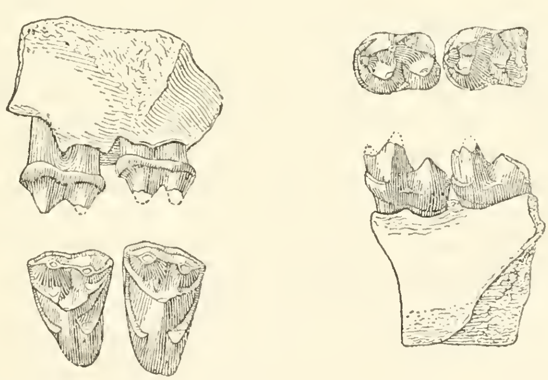

FIGURE 27.—*Anisonchus oligistus*, new species: Left maxillary portion with M^1–M^2; portion of left ramus of mandible with M_1–M_2 (U.S.N.M. No. 16192), type specimen, lateral and occlusal views, × 3, Wagonroad Paleocene, Utah.

Specific characters.—Upper and lower molars smaller than in *Anisonchus gillianus* and relatively narrower transversely. Upper

[26] ὀλίγιστος, least, in allusion to size of teeth.

molars more nearly triangular in occlusal view. Talonid basin of lower molars slightly less constricted anteriorly.

Description.—*Anisonchus* is represented in the Wagonroad collection by a maxillary portion and a lower jaw fragment found together and both having the first two molars preserved, U.S.N.M. No. 16192 (fig. 27), which has been made the type of *Anisonchus oligistus.* Six other specimens are referred to this species. These include two maxillary fragments, with M^2–M^3 and P^4–M^2 somewhat damaged, two lower jaw fragments each with the greater portions of two molars, and two isolated premolars.

Anisonchus oligistus is apparently the smallest species known of this genus, having both upper and lower molar teeth a little smaller and relatively narrower transversely than in material of *A. gillianus* from the Puerco. The lower teeth are also smaller and more slender than in the type of *Anisonchus onostus* from the Dragon level.

The upper molars appear for the most part very much like those in other species of *Anisonchus*, but are somewhat more nearly triangular in outline, as viewed from below, with the lingual portion a little more constricted anteroposteriorly and the hypocone column distinctly lingual, though not so markedly lingual as in *Haploconus.* The anterior cingulum extends to a markedly lingual point but does not exhibit a distinct protostyle.

The lower molars in addition to their slenderness show relatively high trigonids, and the cusps appear to be more acute than in *A. gillianus.* Moreover, the paraconid may be slightly more external in position. The talonid appears deeply basined in the type, and the crest extending forward from the hypoconid joins the posterior wall of the trigonid at a position which appears to be slightly more external. This is not so obvious in the type, but noticeable in the two referred lower jaws. As a result the talonid basin in the referred specimens appears somewhat less constricted anteriorly.

TABLE 11.—*Measurements (in millimeters) of upper and lower teeth of* Anisonchus oligistus *(U.S.N.M. No. 16192)*

Measurement	M^1	M^2	M_1	M_2
Anteroposterior diameter	3.9	3.7	3.8	----------
Transverse diameter	5.1	6.0	2.8	2.9

[1] The transverse diameter of the upper teeth is taken from the external cingulum to the base of the enamel lingually and at right angles to the direction of the tooth row.

Genus HAPLOCONUS Cope

HAPLOCONUS INOPINATUS [27] Gazin

Haploconus inopinatus Gazin, 1939b, p. 280.

A second genus of anisonchine periptychids is represented in the Dragon fauna by several fragmentary specimens, including a maxillary portion with M^1 and most of M^2, No. 15760, which has been made the type of *Haploconus inopinatus* (fig. 28). The form apparently represents *Haploconus* as indicated by the prominent lingual position of the hypocone. It is close in size to the Torrejon material referred to *Haploconus angustus* but with the teeth relatively wider transversely and with M^2 much wider than M^1. A difference in width between M^1 and M^2 was noted in certain specimens of *Haploconus* referred to *H. angustus*, but apparently the difference is not so marked as in *H. inopinatus*.

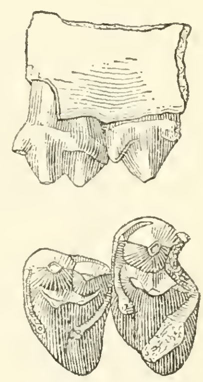

Figure 28.—*Haploconus inopinatus* Gazin: Left maxillary portion with M^1 and the greater part of M^2 (U.S.N.M. No. 15760), type specimen, lateral and occlusal views, × 3, Dragon Paleocene, Utah.

The two upper molars in the type show a slight development of a metaconule, but most noticeable is the distinct protostyle that characterizes teeth in *Haploconus corniculatus*. *H. inopinatus* is much smaller than the type of *H. corniculatus*, and in the latter the upper molars appear to be relatively as well as actually much longer anteroposteriorly than in the Dragon form.

The anteroposterior diameter of the first upper molar in the type is 4.3 mm. The greatest transverse diameters of the first and second upper molars are 6.1 and 7.1 mm., respectively.

A second maxillary portion, No. 16256, is referred to *H. inopinatus;* however, the two molars it exhibits are not well preserved and add little to our knowledge of this form. An isolated upper premolar, apparently P^4, No. 16254, may well belong to *Haploconus*, closely resembling this tooth in *H. angustus*, but a little smaller and with the lingual portion, though broad, somewhat less inflated anteroposteriorly.

A lower jaw portion, U.S.N.M. No. 15744, with M_1 and M_2 poorly preserved, and partially obscured by ironlike matrix, appears to represent *Haploconus* in the absence of a paraconid and in the blade-like form of the protoconid on M_1. It corresponds closely in size to the type of *Haploconus angustus*, but with M_1 narrower, particularly the anterior portion, and M_2 possibly wider than in the Torrejon form.

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[27] *Inopinatus*, unexpected.

A second lower jaw portion, No. 16255, collected in 1939, has P_4 and the greater portion of M_1 and M_2 preserved. P_4 is a little shorter than in most specimens of *H. angustus*, though relatively as wide and appears inflated as characteristic of this genus. The two molar portions show no important distinguishing characters. These two teeth have the cingulum rather prominent external to the protoconid, but distinctly weak on P_4. In No. 15744 the cingulum is not evident. However, in *H. angustus* the development of the cingulum appears to be highly variable, and when present is apt to be most noticeable on the anterior portion of the tooth and about the hypocone.

In 1940 several isolated teeth were found near one another at a level about 30 or 40 feet higher than that of the Dragon fauna at the old Dragon Canyon locality. These include P^4, a right and left P_4, portions of two anterior lower molars, and the greater part of M_3. The talonid portions of the various lower molars are to be compared with those of *Haploconus* rather than any other known form. One of the molars, however, has most of the trigonid preserved, and this exhibits a small paraconid. It is also significant that the two lower premolars have a moderately developed paraconid and are anteroposteriorly elongate and slender, approaching the form seen in *Anisonchus*, quite unlike the premolar exhibited in No. 16255 referred to *H. inopinatus*. The form represented by these teeth is clearly distinct from that represented by No. 16255, but I hesitate to describe it as distinct because, first, there is no certainty as to which of the types of lower teeth should be referred to *H. inopinatus*, and secondly, there is no real assurance that the isolated teeth discussed above are from one animal, although it seems probable that they are.

HAPLOCONUS? ELACHISTUS,[28] new species

Type.—Left maxillary portion with M^2 and part of M^1, and lower jaw fragments, U.S.N.M. No. 16191.

Horizon and locality.—Wagonroad Paleocene, Dragon Canyon, Emery County, Utah.

Specific characters.—Size near that of *Conacodon cophater*, smaller than either *Haploconus angustus* or *Haploconus inopinatus*. Teeth relatively a little shorter anteroposteriorly than in *H. inopinatus*. Difference between transverse diameters of M^2 and M^1 relatively not so great. Protostyle weak. Lower molars and P_4 with slight paraconid.

Description.—Representing *Haploconus? elachistus* are several isolated teeth and a few jaw and maxillary portions with one or two teeth. No. 16191, a maxillary portion with M^2 and part of M^1, and

[28] ἐλάχιστος, smallest or least, in allusion to size.

some lower jaw fragments with incomplete teeth and found associated, is made the type (fig. 29). The teeth are close in size to those of the nearly contemporaneous *Conacodon cophater* but more closely resemble those of species of *Haploconus*. The form is distinctly smaller than either *Haploconus angustus* from the Torrejon or *Haploconus inopinatus* from the Dragon horizon.

M^1 and M^2 resemble these teeth in *H. inopinatus*, but in addition to their smaller size do not show so marked a difference between their transverse diameters as in *H. inopinatus*; moreover, the upper molars are relatively a little shorter anteroposteriorly. The protocone is distinctly lingual in position, approaching, but not reaching, the condition seen in *Conacodon cophater*. There is a slight protostyle at the lingual termination of the anterior cingulum, not so well developed as in *H. inopinatus*, nor does the anterior cingulum extend so far lingually as in *C. cophater*. In the latter form the anterior cingulum quite joins the protocone lingually in M^2 and M^3. *H.? elachistus* also differs noticeably from *C. cophater* in the weakness of the external cingulum. As in later forms of *Haploconus*, the external cingulum in *H.? elachistus* does not extend across the paracone.

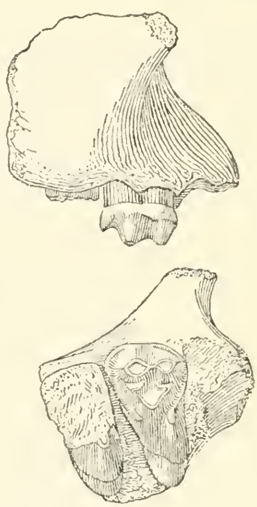

FIGURE 29.—*Haploconus? elachistus*, new species: Portion of left maxilla with M^2 and part of M^1 (U.S.N.M. No. 16191), type specimen, lateral and occlusal views, × 3, Wagonroad Paleocene, Utah.

The anteroposterior diameter of M^2 in the type is 3.6 mm. The transverse diameter from the external cingulum to the base of the enamel lingually and at right angles to the direction of the tooth row is about 6.1 mm.

The lower teeth are much like those in *Haploconus angustus*, except for their smaller proportions. However, the various lower molars referred to *H.? elachistus* exhibit a slight, medianly placed paraconid. This is also true of P_4 in No. 16548, although P_3 in the same specimen, though not entire, shows no evidence of a paraconid. It is interesting to note that slight paraconids were observed on the lower molars of a Torrejon specimen, U.S.N.M. No. 5886, referred to *Haploconus corniculatus*, as well as on one of the Dragon specimens. The paraconids of the lower molars of *H.? elachistus*, however, are not developed as seen in M^1 of *Conacodon cophater*, nor is the talonid portion so compressed anteroposteriorly, and the entoconid, though very well defined, is not placed so far lingually.

The presence of a form apparently representing *Haploconus* in beds nearly as old as Puerco is interesting in extending downward the known range of *Haploconus* and tending to a rather limited extent to break down certain of the characters separating *Haploconus* and *Conacodon*. *Conacodon* possesses specialized dental structures which apparently did not give rise to those seen in *Haploconus*, but this earlier form of *Haploconus*, as represented in the Wagonroad fauna, shows a less marked separation from the Puerco *Conacodon* than do the Torrejon species.

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U S GOVERNMENT PRINTING OFFICE: 1941

PROCEEDINGS OF THE UNITED STATES NATIONAL MUSEUM

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Vol. 91 Washington : 1941 No. 3122

A NEW FOSSIL CROCODILIAN FROM COLOMBIA

By Charles C. Mook [1]

Fossil remains of a gigantic crocodilian were collected by Brother Ariste (Dr. Maurice Rollot) between Neiva and the River Baché (Colombia) in 1920. The level is not recorded. Dr. J. B. Reeside, Jr., reports on the basis of invertebrates from nearby localities that the horizon is probably Lower Cretaceous. These remains consist of six fairly well preserved vertebrae, with parts of ribs, portions of maxillary and dentary bones interlocked, several isolated pieces from the posterior portions of the right and left rami of the lower jaw, and some fragments. The maxillary portion includes part of the alveolar series and was evidently situated a short distance posterior to the maxillo-premaxillary suture. These now constitute No. 10889 of the collections of the United States National Museum. I wish to thank C. W. Gilmore, of that institution, for the privilege of describing this material.

The incomplete nature of this material makes determination of the relationships extremely difficult if not impossible. Several facts, however, may be noted. The vertebrae correspond in general characters and somewhat in size with the vertebra described by Gervais as *Dinosuchus terror*. The indicated horizon is somewhat lower than the level of this form, which Gervais notes as "lower Tertiary or Cretaceous."

Comparison with the types of *Purusaurus brasiliensis* Rodriguez and *Brachygnathosuchus braziliensis* Mook shows clearly that the form described has no close relation with either. These species, while gigantic, have relatively short and broad lower jaws, with large alveoli, while the form described has relatively long and slender lower jaws and posterior teeth, at least, of relatively small size.

[1] Contributions to the Osteology, Affinities, and Distribution of the Crocodilia, No. 35.

In view of these facts the material described is referred to a new species of the genus *Dinosuchus* Gervais (*non* Holland), which may be called *Dinosuchus neivensis*, named for the city of Neiva near which it was found.

Genus DINOSUCHUS Gervais, 1876

Generic characters—As Gervais never separated the generic characters from those of the species *D. terror*, the following designation may be given: Size gigantic, vertebrae procoelian and massively constructed.

Relationships.—The genera *Dinosuchus* Gervais, *Purusaurus* Rodriguez, and *Brachygnathosuchus* Mook have been treated quite differently by recent authors. Nopcsa, in 1924, considered *Brachygnathosuchus* to be a synonym of *Purusaurus*, and *Dinosuchus* to be independent. Because of the latter interpretation he proposed the name *Phobosuchus* for Holland's *Deinosuchus.* Mook, in 1934, considered *Purusaurus* to be a synonym of *Dinosuchus*, and *Brachygnathosuchus* to be independent. Patterson, in 1936, considered *Brachygnathosuchus* to be a synonym of *Dinosuchus*, and *Purusaurus* to be a synonym of *Caiman* of Spix.

At the present time it appears most consistent with the incompletely known characters of these forms and with their geologic levels to consider the Cretaceous *Dinosuchus* to be valid and independent, and to consider the upper Miocene or lower Pliocene *Purusaurus* and *Brachygnathosuchus* to be valid and to be closely related to *Caiman.*

DINOSUCHUS NEIVENSIS, new species

PLATES 4–9

Specific characters.—External mandibular foramen unusually large in proportion to the size of the jaw elements surrounding it, jaw relatively long and slender, posterior teeth relatively small and close together.

Description of material.—Five maxillary alveoli are visible on this specimen. The first is large and is slightly longer than it is broad. The second is larger than the first. Its external border is incomplete; consequently its proportions are difficult to determine. The last three alveoli are approximately equal to the first in size; they appear to be subcircular, although their borders are not entirely visible. Badly mutilated stumps of teeth are visible in these alveoli.

The anterior and posterior ends of the lower jaw section that is attached to the portion of the maxillary noted above exhibit sections of alveoli 12 cm. deep and fragments of teeth of corresponding size. Another section of the right ramus was located much farther back than the one noted above. The anterior end of the right external mandibular foramen is located at the posterior end of this section and the posterior end of the alveolar row at the center of the superior border locates the position of the section in the ramus. Four alveoli with bases of teeth are clearly visible, and a fifth or last is somewhat obscure. These alveoli are much smaller than those of the maxillary section noted above, and their height, as indicated by the anterior surface of the section, is less than half that of the anterior mandibular teeth. The mandibular cavity, now indicated by matrix, was large, the bony substance being thin.

The left ramus is represented by a larger section, about 48 cm. long and composed of two pieces that make clean-cut contacts with each other. This section is entirely posterior to the alveolar row and includes the external mandibular foramen, of which the superior boundary is incomplete. The posterior end of this section is near the posterior end of the ramus immediately anterior to the glenoid surface. The sutures separating the elements of which this part of the jaw is composed are indistinct, the dentary, angular, and surangular bones being almost indistinguishable from one another.

The external mandibular foramen is unusually long and is not very high. The exact relation between length and height cannot be made out because of the incomplete superior border. On comparing the length of this opening with that of an 84-cm. ramus of *Crocodylus acutus*, and assuming that the proportions between the total length and the length of the foramen are the same in that species and the form now described, we estimate that the total length of the ramus would be 280 cm., or about 9 feet. Comparison with a 32-cm. ramus of *Caiman crocodilus* indicates a total length of 172 cm., or about 5⅔ feet, which is more likely.

One of the vertebral units is composed of the intercentrum of the atlas, most of the axis, and the proximal portions of the atlas and axis ribs in natural positions. The atlas intercentrum is a broad, flat bone, much more distinctly bifurcated posteriorly than in *C. acutus*. The atlas ribs attach to the bifurcations and their axes of breadth lie *below* the axis and the axis ribs. The atlas ribs are single headed, of course, and are considerably thickened where they attach to the atlas intercentrum.

The characters of the axis are not particularly distinctive except for the size and strength of the processes to which the ribs are attached. The ribs themselves are distinctly two-headed, the upper element, or tuberculum, being slightly larger than the lower one, or capitulum. The shaft is slender and is situated on edge, at right angles to the position in which the atlas ribs are situated.

Six other vertebrae are preserved, but none of them is complete. Two of these united together, with a fragment of a third, are cervicals, probably 4 and 5. The spines and the postzygapophyses are not preserved. The prezygapophyses, diapophyses, and parapophyses are incompletely preserved. The centrum of the first vertebra of the pair is incomplete. That of the second is complete and is moderately long, rather low vertically and narrow posteriorly but broad anteriorly, apparently convex posteriorly, but the degree of convexity cannot be made out. The prezygapophyses and diapophyses of this vertebra are incomplete, but enough of them is preserved to indicate that they were very stout. There is a very small median hypapophysial keel near the anterior end of the centrum. On the whole the vertebrae appear small for the size of the mandible. The capitular and tubercular ends of the left rib of the anterior of the two vertebrae are preserved; they are very stout, especially the tubercular process.

MEASUREMENTS (IN MILLIMETERS)

Length of two large contact pieces of left ramus of mandible	492
Maximum height of same	171
Length of external mandibular foramen	265
Height of same	56
Length over four posterior alveoli, right ramus of mandible	82
Height of maxillary and dentary fragments in place with each other	211
Height of anterior mandibular tooth shown in end of this fragment	94
Breadth across atlas centrum, posterior end	88
Length of atlas centrum	70
Breadth across right atlas rib at proximal end	49
Breadth across left atlas rib at proximal end	47
Breadth across tuberculum end capitulum of right axis rib	43
Breadth across tuberculum end capitulum of left axis rib	[1] 46
Breadth across axis centrum posterior end	60
Length of fifth(?) cervical centrum	83
Breadth of fifth(?) cervical centrum anterior end	103
Breadth of fifth(?) cervical centrum posterior end	[1] 70
Breadth of fifth(?) cervical vertebra across prezygapophyses	[1] 97

[1] Estimate.

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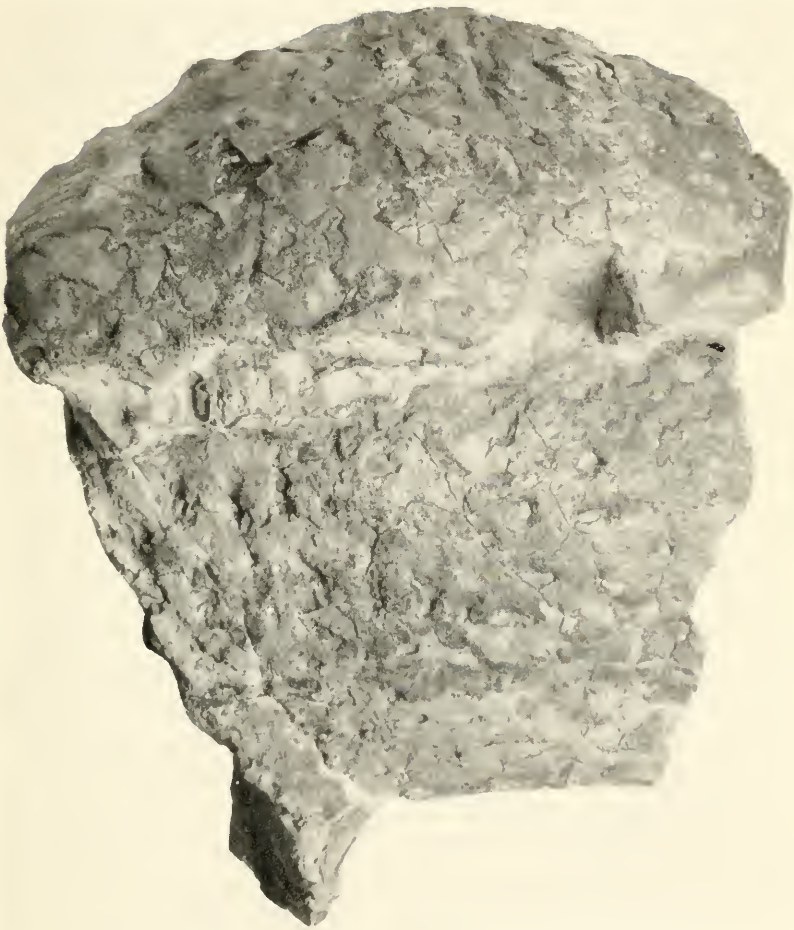
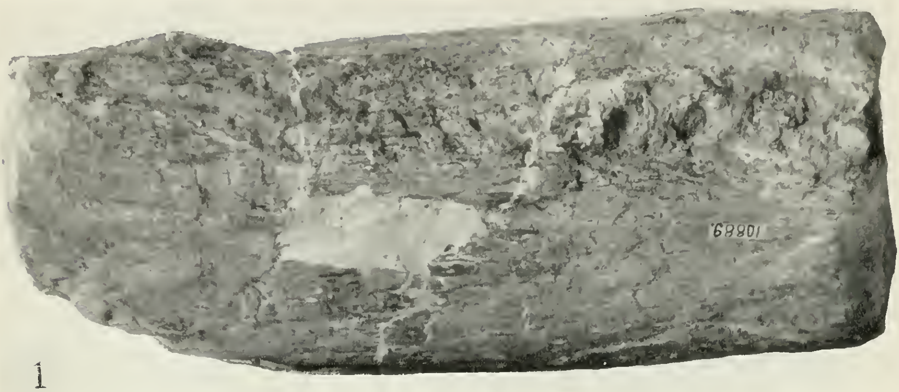


DINOSUCHUS NEIVENSIS, NEW SPECIES.

Type (U. S. N. M. No. 10889): Parts of left premaxillary and dentary bones, external view. One-half natural size.



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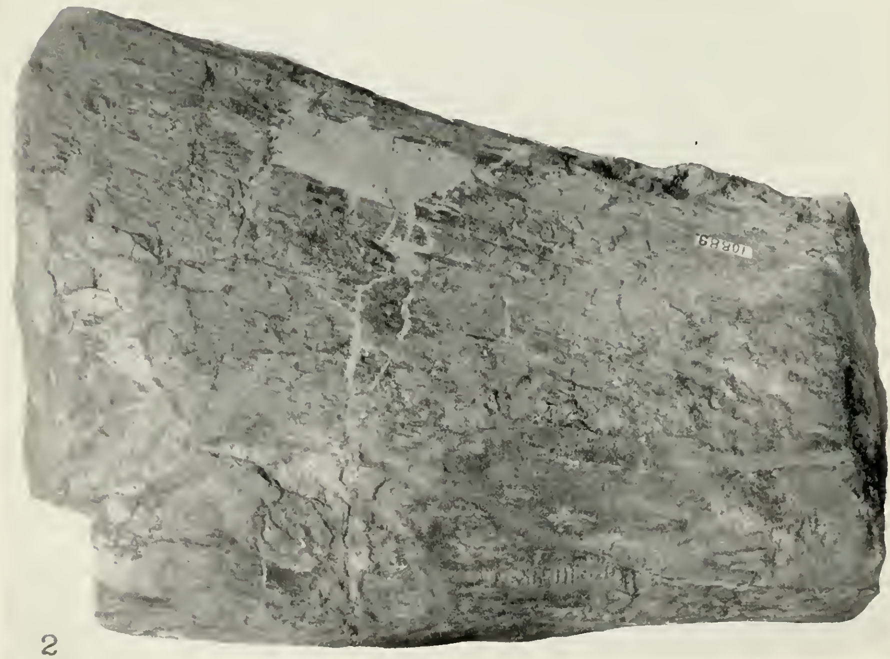

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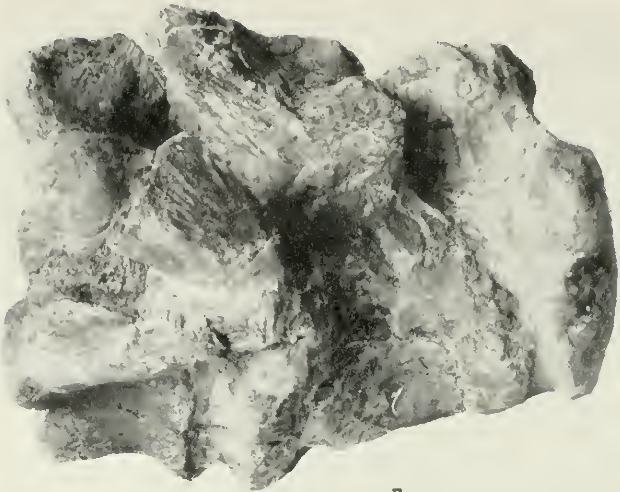
DINOSUCHUS NEIVENSIS, NEW SPECIES.

1. Type (U. S. N. M. No. 10889): Central portion of right dentary bone, superior view. One-half natural size.
2. Same, external view. One-half natural size.

DINOSUCHUS NEIVENSIS, NEW SPECIES.

Type (U. S. N. M. No. 10889): Posterior portion of left ramus of mandible, external view. One-third natural size.



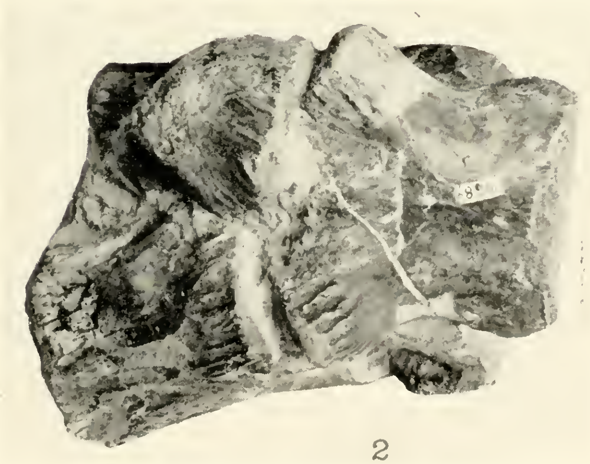
1

2

Dinosuchus neivensis, New Species.

1. Type (U. S. N. M. No. 10889): Parts of atlas and axis vertebrae and of atlas and axis ribs, lateral view, left side. One-half natural size.
2. Same, inferior view. One-half natural size.

1



2

DINOSUCHUS NEIVENSIS, NEW SPECIES.

1. Type (U. S. N. M. No. 10889): Cervical vertebrae, probably fifth and sixth, lateral view, left side. One-half natural size.
2. Dorsal vertebrae, probably fifth and sixth, lateral view, left side. One-half natural size.

DINOSUCHUS NEIVENSIS, NEW SPECIES.

Type (U. S. N. M. No. 10889): Vertebrae, position in series uncertain, lateral view, left side. One-half natural size.

PROCEEDINGS OF THE UNITED STATES NATIONAL MUSEUM

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Vol. 91 Washington: 1941 No. 3123

THE NORTH AMERICAN MOTHS OF THE GENUS ARACHNIS, WITH ONE NEW SPECIES

By J. F. Gates Clarke

The study of the genus *Arachnis* (family Arctiidae) was undertaken to determine the exact relationship of the new species described to the known species, and, in order to accomplish this, characters for all species in the group needed to be critically reviewed and evaluated.

The species of this group are extremely plastic and readily produce forms and races apparently constant in coloration. These may be confined to small islands within the range of the species or may occur along with the typical race.

The lack of sufficient material has probably prevented a proper evaluation of characters in one or two instances, but it seems apparent that at least one species, *picta*, has given rise to numerous varieties and races that are so distinct superficially that they appear to be separate species. The case of *midas*, for example, is striking. This so-called species, although easily distinguishable from *picta* on coloration, can be separated from it morphologically only by the shape of the uncus. As pointed out later, *midas* is represented only by the unique type, and the distinguishing character of the genitalia might well be only one of several variations. Since the matter of coloration seems to be of little importance in the separation of species, *midas*, like *citra*, may be nothing more than a form or race of *picta*.

The genus appears to be best represented in the southwestern part of the United States, but its distribution ranges into Mexico and to the Midwest and Florida. It is in the Rocky Mountain region that the predisposition to variation is greatest, more stability being apparent to the east and west beyond the intermountain area.

The larvae are probably rather general feeders, a character common to many arctiids, but only a few have been reared.

Dr. J. A. Comstock, director of science in the Los Angeles Museum, kindly sent material for study, for which thanks are due.

A diagnosis of this well-known genus is not included, but descriptions of the genitalia follow.

The drawings for this paper were made by Mrs. Eleanor A. Carlin, of the Bureau of Entomology and Plant Quarantine.

Genus ARACHNIS Geyer

Arachnis Geyer, *in* Hübner, Zuträge exotischer Schmetterlinge, vol. 5, p. 28, 1837.

Male genitalia.—Harpe broadly attached at base, long, slender, always with inward lateral projection. Anellus semicylindrical, sometimes concave laterally. Aedeagus long, stout, dorsoventrally curved; vesica with numerous minute scobinations. Vinculum with well-developed winglike lateral expansion. Tegumen with well-developed dorsal flange.

Female genitalia.—Ostium large, extending well beyond ventral surface of genital plate. Ductus bursae strongly sclerotized, somewhat depressed, concave ventrally. Ductus seminalis greatly enlarged, membranous or partly sclerotized, and entering at confluence of ductus bursae and bursa copulatrix. Bursa copulatrix with two small, round, scobinate signa. Occasionally a third signum is weakly developed. Dorsal glands well developed, with several branches.

Remarks.—The lateral projection of the harpe does not seem to represent a clasper or an ampulla, but rather no more than an outgrowth of the ventral margin.

KEYS TO THE SPECIES OF ARACHNIS

Coloration

1. Hind wing with yellowish ground color____________________ 2
   Hind wing with red or reddish ground color____________________ 3
2. Thorax with conspicuous white posteromedian dorsal spot; dark markings of fore wing slate__________ zuni Neumoegen (p. 69)
   Thorax without white posteromedian dorsal spot; dark markings of fore wing gray__________ midas Barnes and Lindsey (p. 69)
3. Fore wing with white or whitish ground color____________________ 5
   Fore wing with ground color otherwise____________________ 4
4. Fore wing with yellowish ground color. picta citra Neumoegen and Dyar (p. 67)
   Fore wing with cerise ground color__________ apachea, new species (p. 68)
5. Abdomen with lateral row of orange spots____________________ 6
   Abdomen with lateral row of gray to blackish spots____________________ 7

6. Hind wing almost wholly overlaid with blackish fuscous; dark markings of fore wing dark slate gray, sharply contrasted against white ground color_______________ aulaea pompeia Druce (p. 63)
   Hind wing with dark markings lighter and less abundant; dark markings of fore wing lighter and not so sharply contrasted with whitish ground color________________________ aulaea Geyer (p. 62)
7. Fore wing with at least basal half of underside entirely shaded with orange____ 8
   Fore wing with basal half or two-thirds of underside of costa only shaded with orange____ 10
8. Gray markings of fore wing strongly outlined with black_______________ 9
   Gray markings of fore wing without black outlines.
   picta insularis Clarke (p. 66)
9. Hind wing of male with outer band of gray spots broken but strongly defined; female with outer band entire or, if broken, then only once__________________________________ picta Packard (p. 63)
   Hind wing of male with outer band consisting of three or four small spots; female with outer band consisting of four spots, apical pair sometimes fused.
   picta verna Barnes and McDunnough (p. 65)
10. Hind wing of male semihyaline; female with basal band, on underside, connected to base by a narrow gray line.
   picta maia Ottolengui (p. 66)
   Hind wing of male not semihyaline; female with basal band, on underside, connected to base by conspicuous gray triangle.
   picta hampsoni Dyar (p. 66)

Male genitalia

1. Uncus flattened, with prominent dorsal ridge; lateral projection of harpe as narrow as, or narrower than, distal part of harpe beyond it (pl. 11, fig. 4)___________________________ aulaea Geyer (p. 62)
   Uncus conical, without dorsal ridge; lateral projection wider than distal part of harpe beyond it (pl. 10, fig. 3; pl. 12, figs. 7*c*, 8)____ 2
2. Distal portion of harpe greatly dilated (pl. 10, fig. 3).
   apachea, new species (p. 68)
   Distal portion of harpe not greatly dilated (pl. 12, figs. 7, 8)______________ 3
3. Lateral projection of harpe bent toward base; distal end narrow, somewhat compressed (pl. 11, fig. 5)_____________ zuni Neumoegen (p. 69)
   Lateral projection of harpe not bent toward base; distal end swollen____ 4
4. Uncus short, stocky, evenly curved (pl. 12, fig. 7*c*)____ picta Packard (p. 63)
   Uncus long, slender, angulate (pl. 12, fig. 8*c*).
   midas Barnes and Lindsey (p. 69)

Female genitalia[1]

1. Ductus seminalis at least partly sclerotized______________________________ 2
   Ductus seminalis wholly membranous_______________ picta Packard (p. 63)
2. Median fleshy protuberance of ostium with broad, sickle-shaped, sclerotized area on each side (pl. 10, fig. 2)__________ aulaea Geyer (p. 62)
   Median fleshy protuberance of ostium without such area (pl. 11, fig. 6).
   zuni Neumoegen (p. 69)

[1] The females of *midas* and *apachea* are unknown to me.

ARACHNIS AULAEA Geyer

PLATE 10, FIGURES 2–2*a*; PLATE 11, FIGURES 4–4*b*

Arachnis aulaea GEYER, *in* Hübner, Zuträge exotischer Schmetterlinge, vol. 5, p. 28, figs. 913, 914, 1837.—CLEMENS, Proc. Acad. Nat. Sci. Philadelphia, 1860, p. 526.—WALKER, List of the specimens of lepidopterous insects in the collection of the British Museum, vol. 31 (Suppl. 1), p. 300, 1864.—STRETCH, Illustrations of the Zygaenidae and Bombycidae of North America, vol. 1, p. 85, 1873.—DRUCE, Biologia Centrali-Americana, Heterocera, vol. 1, p. 98, 1884.—SMITH, List of the Lepidoptera of Boreal America, No. 1118, 1891.—KIRBY, A synonymic catalogue of the Lepidoptera Heterocera (moths), vol. 1, p. 218, 1892.—DRUCE, Ann. Mag. Nat. Hist., ser. 6, vol. 13, p. 174, 1894.—OTTOLENGUI, Ent. News, vol. 7, p. 126, pl. 4, 1896.—DRUCE, Biologia Centrali-Americana, Heterocera, vol. 2, p. 377, 1897.—HAMPSON, Catalogue of the Arctiadae (Arctianae) and Agaristidae in the collection of the British Museum, vol. 3, pp. 389, 390, 391, fig. 163, 1901 [biology].—BARNES and MCDUNNOUGH, Check list of the Lepidoptera of Boreal America, No. 967, 1917.—STRAND, Lepidopterorum catalogus, pt. 22, p. 278, 1919.—SEITZ, Die Gross-Schmetterlinge der Erde, vol. 6, p. 314, pl. 40b, 1919.—BARNES and BENJAMIN, Pan-Pac. Ent., vol. 3, p. 17, 1926.—MCDUNNOUGH, Check list of the Lepidoptera of Canada and the United States of America (Part 1, Macrolepidoptera), No. 1080, 1938.

Ecpantheria aulaea (Geyer) BOISDUVAL, Ann. Soc. Ent. Belg., vol. 12, p. 78, 1869.—OBERTHUR, Études d'Entomologie, vol. 6, p. 111, pl. 19, figs. 4, 7, 1881.—BURMEISTER, Ann. Mus. Publ. Buenos Aires, vol. 3, p. 31, 1883.

Ecpantheria aulea SCHAUS (misspelling for *aulaea*), Papilio, vol. 3, p. 188, 1883 [larva].

Arachnis aulea (Schaus) H. EDWARDS, U. S. Nat. Mus. Bull. 35, p. 61, 1889.—SCHAUS, Ent. Amer., vol. 5, p. 190, 1889.—NEUMOEGEN and DYAR, Journ. New York Ent. Soc., vol. 1, p. 178, 1893.—DYAR and DOLL, Ent. News, vol. 4, p. 312, 1893 [larva].—DYAR, Can. Ent., vol. 26, p. 307, 1894 [larva]; Proc. Ent. Soc. Washington, vol. 14, p. 55, 1912.

Ecpantheria incarnata WALKER, List of the specimens of lepidopterous insects in the collection of the British Museum, vol. 3, p. 690, 1855.—BURMEISTER, Ann. Mus. Publ. Buenos Aires, vol. 3, p. 31, 1883 [as synonym of *E. aulaea*].

Arachnis incarnata SMITH, List of the Lepidoptera of Boreal America, No. 1118, 1891.—KIRBY, A synonymic catalogue of the Lepidoptera Heterocera (moths), vol. 1, p. 218, 1892.—BARNES and MCDUNNOUGH, Check list of the Lepidoptera of Boreal America, No. 967, 1917.—STRAND, Lepidopterorum catalogus, pt. 22, p. 278, 1919.—SEITZ, Die Gross-Schmetterlinge der Erde, vol. 6, p. 314, 1919.—MCDUNNOUGH, Check list of the Lepidoptera of Canada and the United States of America (Part 1, Macrolepidoptera), No. 1080, 1938 [as synonym of *A. aulaea*].

Male genitalia.—Harpe with slender, inward, lateral projection; cucullus narrow, scarcely wider than lateral projection of harpe, slightly swollen distally. Anellus with sides parallel. Aedeagus with well-developed distolateral flap. Vinculum broad, short, truncate. Uncus broad, flattened, with prominent dorsal ridge extending beyond end to form terminal point. Flange of tegumen broadly rounded.

Female genitalia.—Median protuberance of ostium fleshy, bulbous, with conspicuous, sickle-shaped, sclerotized area laterally. Ductus seminalis sclerotized for distance almost equal to length of ductus bursae.

Alar expanse, 38–60 mm.

Distribution.—Southwestern part of the United States and Mexico.

Arizona: Huachuca Mountains, ♀ (no date or collector); Palmerlee, Cochise County, ♂ ("VIII"; no collector).
New Mexico: "New Mexico," ♀ (no other data).
Texas: "Southern Texas," ♂ (no other data).

Types.—Unknown (*aulaea*); in the British Museum (*incarnata*).

Type localities.—Mexico (*aulaea* and *incarnata*).

Food plants.—Numerous (acc. Schaus, 1889).

Remarks.—This species seems to be essentially a Mexican insect, since the preponderance of specimens before me is from Mexico. The few records from the United States are scattered and not altogether reliable.

ARACHNIS AULAEA POMPEIA Druce

Plate 10, Figures 1–1*a*

Arachnis pompeia Druce, Ann. Mag. Nat. Hist., ser. 6, vol. 13, p. 174, 1894; Biologia Centrali-Americana; Heterocera, vol. 2, p. 377, pl. 75, figs. 2, 3, 1897.—Hampson, Catalogue of the Arctiadae (Arctianae) and Agaristidae in the collection of the British Museum, vol. 3, pp. 389, 390, 1901.—Strand, Lepidopterorum catalogus, pt. 22, p. 279, 1919.—Seitz, Die Gross-Schmetterlinge der Erde, vol. 6, p. 315, 1919.—Barnes and Benjamin, Pan-Pac. Ent., vol. 3, p. 17, 1926.—McDunnough, Check list of the Lepidoptera of Canada and the United States of America (Part 1, Macrolepidoptera), No. 1081, 1938.

Arachnis aulaea Holland [not Geyer], The moth book, p. 124, pl. 16, fig. 1, 1903.—Barnes and McDunnough, Contr. Nat. Hist. Lepid. North Amer., vol. 1, No. 4, p. 7, pl. 2, fig. 1, 1912.

Alar expanse, 47–52 mm.

Type.—In the British Museum.

Type locality.—Mexico, near Durango City.

Remarks.—The racial status of *pompeia* (known from the female only) is doubtful, and the genitalia indicate that it may be no more than a form of *aulaea* occurring along with the typical race. This form can be distinguished from *aulaea* by the darker and more contrasting markings.

The specimen figured by Barnes and McDunnough [2] as *aulaea* is in the U. S. National Museum. This specimen is *pompeia* and was misidentified by Barnes and McDunnough.

ARACHNIS PICTA Packard

Plate 12, Figures 7–7*c*, 9–9*a*

Arachnis picta Packard, Proc. Ent. Soc. Philadelphia, vol. 3, p. 126, 1864.—Walker, List of the specimens of lepidopterous insects in the collection of the British Museum, vol. 35 (Suppl. 5), p. 1912, 1866.—Stretch, Illustrations

[2] Contr. Nat. Hist. Lepid. North Amer., vol. 1, No. 4, p. 7, pl. 2, 1912.

of the Zygaenidae and Bombycidae of North America, vol. 1, p. 83, pl. 3, fig. 6, 1873.—Oberthur, Études d'Entomologie, vol. 6, p. 112, pl. 19, figs. 5, 8, 1881.—Druce, Biologia Centrali-Americana, Heterocera, vol. 1, p. 98, 1884.—H. Edwards, U. S. Nat. Mus. Bull. 35, p. 61, 1889 [food plant].—Dyar, Ent. Amer., vol. 6, p. 73, 1890 [larva, cocoon, pupa].—Smith, List of the Lepidoptera of Boreal America, No. 1117, 1891.—Kirby, A synonymic catalogue of the Lepidoptera Heterocera (moths), vol. 1, p. 218, 1892.—Neumoegen and Dyar, Journ. New York Ent. Soc., vol. 1, pp. 178, 179, 1893.—Ottolengui, Ent. News, vol. 7, p. 124, pl. 4, 1896.—Hampson, Catalogue of the Arctiadae (Arctianae) and Agaristidae in the collection of the British Museum, vol. 3, pp. 389, 392, 1901.—Dyar, U. S. Nat. Mus. Bull. 52, No. 857, 1903.—Smith, Check list of the Lepidoptera of Boreal America, No. 946, 1903.—Holland, The moth book, p. 124, pl. 16, fig. 2, 1903.—Barnes and McDunnough, Check list of the Lepidoptera of Boreal America, No. 968, 1917; Contr. Nat. Hist. Lepid. North Amer., vol. 4, p. 90, 1918.—Strand, Lepidopterorum catalogus, pt. 22, p. 279, 1919.—Seitz, Die Gross-Schmetterlinge der Erde, vol. 6, p. 315, pl. 40b, 1919.—Essig, Insects of western North America, pp. 581, 583, 678, 1926 [parasites of, larva, food plants].—McDunnough, Check list of the Lepidoptera of Canada and the United States of America (Part 1, Macrolepidoptera), No. 1082, 1938.

Ecpantheria picta (Packard) Burmeister, Ann. Mus. Publ. Buenos Aires, vol. 3, p. 31, 1883 (as synonym of *E. aulaea*).

Male genitalia.—Lateral process of harpe with posterior edge smooth, much broader than portion of harpe beyond it; distal end fleshy, slightly dilated apically. Anellus strongly concave laterally. Aedeagus with poorly developed distolateral flap; scobinations of the vesica weak. Vinculum narrowly rounded. Uncus short, stocky, evenly curved.

Female genitalia.—Median protuberance of ostium broad, flattened, without sickle-shaped sclerotized lateral area. Ductus seminalis membranous.

Alar expanse, 33–62 mm.

Distribution.—Southern part of the United States northward to Illinois, Utah, and northern California and southward into Mexico.

Arizona: Oak Creek Canyon, ♀ (6,000 feet, July, F. H. Snow); Prescott, ♀ ("VII," collector not given).

California: Alameda County, 2♂♂, ♀ (September, October; no collector); Los Angeles, ♂, 2♀♀ (25–X–1889, H. G. Dyar No. 4084; 26–X–1889, H. G. Dyar Nos. 4190, 4208); Los Angeles County, ♂ (no date or collector); Sacramento, ♀ (no date or collector); San Diego, ♂ (16–X–1909, George H. Field), 2♀♀ (14–X–22; 10–X–23; no collector); San Francisco County, 2♂♂, 2♀♀ (September and October; no collector); several males and females labeled "Middle California" and "Southern California."

Colorado: ♀ (no date; "Bruce").

Florida: Palm Beach, ♂ (4–II–1890, H. G. Dyar No. 4552).

Illinois: Quincy, ♀ (no date; Poling).

New Mexico: Jemez Springs, ♀ (no date or collector).

Utah: ♀ (no other data).

Type.—In the Museum of Comparative Zoology, Cambridge, Mass.

Type locality.—San Francisco, Calif.

Food plants.—Alfalfa, clover, geranium, lupine, *Malva*, rose, sagebrush, etc.

Remarks.—The genitalia of *picta* and its varieties show considerable variation, but no characters present are sufficiently stable to enable the absolute separation of one from the other by the use of these organs. The typical subspecies (*picta picta*) shows the most consistent form. The lateral projection of the harpe of this subspecies is usually much thicker than in the others and the posterior edge of the projection is comparatively smooth. In the other subspecies the lateral projection varies in thickness and is usually roughened on the posterior edge.

In addition to the material listed under distribution I have before me two specimens from Avalon, Santa Catalina Island, Calif. (2–X–1931, 11–X–1931, Don Meadows), which appear to be an island race of *picta*. The gray markings are very light and coalesced and not sharply defined. The thorax, head, and fore wing have a powdered appearance. Until more material comes to hand and it is possible to determine the constancy of this form I am leaving it unnamed. This race falls between *picta* and *verna* in my key.

These specimens were sent to me by Dr. J. A. Comstock, of the Los Angeles Museum.

ARACHNIS PICTA VERNA Barnes and McDunnough

Arachnis picta verna Barnes and McDunnough, Contr. Nat. Hist. Lepid. North Amer., vol. 4, p. 90, pl. 13, figs. 5, 6, 1918.—McDunnough, Check list of the Lepidoptera of Canada and the United States of America (Part 1, Macrolepidoptera), No. 1082c, 1938.

Alar expanse, 45–73 mm.

Distribution.—Middle California to Utah.

California: Three Rivers, Tulare County, 3 ♂♂, 6 ♀♀ (no dates or collector).
Utah: Dividend, 3 ♂♂, ♀ (August and September dates; Tom Spalding); Eureka, 6 ♂♂, 3 ♀♀ (August and September dates, 1910 to 1921, Tom Spalding); Provo, ♂, ♀ (20–IX–1908; 25–VIII–1908, Tom Spalding).

Type.—In the U. S. National Museum.

Type locality.—Three Rivers, Tulare County, Calif.

Remarks.—This variety averages slightly larger than typical *picta* and has more of the whitish or pale-gray ground color showing, thus appearing considerably lighter. The dark markings of the hind wing are reduced in *verna*.

While this race is at present known only from two rather small areas it may be found throughout much of the area between California and the Rocky Mountains, even though this particular species appears to produce rather restricted races.

In addition to the specimens listed above, I have before me one other from Logan Canyon, Utah (August 16, 1939, G. F. Knowlton No. 34), which appears to belong here. This specimen, however, lacks the usual median dorsal black line of the abdomen, and the hind wing is more cerise, with the dark spots greatly reduced.

ARACHNIS PICTA INSULARIS Clarke

Arachnis picta insularis Clarke, Bull. Southern California Acad. Sci., vol. 39, p. 187, 1941 [egg, food plant].

Alar expanse, 34–54 mm.

Type.—In the U. S. National Museum.

Type locality.—Anacapa Island, Calif.

Food plant.—*Plantago* (laboratory).

Remarks.—This subspecies is known only from the type locality.

ARACHNIS PICTA MAIA Ottolengui

Arachnis maia Ottolengui, Ent. News, vol. 7, p. 125, pl. 4, 1896.

Arachnis picta maia Hampson, Catalogue of the Arctiadae (Arctianae) and Agaristidae in the collection of the British Museum, vol. 3, p. 392, 1901.—Dyar, U. S. Nat. Mus. Bull. 52, No. 857a, 1903.—Smith, Check list of the Lepidoptera of Boreal America, No. 946a, 1903.—Barnes and McDunnough, Check list of the Lepidoptera of Boreal America, No. 968a, 1917; Contr. Nat. Hist. Lepid. North Amer., vol. 4, p. 90, pl. 13, figs. 7, 8, 1918.—Strand, Lepidopterorum catalogus, pt. 22, p. 279, 1919.—Seitz, Die Gross-Schmetterlinge der Erde, vol. 6, p. 315, 1919.—Barnes and Lindsey, Ent. News, vol. 32, p. 297, 1921.—McDunnough, Check list of the Lepidoptera of Canada and the United States of America (Part 1, Macrolepidoptera), No. 1082a, 1938.

Alar expanse, 44–58 mm.

Distribution.—Southern Rocky Mountain region.

Colorado: Chaffee County, ♂, ♀ (no date; Bruce); Glenwood Springs, ♂ (August 1894; W. Barnes); Salida, ♂, 2 ♀♀ (no date or collector); 11 ♂♂ ("Colo." Bruce).

New Mexico: Las Vegas, ♂ ('89, H. Meske).

Type.—In the U. S. National Museum.

Type locality.—Las Vegas, N. Mex.[3]

Remarks.—Males of this race are easily distinguishable from *picta* by their coloration, but the females are distinguishable only by the key character, which, although probably rather constant, might fail to separate the two in borderline cases.

ARACHNIS PICTA HAMPSONI Dyar

Arachnis picta hampsoni Dyar, U. S. Nat. Mus. Bull. 52, No. 857c, 1903.—Smith, Check list of the Lepidoptera of Boreal America, No. 946c, 1903.—Barnes and McDunnough, Check list of the Lepidoptera of Boreal America, No. 968c, 1917; Contr. Nat. Hist. Lepid. North Amer., vol. 4, p. 90, 1918.—Strand,

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[3] See "Errata," Ent. News, vol. 7, p. 160, 1896.

Lepidopterorum catalogus, pt. 22, p. 279, 1919.—SEITZ, Die Gross-Schmetterlinge der Erde, vol. 6, p. 315, 1919.—McDUNNOUGH, Check list of the Lepidoptera of Canada and the United States of America (Part 1, Macrolepidoptera), No. 1082d, 1938.

Alar expanse, 45–65 mm.

Distribution.—Southwestern part of the United States.

Arizona: Flagstaff, ♂ (July; no other data); Huachuca Mountains, ♀ (no date or collector); Mojave County, 2♂♂ (August 8–16; no collector); Paradise, Cochise County, ♂, ♀ (August; no collector); Cochise County, ♂, 3♀♀ (26–VI–1917; 31–VII–1917; no collector); Phoenix, ♂ (no date or collector); Prescott, 7♂♂, 4♀♀ (July and August dates; no collector); Yavapai County, 3♂♂, 2♀♀ (August; O. Buchholz).

California: Los Angeles, 2♂♂, 4♀♀ (October; V. M. Owen); San Diego, 11♂♂, 5♀♀ (September, October, 1921; no collector).

New Mexico: Jemez Springs, ♂, ♀ (no date or collector).

Neotype.—In the U. S. National Museum.

Type locality.—Jemez Springs, N. Mex.

Remarks.—This race was described by Hampson[4] as "Subsp. 2" of *picta* but was not named. Dyar[5] named this race *hampsoni* but did not designate a type. I now designate a male specimen from Jemez Springs, N. Mex., in the U. S. National Museum, as neotype, since New Mexico is the first locality cited by Hampson.

ARACHNIS PICTA CITRA Neumoegen and Dyar

Arachnis picta citra NEUMOEGEN and DYAR, Ent. News, vol. 4, p. 140, 1893; Journ. New York Ent. Soc., vol. 1, p. 179, 1893.—OTTOLENGUI, Ent. News, vol. 7, p. 124, 126, pl. 4, 1896.—HAMPSON, Catalogue of the Arctiadae (Arctianae) and Agaristidae in the collection of the British Museum, vol. 3, p. 393, 1901.—DYAR, U. S. Nat. Mus. Bull. 52, No. 857b, 1903.—SMITH, Check list of the Lepidoptera of Boreal America, No. 946b, 1903.—BARNES and McDUNNOUGH, Check list of the Lepidoptera of Boreal America, No. 968b, 1917; Contr. Nat. Hist. Lepid. North Amer., vol. 4, p. 90, 1918.—STRAND, Lepidopterorum catalogus, pt. 22, p. 279, 1919.—SEITZ, Die Gross-Schmetterlinge der Erde, vol. 6, p. 315, pl. 40b, 1919.—McDUNNOUGH, Check list of the Lepidoptera of Canada and the United States of America (Part 1, Macrolepidoptera), No. 1082b, 1938.

Alar expanse, 46–74 mm.

Distribution.—Southwestern part of the United States.

California: ♂ (no other data).

Colorado: Glenwood Springs, 25♂♂, 16♀♀ (August and September dates, W. Barnes); 5♂♂, 7♀♀ ("Colo." Bruce).

Utah: Cisco, ♂ (16–VIII–1939, G. F. Knowlton and F. C. Harmston).

Type.—In the U. S. National Museum.

Type locality.—Western Colorado.

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[4] Hampson, G. F., Catalogue of the Arctiadae (Arctianae) and Agaristidae in the collection of the British Museum, vol. 3, p. 392, 1901.

[5] Dyar, H. G., U. S. Nat. Mus. Bull. 52, No. 857c, 1903.

Remarks.—The single male from the Oberthur collection labeled "California" is probably mislabeled. The preponderance of specimens from Colorado and the single specimen from Cisco, Utah, indicate that the population of this variety is restricted in distribution to the mountainous area centering about Colorado.

ARACHNIS APACHEA, new species

Plate 10, Figures 3–3*c*

Antenna with basal segment cerise anteriorly, buff posteriorly; shaft blackish fuscous; basal two-fifths cream colored above and faintly annulated with cerise; outer three-fifths overlaid with pale gray above. Labial palpus whitish ochreous; basal segment with a conspicuous black spot exteriorly; second segment bright carmine outwardly and above; third segment carmine-tipped above. Face gray, broadly edged with black. Head pink with a black median spot posteriorly. Collar pale pink, darker outwardly and edged with black beneath; on each side a conspicuous black-edged gray spot surrounded by a narrow, attenuated, cream-colored area. Thorax cerise; mesially a narrow, longitudinal, ochreous line; on each side a longitudinal, dorsal, black-edged, gray stripe; tegula pink, edged with cerise and containing a large, elongate, triangular, black-edged, gray spot. Fore wing cerise with veins faintly buff; costa narrowly edged with buff; along costa five conspicuous, irregular, black-edged, gray spots; extending across wing from these costal spots, five rows of irregular, black-edged, gray spots and dashes; on costa, at apex, an oval gray spot narrowly edged inwardly with black; along termen, between veins 3 and 8, a series of elongate, U-shaped, black-edged, gray dashes; at tornus a conspicuous, round, black-edged gray spot; cilia consisting of alternating buff and gray dashes; the underside more or less suffused with orange-ochreous, the markings less conspicuous and, except for the inner ones, sooty black; the two basal costal spots black. Hind wing semihyaline, cerise; costa rather broadly edged with pale ochreous and with two narrow, poorly defined, fuscous, transverse dashes about middle; on outer margin, at end of vein 1b, a small but conspicuous black spot; on the underside, the costa marked with conspicuous, black-edged, gray dashes. Legs creamy white, overlaid with cerise and pink and variously marked with black-edged gray spots; tarsi annulated with black. Abdomen cerise above with a faint, longitudinal median, black basal dash; beneath pink and buff mixed. Anal tuft ochreous beneath mixed with black scales; above, marked with an elongate, median, black, triangular dash.

Male genitalia.—Harpe with moderately broad, inward projection, roughened on posterior edge; distal end of harpe greatly dilated. Anellus strongly concave laterally. Aedeagus with small distolateral flap. Vinculum broadly rounded. Uncus stout, conical. Flange of tegumen broadly rounded.

Alar expanse, 54–55 mm.

Type.—U. S. N. M. No. 54258.

Type locality.—Phantom Ranch, Grand Canyon, Ariz.

Food plant.—Unknown.

Remarks.—Described from the type male (12–IX–1938) and one male paratype (Roaring Springs, Grand Canyon, "VIII–1938") both collected and submitted by Louis Schellbach, assistant park naturalist.

This is one of the most brilliantly colored species of the genus and can be distinguished easily from all others by the concolorous ground of the fore and hind wings. It appears to be most nearly related to *picta*.

ARACHNIS MIDAS Barnes and Lindsey

Plate 12, Figures 8–8*c*

Arachnis midas Barnes and Lindsey, Ent. News, vol. 32, p. 297, 1921.—McDunnough, Check list of the Lepidoptera of Canada and the United States of America (Part 1, Macrolepidoptera), No. 1083, 1938.

Male genitalia.—Lateral projection of harpe not bent toward base, broader than distal end of harpe beyond it and roughened on posterior edge; distal end of harpe swollen. Anellus narrower distally than proximally. Aedeagus with well-developed distolateral flap. Vinculum moderately narrow, rounded. Uncus elongate, angular. Flange of tegumen broad.

Alar expanse, 55 mm.

Distribution.—Known only from the type locality.

Type.—In the U. S. National Museum.

Type locality.—Eureka, Utah.

Food plant.—Unknown.

Remarks.—The genitalia of this species are strikingly similar to those of several of the varieties of *picta* but are at once distinguished by the elongate and angulate uncus, as shown in the figure.

I believe this to be another color form of *picta* but am retaining the specific name for the present because it is represented by the unique type only, which does not offer sufficient evidence for a change. The distolateral flap of the aedeagus is especially typical of *picta*.

ARACHNIS ZUNI Neumoegen

Plate 11, Figures 5–5*b*, 6–6*a*

Arachnis zuni Neumoegen, Ent. Amer., vol. 6, p. 173, 1890.—Smith, List of the Lepidoptera of Boreal America, No. 1119, 1891.—Kirby, A synonymic catalogue of the Lepidoptera Heterocera (moths), vol. 1, p. 219, 1892.—Neumoegen and Dyar, Journ. New York Ent. Soc., vol. 1, p. 178, 179, 1893.—Druce, Biologia Centrali-Americana, Heterocera, vol. 2, p. 378, pl. 75, figs. 5, 8, 1897.—HAMPSON, Catalogue of the Arctiadae (Arctianae) and Agaristidae in the collection of the British Museum, vol. 3, pp. 389, 393, pl. 47, fig. 15, 1901.—COCKERELL, Ent. News, vol. 12, p. 209, 1901 [egg].—DYAR, U. S. Nat. Mus. Bull. 52, No. 858, 1903.—SMITH, Check list of the Lepidoptera of Boreal America, No. 947, 1903.—HOLLAND, The moth book, p. 124, pl. 16, fig. 3, 1903.—BARNES and McDUNNOUGH, Check list of the Lepidoptera of Boreal America, No. 969, 1917.—BONNIWELL, The Lepidopterist, vol. 2, p. 85, 1918.—STRAND, Lepidopterorum catalogus, pt. 22, p. 279, 1919.—SEITZ, Die Gross-Schmetterlinge der Erde, vol. 6, p. 315, pl. 40c, 1919.—BARNES and LINDSEY, Ent. News, vol. 32, p. 297, 1921.—McDUNNOUGH, Check list of the Lepidoptera of Canada and the United States of America (Part 1, Macrolepidoptera), No. 1084, 1938.

Male genitalia.—Lateral projection of harpe broader than portion of harpe beyond it, bent toward base; distal end of harpe not greatly dilated, somewhat compressed, slightly excurved. Anellus long, narrower distally than proximally. Aedeagus with broad, flattened, distolateral flap. Vinculum narrow, bluntly pointed, with long, narrow, lateral, winglike expansion. Uncus conical, elongate with apex narrowly flattened.

Female genitalia.—Median fleshy protuberance of ostium flattened, broad, with shallow indentation on posterior margin; lateral area membranous. Ductus seminalis weakly sclerotized anterior to its junction with the ductus bursae and bursa copulatrix.

Alar expanse, 43–70 mm.

Distribution.—Southwestern part of the United States and Mexico.

Arizona: Chiracahua Mountains, 2 ♂♂, 2 ♀♀ (June 12 to 26, H. G. Hubbard).
New Mexico: High Rolls, 12 ♂♂, 9 ♀♀ (various dates; no collector); Las Cruces, ♂ (no date; T. D. A. Cockerell); Las Vegas, ♀ (no date or collector).

Type.—In the U. S. National Museum.

Type locality.—Las Vegas, N. Mex.

Food plant.—Virginia creeper.

Remarks.—This species is easily distinguishable from any other in the genus by the peculiar slate-colored markings of the fore wing and the yellow ground color of the hind wing.

A single specimen in the U. S. National Museum from Mexico City, Mexico, if correctly labeled, suggests that *zuni* has a much wider distribution than the above records from the United States indicate.

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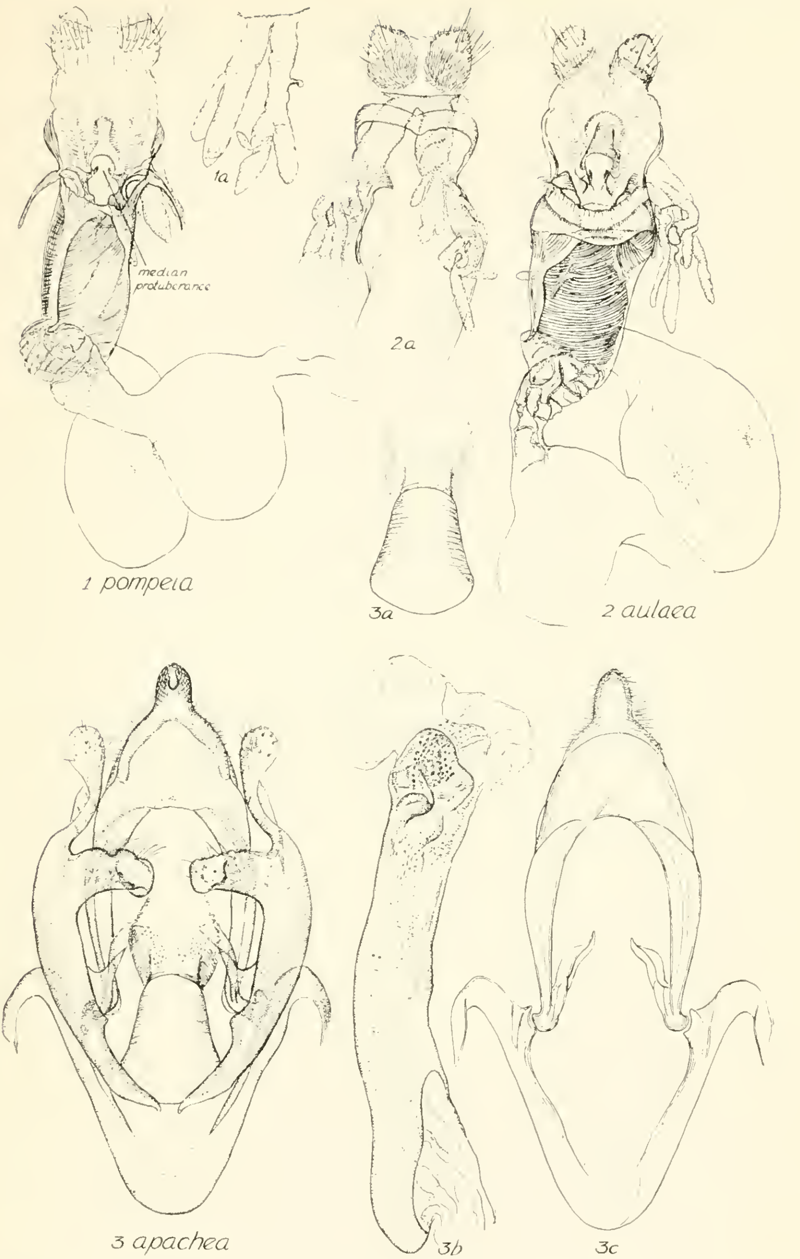
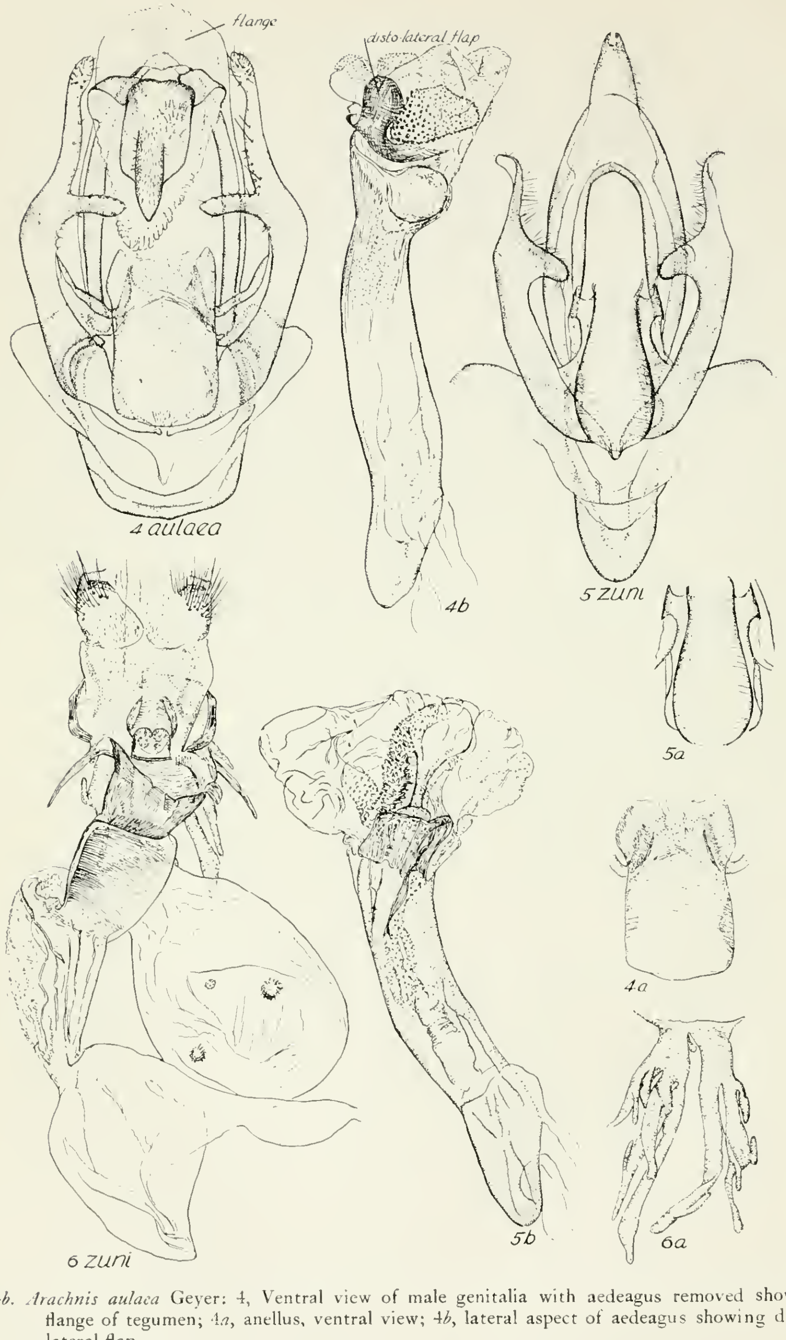
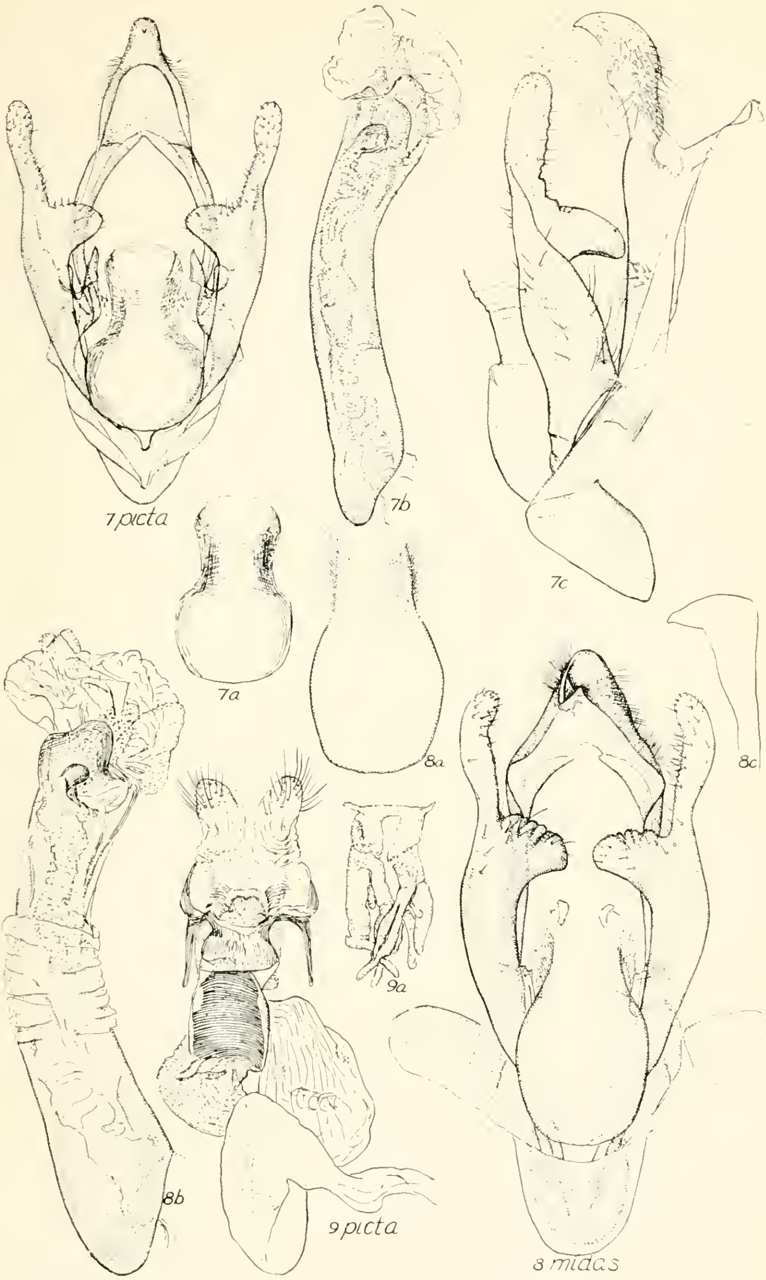


1–1*a*. *Arachnis aulaea pompeia* Druce: 1, Ventral view of female genitalia; 1*a*, dorsal view of glands.
2–2*a*. *Arachnis aulaea* Geyer: 2, Ventral view of female genitalia; 2*a*, dorsal aspect of glands entering intersegmental membrane.
3–3*c*. *Arachnis apachea*, new species: 3, Ventral view of male genitalia with aedeagus removed; 3*a*, ventral aspect of anellus; 3*b*, lateral view of aedeagus; 3*c*, dorsal view of male genitalia with aedeagus removed and showing flange.



4–4*b*. *Arachnis aulaea* Geyer: 4, Ventral view of male genitalia with aedeagus removed showing flange of tegumen; 4*a*, anellus, ventral view; 4*b*, lateral aspect of aedeagus showing disto-lateral flap.

5–6*a*. *Arachnis zuni* Neumoegen: 5, Ventral view of male genitalia with aedeagus removed; 5*a*, ventral view of anellus; 5*b*, aedeagus, lateral view; 6, ventral view of female genitalia; 6*a*, dorsal glands.



7–7c, 9–9a. *Arachnis picta* Packard: 7, Ventral aspect of male genitalia with aedeagus removed; 7a, anellus, ventral view; 7b, aedeagus, lateral view; 7c, lateral aspect of male genitalia showing uncus and flange; 9, ventral view of female genitalia; 9a, dorsal glands.

8–8c. *Arachnis midas* Barnes and Lindsey: 8, Ventral view of male genitalia with aedeagus removed; 8a, ventral view of anellus; 8b, aedeagus, lateral aspect; 8c, lateral view of uncus.

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SMITHSONIAN INSTITUTION
U. S. NATIONAL MUSEUM

Vol. 91 Washington : 1941 No. 3124

SOME LITTLE-KNOWN FOSSIL LIZARDS FROM THE OLIGOCENE OF WYOMING

By Charles W. Gilmore

Among a small collection of Oligocene fossil remains acquired for the United States National Museum in 1931, from George F. Sternberg, were two lizard specimens that contribute to a better understanding of the cranial anatomy of the genera *Aciprion* and *Exostinus*. These specimens were found in a small badland area of the Brule formation that is bisected by U. S. Highway 20, about 8 miles east of Douglas, Converse County, Wyo. A detailed description of them follows. The illustrations were prepared by Sydney Prentice.

Family IGUANIDAE

Genus ACIPRION Cope

ACIPRION FORMOSUM Cope

Figures 30, 31

An almost complete skull with both dentaries (U.S.N.M. No. 16566) of *Aciprion formosum* Cope gives for the first time a comprehensive knowledge of the cranium in this little-known genus and species.

Skull.—The skull is complete except for part of the right jugal and fragments of the squamosal of the same side. The anterior half of the palate has been disarranged and some of the elements are missing. The lower jaws both lack their posterior portions.

Most of the sutural contacts are discernible and so make it possible clearly to depict the cranial details as shown in the illustrations. In size and general structure the fossil skull displays many resemblances to the living lizard *Crotaphytus*. The dentitions of these two forms likewise are very similar.

Viewed from the side (see fig. 31) the profile of the skull at the junction of the parietal and frontal is depressed, as contrasted with the usual convex profile of most of the Iguanidae. From the tip of the nose to the posterior end of the squamosal the skull has a greatest length of 27 mm.; the greatest breadth across the jugals is 14.6 mm.

The premaxillary has a long spine that is relatively wider than in *Crotaphytus*. Its posterior end is notably different in being broadly rounded as contrasted with the narrow, sharply pointed extremity in the extant genus. The nasals are short and wide, being shortened

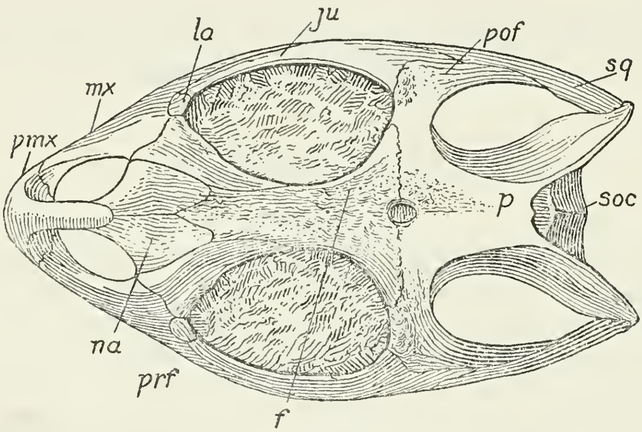

FIGURE 30.—Skull of *Aciprion formosum* Cope (U.S.N.M. No. 16566), superior view: *f*, Frontal; *ju*, jugal; *la*, lachrymal; *mx*, maxillary; *na*, nasal; *p*, parietal; *pmx*, premaxillary; *pof*, postorbital; *prf*, prefrontal; *soc*, supraocciptal; *sq*, squamosal. About three times natural size.

by the large size and partly vertical position of the nostril openings. The frontal is single and relatively wide between the orbits. The pineal foramen is on the frontoparietal suture. The prefrontal is large, but without a preocular boss, which forms such a prominent projection on the *Crotaphytus* skull. The postfrontal is absent, a condition noted by Cope[1] in *Crotaphytus*. Its place is taken by a widening of the frontal on each posterior-external angle. The postorbital is large, uniting inferiorly with the jugal and posteriorly with the squamosal. The dorsal surface of the parietal is relatively narrower between the supratemporal fossa and between the divergent posterior process than in *Crotaphytus*. The left squamosal is missing, and only a small part of the right one is present. In the illustra-

[1] Cope, E. D., Ann. Rep. U. S. Nat. Mus. for 1898, p. 246, 1900.

tions it has been restored following modern iguanids. The lachrymal is very small and in line with the jugal. The large jugal is without a posteriorly directed spur. Only the right quadrate is present, and it is so damaged that its detailed structure is obscured. As depicted in figure 31 it may be too short. It appears to have a nearly straight external border. The top of the supraoccipital is not wholly beneath the overlying parietal but is visible from above as shown in figure 30. A low obtuse vertical ridge extends upward from the top of the foramen magnum. The supraoccipital is fully coalesced with the exoccipital. The occipital condyle is plain and without evidence of participation of the exoccipitals.

The basioccipital and sphenoid surfaces are confluent. Basipterygoid processes are large, with spatulate ends directed strongly for-

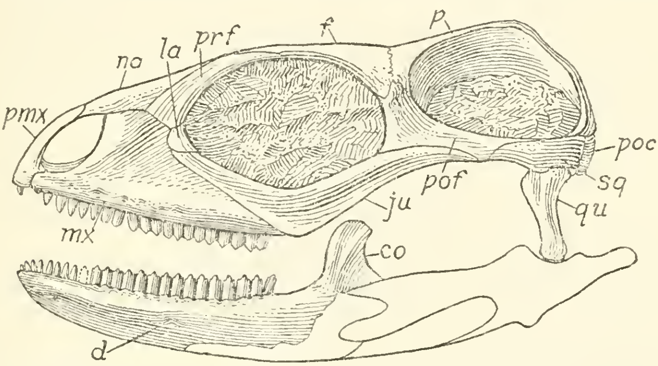

FIGURE 31.—Skull and lower jaw of *Aciprion formosum* Cope (U. S. N. M. No. 16566), viewed from the left side: *co*, Coronoid; *d*, dentary; *f*, frontal; *ju*, jugal; *qu*, quadrate; *la*, lachrymal; *mx*, maxillary; *na*, nasal; *p*, parietal; *pmx*, premaxillary; *poc*, paraoccipital; *pof*, postorbital; *prf*, prefrontal; *sq*, squamosal. About three times natural size.

ward. There is no evidence of teeth on the pterygoids. The other palatal elements are so badly disarranged as to furnish no reliable information regarding the true structure of the palate.

Lower jaw.—The mandible in specimen U.S.N.M. No. 16566 is represented by the right dentary, with full dentition posterior of the coronoid process and the greater portion of the left dentary lacking most of the teeth. These contribute but little new information, and since the lower jaw has been described in a previous publication there is no reason to repeat it here. The dentary carries 25 closely set teeth in the complete series. In the restoration of the missing part of the ramus in figure 31, the very complete ramus forming part of the type of *Aciprion majus* was used as a guide.

Dentition.—The dentition is pleurodont, the dental formula being premaxillary 6, maxillary 20, dentary 25. The teeth are closely placed, cylindric with compressed crowns. The latter support a large median and two small lateral cusps. These lateral cusps are most prominently developed on the teeth of the posterior two-thirds of both upper and lower series. From this point forward the teeth gradually diminish in size, and the lateral cusps become smaller and smaller, disappearing altogether on the first few teeth that have simple pointed crowns. Upper and lower teeth appear indistinguishable. Crowns in lower jaw project farther above the alveolar border than in the maxillary.

Specimen U.S.N.M. No. 16566 in total number of teeth in maxillary and dentary is in perfect accord with the type of *Aciprion majus* Gilmore, but its smaller size clearly shows it to pertain to the earlier described *Aciprion formosum* Cope.

Remarks.—In 1928[2] this genus was referred to the family Iguanidae on rather meager evidence, but after a study of these new materials the propriety of that assignment now seems assured. The resemblances found in skull structure and character of dentition to those of extant members of the family leave little doubt as to the correctness of this family assignment.

Measurements of Skull, U. S. N. M. No. 16566

	mm.
Greatest length of skull, over all	27.0
Greatest length of skull at middle	22.3
Greatest width of skull across jugals	14.6
Greatest width parietals at center	3.5
Greatest length frontals between orbits	2.3
Greatest length nasal	3.6
Greatest length frontal	7.0
Greatest length parietal	7.1
Greatest width occipital condyle	1.2

Genus EXOSTINUS Cope

EXOSTINUS SERRATUS Cope

Figure 32

An anterior portion of a skull and a left dentary (U.S.N.M. No. 16565) is clearly identified as pertaining to *Exostinus serratus* Cope. It is the first specimen found that displays the complete structure and osseous scutellation of this part of the cranium, and thus it contributes to a better understanding of this little-known species.

The entire outer surfaces of the premaxillary, nasal, and maxillary bones, with the exception of a smooth narrow band parallel to the dentigerous border, is covered by the characteristic osseous prominences, as shown in figure 32. These are coalesced to the underlying skull elements and thus hide all trace of the cranial sutures. For that

[2] Gilmore, C. W., Mem. Nat. Acad. Sci., vol. 22, p. 18, 1928.

reason the extent of the underlying skull bones cannot be accurately determined. The maxillary of the left side is complete and from end to end has a length of 8.5 mm. The complete dental series of the maxillary consists of 12 pleurodont, subcylindric teeth. The premaxillary has eight teeth in the complete series, as in *Peltosaurus*.

The spine of the premaxillary is ornamented with three longitudinal rows of osseous tubercles, the central row having the largest ossifications. The nasal region is covered with tubercles of varying sizes and without definite arrangement. Those above the prefrontal are the largest tubercles on this portion of the skull and form a distinct row along the orbital border. Although the frontals are missing in this specimen, it is quite evident that the prefrontal strongly laps this bone and that its posterior termination reaches nearly to the center of the orbit.

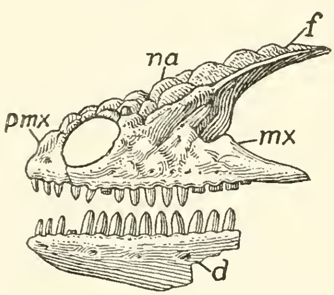

FIGURE 32.—Anterior part of the skull of *Exostinus serratus* Cope (U.S.N.M .No. 16565), viewed from left side: *d*, Dentary; *f*, prefrontal; *mx*, maxillary; *na*, nasal; *pmx*, premaxillary. About three and one-half times natural size.

The type [5] on which this genus and species is based consists of the frontals, left zygomatic, and a portion of the dentary with a few teeth. The frontals are also covered with bony tubercles, a series along each supraorbital border, longitudinal at the front, quadrate at the back. A single median row separates them. On the posterior end of the frontals, they are arranged in three transverse rows of 5, 4, and 3 tubercles, respectively. On the zygomatic there are two longitudinal rows of flat quadrangular tubercles.

The incomplete dentary carries 14 teeth, and it appears that two or more may be missing from the posterior end of the series. In the article cited I stated that "the upper teeth [are] similar to the lower"; this is true only so far as both are pleurodont, with subcylindric shafts and simple crowns. The lower are more robust than the upper and their crowns project farther beyond the parapet of the jaw, as clearly shown in figure 32. In this specimen there are nine teeth

[5] Gilmore, C. W., Mem. Nat. Acad. Sci., vol. 22, p. 22, pl. 25, figs. 4–6, 1928.

in 5 mm., whereas in the type dentary eight teeth occupy a similar space. The teeth of both upper and lower series decrease in size toward the front, and the transversely compressed crowns of the lateral teeth change to simple, rounded, sharp-pointed teeth in front.

The dental formula of *Exostinus serratus* may now be stated as follows:

$$\frac{\text{Maxillary } 14+\text{premaxillary } 8}{\text{dentary } 14^{+}}=\frac{36}{28^{+}}$$

This genus and species were tentatively referred in my 1928 review of the lizards of North America to the family Iguanidae. Although this new material contributes but scant information on this important question, the subequal size of the pleurodont teeth, the constantly long cylindrical shafts, and the gradual change taking place between the lateral and anterior teeth are all features in accord with its assignment to the Iguanidae. The osseous ornamentation of the skull is highly suggestive of the horny tubercular ornamentation of the *Phrynosoma* skull. For the present, therefore, *Exostinus* will be regarded as an extinct representative of the Iguanidae.

U. S. GOVERNMENT PRINTING OFFICE: 1941

PROCEEDINGS OF THE UNITED STATES NATIONAL MUSEUM

issued by the

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Vol. 91 Washington : 1941 No. 3125

NEW SPECIES OF HYDROIDS, MOSTLY FROM THE ATLANTIC OCEAN, IN THE UNITED STATES NATIONAL MUSEUM

By C. McLean Fraser

A paper that might be called a progress report, including the description of new species from the first portion of a large United States National Museum collection of hydroids, mostly from the North Atlantic, was published in 1940.[1] The examination of the remainder of this collection has been completed, and the present paper serves to report further on the new species in the collection. The whole of the material has yielded more than 1,200 distribution records for 173 species.

Although most of the material was obtained from the North Atlantic, it happens that out of the 15 species here considered only 10 were obtained in the Atlantic. The other five came from the west coast of America, from Bering Sea to Panama. Two of the most interesting species in the collection were together in the same vial from Thistle Ledge, Stephens Pass, not far from Juneau, Alaska. For one of these species it appears to be necessary to introduce not only a new genus but also a new family (see p. 78). The other species, *Lampra uvularis*, belongs to a genus not previously reported from the Pacific coast of North America. One from Bering Sea, one from near the Golden Gate, Calif., and one from near Panama make up the other three species.

[1] Fraser, C. McLean, Seven new species and one new genus of hydroids, mostly from the Atlantic Ocean. Proc. U. S. Nat. Mus., vol. 88, pp. 575–580, 1940.

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Of the 15 species considered 14 are described as new, and for the fifteenth the gonosome is described and figured for the first time. As indicated, one new genus and one new family are described.

The whole collection, therefore, has provided one new family, two new genera, 21 new species, and the gonosome of two species, of which the trophosome had been previously described.

I must again express my appreciation of the courtesy shown by the United States National Museum in providing the opportunity to examine this material, and my appreciation of the contribution that Miss Ursula Dale has made in drawing the figures used in illustration.

SYMPLECTANEIDAE, new family

Trophosome.—Zooids without chitinous perisarc, with capitate tentacles, arranged in series over the surface of the body of the hydranth, each series of three or more fused throughout much of their length to form a bractlike structure.

Gonosome.—Gonophores producing sporosacs borne on the body of the hydranth.

SYMPLECTANEA, new genus

Trophosome.—Zooids solitary, without chitinous perisarc; the capitate tentacles in series, graded in length, the longest tentacle medially placed in the series and the others growing shorter as they appear farther from the median.

Gonosome.—Gonophores in the form of sporosacs in the axil of a series of tentacles.

SYMPLECTANEA BRACTEATA, new species

Plate 13, Figure 1

Trophosome.—Solitary zooids grow from a broad base, with stubby processes projecting from the central portion; largest specimens 33 mm. in length; hydrocaulus 1.6 mm. in diameter, hydranth 2.0 to 4.0 mm., the hydranth making up one-third of the length. No chitinous covering in any part and no annulations. The hydranth is provided with numerous tentacles in series, scattered over the whole surface; the series consists of 3, 5, or 7 tentacles in a row, fused into one bractlike structure; the median tentacle may be 1 mm. long, the next two, one on each side, much the same in length, which is less than that of the median; there is a further recession for the next pair, and the next, if these are all present. Fusion appears for the greater part of the length of the lesser tentacle of each pair in succession, always leaving the capitate portion free. In the younger hydranth the bract makes a sharp angle with the body, but when the gonophore develops the bract is gradually forced outward distally until it is nearly at right angles to the body.

Gonosome.—The gonophores develop to form sporosacs in the angle between the tentacular bract and the body of the hydranth; they are almost spherical, with very short pedicels; ova relatively large and not numerous.

Type.—U.S.N.M. No. 43450. Taken by the United States Fisheries steamer *Albatross* at station 4253, Thistle Ledge, Stephens Pass, Alaska, 131 fathoms, July 14, 1903.

Family HYDRACTINIDAE

Genus HYDRACTINIA van Beneden

HYDRACTINIA VALENS, new species

Plate 13, Figure 2

Trophosome.—Colony growing from a thick, basal coenosarc, provided with short, smooth spines; nutritive zooids large and lusty, reaching a height of 4.5 mm.; 10 tentacles in rather regular whorls.

Gonosome.—Generative zooids (only female zooids obtained) about one-half of the length and breadth of the mature nutritive zooids; tentacles wholly lacking; sporosacs 3–5, forming a whorl at the base of the proboscis; commonly 6 ova in each sporosac.

Other zooids.—None observed.

Type.—U.S.N.M. No. 43451. Taken by the United States Fisheries steamer *Speedwell* at station 284, latitude 42°10′ N., longitude 70°22′ W., southwest of Stellwagens Bank, near Race Point Light, Cape Cod region, 31 fathoms, August 4, 1879.

Family CORYMORPHIDAE

Genus CORYMORPHA Sars (in part)

CORYMORPHA ADVENTITIA, new species

Plate 13, Figure 3

Trophosome.—Zooids 20 mm., of which the hydranth is approximately one-fourth, with adventitious shoots, the longest 0.25 mm., passing backward from the main hydrocaulus at various angles, to serve as accessory means of attachment; the hydrocaulus has much the same diameter throughout, or this may increase slightly, distally; proximal tentacles 20–24 in one whorl, distal tentacles very numerous in several irregular whorls.

Gonosome.—Gonophores borne on long, unbranched peduncles, attached to the hydranth just distal to the proximal tentacles, each gonophore with a short pedicel; apparently these gonophores develop irregularly, as small and large ones are mixed without any evidence of their appearing in any regular order.

Type.—U.S.N.M. No. 43452. The vial is labeled "U. S. F. C. Str. *Albatross*, Panama, Mar. 12, 1891," but there is no station listed on that day. The last haul on March 11 was made in latitude 7°33′ N., longitude 78°34′20″ W., in 85 fathoms.

Remarks.—The adventitious shoots in these hydroids are so unusual that it might seem advisable to place the species in a new genus, but, although each of the three specimens available for examination had these shoots, it is just possible that they may have developed under unusual conditions, and as all the other features are definitely like *Corymorpha*, it seems better at the present time to place it in this genus.

Family TUBULARIDAE

Genus LAMPRA Bonnevie

LAMPRA UVULARIS, new species

PLATE 14, FIGURE 4

Trophosome.—Zooid 22 mm., of which the hydrocaulus is 15 mm., straight, without annulations; hydranths large, 7 mm. in diameter; proximal tentacles 18–20, long and slender; distal tentacles 40–48, shorter and stiffer in appearance, in four rather indistinctly different whorls.

Gonosome.—Gonophores growing in eight erect, closely arranged clusters, looking like compact bunches of grapes or like the cluster of flowers in the grape hyacinth; each gonophore is spherical, on a short pedicel, and shows no sign of tentacular processes.

Type.—U.S.N.M. No. 43453. Taken by the United States Fisheries steamer *Albatross* at station 4253, Thistle Ledge, Stephens Pass, Alaska, 131 fathoms, July 14, 1903.

Remarks.—This appears to be the first record of a species of this genus from the northeastern Pacific. This is not the place to discuss the systematic position of *Lampra*, but it may be stated that it cannot be placed in the Tubularidae (as Bonnevie has placed it[1]) as this family has been defined in all my previous papers.

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[1] Bonnevie, Kristine, Zur Systematik der Hydroiden. Zeitschr. Wiss. Zool., vol. 63, p. 477, 1898.

Genus TUBULARIA Linnaeus (in part)

TUBULARIA CRASSA, new species

Plate 14, Figure 5

Trophosome.—Individual zooids only were obtained: there is nothing to indicate whether they grow in colonies or not; the pedicels appear to be complete, but they are but little more than 1 cm. in length, which, even in the contracted condition, has a diameter almost equal to the length of the pedicel. There are no annulations, but there is a definite ridge at the base of the proximal tentacles; proximal tentacles long and numerous, 32–36; distal tentacles slender, much more numerous.

Gonosome.—Gonophores grow in rather long, erect racemes when well developed; these racemes are densely crowded so that the body of the hydranth is almost entirely hidden; there are no tentacular processes on the gonophores.

Type.—U.S.N.M. No. 22746. Taken by the United States Fisheries steamer *Fish Hawk* at station 988, latitude 40°49′30″ N., longitude 70°47′ W., off Marthas Vineyard, 30 fathoms, September 7, 1881.

Family CAMPANULARIDAE

Genus CAMPANULARIA Lamarck

? CAMPANULARIA FASCICULATA, new species

Plate 15, Figure 6.

Trophosome.—Colony 2 cm. in height, with the base of the main stem and some of the lower branches fascicled. The simple branches are short; the hydrothecae arising from the fascicled stem have relatively long pedicels, annulated at each end; those from the simple portion of the stem and from the branches with shorter pedicels, commonly annulated throughout. Hydrothecae large, 0.5–0.6 mm. in length, broadly campanulate; margin with 16 low, rounded teeth; lines run down the wall of the hydrotheca from the depressions between the teeth.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 43454. Taken by the United States Fisheries steamer *Speedwell* at station 984, latitude 41°31′ N., longitude 69°28′ W. off Chatham, Cape Cod, 33 fathoms, August 30, 1881.

Genus OBELIA Peron and Lesueur

? OBELIA RACEMOSA, new species

Plate 15, Figure 7.

Trophosome.—Colony large, with a main axis 25 cm. and a few large branches almost as large as the main axis; from these small branches and branchlets are given off that distally are clustered in rather stiff racemes. The main stem and larger branches are strongly fascicled and even the secondary branches may be so in the proximal portion; the primary branches and the larger secondary branches are annulated only above the nodes, but the distal branchlets and the pedicels are extensively annulated; the longer ones are annulated proximally and distally, with a short, smooth portion between, of greater diameter, so that the branchlet or pedicel seems to bulge definitely in this portion; the shorter pedicels are annulated throughout. The hydrothecae, appearing in close clusters, are broadly campanulate, at least as broad as deep; margin entire. The larger branches and the main stem are dark brown, the branchlets and pedicels much lighter.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 4883. Western Bank, off Cape Breton Island, 50–65 fathoms, June 7, 1880.

Remarks.—This species bears some resemblance to *Obelia plicata* Hincks, but it is a larger, coarser species, the ultimate branches are more rigid, the hydrothecae are clustered, and the hydrotheca is more broadly campanulate.

Family CAMPANULINIDAE

Genus EGMUNDELLA Stechow

EGMUNDELLA GRANDIS, new species

Plate 16, Figure 8.

Trophosome.—Zooids growing singly from an irregularly reticulate stolon to a height of 3 mm.; pedicel straight, rigid, smooth except for two or three annulations at each end; hydrotheca of the usual turbinate type, 0.7–0.8 mm. in height; operculum of 12 segments. Nematophores very small for this genus, spherical, with a short pedicel, sparingly scattered over the stolon, and occasionally occurring on the pedicels.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 43455. Taken by the United States Fisheries steamer *Fish Hawk* at station 897, latitude 37°25′ N., longitude 74°18′ W., off the mouth of Chesapeake Bay, 157½ fathoms, November 16, 1880.

Genus LOVENELLA Allman

LOVENELLA GRANDIS Nutting

PLATE 16, FIGURE 9.

Lovenella grandis NUTTING, U. S. Fish Comm. Bull. for 1899, pp. 325–386, figs. 1–105, 1901.

Trophosome.—Stems simple, rather rigid, unbranched, up to 5 cm. in length, divided into regular, long internodes by single nodes. Hydrothecae arise on short pedicels, with a double annulation from a process a short distance from the distal end of the internode, regularly alternate; hydrothecae very large, turbinate; margin with 10–12 sinuations from which arise the segments of the operculum.

Gonosome.—(Not previously described.) Gonangium long, 1.5–1.6 mm., but rather slender, arises from the axil of the pedicel, the basal portion gradually increasing in diameter, but the distal half practically tubular; pedicel short, with one annulation. Medusa buds were developing on the blastostyle, but they were not far enough advanced to show all the characteristics.

Type.—U.S.N.M. No. 43460. Taken by the United States Fisheries steamer *Fish Hawk* at station 830, near the mouth of the Sakonnet River, R. I., 10½ fathoms, August 27, 1880.

Remarks.—Nutting described this species from a specimen dredged from Newport Harbor, off Castle Hill, a location very near the present one. As far as I am aware, it has not been reported since until now. Nutting's specimen had no gonosome.

Family HALECIDAE

Genus HALECIUM Oken

HALECIUM DUBIUM, new species

PLATE 16, FIGURE 10*a*; PLATE 17, FIGURE 10*b*

Trophosome.—Colony slightly bushy, reaching a height of 3 cm.; proximal portion fascicled to a limited extent. Nodes not very strongly marked; internodes long, turning alternately to one side and to the other, making a zigzag main stem. The hydrophore, with relatively long pedicel, is given off near the distal end of the internode; this pedicel makes much the same angle with the vertical as the internode of the stem does. The hydrophore may give rise to one or more other hydrophores as duplications, the pedicels of these varying much in length; the margin of the hydrophore is slightly flaring. The branches arise in the same way as the hydrophores, so it would appear at first glance that the branching is dichotomous, but the branch is not like the main stem; the proximal portion is like a hydrophore with an elongated pedicel and it may be duplicated in series; then from the distal end, or near it, of the main pedicel, an internode is given off that looks like an internode of the main stem, and from this the branch continues in the same way that the stem does.

Gonosome.—Male gonangia arise from the base of the hydrophore pedicels, just beyond where they leave the internodes; they are broadly obovate in the one direction and almost flat in the other; there is a short but distinct pedicel present; at the distal end the gonangium has a small, but distinct, semicircular notch.

Type.—U.S.N.M. No. 22922. Taken by the United States Fisheries steamer *Albatross* at station 2572, latitude 40°29′ N., longitude 66°04′ W., off Cape Sable, 1,769 fathoms, September 2, 1885.

Remarks.—It is with some misgivings that I describe this as a new species, since there is so much resemblance to *H. telescopicum* Allman, as described and figured by Allman [2] and by Jäderholm,[3] and yet the specimen from which this species is described has not the characteristic that these authors, and Pictet and Bedot [4] as well, consider definitely distinctive, i. e., the number of the reduplications of the hydrophore, to form a series with many more units than are exhibited in any other species. One might surmise that this excessive reduplication was due to some seasonal or environmental condition, were it not that the same type of structure appeared in such distant locations. The distribution itself is indeed remarkable. Allman described it originally from off Port Jackson, NSW., in 30–35 fathoms. Then Pictet and Bedot reported it from the Gulf of Gascogny in 155–180 meters, and later Jäderholm reported it from the Bering Sea in 131 meters.

Apart from the matter of reduplication, the only other character that is noticeably different is the gonangium, or rather the semicircular notch at the distal end of this, and this is quite a minor difference. The female has not been reported in any instance.

HALECIUM TENSUM, new species

Plate 17, Figure 11

Trophosome.—Colony rather rigid, with a main axis (5 cm.) and a few irregularly arranged branches, the proximal being almost as long as the main axis and the others becoming shorter as they get farther from the base; proximal portion of the main stem and of some of the branches, fascicled; there is little indication of nodes on stems or branches. Each portion of a stem or branch that corresponds to an

[2] Allman, G. J., Report on the Hydroida. *Challenger* Expedition, vol. 23, pt. 70, p. 10, 1888.

[3] Jäderholm, E., Der Hydroidenfauna des Beeringsmeeres. Archiv för Zool., vol. 4, No. 8, p. 4, 1907.

[4] Pictet, C., and Bedot, M., Hydraires provenant des Campagnes de L'Hirondelle (1886–1888), p. 7, 1900.

internode in the regular type is much elongated, tubular, and slightly curved outward distally to end in a hydrophore; then from this pedicel of the hydrophore, a short distance from the distal end, the pedicel for another hydrophore is given off. These in succession form a series, alternately curving to one side and the other and thus maintaining a linear stem or branch. From within each main hydrophore there is usually another hydrophore developed with a much shorter and somewhat slenderer pedicel. In some cases this hydrophore is duplicated. The rim of the hydrophore flares but slightly.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 22926. Taken by the United States Fisheries steamer *Fish Hawk* at station 940, latitude 39°54′ N., longitude 69°51′30″ W., off Marthas Vineyard, 134 fathoms, August 4, 1881.

Remarks.—This *Halecium* has somewhat the same general appearance as *H. kükenthali* Marktanner-Turneretscher, but as a colony it is more rigid and less branched; the internodes, or rather hydrophore pedicels, are relatively much longer, and, most noticeably, they lack the annulations that are so conspicuous in *H. kükenthali.*

Family LAFOEIDAE

Genus LICTORELLA Allman

LICTORELLA CRASSITHECA, new species

Plate 18, Figure 12

Trophosome.—Main stem and the proximal portions of some of the branches fascicled, branching inclined to be pinnate but irregular; occasionally secondary branches appear. There are no noticeable nodes in the ultimate branches, but the hydrothecae are given off in regular alternation. There is a distinct shoulder at the origin of each hydrotheca on which the pedicel of the hydrotheca seems to be somewhat displaced upward or outward; the pedicel is distinct, with one distinct annulation. The hydrotheca widens quickly at the base and the remainder is nearly cylindrical, except that it shows a slight campanulate tendency near its margin, which is entire. The width is much greater relative to the length than in other species. The diaphragm is distinct but does not reach in far from the wall of the hydrotheca. The nematocysts are scarce; none was observed on the branches and few on the fascicled stem.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 43456, Gulf of Maine, 17 fathoms. Also taken at *Albatross* station 2430, latitude 42°58′30″ N., longitude 50°50′ W., southeast of Sable Island, 179 fathoms, June 23, 1885.

406740—41——2

Family PLUMULARIDAE

Genus AGLAOPHENIA Lamoroux (modified)

AGLAOPHENIA INCONSTANS, new species

PLATE 18, FIGURE 13

Trophosome.—Colonies varying in appearance; one, 17.5 cm. long, has no branches, and all the hydrocladia have disappeared from the stem except for about 2.5 cm. at the distal end, while at the other extreme a distal fragment of the main stem, 6 cm. long, has six branches, each replacing a hydrocladium and each regularly bearing hydrocladia; the longest branch is 2.0 cm. Stems, with the exception of the proximal portion, and branches are divided into regular, rather short internodes by definite nodes, each internode bearing a hydrocladial process near the distal end; these processes alternate from side to side but are not nearly in the same plane; two in succession may form an angle as low as 60°. Hydrocladia short for the size of the colony, as short as in some of the minute species of this genus, divided into regular internodes by definite nodes; each hydrotheca occupies almost all the internode, so that there is little space between two hydrothecae in succession; distinctly deeper than broad; margin with nine irregular and irregularly placed teeth; the median tooth is slender, sharp-pointed, and strongly retrorse; each of the first lateral pair is also slender and acute but points outward; between the first and the second there is a wide and deep sinus; the second is lower and blunter than the first; the sinus between the second and third is shallower, and the third tooth is blunter than the second; the next sinus is even less marked, for the fourth lateral tooth is rather insignificant in size and in some cases can scarcely be observed. The intrathecal ridge is prominent, and there is a second one indicated at the base of the supracalycine nematophore.

The supracalycine nematophores are large, slightly overtopping the hydrothecal margin; the mesial nematophore is short, not reaching to the margin of the hydrotheca and not projecting outward very noticeably. There are three nematophores on each internode of the stem or branch; one on the hydrocladial process, one at the base of this process, and one in the axil, this being larger than either of the others.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 43457. Taken by the United States Fisheries steamer *Albatross* at station 3497, latitude 56°18′ N., longitude 169°38′ W., Bering Sea, 86 fathoms, July 17, 1893.

AGLAOPHENIA TRANSITIONIS, new species

PLATE 18, FIGURE 14

Tropohosome.—Colony with a long, somewhat rigid main axis, 8 cm., a limited number of branches given off from the distal half of the stem; each branch leaves the stem in the same manner as a hydrocladium, but after it has given rise to seven or eight hydrothecae it definitely becomes a branch and gives off hydrocladia similar to those from the main stem. The hydrocladia are relatively short (maximum 4 mm.) and arise alternately from the face of the stem, so that the supporting processes form a zigzag row, but slightly curved; divided into regular short internodes by distinct nodes, so that the hydrothecae are closely placed; the hydrotheca is little longer than broad and is stouter distally than proximally, adnate throughout almost the whole length; margin with 11 teeth; the median tooth is erect or very slightly retrorse, sharp, smaller than the tooth on each side; the tooth next to the median on each side is the longest, the second one is the smallest, and the third, fourth, and fifth are nearly equal; all of them are rather sharply pointed. There is no definite anterior intrathecal ridge; the posterior is strongly marked but does not reach far.

The supracalycine nematophores, which do not nearly reach the margin of the hydrotheca, are strongly curved, so that the opening points backward: mesial nematophore not prominent, projecting from the hydrotheca in the distal third of its anterior surface. Of the three cauline nematophores that on the hydrocladial process and the one below the insertion of this process are tubular; the one near the axil, i. e., distal to the process, is triangular and larger than either of the others.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 43458. Taken by the United States Fisheries steamer *Albatross* at station 3150, latitude 37°47′ N., longitude 122°44′10″ W., off Golden Gate, Calif., 21 fathoms.

Genus PLUMULARIA Lamarck (in part)

PLUMULARIA POLYNEMA, new species

PLATE 18, FIGURE 15

Trophosome.—Stem simple, slender (from fragment 83 mm. long), divided into regular internodes with well-marked nodes, each bearing a single hydrocladium on a prominent process near the distal end. All the internodes in the hydrocladium are long, slender, and thecate, except that in some instances an extra nonthecate internode appears, making an intermediate internode, with two nematophores, and a thecate internode that is much shorter than the others, with but one prominent median nematophore. The hydrotheca, placed a considerable distance from the distal end but still in the distal half, is nearly equal in depth and breadth. In some instances, a secondary branch or hydrocladium is given off in place of the hydrotheca in an internode of the primary hydrocladium. There are no definite septal ridges in stem or hydrocladia.

There are two supracalycine nematophores, two mesial nematophores on the proximal hydrocladial internode and three on each of the others, two at the axil of the hydrocladium on the cauline internodal process, and three (sometimes only two observed) on each of the cauline internodes.

Gonosome.—Not observed.

Type.—U.S.N.M. No. 43459. Taken by the United States Fisheries steamer *Fish Hawk* at station 1092, latitude 39°58′ N., longitude 69°42′ W., off Marthas Vineyard, 202 fathoms, August 11, 1882. Another lot taken at *Fish Hawk* station 1038, latitude 39°58′ N., longitude 70°06′ W., off Marthas Vineyard, 130 fathoms, September 21, 1881.

EXPLANATION OF PLATES

(Unless otherwise specified the magnification is × 20.)

PLATE 13

1. *Symplectanca bractcata*, new genus and species: *a*, Hydranth, showing arrangement of tentacular bracts and gonophores (× 12); *b*, tentacular bract and gonophore.
2. *Hydractinia valens*, new species: *a*, *b*, Nutritive zooids; *c*, *d*, female generative zooids; *e*, spines.
3. *Corymorpha adventitia*, new species: *a*, Zooid, showing adventitious shoots (× 3); *b*, hydranth, showing tentacle and gonophore arrangement (× 12).

PLATE 14

4. *Lampra uvularis*, new species: Zooid, showing tentacle and gonophore arrangement.
5. *Tubularia crassa*, new species: *a*, Individual zooid (× 6); *b*, a gonophore cluster.

PLATE 15

6. *?Campanularia fasciculata*, new species: *a*, Portion of fascicled stem with hydrothecae; *b*, portion of simple stem.
7. *?Obelia racemosa*, new species: Portion of colony showing hydrotheca arrangement.

PLATE 16

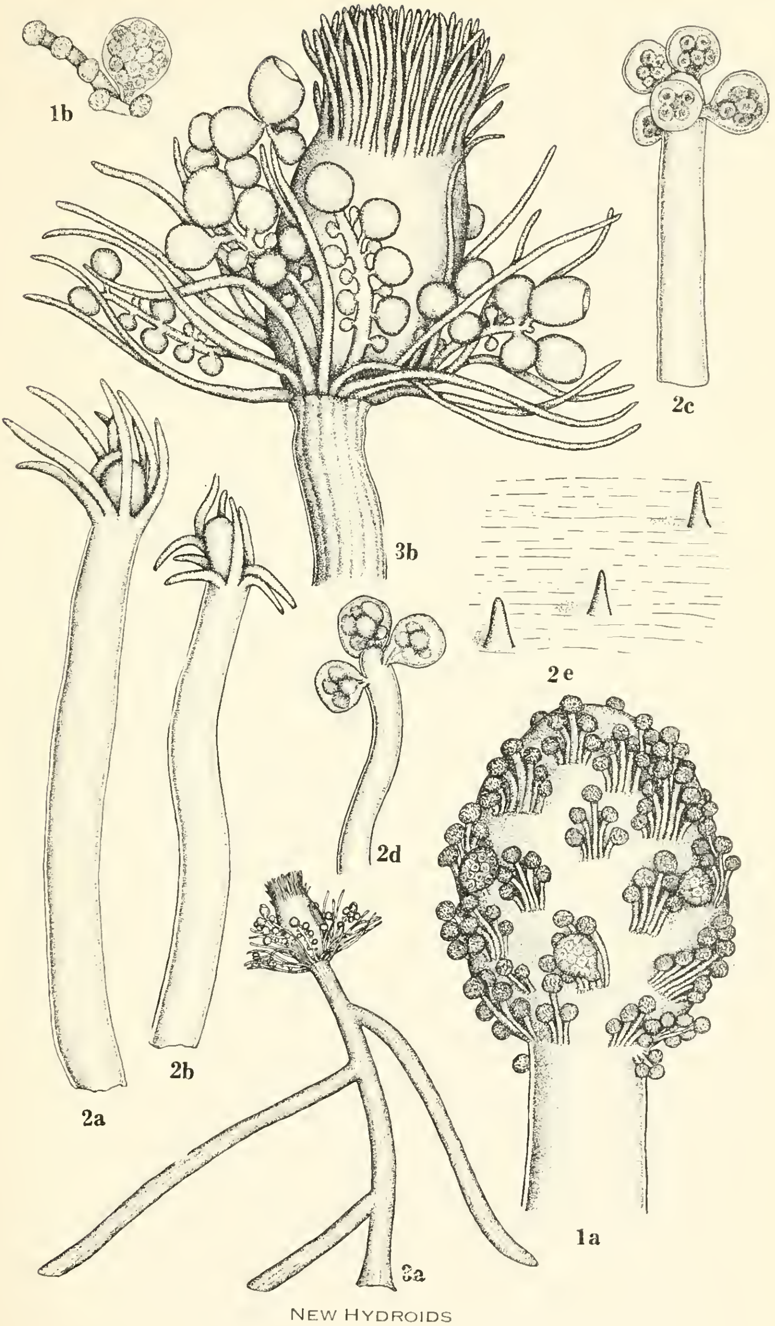
8. *Egmundella grandis*, new species: *a*, *b*, Hydrothecae and nematophores.
9. *Lovenella grandis* Nutting: *a*, Portion of colony with hydrothecae and gonangia; *b*, a single gonophore.
10. *Halecium dubium*, new species: *a*, Portion of colony showing hydrophore arrangement.

PLATE 17

10. *Halecium dubium*, new species: *b*, Portion of colony showing gonophore arrangement.
11. *Halecium tensum*, new species: *a*, Portion of fascicled stem; *b*, *c*, portions of simple stem.

PLATE 18

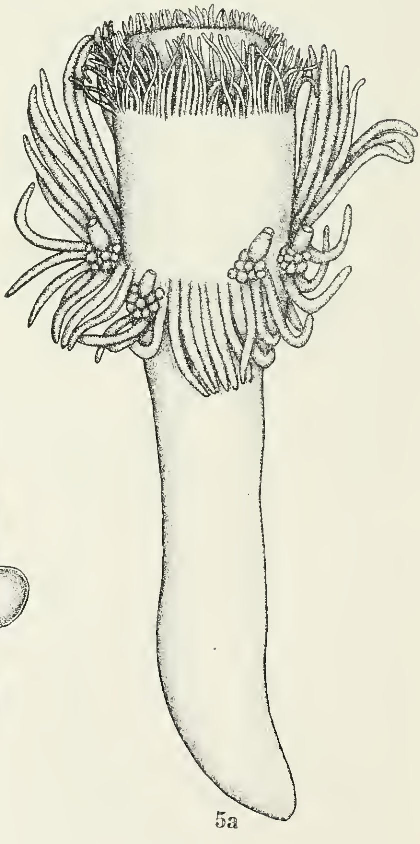
12. *Lictorella crassitheca*, new species: *a*, Portion of fascicled stem; *b*, portion of simple stem.
13. *Aglaophenia inconstans*, new species: *a*, Portion of hydrocladium showing hydrothecae; *b*, three hydrothecae (× 40).
14. *Aglaophenia transitionis*, new species: *a*, Portion of hydrocladium showing hydrothecae; *b*, three hydrothecae (× 40).
15. *Plumularia polynema*, new speics: *a*, Portion of colony showing nematophore arrangement; *b*, portion of colony showing branched hydrocladium.



NEW HYDROIDS

FOR EXPLANATION OF PLATE SEE PAGE 89

4



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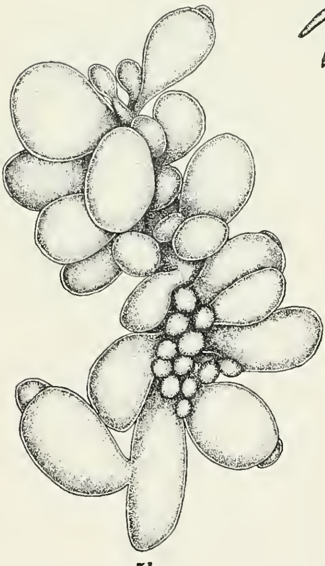

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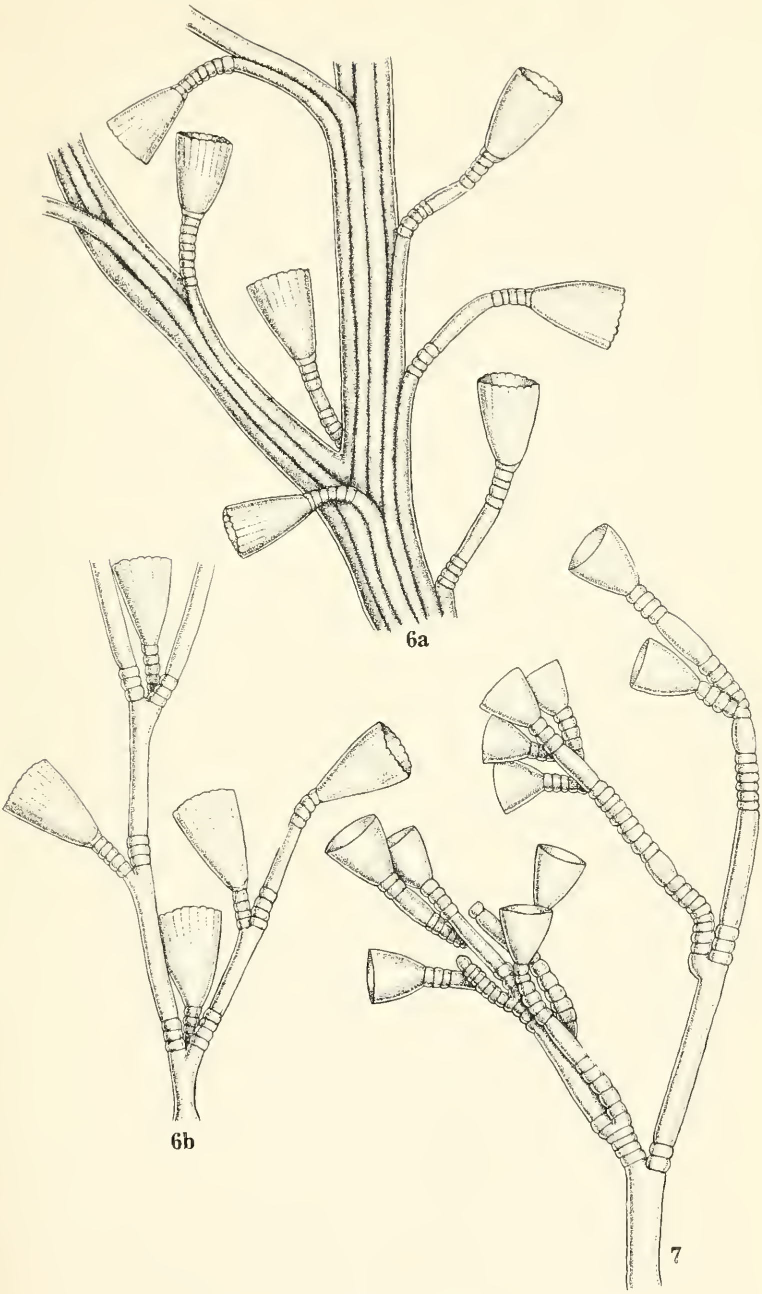
NEW HYDROIDS

FOR EXPLANATION OF PLATE SEE PAGE 89



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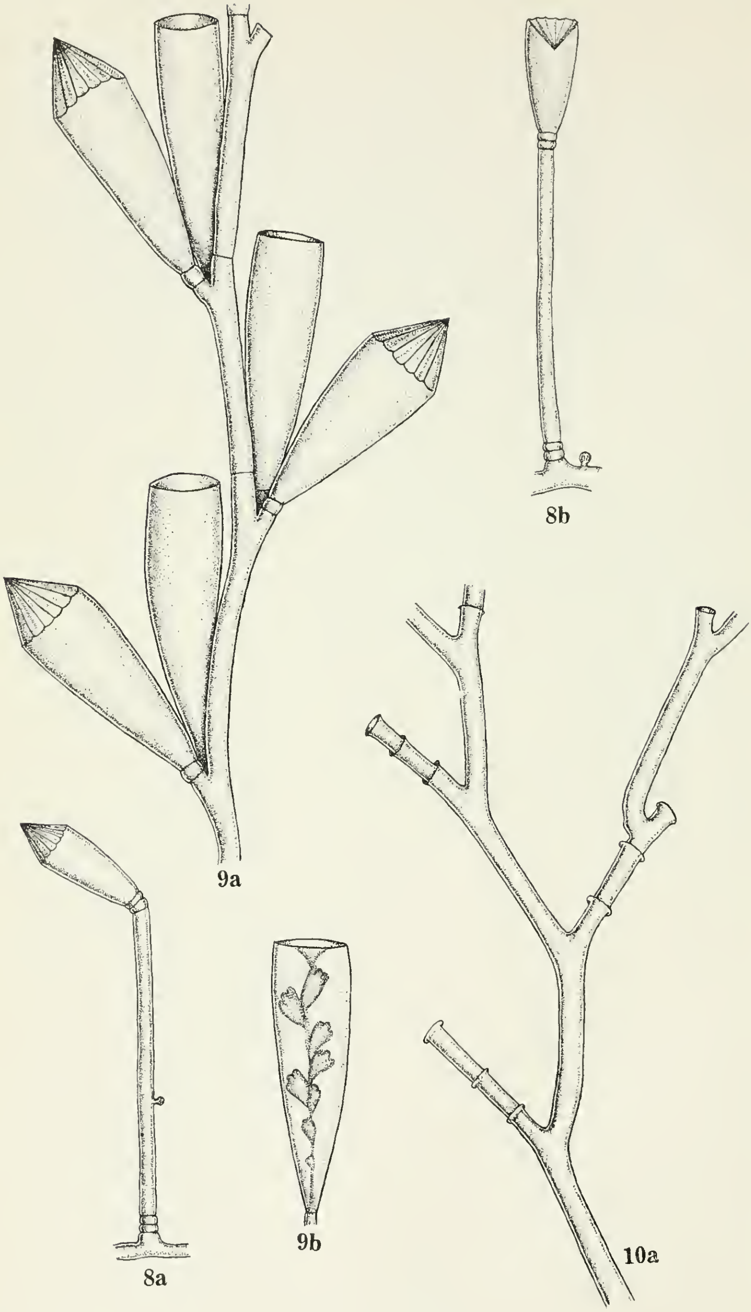
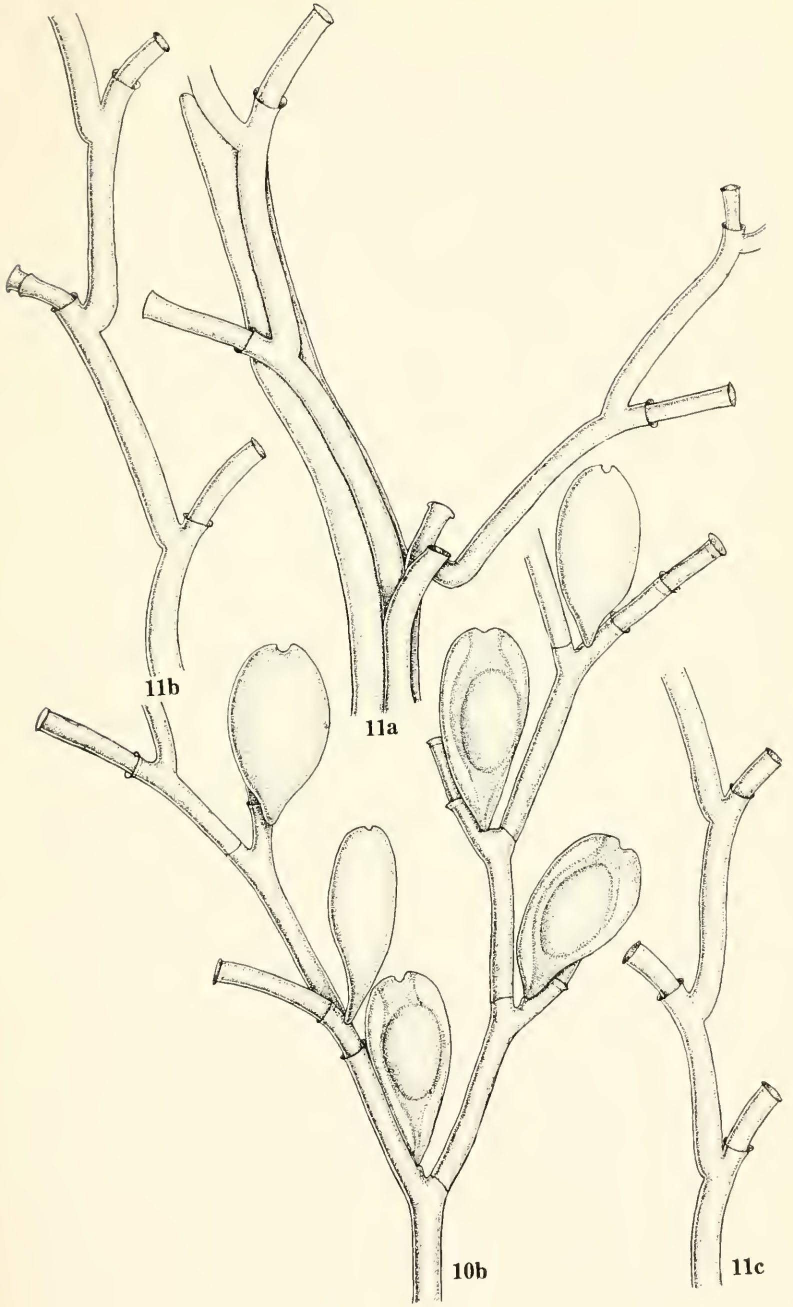
New Hydroids

For explanation of plate see page 89



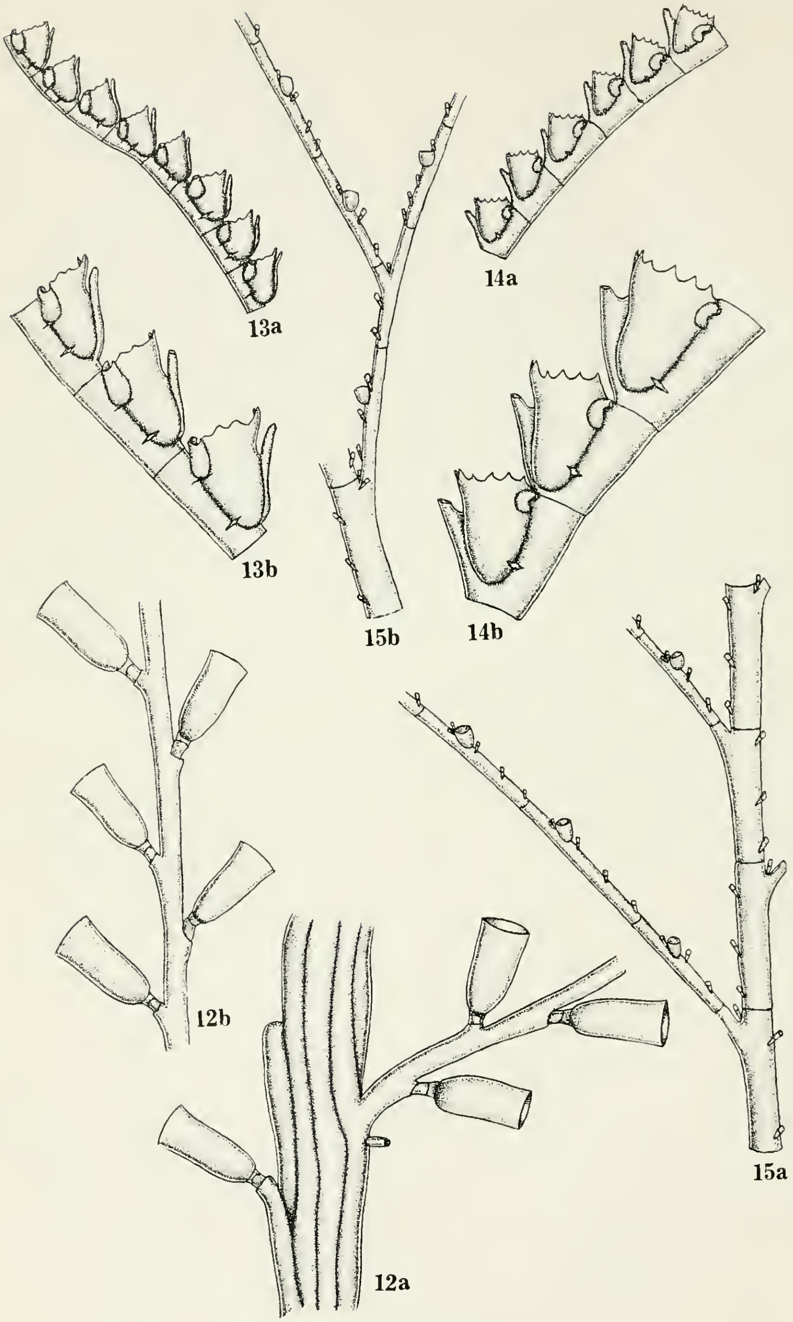
NEW HYDROIDS

FOR EXPLANATION OF PLATE SEE PAGE 89



NEW HYDROIDS

FOR EXPLANATION OF PLATE SEE PAGE 89



New Hydroids

For explanation of plate see page 89

U. S. GOVERNMENT PRINTING OFFICE: 1941

PROCEEDINGS OF THE UNITED STATES NATIONAL MUSEUM

issued by the

SMITHSONIAN INSTITUTION
U. S. NATIONAL MUSEUM

Vol. 91 Washington: 1941 No. 3126

THE NEVADA EARLY ORDOVICIAN (POGONIP) SPONGE FAUNA

By R. S. Bassler

The discovery in 1927 by H. G. Clinton and Percy Train, of Manhattan, Nev., of a new fossil sponge fauna in Upper Pogonip (Chazyan) strata of that State, characterized by the trilobite *Pliomerops barrandei* Billings, was of such interest that I was prevailed upon to describe it immediately without illustration, so that the many duplicate specimens belonging to their collections could be sent out with definite specific names to interested students. It is regretted that the illustration of these new genera and species has been delayed until the present time, but the literature upon Paleozoic fossil sponges grows so slowly that apparently there has been no conflict in the matter of synonymy. Uncertainty as to the exact location of these sponge-bearing beds, which was quoted as McMonnigal Canyon, Monitor Range, 10 miles west of Devils Punch Bowl in Monitor Valley, Nev., had also to be removed.

Dr. Edwin Kirk, in the course of his stratigraphic studies of the western Paleozoic for the United States Geological Survey in 1928, visited the type locality for these sponges. This proved to be the hillside slope above the cabin half a mile south of Ikes Canyon, 4 miles west of Dianas Punch Bowl as registered in 1929 on the Roberts Mountain quadrangle, Nev., these being the modern names for McMonnigal Canyon and Devils Punch Bowl, the latter occurring only 4 miles east of the canyon. Furthermore, the mountain range in question is now the Toquima Range in the Toiyabe National

Forest. Then, in the summer of 1939, Drs. Josiah Bridge and G. A. Cooper had the opportunity of studying the area and obtaining additional collections besides confirming Dr. Kirk's location. They report that outcrops in the canyon itself afford good collections of the sponges particularly on the north side about two-fifths of a mile inside the entrance. Here the best fossils are found on a talus slope 50 to 70 feet above the valley floor below the big cliff, although some may be collected from outcrops in the several ravines.

Associated with these sponges and the trilobite *Pliomerops* is an undescribed fauna of Ostracoda, a few stony Bryozoa, crinoid and cystid remains, trilobites, cephalopods, gastropods, and brachiopods. Of the last, the following species were described as new by Ulrich and Cooper in 1936 [1]: *Aporthophyla typa*, *Toquimia kirki*, *Goniotrema perplexa*, *Rhysostrophia nevadensis*, and *R. occidentalis*. This part of the Pogonip limestone seems to be represented elsewhere in North America in the Table Head formation of Newfoundland and the Oil Creek formation of Oklahoma.

These Nevada fossil sponges are preserved in a thin-bedded, dense, clayey limestone composed largely of organic remains and often weathered enough at the surface to show silicification of the contained fossils. With further etching by acid the minute spicular structure of the sponges can be seen to better advantage at their surface, but farther within where water has not penetrated the spicules have the same calcareous structure as the rest of the material. In practically all publications on the order Tetractinellida of the Silicispongiae, authors describe the spicules as originally siliceous but explain that when found calcareous the silica has been replaced by lime. Should that be true, all these early as well as later Paleozoic sponges have without exception been so replaced, a phenomenon that certainly has not occurred so uniformly. These sponges undoubtedly follow the rule of all other Paleozoic fossils that whenever they are buried in a calcareous siliceous shale or certain clayey limestones the organic calcite is replaced at the surface by silica, but the original structure on the interior remains calcium carbonate just as it does in most other fossils. Associated with these sponges are great numbers of long, needle-shaped structures, which may be dermal spicules. These are here illustrated (pl. 21, fig. 7) as a doubtful species of *Hyalostelia*, but their relationship, if any, to the associated sponges has not been discovered.

The original abbreviated descriptions of the following species, with the exception of one new form, appeared in the Journal of the Washington Academy of Sciences, volume 17, No. 15, pages 391–394,

[1] Journ. Pal., vol. 10, pp. 616–631, 1936.

1927. Bibliographic references to this paper are omitted in the present one since all descriptions previous to *Patellispongia* are printed on page 392, while that genus and *Hesperocoelia* are described on page 393, and the Anthaspidellidae on page 394. Again, the horizon and locality are not mentioned each time because for all the species it is, as stated before, the Upper Pogonip (Chazyan) limestone, one-half mile south of Ikes Canyon, 4 miles west of Dianas Punch Bowl on the eastern front of the Toquima Range, Roberts Mountain quadrangle, Nev. The same assemblage of species occurs in Ikes Canyon itself, as mentioned before.

All the illustrations of this paper are unretouched photographs, except that the pore structure has been emphasized enough to make it visible. The photography of the thin sections proved difficult, since on enlargement the definite structure of the spicules loses much of its clearness.

Subclass SILICISPONGIAE: Order TETRACTINELLIDA

Family ARCHAEOSCYPHIDAE Rauff

Archaeoscyphidae RAUFF, Paleontographica, vol. 40, p. 238, 1894.

Sponge attached, simple or branching, ranging from narrow cylindrical to saucer or funnel shaped, turbinate and frondescent forms with simple or branched cloaca usually of considerable diameter; oscula represented by numerous often closely spaced, small pores penetrating the spicular tissue of the wall as definite canals and opening on the outer surface at regular intervals.

With the recognition of five genera in the Nevada Pogonip fauna, this family, formerly based upon a single species of the genus *Archaeoscyphia*, assumes some importance in the early Ordovician rocks.

Genus ARCHAEOSCYPHIA Hinde, 1889

Archaeocyathus (part) BILLINGS, Paleozoic fossils, Geol. Surv. Canada, vol. 1, p. 354, 1865.

Archaeoscyphia HINDE, Quart. Journ. Geol. Soc. London, vol. 45, p. 142, 1889.—RAUFF, Palaeontographica, vol. 40, p. 238, 1894.

Sponge simple, attached, short but rapidly expanding funnel-shaped, 6 cm. or more high and about 4 cm. wide, with a broad cloaca 3 cm. in maximum diameter and the outer surface bearing strongly marked, angular, parallel, transverse ridges. Wall 5 mm. thick, lined on both the inside and outside by longitudinal rows of closely spaced pores traversing the spicular skeleton, which consists of minute siliceous spicules of the tetractinellid type with the rays slightly branched at their extremities and interlocking without forming prominent nodes.

The genotype and only species, *A. minganensis*, is not any too well known, but judged from the description and illustrations by Billings and Hinde the type specimens, although not well preserved, appear to have the characters mentioned above.

ARCHAEOSCYPHIA MINGANENSIS (Billings)

PLATE 23, FIGURES 3–6

Petraia minganensis BILLINGS, Can. Nat. and Geol., vol. 4, p. 346, 1859.

Archaeocyathus minganensis BILLINGS, Paleozoic fossils, Geol. Surv. Canada, vol. 1, p. 354, figs. 342, 343, 1865.

Ethmophyllum minganense WALCOTT, U. S. Geol. Surv. Bull. 30, p. 77, figs. 6–8, 1886.

Archeoscyphia minganensis HINDE, Quart. Journ. Geol. Soc. London, vol. 45, p. 143, pl. 5, figs. 12–14, 1889.—RAUFF, Paleontographica, vol. 40, p. 240, pl. 1, figs. 1–10, 1894 (see for complete bibliography).—TWENHOFEL, Geol. Soc. Amer. Special Pap. 11, p. 34, 1938.

In spite of the various researches upon this species and its references to several divisions of the animal kingdom, its exact structure has not yet been confirmed because of a lack of good study material. However, the several figures on plate 23 copied from Billings and practically the same as given in all the references, show that *Archaeoscyphia* is a sponge possessing the same general type of structure as the other genera here referred to the family.

Chazyan (Romaine formation): Montagne (Big Romaine) Island (Mingan Islands), St. Lawrence River, Quebec.

Genus NEVADOCOELIA Bassler, 1927

Simple, erect, obconical to oval, pedunculate sponges pierced throughout their length by a cloaca about one-third the width and marked on the outer surface by transverse parallel ridges or rows of nodes. Pores (oscula) of sponge wall small, appearing at the surface in more or less closely spaced parallel rows and on the interior as canals arising from the cloaca and bending gradually to the surface with the intervening spaces composed of the usual spicular structure characteristic of the family.

Genotype.—Nevadocoelia wistae Bassler.

NEVADOCOELIA WISTAE Bassler

PLATE 19, FIGURES 6, 7; PLATE 24, FIGURES 6, 7

Sponge elongate, cylindrical to oval, arising gradually from a narrow base to a length of 12 cm. or more and a width of 4 cm., with the cloaca about 13 mm. in diameter. Surface marked by undulating, more or less parallel, transverse ridges 1 to 1½ mm. wide and 2½ mm. apart, with 7 occurring in 3 cm. Sponge pores averaging 0.35 mm. in width, separated by about their own diameter and opening on outer surface in more or less regular longitudinal rows. In longitudinal section the pores arise at the cloaca and bend gradually upward at an angle of about 30° to the surface.

Cotypes.—U.S.N.M. No. 79632.

NEVADOCOELIA TRAINI Bassler

Plate 19, Figures 1–5

General characters as in the preceding species, but the growth occurs in shorter, broader sponge bodies, averaging 8 cm. long and 4 cm. wide, with the cloaca about 12 mm. in diameter and the surface marked by sharp nodes instead of parallel transverse ridges. Six nodes occur on an average in 2 cm., measured transversely. Pore structure very similar to the preceding species. In the several hundred specimens of this and the preceding species no intermediate forms were noted, so that the surface ridges and nodes seem to be good specific characters.

Cotypes.—U.S.N.M. No. 79633.

NEVADOCOELIA GRANDIS Bassler

Plate 19, Figure 8

Sponge not unlike *N. wistae* in growth and external structure but much larger and with more separated and broader transverse ridges, 4 of which occur in 3 cm. The cloaca is about 3 cm. wide, but the pores piercing the outer surface have the same size and arrangement as in the genotype. The type specimen, 15 cm. long and 9 cm. wide, represents only the upper third of the entire sponge, so it might be only a giant form of *N. wistae*, but a smaller complete example (15 cm. long and 7 cm. wide, with cloaca also 3 cm. in width) shows the transverse ridges equally large and distant from each other.

Holotype.—U.S.N.M. No. 79634.

NEVADOCOELIA PULCHRA Bassler

Plate 20, Figures 1–4

Sponge oval, 7 cm. in greatest diameter and more than 11 cm. high, with the cloaca 1.5 to 3 cm. wide. Outer surface marked by unusually strong ridges, which grow into wide, ascending, flangelike expansions 5 mm. wide and distant at least 1 cm. from each other. Pore arrangement and size as in other species of the genus, with 6 pores in 4 mm. measured lengthwise and 8 rows in the same space transversely.

Holotype.—U.S.N.M. No. 79635.

Genus LISSOCOELIA Bassler

Smooth, cylindrical, hollow stems, branching dichotomously usually in the same plane but at irregular intervals, constitute the growth in this genus. The smooth surface under the lens shows minute rounded pores penetrating the spicular tissue as in other members of the family. These are the openings of the oscula, which in thin sections are seen to be closely arranged tubes arising from the basal wall and gently bending to the surface at a low angle. The cloaca is narrow and extends the full length of the sponge.

Genotype.—*Lissocoelia ramosa* Bassler.

LISSOCOELIA RAMOSA Bassler

Plate 19, Figures 9–11; Plate 24, Figures 4, 5

Sponge body of smooth hollow stems, usually about 1½ cm. wide although increasing to 2 cm. at the place of branching, which occurs at intervals of 3 cm. or more, often but not always in the same plane, a complete growth being 10 cm. in diameter. The cloaca throughout averages 0.5 cm. in width. Surface smooth, marked by minute rounded pores about 0.20 mm. in diameter, distributed equally throughout the spicular tissue at distances of 2 to 3 times their own width. Spicules exceedingly minute but apparently with the same structure as in the family. Sections show the cloaca varying from 3 to 5 mm. in diameter, with the oscula arising from the basal sponge wall as narrow parallel tubes bending in a gentle curve to the surface.

This, one of the commonest of the Nevada sponges, is easily recognized by its cylindrical branching stems with the markedly smooth surface and very minute pore structure.

Cotypes.—U.S.N.M. No. 79636.

Genus CALYCOCOELIA Bassler

Sponge arising from a blunt broad peduncle into a goblet-shaped body, which increases rapidly in width from below upward and then opens at the upper surface in a deep excavation representing the cloaca. Surface smooth but marked by minute, rounded pores, the oscula arranged closely in rows parallel to the sponge length, these representing openings of internal regularly arranged canals separated by a spicular meshwork as in related genera but with the spicules exceptionally long and narrow rayed.

Genotype and only species.—*Calycocoelia typicalis* Bassler.

CALYCOCOELIA TYPICALIS Bassler

Plate 21, Figures 3–5; Plate 24, Figure 3

The goblet-shaped form deeply excavated by the wide cloaca of about 15 mm. diameter and the smooth, minutely porous surface characterize this species. The type specimen is nearly 7 cm. in diameter at the top, decreasing to 4 cm. at the pedunculate base. The pores, arranged in regular, longitudinal, parallel series, measure about 10 rows in 10 mm.

Holotype.—U.S.N.M. No. 79637.

Genus PATELLISPONGIA Bassler

Sponge as usually found consisting of unilamellar fragments, sometimes of considerable dimensions, but originally probably broad saucer-shaped expansions attached by a short stem. Under surface comparatively smooth, covered by a thick dermal tissue pierced by minute, closely spaced pores, which when weathered usually show a regular arrangement in rows parallel to the direction of growth.

Passing through the spicular tissue and opening at right angles at the upper surface these pores reappear as more or less evenly spaced rounded canals representing the oscula, surrounded by the usual spicular tissue of the family.

Genotype.—*Patellispongia oculata* Bassler.

PATELLISPONGIA OCULATA Bassler

Plate 22, Figures 1, 2; Plate 24, Figures 1, 2

This species forms broad lamellar expansions 12 cm. or more in diameter and 1 cm. thick attached by a short peduncle. Upper surface exhibiting numerous rather regularly spaced pores, the openings of the oscula nearly 1 mm. in diameter with nearly 6 in 10 mm. and separated by about their own diameter. Under surface smooth marked by pores 0.4 mm. wide, with 9 in 5 mm. but without any special arrangement.

Holotype.—U.S.N.M. No. 79638.

PATELLISPONGIA CLINTONI Bassler

Plate 20, Figures 5–7

Sponge similar to the preceding in growth and other characters, but the pores on the upper surface are somewhat larger, open on slight elevations, and (more important from a specific standpoint) from 4 to 5 mm. apart. The under side of the lamella, as in other species of the genus, is smooth and shows minute closely spaced pores in the spicular tissue, these in the present case being about 0.35 mm. wide and separated by their own diameter.

Cotypes.—U.S.N.M. No. 79639.

PATELLISPONGIA MINUTIPORA Bassler

PLATE 21, FIGURES 1, 2

Sponge consisting of a thin, expanded, smooth lamella, 12 cm. or more wide and 4 mm. thick, differing particularly from other members of the genus in the minuteness and close spacing of the pores on both sides. At least 15 pores can be counted in 10 mm. on the upper surface, where they occur at regular intervals and average 0.5 mm. in width. The basal surface shows pores of about the same dimensions as the upper but arranged in longitudinal parallel series.

Holotype.—U.S.N.M. No. 79640.

PATELLISPONGIA MAGNIPORA, new species

PLATE 21, FIGURE 6

Sponge a unilamellar expansion 10 cm. or more broad, 3 to 8 mm. thick, with a smooth but minutely porous base and an upper surface marked by wide, open canals 2 to 2.5 mm. in diameter, irregularly arranged and spaced at distances several times their width in the usual spicular tissue. The minute pores of the basal side are closely spaced in equally closely arranged parallel longitudinal rows with 7 pores in 5 mm. measured longitudinally, each pore about 0.6 mm. wide.

The surface pores or canal openings in the species, represented by four specimens, are the largest so far noted in the genus, which fact in addition to their irregular arrangement causes easy recognition.

Holotype.—U.S.N.M. No. 99602.

Genus HESPEROCOELIA Bassler

General structure as in *Patellispongia* except that the broad, thin, saucer-shaped lamella of that genus is here represented by a flat, undulated frond or convoluted sponge body with pore openings of similar size and arrangement on each face but penetrated lengthwise by a cloaca in the form of a narrow to broad, flattened tube or series of tubes, opening along the upper edge in a row of rounded or oval apertures.

Genotype.—*Hesperocoelia typicalis* Bassler.

HESPEROCOELIA TYPICALIS Bassler

PLATE 22, FIGURES 6–8; PLATE 24, FIGURE 9

Sponge a smooth, flattened, flabellate frond, 5 cm. or more in diameter and about 6 mm. in thickness, traversed by longitudinal canals of varying width representing the cloaca, emerging at the surface along the upper thin edge in a row of narrow openings, each about 3 mm. long and 1 mm. wide, spaced so that 4 or 5 occur in 20 mm. The usual openings or oscula in the spicular tissue show on both sides of the sponge, with an average of 4 pores in 3 mm. measuring longitudinally.

Cotypes.—U.S.N.M. No. 79641.

HESPEROCOELIA UNDULATA Bassler

PLATE 22, FIGURES 3–5; PLATE 24, FIGURE 8

This species differs from the preceding in forming undulated, often convoluted bodies 8 cm. or more high and 1 cm. thick and in the fact that the cloacal openings along the upper edge of the sponge are round, 3.5 to 4 mm. in diameter with 4 or 5 in 20 mm. Moreover, the small pores penetrating the spicular tissue are more delicate and closely spaced.

Cotypes.—U.S.N.M. No. 79642.

Family ANTHASPIDELLIDAE Ulrich and Everett, 1890

Sponges attached, saucer to funnel shaped, often turbinate with canal system usually consisting of two sets, one radial and one vertical, crossing each other at right angles. Skeleton of 4-rayed spicules consisting of a rodlike central part and rapidly diverging bifurcations at each end, uniting to form radial columns, which when connected by the horizontal central rods form a minutely tubular meshwork.

Genus ANTHASPIDELLA Ulrich and Everett

Anthaspidella ULRICH and EVERETT, Geological Survey of Illinois, vol. 8, pp. 255, 256, 1890.

Flat to saucer or funnel shaped sponges supported by a short subcylindrical stem with the upper surface showing oscula, each provided with its own system of radiating channels, all of which, however, merge into the prevailing structure. Depressed part of each osculum occupied by a few rather large, thin-walled, vertical tubes. Lower surface of sponge occupied by rounded canal openings in spicular meshwork, arranged in more or less radiating rows.

Genotype.—*Anthaspidella mammulata* Ulrich and Everett.

ANTHASPIDELLA CLINTONI Bassler

PLATE 23, FIGURE 9

Sponge of large flattened disks, the type specimen a fragment 9 by 11 cm., indicating a diameter of at least 20 cm. for the entire body and a maximum thickness of 1 cm. Although similar to *Anthaspidella* *scutula* Ulrich and Everett, from the Black River (Platteville) limestone at Dixon, Ill., in the small size and comparatively close arrangement of the clusters consisting of the oscula and radiating canals, the present species differs in that the clusters measuring from center to center are closer (15 mm.) and coarser, and the canals are shorter, broader, and less regularly arranged.

Holotype.—U.S.N.M. No. 79643.

ANTHASPIDELLA TRAINI Bassler

Plate 23, Figures 7, 8

Sponge suggesting *Anthaspidella florifera* Ulrich and Everett, a small saucer-shaped species from the Black River (Platteville) limestone at Dixon, Ill., but differing in that the body is flat, at least 20 cm. in diameter, 1 cm. thick, and the clusters are coarser and farther apart, ranging from 25 to 35 mm. distant from center to center. The canals in each cluster are also fewer, broader, and radiately arranged.

Holotype.—U.S.N.M. No. 79644.

Genus STREPTOSOLEN Ulrich and Everett

Streptosolen Ulrich and Everett, *in* Miller, North American geology and paleontology * * *, pp. 153, 165, 1889.

The very irregular arrangement of the canals that pass through the sponge mass in every direction is the chief character separating this genus from *Anthaspidella* and other members of the family. The canals in *Streptosolen* intertwine to such a degree that it is difficult to separate the two sets.

Genotype.—*Streptosolen obconicus* Ulrich and Everett.

STREPTOSOLEN OCCIDENTALIS Bassler

Plate 23, Figures 1, 2

Sponge with the form and general structure of the genotype from the Black River (Platteville) limestone at Dixon, Ill., but differing in that the canals do not intertwine so much and the central osculum is much wider and has larger tubes.

Cotypes.—U.S.N.M. No. 79645.

EXPLANATION OF PLATES

[All the specimens figured are from the Upper Pogonip (Chazyan) limestone, half a mile south of Ikes Canyon, 4 miles west of Dianas Punch Bowl, Roberts Mountain quadrangle, Nev. Unless otherwise stated, the figures are natural size.]

Plate 19

1–5. *Nevadocoelia traini* Bassler: (1) View of upper two-thirds of type, showing the characteristic sharp nodes of the surface; (2) surface, × 6, with nodes and pores (oscula); (3) cross section of top showing width of cloaca; (4, 5) two views of three illustrating canals. × 6, their opening at the surface in definite rows, and spicular tissue.

6, 7. *Nevadocoelia wistae* Bassler: The type specimen, illustrating the somewhat closely spaced, narrow, more or less parallel transverse ridges and view of the surface, × 6, showing pores and spicular structure. (See also pl. 24, figs. 6, 7.)

8. *Nevadocoelia grandis* Bassler: Portion of the type illustrating the large dimensions and the strong, widely-spaced surface ridges.

9–11. *Lissocoelia ramosa* Bassler: The type (9) a smooth cylindrical branching stem, with end view (10) showing its hollow nature, and surface, × 6 (11) illustrating spicular structure and minute rounded pores. (See also pl. 24, figs. 4, 5.)

Plate 20

1–4. *Nevadocoelia pulchra* Bassler: Side and top views of the type (1, 2) illustrating the wide, flangelike, ascending expansions and the central cloaca, with enlarged views (3, × 6; 4, × 20) exhibiting the rows of minute pores and spicular structure.

5–7. *Patellispongia clintoni* Bassler: The type specimens, parts of saucer-shaped unilamellate expansions (5, 6) and surface, × 6 (7) showing the pores widely separated by spicular tissue.

Plate 21

1, 2. *Patellispongia minutipora* Bassler: Upper surface of type, a fragment of a thin lamella, and surface, × 6, illustrating the minute closely spaced pores with intervening spicular tissue.

3–5. *Calycocoelia typicalis* Bassler: (3, 4) Side and top views of this goblet-shaped sponge with several areas of oscula darkened to show arrangement; (5) surface view, × 20, showing the oscular pores and the spicular structure. (See also pl. 24, fig. 3.)

6. *Patellispongia magnipora*, new species: Portion of the type, a unilamellate expansion, and a small portion, × 6, illustrating large, widely spaced pores in broad areas of spicules.

7. *Hyalostelia* ? species: View of needle-like rods, some 50 mm. long, occurring in thick layers, accompanying the various species of sponges herein described.

Plate 22

1, 2. *Patellispongia oculata* Bassler: Portion of the type, a broad lamellar expansion showing upper surface with regularly but widely spaced pores about 1 mm. in diameter and enlarged view (× 6) with spicular structure between pores more visible. (See also pl. 24, figs. 1, 2.)

3–5. *Hesperocoelia undulata* Bassler: Side and edge views of the flat, undulated frond (3, 4) pierced by a row of oval openings representing the cloaca, and surface of same, × 6, exhibiting size and distribution of the minute pores and the intermediate spicular tissue (5). (See also pl. 24, fig. 8.)

6–8. *Hesperocoelia typicalis* Bassler: The flattened flabellate type specimen (6) traversed by longitudinal canals representing the cloaca emerging at the upper thin end (7) and view of surface × 6 (8) exhibiting pores and intermediate tissue. (See also pl. 24, fig. 9.)

Plate 23

1, 2. *Streptosolen occidentalis* Bassler: Side of one of the types exhibiting irregularly spaced canal openings and top of larger example showing wider central osculum and tubes larger than in the type species.

3–6. *Archaeoscyphia minganensis* (Billings): Drawing of a restored specimen about one-half natural size (3) and sketches of three forms of spicules, × 80 (4–6). Chazyan (Mingan): Mingan Islands (after Billings, 1865).

7, 8. *Anthaspidella traini* Bassler: The type, an incomplete specimen showing the large, coarse, rather widely spaced clusters (7) and spicular structure exhibited on etched surface, × 20 (8).

9. *Anthaspidella clintoni* Bassler: Part of surface of type exhibiting comparatively small size and close arrangement of the clusters consisting of oscula and radiating canals.

Plate 24

(Thin sections, all × 9, with structure emphasized by shading in some cases.)

1, 2. *Patellispongia oculata* Bassler: Vertical and tangential sections showing arrangement of canals and spicular meshwork. (See also pl. 22, figs. 1, 2.)

3. *Calycocoelia typicalis* Bassler: Section crossing canals and spicular meshwork, illustrating size and length of spicules. (See also pl. 21, figs. 3–5.)

4, 5. *Lissocoelia ramosa* Bassler: Tangential section near surface where minute pores and fine spicular structure are best shown and vertical section through wall with canals and meshwork. (See also pl. 19, figs. 9–11.)

6, 7. *Nevadocoelia wistae* Bassler: Part of vertical section with several canals. Most of the spicules are cut so as to show in white points (6). Tangential section (7) through pores and spicular mesh, with a sketch × 15. (See also pl. 19, figs. 6, 7.)

8. *Hesperocoelia undulata* Bassler: Transverse section through cloaca with canals and usual tissue, with a small sketch of spicular structure, × 20. (See also pl. 22, figs. 3–5.)

9. *Hesperocoelia typicalis* Bassler: Cross section through cloaca with canals and spicular structure; and small portion of the latter × 20. (See also pl. 22, figs. 6–8.)

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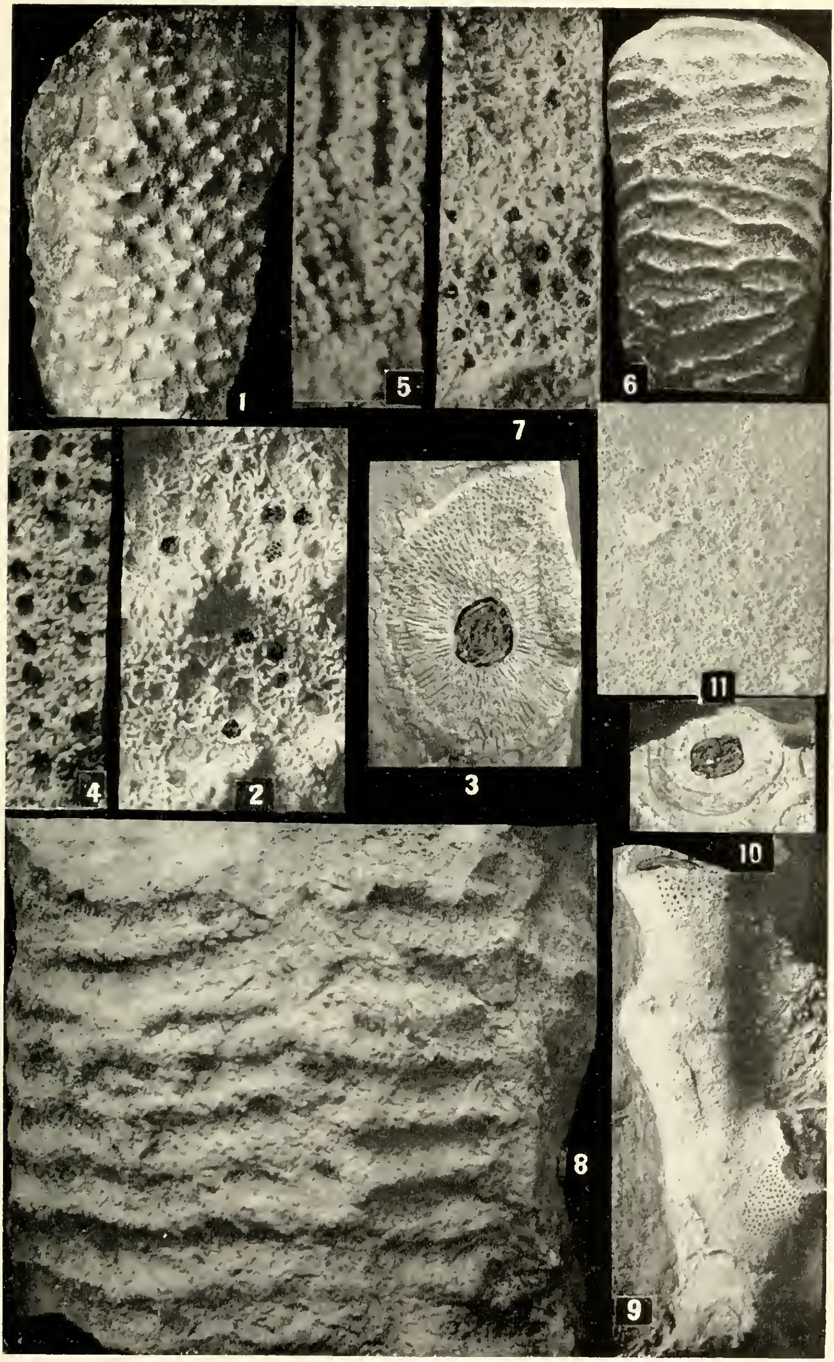
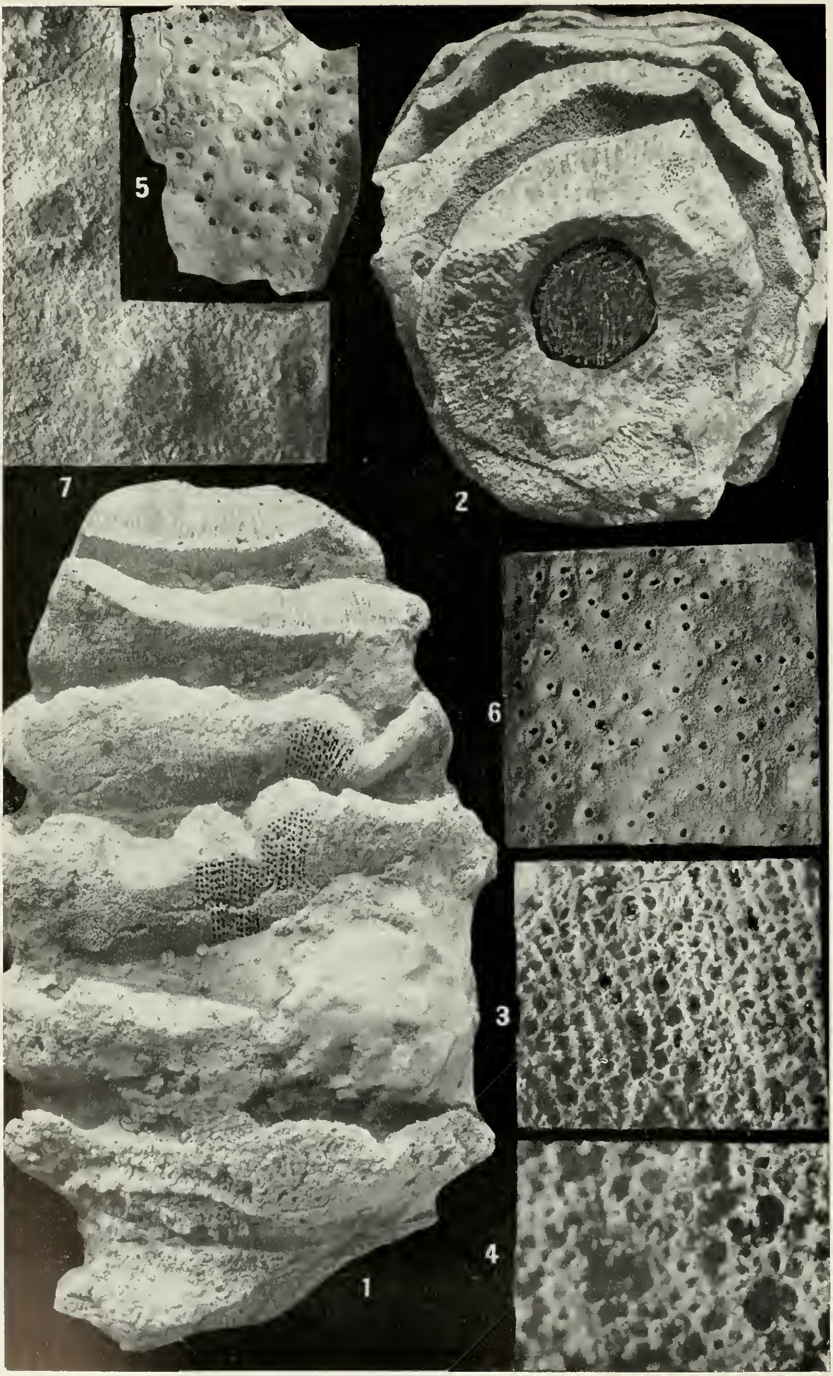


EARLY ORDOVICIAN SPONGES.

FOR EXPLANATION OF PLATE SEE PAGE 101.



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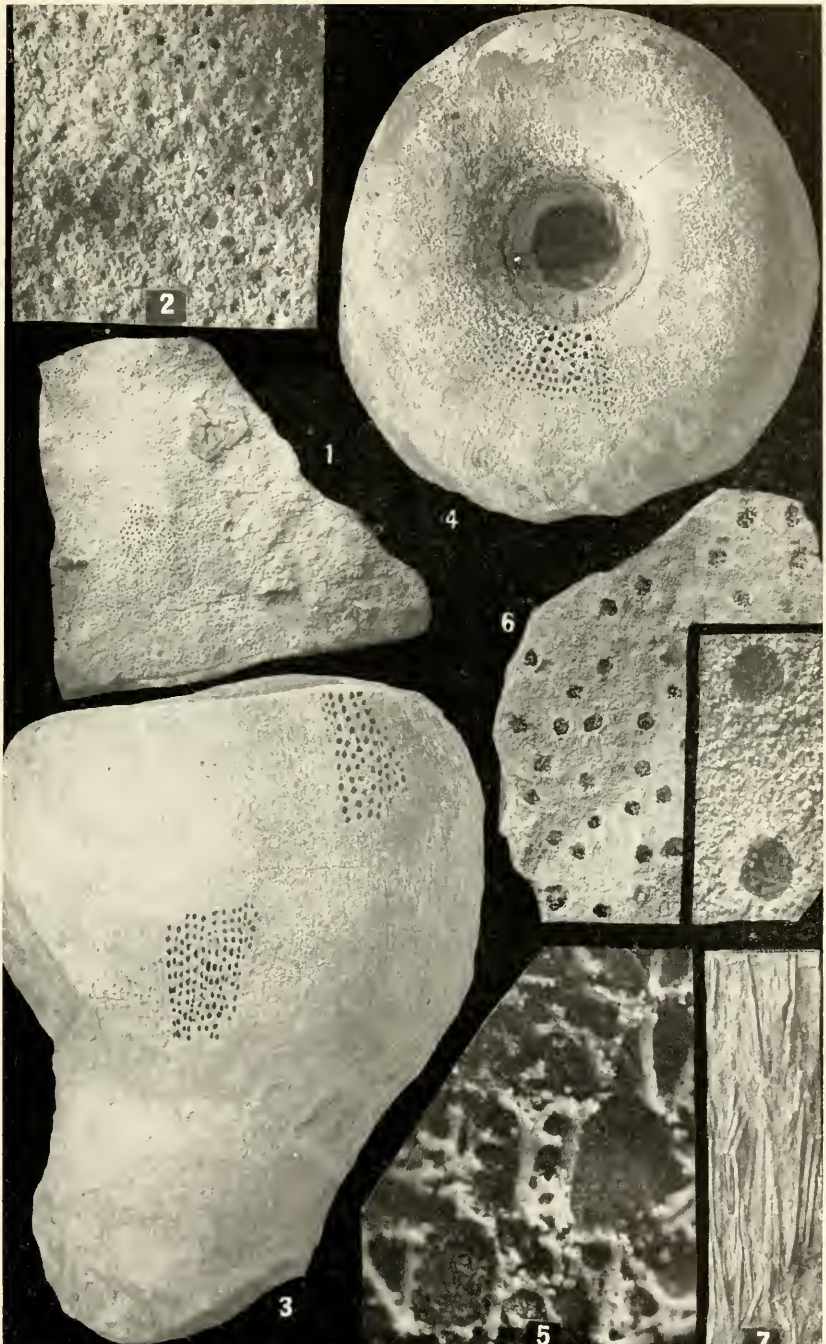

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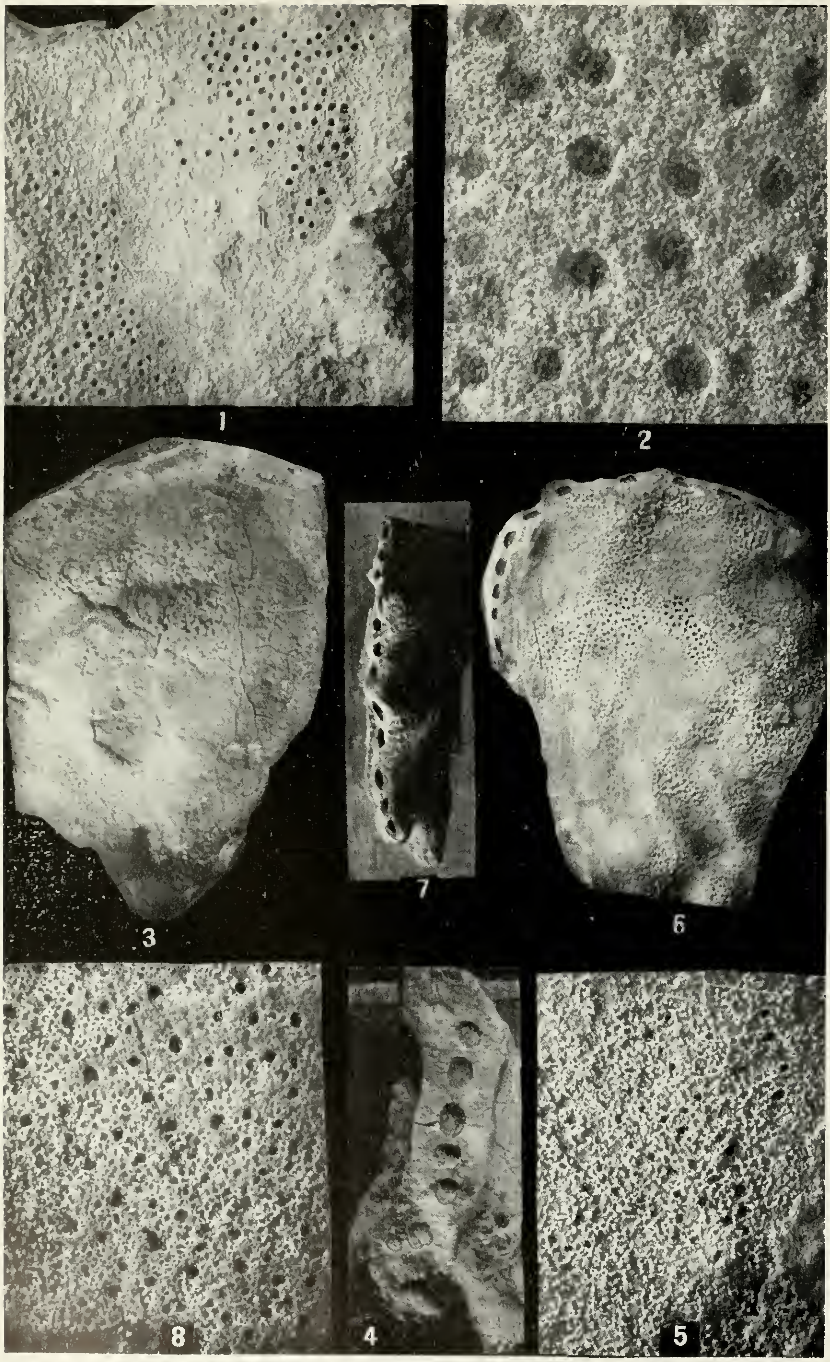

EARLY ORDOVICIAN SPONGES.

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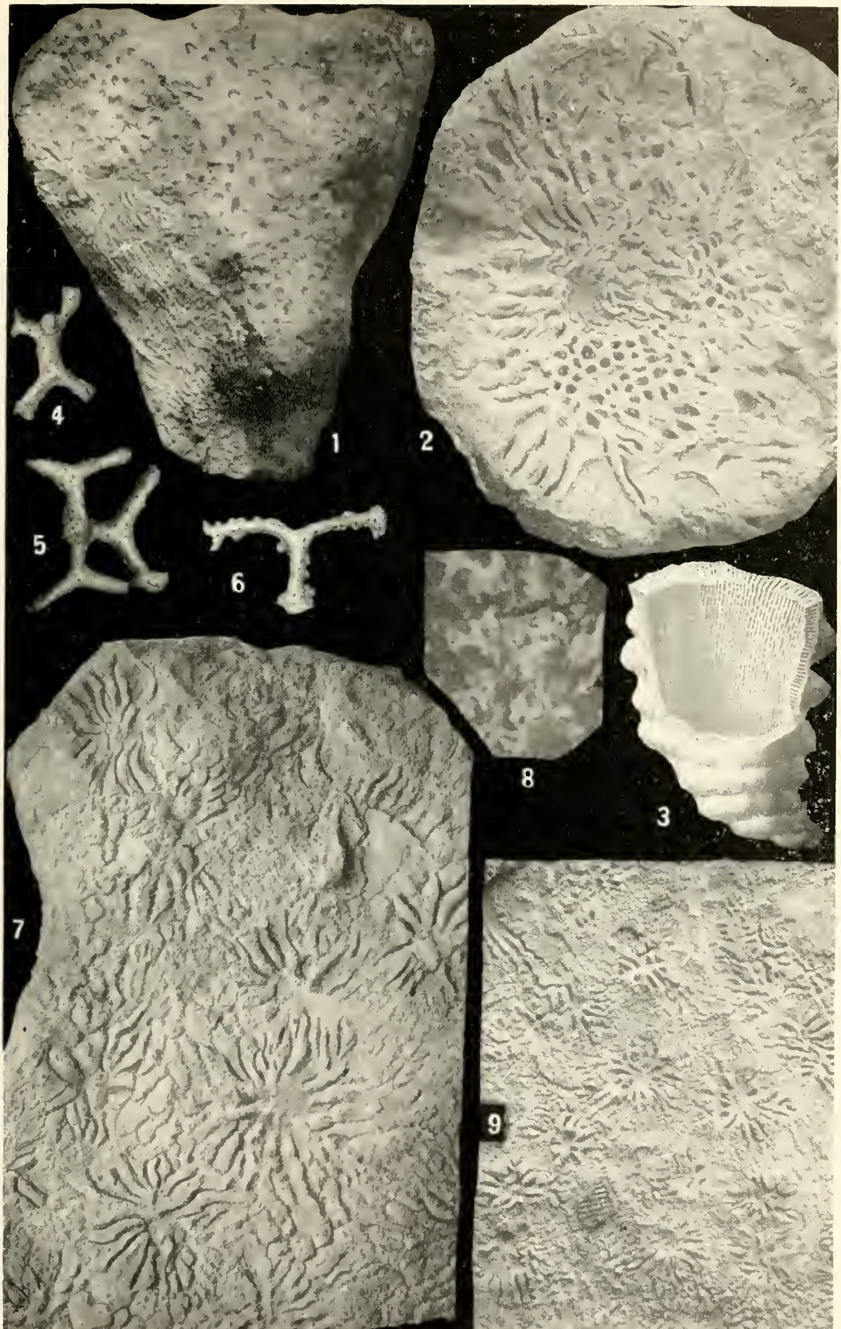

EARLY ORDOVICIAN SPONGES.

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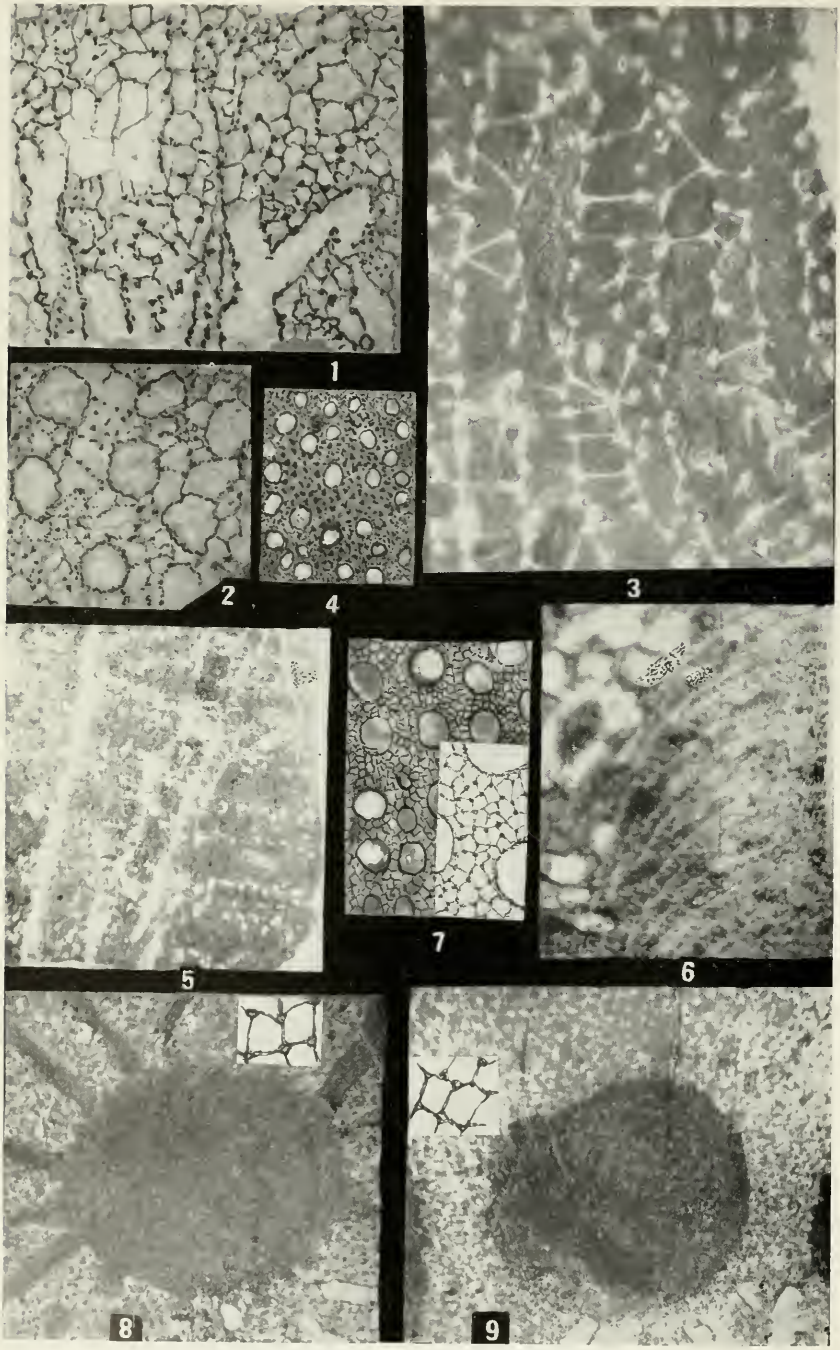

EARLY ORDOVICIAN SPONGES.

FOR EXPLANATION OF PLATE SEE PAGE 102.

PROCEEDINGS OF THE UNITED STATES NATIONAL MUSEUM

issued by the

SMITHSONIAN INSTITUTION
U. S. NATIONAL MUSEUM

Vol. 91 Washington: 1941 No. 3127

THE MEXICAN SUBSPECIES OF THE SNAKE CONIOPHANES FISSIDENS

By Hobart M. Smith

In the recent revision of the snakes of the genus *Coniophanes* Cope, Bailey [1] tentatively concluded that mainland specimens of *fissidens* must remain under that name, pending the accumulation of further material that would more clearly delimit the geographic races vaguely indicated by material then available.

Since the appearance of this work many specimens of these reptiles have been collected from critical areas in Mexico, chiefly for the National Museum and for the E. H. Taylor–H. M. Smith collection at the University of Kansas. This new material, combined with that already available, has been sufficient to demonstrate rather clearly the existence in Mexico of four distinct races, occupying as many different geographic and faunal areas and differing from one another in details of pattern as well as in average scale counts.

I am indebted to Dr. E. H. Taylor and Dyfrig McH. Forbes for much assistance in the field and for the loan of specimens. The study was completed, and a portion of the material was collected, during my tenure of the Walter Rathbone Bacon Traveling Scholarship of the Smithsonian Institution.

[1] Bailey, Joseph, Papers Michigan Acad. Sci., Arts and Lett., vol. 24, pt. 2, pp. 1–48, figs. 1–5, pls. 1–3, 1939.

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CONIOPHANES FISSIDENS FISSIDENS (Günther)

Coronella fissidens GÜNTHER, Catalogue of the colubrine snakes in the collection of the British Museum, p. 36, 1858 (Mexico).

Diagnosis.—Scales in 21 rows (rarely 19); males with supraanal ridges; supralabials 8 (rarely 7); ventrals 117 to 132 in females, 111 to 130 in males; caudals 63 to 79 in females, 62 to 84 in males; ventrals minus caudals 48 to 63 in females, 38 to 56 in males; a relatively large spot toward each end of ventrals (usually in addition to numerous smaller, scattered spots); belly always spotted; median dark borders of dorsolateral light stripe not distinct in front of anus; dorsolateral light stripe visible a considerable length on neck; no spots or irregularities of pattern in dorsal area between lateral stripes.

Discussion.—The limits of variation of this subspecies are established by Bailey, whose tabulations for specimens from Honduras south to Panama are here utilized in addition to data derived from specimens in the National Museum. I have not utilized his tabulations for specimens from British Honduras, Guatemala, and Mexico, since several forms are involved in these countries.

Mexican specimens I have seen are from Teapa, Tabasco (U.S.N.M. No. 46590), and San Andrés Tuxtla, Veracruz. The latter is probably very near the northern limit of the range of the subspecies. Both have higher ventral counts than typical *f. fissidens* and accordingly show a tendency toward *f. proterops*. Four other specimens examined are from very near Mexico (Piedras Negras, Guatemala, U.S.N.M. Nos. 109720–109722, and one specimen, HMS No. 7353, in the EHT–HMS collection). These are typical and have a regular series of relatively large dark spots near the ends of the ventrals.

The eight cotypes of *f. fissidens*, the scutellation of which is given by Boulenger,[2] almost certainly include *proterops* as well as that here defined as *fissidens*. So far as available data on these cotypes indicate, the preponderance of characters are of *f. fissidens* as here defined, to wit: Ventral and caudal counts typical in three, possible in three; scale rows typical in six; supralabials certainly typical in six. The characters indicating *proterops* are: Ventral and caudal counts typical in two, possible in three; scale rows typical (*fide* Boulenger) in two; supralabials possibly typical in two. Accordingly I restrict the name to the form here defined as *f. fissidens* and to that cotype which most closely corresponds with all characters defining the form.

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[2] Catalogue of the snakes in the British Museum (Natural History), vol. 3, pp. 207, 208, 1896.

CONIOPHANES FISSIDENS PROTEROPS Cope

Coniophanes proterops Cope, Proc. Acad. Nat. Sci. Philadelphia, 1860, p. 249 (Orizaba, Veracruz).

Diagnosis.—Scales usually in 19 rows, sometimes 21; males with supraanal ridges; supralabials usually 7, sometimes 8; ventrals 129 to 138 in females, 126 to 133 in males; caudals 59 to 74 in females, 66 to 76 in males; ventrals minus caudals 55 to 79 in females, 51 to 65 in males; spots on belly very small, scattered; belly sometimes unspotted (except ends of ventrals, dark as sides of body); median border of dorsolateral light stripe usually very poorly defined on tail, or whole dorsal surface light; dorsolateral light stripe disappearing on anterior part of neck; median dark stripe, one scale wide, distinct in young and subadults, which are somewhat orange colored; no spots or irregularities of pattern in dorsal area between lateral stripes.

Discussion.—The form seems well differentiated from *f. fissidens.* The scale rows are usually 19 (69 percent, 24 in 36), 21 in *fissidens* (two exceptions in 132); and the supralabials are usually 7 on one or both sides (58 percent, 20 in 36), rarely in *fissidens* (one in 132). There are conspicuous differences in ventral and ventral minus caudal counts, as shown in the accompanying table.

The most conspicuous pattern difference between *proterops* and *fissidens* is in the disposition of the ventral spots. In the latter there is a row of relatively large spots on each side of the abdomen, one spot near the end of each ventral. These spots occur in addition to numerous other, small flecks. In *proterops* the ventral surface is marked with numerous tiny black flecks, but there is no regular series of relatively large spots forming a row on either side of the belly. In some *proterops* there are no ventral markings whatever, except on the ends of the ventrals where the lateral coloration encroaches upon the ventral surface.

The dorsal pattern as a rule is more subdued in *proterops.* The lateral stripes are sometimes scarcely distinguishable, and the dorsolateral light stripes are very short or not visible at all. The dorsal surface of the tail, which in *fissidens* bears two dorsolateral light stripes separated by a very well defined median stripe, is nearly uniform light in *proterops* as a rule. Some *proterops*, however, do show the median dark stripe.

The young of *proterops* are light orange, and the median dark stripe is very well defined. Larger specimens show but little trace of the orange coloration, the middorsal stripe is diffused, and the general coloration much darker and more like that of typical *fissidens.*

Specimens examined.—Thirty-six, all from the State of Veracruz. The following localities are represented: Cuautlapan (U.S.N.M. Nos. 109764–109766; EHT–HMS Nos. 5199, 23537–23545); Jalapa

(U.S.N.M. No. 5285, type); Mirador (U.S.N.M. Nos. 6369[3], 12112, 25034, 46452–46453); Orizaba (U.S.N.M. Nos. 12117, 30358); Potrero Viejo (U.S.N.M. Nos. 109767–109768; D. McH. Forbes No. 256; EHT–HMS No. 5528); Tequeyutepec, 7 miles west of Jalapa (U.S.N.M. Nos. 109769–109773; D. McH. Forbes Nos. 386–388); San José de Gracia (EHT–HMS No. 5529).

CONIOPHANES FISSIDENS DISPERSUS, new subspecies

Holotype.—EHT–HMS No. 5531, male, El Limoncito, Guerrero, collected by E. H. Taylor.

Paratype.—EHT–HMS No. 5532, same data.

Diagnosis.—Scales in 19 rows; males with supraanal tubercles; supralabials 8; ventrals 120 and 122 in two males; caudals 81 in one male; ventrals minus caudals 41 in one male; spots on belly small, scattered, not forming regular series; middle and posterior part of belly may be completely unspotted (except ends of ventrals); white dorsolateral stripes on nape short, diffuse; inner border of dorsolateral light stripe poorly defined on tail, not evident in front of anus; no spots or irregularities of pattern in dorsal area between lateral stripes; latter poorly defined, diffuse.

Description of holotype.—Rostral much broader than high, portion visible from above a little less than half length of internasals; latter two-thirds length of prefrontals; frontal pentagonal, anterior edge straight, its length (4.8 mm.) greater than its distance from tip of snout (4.3 mm.), less than maximum length of parietal (5.9 mm.), subequal to distance of frontal from posterior edge of parietal (not in median line); sides of frontal parallel; nasal large, divided; a large loreal; one preocular; two subequal postoculars; temporals 1+2+3, the upper secondary and upper tertiary fused to form an elongate scale similar to primary temporal; eight supralabials, fourth and fifth entering orbit, seventh highest and largest, sixth next largest; nine infralabials, five in contact with chin shields; mental separated from anterior chin shields, which are a little longer and larger than posterior.

Dorsals in 19–19–15 rows, smooth, without pits; ventrals 122; caudals 81; anal divided.

Ground color light grayish brown, somewhat darker near middle of body and on sides; a broken, dim dark line extending along adjacent edges of fourth and fifth scale rows, descending posteriorly to middle of fourth; a broken, scarcely discernible vertebral dark line; a dorsolateral area somewhat lighter, well defined only on nape, where it is white; a small white spot three scales back of tertiary temporals, even with end of dorsolateral light line, which terminates two scales behind light nuchal spot; all dorsal scales with a dark edge. A dark stripe through the upper edges of supralabials, white-edged below; remainder of supralabials stippled, and each (except eighth) with a larger, rounded dark spot near center of light area; chin, infralabial, and gular regions stippled; some larger black dots on certain infralabials. Tail with a dark lateral stripe, black-edged above; area between these, on dorsal surface, darker near middle; edges of subcaudals dark; ends of ventrals dark-spotted; a few small, scattered spots on anterior ventrals; remainder of ventral surface white.

Variation.—The single paratype is a male with 120 ventrals, tail tip missing. The scales are in 19–19–15 rows. Supralabials 8, infralabials 10, one preocular, two postoculars, temporals as described in type.

Coloration as in type, except dorsolateral light stripes somewhat more evident; a faint, broken, very fine temporal stripe; small dark spots irregularly placed near ends of ventrals.

Remarks.—With this subspecies the specimen from Carrizal, Michoacán (Brit. Mus. No. 1914.1.28.141) is to be associated; also perhaps another from Cafetal Mirador, Oaxaca (A. M. N. H. No. 19748). These are mentioned by Bailey (*op. cit.*, p. 23); I have not seen them, nor are counts available.

This subspecies resembles *proterops* in the possession of 19 scale rows but differs in having higher caudal and lower ventral counts and eight supralabials. It resembles *fissidens* in ventral and caudal counts but differs by lacking the regular series of spots near ends of ventrals and by having only 19 scale rows. It resembles *punctigularis* in belly coloration and number of ventrals and caudals but differs in dorsal coloration, ventral minus caudal count, and by having 19 scale rows.

CONIOPHANES FISSIDENS PUNCTIGULARIS Cope

Coniophanes punctigularis Cope, Proc. Acad. Nat. Sci. Philadelphia, 1860, p. 248 (Honduras).—Slevin, Proc. California Acad. Sci., ser. 4, vol. 23, pp. 410–411, 1939.

Dromicus chitalonensis Müller, Verh. Naturf. Ges. Basel, vol. 6, p. 407, 1876 (Hacienda de Chitalón, near Mazatenango, Guatemala).

Diagnosis.—Scales in 21 rows; males with supraanal tubercles; supralabials 8, rarely 7; ventrals 119 to 130 in females, 116 to 125 in males; caudals 71 to 85 in females, 80 to 91 in males; ventrals minus caudals 39 to 54 in females, 31 to 38 in males; spots on belly very small, scattered; belly sometimes unspotted (except ends of ventrals, dark as sides of body); median border of dorsolateral light stripes very distinct on posterior part of body as well as on tail; dorsolateral light stripes distinct on much of anterior part of body; a series of spots on each side of middorsal line, about halfway between lateral and middorsal stripe; spots fused with dorsolateral stripe in all except young specimens, but always distinct laterally; body not orange in young.

Discussion.—This form resembles *proterops* in belly coloration, lacking the large lateral spots of *fissidens*, but with small, scattered spots or belly unspotted. It resembles *fissidens* in number of scale rows, labials, and in ventral and caudal counts, but it is very different in dorsal pattern.

In *punctigularis* a series of rounded dark spots occurs on each side between the lateral and dorsolateral dark stripes. In young specimens the spots are free, but in older ones they merge medially with a vague dark area. Even in the largest specimens the outer edges of the dark spots are well defined, at least anteriorly, and give a scalloped effect to the inner edge of the dorsolateral light stripe.

On the tail two light stripes, broader than in *fissidens*, are separated by a median dark stripe, its outer border well defined. In *fissidens* the inner edge of the light stripe is well defined only at the anus and on the tail, while in *punctigularis* it is distinct on the posterior part of the body as well.

Seven supralabials occur on one side in three specimens. Scale rows 21 in all.

The name *chitalonensis* certainly applies to this subspecies. However, *punctigularis*, proposed 17 years earlier, seems also to refer to the same form. I have not seen the type, but Bailey (*op. cit.*, p. 16) says that "The middorsal band is 5 scales wide anteriorly and 3 wide posteriorly. Anteriorly it is represented by a double row of darker spots, which are evident posteriorly only as scalloped outer borders of the band. This type of coloration is frequent in western Guatemala and Mexico." Accordingly there can be little doubt that this specimen (male, with 125 ventrals) is the same as that here redefined. Its locality, however, is rather far removed from the nearest authentic record in Guatemala. Records show that the collector of the specimen, Dr. J. L. LeConte (and J. S. Hawkins), actually was in Honduras, where he was connected for a few months in 1857 with the Honduras Interoceanic Railway Survey. Faunistically the Pacific coast mountain ranges of El Salvador are known to be much like those of Guatemala and extreme southeastern Chiapas. It is to this faunal area the present form is confined. Accordingly, if the type of *punctigularis* actually is from Honduras, it must have been collected on the Pacific side, and in that case very near El Salvador and probably in the same faunal area as is represented by other specimens. This would account for the difference between the type of *punctigularis* and all other Honduras specimens, which are from the Atlantic coast.

Specimens examined.—Fifty-one, from Tehuantepec (U.S.N.M. Nos. 30167–30169, 30525); Chicharras, Chiapas (U.S.N.M. No. 46443);

various localities in the vicinity of Escuintla, Chiapas (La Esperanza, Cruz de Piedra, Salto de Agua, Finca Juarez, U.S.N.M. Nos. 109723–109763); Tonalá, Chiapas (EHT–HMS No. 5329). The "Tehuantepec" specimens presumably are from extreme eastern Oaxaca, Pacific slope. Slevin (*op. cit.*) records 87 specimens from Finca El Ciprés, Volcán Zunil, Guatemala. Data presented by him are included in the accompanying table.

FIGURE 33.—Distribution of the Mexican forms of *Coniophanes fissidens:* Dots, except as indicated, *punctigularis;* inverted triangles, *fissidens;* triangles not inverted, *dispersus.*

KEY TO THE MEXICAN SUBSPECIES OF CONIOPHANES FISSIDENS

1. A regular row of relatively large dark spots near ends of ventrals, in addition to other dark flecks that may or may not be present; dorsolateral white stripe extending posteriorly a considerable distance on neck; inner dark border of dorsolateral tail stripes absent on posterior part of body, present only on tail .... fissidens fissidens

   No regular row of relatively large dark spots near ends of ventrals; belly with small flecks of black, or unspotted; dorsolateral white stripes very short (no more than twice length of head), or absent posteriorly, *or*, inner dark border of dorsolateral tail stripes present on posterior part of body 2
2. A series of dark spots between lateral and middorsal light lines; dark border on inner edge of dorsolateral stripes distinct on body as well as tail; scales in 21 rows .... f. punctigularis

   Color not as described; markings dim, except (in young) a middorsal dark line 3
3. Ventrals fewer (120 to 122 in known males); caudals more numerous (81, male); ventral minus caudal index lower (41, male) .... f. dispersus

   Ventrals more numerous (126 to 133 in males); caudals fewer (64 to 76 in males); ventral minus caudal index higher (51 to 65 in males). f. proterops

Table 1.—*Frequency distribution of ventral and caudal counts in subspecies of Coniophanes fissidens*

VENTRAL COUNTS

Sex	Form	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138
♂	fissidens	1	0	1	3	0	1	1	3	2	0	3	1	3	1	2	1	1	0	0	1								
	proterops																2	1	1	5	4	2	0	1					
	punctigularis						5	3	9	11	12	12	9	5	3	1													
♀	fissidens							1	0	0	0	1	2	1	5	1	4	4	4	6	3	2	1						
	proterops																		1	3	1	2	0	2	3	4	2	1	1
	punctigularis									1	1	0	3	3	5	10	12	7	6	1	8								

CAUDAL COUNTS

Sex	Form	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91
♂	fissidens				1	0	1	1	0	0	0	0	2	1	0	0	2	2	0	0	0	2	1	1	1	0	1							
	proterops						1	0	2	1	0	2	0	0	0	2	1	1	1															
	punctigularis																			3	2	3	1	4	5	3	3	3	2	1	1	1	1	1
♀	fissidens					2	1	1	0	1	1	0	1	1	1	2	1	4	2	0	0	1												
	proterops	1	2	1	0	1	4	0	2	1	0	2	0	0	0	0	1																	
	punctigularis												1	2	2	2	4	2	7	8	3	1	4	1	0	0	0	2						

VENTRAL MINUS CAUDAL COUNTS

Sex	Form	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
♂	fissidens								1	3	0	1	0	1	2	0	0	0	1	1	1	1	3	0	0	0	1																							
	proterops																					1	0	0	0	0	3	0	0	0	3	0	1	1	1	1														
	punctigularis	1	4	3	1	6	3	2	2	2	1	3	3	2	1																																			
♀	fissidens																			1	1	0	0	1	0	0	0	1	1	3	2	0	0	1																
	proterops																									1	0	0	0	0	0	1	0	1	1	0	1	1	1	1	2	1	1	0	0	0	0	1	0	2
	punctigularis									1	0	1	0	1	2	3	2	1	2	7	4	4	4	2	4	1	0	0	1																					

U. S. GOVERNMENT PRINTING OFFICE: 1941

PROCEEDINGS OF THE UNITED STATES NATIONAL MUSEUM

issued by the

SMITHSONIAN INSTITUTION
U. S. NATIONAL MUSEUM

Vol. 91 Washington : 1941 No. 3128

REPORT ON THE SMITHSONIAN-FIRESTONE EXPEDITION'S COLLECTION OF REPTILES AND AMPHIBIANS FROM LIBERIA

By Arthur Loveridge

Dr. William M. Mann, director of the National Zoological Park in Washington and leader of the Smithsonian-Firestone Expedition, 1940, is to be congratulated on finding time to assemble a representative collection of the Liberian herpetofauna, despite the exacting duties involved in the capture and care of wild creatures, the securing of which was the primary purpose of his journey.

This collection, consisting as it does of over 500 specimens representing 56 species, naturally adds considerably to our knowledge of the lower vertebrates of the country whose fauna is so imperfectly known as that of the Liberian Republic. Among the results of a study of this material, therefore, the following species have had to be described as new:

Typhlops manni, new species from Harbel.
Hylambates cochranae, new species from Bendaja.
Leptopelis bequaerti, new species from Gbanga, Gibi, etc.
Rana albolabris parkeriana, new name for *acutirostris* Parker, preoccupied. (This is the Angolan race of the typical form occurring in Liberia.)

In addition we are able to add the undermentioned to the steadily growing list of species to be found within the boundaries of the Republic:

Boaedon lineatus lineatus.
Crotaphopeltis duchesnii guineensis.
Hylambates leonardi.
Rana longirostris.
Phrynobatrachus natalensis.

406739—41——1

Neusterophis variegatus should be substituted for *Natrix fuliginoides*, whose admission was based on a misidentification, and *Agama a. africana* (Hallowell) substituted for *A. a. savatieri* Rochebrune. Certain other species should be regarded as synonyms, viz:

Aliurus Dunn and Dunn, 1940=*Hemidactylus* Gray, 1827 (not 1825).
Tropidonotus ferox Günther, 1863=*Natrix anoscopus anoscopus* (Cope) 1861.
L. liberiensis Ahl, 1929=*Leptopelis viridis* (Günther) 1868.

while

Lacerta langi Schmidt is revived as a race of *L. echinata* Cope.
Helicops gendrii Boulenger as a race of *Natrix anoscopus* Cope.
Neusterophis variegatus (Peters) from synonymy of *fuliginoides* Günther.
Boaedon virgatus (Hallowell) is made a race of *lineatus* Duméril and Bibron.
Rana alleni (Barbour and Loveridge) a race of *crassipes* Peters.
Phrynobatrachus brongersmai Parker a race of *ogoensis* Boulenger.

Pertinent data regarding the material are supplied to enable fellow herpetologists in checking identifications or extending the known range of variation. I take this opportunity of thanking Dr. Doris M. Cochran and Dr. W. M. Mann for the privilege of studying this material now in the United States National Museum at Washington.

As none of the villages mentioned in this paper are to be found in Stieler's Atlas, the accompanying sketch map—kindly supplied by Dr. Leonard P. Schultz, of the National Museum—is intended to give the *approximate* positions of places from which specimens were obtained. Dr. Mann has kindly furnished me with the under-mentioned information regarding them, together with dates of the itinerary. It has not been thought necessary to repeat these dates except where some notes concerning breeding are involved. As regards place names, Dr. Mann points out that no uniformity of spelling is to be found on maps or in his correspondence with government officials.

Bellyella: Spelling rendered in half a dozen different ways. No two maps of Liberia locate this village in the same place. Dr. Mann has placed it approximately in the position as given in the State Department's map. March 23–30, 1940.

Bendaja: Also spelled Bandeja, Bendeja, Bandaja, and Bendija. A village 5 or 6 miles from the border. May 14–27, 1940.

Bromley: A mission station on the St. Paul River above Monrovia. June 6–8, 1940.

Cape Mount: A name used locally for the Cape, the Mountain, the County, and the mission. Robertsport is the chief town and port for the Cape Mount district. May 7–12 and May 29–31, 1940.

Degain: Also spelled Dagain and Digain, a village where a night was spent on the journey to Bellyella and return. March 22 and 31, 1940.

Gibi: Also spelled Gebi. The name applied to a low range of mountains whose highest elevation is 2,042 feet. No collecting was carried out above 900 feet, however, for Dr. Mann's party stayed at Managey's town while in the vicinity. April 10–16, 1940.

Harbel: This is the name of the Firestone Plantation, which covers an area of approximately 25 square miles. It was the expedition's headquarters from March 10 to July 17, 1940.

Mombo: May 13 and 28, 1940.

Reputa: Also spelled Wreputa. June 21–26, 1940.

Zorzor: A mission station on the frontier of French Guinea about two days' march, i. e., approximately 40 miles northwest of Bellyella. The locality was not visited by members of the expedition, and the only specimens—tortoises—from this locality were sent in by the missionaries.

TORTOISES

KINIXYS HOMEANA Bell

1827. *Kinixys Homeana* Bell, Trans. Linn. Soc. London, vol. 15, p. 400, pl. 17, fig. 2 (West Africa).

4 ♂♂, 3 ♀♀ (U.S.N.M. Nos. 109685, 109689–90, 109692–3, 109698–9), Zorzor

A nuchal shield, except in U.S.N.M. No. 109698, which is also aberrant in possessing 21 marginals (all the rest have 22) and 5 (right) or 7 (left) costals (all the rest have 4); fifth vertebral descending abruptly in all.

Males, characterized by longer tail and concave plastron, have a gular suture, which is included in the total length of plastron 6½–6¾ (7–7½ in females) times, and an abdominal suture 1⅞–2 (1¾ in females) times as long as the pectoral suture. Shell of largest ♂ (U.S.N.M. No. 109689) measures 195 mm. over all; largest ♀ (U.S.N.M. No. 109685) measures 223 mm.

KINIXYS EROSA (Schweigger)

1802. *Testudo Denticulata* Shaw (not of Linnaeus), General zoology, vol. 3, pt. 1, p. 59, pl. 13 ("Supposed to be a native of North America").

1814. *Testudo erosa* Schweigger, Prodromi monographiae Cheloniorum, p. 52 ("America septentrionali (Shaw)").

2 ♂♂, 6 ♀♀ (U.S.N.M. Nos. 109687–8, 109691, 109694–7), Zorzor

No nuchal shield; 22 marginals, except in U.S.N.M. No. 109696 which has 24; costals 4; fifth vertebral descending obliquely in all.

Males, characterized by longer tail and concave plastron, have a gular suture which is included in the total length of plastron 5½–5¾ (6¾–7¼ in females) times, and an abdominal suture 2½–3½ (2–3 in females) times as long as the pectoral suture. Shell of largest ♂ (U. S.N.M. No. 109688) measures 260 mm. over all; largest ♀ (U.S.N.M. No. 109687) measures 242 mm.

LIZARDS

HEMIDACTYLUS FASCIATUS Gray

1842. *Hemidactylus fasciatus* Gray, Zool. Misc., 1842, p. 58 (no locality).
1845. *Leiurus ornatus* Gray, Catalogue of the specimens of lizards in the collection of the British Museum, p. 157 (West Africa) (monotype, *ornatus* Gray; not *Leiurus* Hemprich and Ehrenberg, 1829, in Arachnida).
1856. *Hemidactylus formosus* Hallowell, Proc. Acad. Nat. Sci. Philadelphia, 1856, p. 148 (Liberia).
1862. *Liurus ornatus* Cope, *in* Slack, Handbook of the Museum of the Academy of Natural Sciences of Philadelphia, p. 32 (monotype, *Hemidactylus ornatus* Hallowell; not *Liurus* Ehrenberg, 1828, in Arachnida).
1940. *Aliurus ornatus* Dunn and Dunn, Copeia, 1940, p. 71 (substitute name for *Liurus* Cope, preoccupied by *Liurus* Ehrenberg, 1828, in Arachnida).

♂ (U.S.N.M. No. 109631), Harbel

Midbody rows of dorsal tubercles 25; lamellae under first toe 8, under fourth toe 11; femoral pores 20+19; subcaudals more than half the width of tail. Total length 182 (85+97) mm.

The recently proposed generic name of *Aliurus* Dunn and Dunn becomes a synonym of *Hemidactylus*, as will be seen from the somewhat complicated synonymy given above. I have been unable to examine Slack's rare Handbook and so quote the citation from it as given by Dunn and Dunn.

AGAMA AGAMA AFRICANA (Hallowell)

1844. *Tropidolepis Africanus* Hallowell, Proc. Acad. Nat. Sci. Philadelphia, 1844, p. 171 (Liberia).
1845. *Calotes versicolor* Hallowell (not of Daudin), Proc. Acad. Nat. Sci. Philadelphia, 1845, p. 247 (Liberia).
1884. *Agama savatieri* Rochebrune, Faune de la Sénégambie, Rept., p. 89, pl. 11, figs. 1, 2 (Bathurst, Gambia) (restricted).

2 ♂♂, 2 ♀♀ (U.S.N.M. Nos. 109291–4), Bellyella
♀ (U.S.N.M. No. 109580), Bendaja

Midbody scale rows 60–64; preanal pores 12–14. Larger ♂ measures 112 mm. from snout to anus, tail truncate.

Heretofore (1936, p. 54) I have used *savatieri* for agamas of the extreme west, which have fewer midbody scale rows than typical *A. a. agama* of the Cameroons, but Hallowell's name *africana*, which was overlooked by Boulenger and all subsequent herpetologists, is undoubtedly an *Agama* and has a wide margin of priority over any other name that is applicable.

LACERTA ECHINATA ECHINATA Cope

1862. *Lacerta* (*Zootoca*) *echinata* Cope, Proc. Acad. Nat. Sci. Philadelphia, 1862, p. 189 (West Africa).

♀ (U.S.N.M. No. 109632), Harbel

Midbody scale rows 37; parietal present; gular granules between chin shields and collar 30; femoral pores 12+12. Total length 342 (97+245) mm.

Trinomials are used on account of *L. e. langi* Schmidt (1919) of the eastern Congo, which Boulenger (1920, p. 332) unjustifiably synonymized with *echinata*. The type of the latter (U.S.N.M. No. 5995) almost certainly came from Liberia, for it was described at the same time as *Cophoscincus dura*, whose type (U.S.N.M. No. 5996) was also said to be from West Africa yet is known only from Liberia.

MABUYA BLANDINGII (Hallowell)

1844. *Euprepes Blandingii* HALLOWELL, Proc. Acad. Nat. Sci. Philadelphia, 1844, p. 58 (Liberia).

1857. *Euprepes frenatus* HALLOWELL, Proc. Acad. Nat. Sci. Philadelphia, 1857, p. 50 (Liberia).

9 (U.S.N.M. Nos. 109024–32), Gibi
1 (U.S.N.M. No. 109295), Bromley
1 (U.S.N.M. No. 109581), Bendaja
1 (U.S.N.M. No. 109633), Harbel

Midbody scale rows 30–34; dorsals with 3 (in young) to 5, and rarely even 7, keels; supranasals separated in five specimens, in contact in eight; prefrontals separated in four examples, in contact in nine; supraoculars 4; supraciliaries 3–6. The largest, a ♀ (U.S.N.M. No. 109295), measures only 182 (74+108) mm. In its oviducts (April 10–16) are 4 eggs, measuring 12 by 7 mm., but without embryos.

A good deal of variation is displayed in the matter of coloration. The dark brown lateral band is faintly edged above with white in a young skink, below by a sharply defined white band in four specimens, by a series of white flecks, or altogether lacking, in others. Below, pure white.

COPHOSCINCOPUS DURUS (Cope)

1862. *Tiliqua dura* COPE, Proc. Acad. Nat. Sci. Philadelphia, 1862, p. 190 (Western Africa).

1884. *Cophoscincus simulans* VAILLANT, Bull. Soc. Philom. Paris, ser. 7, vol. 8, p. 170 (Couacrou, Ivory Coast).

1 (U.S.N.M. No. 109674), Gibi

The type of this interesting, though common, Liberian skink is in the National collection (U.S.N.M. No. 5996). In all probability it came from Liberia, as the only record of its occurrence elsewhere is that of Vaillant, whose type locality I have failed to trace, unless it be Kurako or Kurukoro, north of Ganta, in what is now French Guinea. Owing to an unfortunate accident, the Gibi specimen is too dried to be of much taxonomic value.

CHAMAELEO GRACILIS GRACILIS Hallowell

1842. *Chamaeleo gracilis* Hallowell, Journ. Acad. Nat. Sci. Philadelphia, vol. 8, p. 324, pl. 18 (Liberia).

2 ♂♂, 3 ♀♀ (U.S.N.M. Nos. 109019–23), Gibi

Males with tarsal spurs. Larger ♂ measures 186 (96+90) mm.; largest ♀ measures 280 (132+148) mm. Trinomials are used on account of *C. g. etiennei* Schmidt (1919) of Banana, Belgian Congo.

SNAKES

TYPHLOPS MANNI, new species

Type.—U.S.N.M. No. 109634, from Harbel, Republic of Liberia, March 10–July 17, 1940.

Diagnosis.—Agrees with *T. p. punctatus* (including its Liberian synonyms of *liberiensis* Hallowell, *nigrolineatus* Hallowell, and *intermedia* Jan) in possessing 26 midbody scalerows. It differs from both *T. p. punctatus* and *T. leucostictus* in its broad and trilobate snout, lateral nostrils, absence of an ocular, and in its midbody diameter being included in its total length 40 times (instead of 24–36 times in *punctatus*, 45 in *leucostictus*). In addition, it differs from *leucostictus* in possessing 26 (instead of 22) midbody scalerows, a preocular as wide as a nasal, incompletely divided nasal, and—though probably of little significance—completely hidden eyes.

Description.—Snout prominent, trilobate as seen from above, rounded, without obtuse horizontal edge; rostral half the width of the head; nasal swollen, semidivided, the suture extending from the second labial to the nostril, which is lateral; preocular present, as broad as the nasal, much broader than either of the small scales which might be termed an ocular, the lower in contact with the third labial; eyes hidden; only 3 upper labials. Midbody scalerows 26. Diameter of body included 40 times in total length, tail broader than long, ending in an obtuse spine.

Coloration.—About to slough. Above, silvery gray, base of each scale with a transverse brown spot. Below, yellowish gray, with a few fine black flecks.

Measurements.—Total length 343 (338+5) mm.; diameter at midbody 8.5 mm.

NATRIX ANOSCOPUS ANOSCOPUS (Cope)

1861. *Tropidonotus anoscopus* Cope, Proc. Acad. Nat. Sci. Philadelphia, 1861, p. 299 ["Cuba" (error, probably Liberia)].

1863. *Tropidonotus ferox* Günther, Ann. Mag. Nat. Hist., ser. 3, vol. 12, p. 355, pl. 6, fig. F (Fernando Po).

2 ♀♀ (U.S.N.M. Nos. 109297–8), Gibi
3 ♂♂, 2 ♀♀ (U.S.N.M. Nos 109585–9), Bendaja
2 ♂♂, 1 ♀ (U.S.N.M. Nos. 109636–8), Harbel
3 ♂♂, 1 ♀ (M.C.Z. Nos. 22505–8), Paiata (G. M. Allen)

Midbody scalerows 23–25; ventrals 138–146; anal divided; subcaudals 65–88; internasals 2, rarely single; preoculars 1, rarely 2; postoculars 2, rarely 1, 3, or 4; suboculars 2–4; temporals 1+2 or 1+3; upper labials 9, rarely 8 or 10; lower labials 9–12. Males may be distinguished readily by the presence of papillalike rugosities on the sublinguals. Largest ♂ (M.C.Z. No. 22505) measures 626 (470+156) mm.; largest ♀ (M.C.Z. No. 22506) measures 629 (473+156) mm.

Coloration: Above, blackish or grayish, uniform or with a series of transverse crossbars which may be interrupted dorsally, or obsolescent as a dorsal bar and vertical lateral stripes. Below, white or gray, uniform or more usually with the base of each ventral shield black, rarely (U.S.N.M. No. 109636) with a longitudinal series of black spots.

The stomach of one snake held a toad (*Bufo regularis maculatus*) and remains of a frog (*Rana* sp.), that of another a fish (*Hemichromis fasciatus*). One Bendaja reptile was heavily infested with anisakine nematodes.

The name *ferox*, by which this water snake has been known until now, must be referred to the synonymy of *anoscopus*.[1] Angel (1933, p. 71), after examination of the types of *Helicops gendrii* Boulenger, referred them to the synonymy of *ferox*, for he found they bore a sutural scar on the posterior portion of their single internasal. This is exactly the position in two of the present series (U.S.N.M. Nos. 109297, 109586), which have only single internasals. However, Boulenger (1893, p. 241) confused two forms under the name of *ferox* in his Catalogue. Both of these forms, while normally possessing a pair of internasals, may at times have them fused into a single shield; they can be separated structurally and geographically as follows:

Midbody scale rows 21–25, normally 23; ventrals 138–148 (23 examples); range: Liberia east to Cameroons and Fernando Po _____ a. anoscopus
Midbody scale rows 23–27, normally 25; ventrals 146–159 (10 examples); range: Sierra Leone and French Guinea _________________ a. gendrii

The possibility of retaining *ferox* as an insular third subspecies with 21 scalerows is rendered impossible by the recording of a snake with 21 rows from Atakpame, Togo, on the mainland.

[1] Dr. E. R. Dunn informs me that he reached the same conclusion, after examination of Cope's type.

NEUSTEROPHIS VARIEGATUS (Peters)

1861. *Mizodon variegatus* PETERS, Monatsb. Akad. Wiss. Berlin, 1861, p. 358 (Pel, Gold Coast).

♂ (U.S.N.M. No. 109058), Gibi
♀ (U.S.N.M. No. 109307), Bromley
♂ ♀ (U.S.N.M. Nos. 109583–4), Bendaja

Midbody scale rows 15; ventrals 124–131; anal divided; subcaudals 75–78; labials 8, the fourth and fifth entering the orbit; preoculars 1–2. Larger ♂ measures 279 (186+93) mm.; larger ♀ measures 237 from snout to anus, tail truncate.

Bogert (1940, p. 33) advances sound reasons for separation of the smooth-scaled African "*Natrix*" under Günther's (1858) name of *Neusterophis.* I take this opportunity of correcting the misidentification of three Paiata, Liberia, snakes reported as *Natrix fuliginoides* by Barbour and Loveridge (1930, p. 772), and my (1936, p. 21) mistaken action of synonymizing *variegatus* with *fuliginoides* on account of their occurrence together at Bitye, Ja River, French Cameroons. The two species are very closely related, practically identical in markings, yet cannot be regarded as races of one species for their ranges are largely coextensive, though *variegatus* extends farther westward to Liberia and French Guinea. This means that *fuliginoides* should be deleted from the Liberian list.

BOAEDON LINEATUS VIRGATUS (Hallowell)

1854. *Coelopeltis virgata* HALLOWELL, Proc. Acad. Nat. Sci. Philadelphia, 1854, p. 98 (Liberia).

♂ (U.S.N.M. No. 109592), Bendaja

Midbody scale rows 23; ventrals 223; anal entire; subcaudals 50; labials 8, the fourth and fifth entering the orbit; preoculars 2; postoculars 2; temporals 1+2 (R) and 1+1 (L).

Trinomials are used because this extreme western form differs from the nominate species only in the reduced number of midbody scale rows, which, however, is almost constant for Liberia, becoming rarer as one proceeds eastward and unknown east of the Belgian Congo. The region of overlap is very extensive.

BOAEDON LINEATUS LINEATUS Duméril and Bibron

1854. *Boaedon lineatus* DUMÉRIL and BIBRON, Erpétologie générale, vol. 7, p. 363 (Gold Coast).

♂ (U.S.N.M. No. 109673), Mombo

Midbody scale rows 27; ventrals 197; anal entire; subcaudals 63; labials 8, the fourth and fifth entering the orbit; preoculars 2; postoculars 2; temporals 1+1.

This house snake so closely resembles the foregoing in color pattern and squamation that there can be no doubt of their close relationship. It constitutes, however, the first recorded occurrence of *lineatus* in Liberia.

BOAEDON OLIVACEUS (Duméril)

1856. *Holurophis olivaceus* A. Duméril, Rev. Mag. Zool., ser. 2, vol. 8, p. 466 (Gaboon).

♂ (U.S.N.M. No. 109590), Bendaja
♂ (U.S.N.M. No. 109639), Harbel

Midbody scale rows 25–27; ventrals 208–218; anal entire; subcaudals 39–40, single; labials 8, the fourth and fifth entering the orbit. Larger ♂ measures 99 (67+32) mm.

HAPSIDOPHRYS LINEATA Fischer

1856. *Hapsidophrys lineatus* Fischer, Abh. Nat. Ver. Hamburg, vol. 3, p. 111, pl. 2, fig. 5 (Elmine, Gold Coast).

♂ (U.S.N.M. No. 109594), Bendaja

Midbody scale rows 15; ventrals 165; anal entire; subcaudals ? (tail truncate); upper labials 8, the fourth and fifth entering the orbit; preocular 1; postoculars 2.

RHAMNOPHIS AETHIOPISSA AETHIOPISSA Günther

1862. *Rhamnophis aethiopissa* Günther, Ann. Mag. Nat. Hist., ser. 3, vol. 9, p. 129, pl. 10 (West Africa).

♂ (U.S.N.M. No. 109593), Harbel

Midbody scale rows 16 (for certain); ventrals 165; anal divided; subcaudals 114+; upper labials 8, fourth and fifth entering the orbit; preocular 1; postoculars 2, the lower in contact with three upper labials. Total length 1185+ (805+380+) mm., tail tip truncate.

GRAYIA SMYTHII (Leach)

1818. *Coluber Smythii* Leach, in Tuckey, Narrative of an expedition to explore the river Zaire, App., p. 409 (Embomma, *i. e.* Boma, Belgian Congo).
1854. *Coronella triangularis* Hallowell, Proc. Acad. Nat. Sci. Philadelphia, 1854, p. 100 (Liberia).

♀ (U.S.N.M. No. 109582), Bendaja
♂ (U.S.N.M. No. 109640), Harbel

Midbody scale rows 17; ventrals 152–161; anal divided; subcaudals 91–99; labials 7–8, fourth or fifth entering the orbit; temporals 2+3, the lower anterior longer than its distance from the loreal. Larger, the ♀, measures only 312 (228 +84) mm.

BOIGA BLANDINGII (Hallowell)

1844. *Dipsas Blandingii* HALLOWELL, Proc. Acad. Nat. Sci. Philadelphia, 1844, p. 170 (Liberia).

1856. *Dipsas valida* FISCHER, Abh. Nat. Ver. Hamburg, vol. 3, p. 87, pl. 3, fig. 4 (Edina, Grand Bassa County, Liberia).

1856. *Dipsas globiceps* FISCHER, *ibid.*, p. 89, pl. 3, fig. 6 (Edina, Grand Bassa County, Liberia).

♂ (U.S.N.M. No. 109306), Bromley

Midbody scale rows 21; ventrals 264; anal entire; subcaudals 135; labials 8, the third, fourth, and fifth entering the orbit. Total length 1,415 (1,085+330) mm.

CROTAPHOPELTIS DUCHESNII GUINEENSIS (Chabanaud)

1920. *Leptodira guineensis* CHABANAUD, Bull. Com. Études Hist. Sci. Afrique Occ. Française, 1920, p. 491 (Dieke, Nzerekore region, French Guinea).

♀ (U.S.N.M. No. 109645), Harbel

Midbody scale rows 17; ventrals 223; anal entire; subcaudals 111; labials 8, third, fourth, and fifth entering the orbit; loreal sharply distinct, not entering orbit. Total length 733 (547+186) mm. In its oviducts (March 10–July 17) are 4 eggs, each measuring about 27 by 8 mm.

This species is the genotype of *Dipsoglyphophis* Barbour and Amaral, 1927, and I should prefer to recognize this name for the group of chunky-headed, attenuate, long-tailed, arboreal snakes (as distinct from the moderate, short-tailed, terrestrial species like *C. h. hotamboeia*) rather than force them into the genus *Dipsadoboa* (which differs in possessing large vertebrals and single subcaudals) as has been advocated by Bogert (1940, p. 65). Admittedly they occupy an intermediate position between *C. h. hotamboeia* and *D. unicolor*, but in head shape *C. shrevei* conforms to *hotamboeia* rather than to its long-tailed relatives. Nor can I agree with the synonymizing of *guineensis* with *duchesnii* Boulenger, from which it differs in several particulars, so that I should have preferred to let it remain as a full species until more material is available, but I compromise in reviving it to subspecific rank.

MIODON ACANTHIAS (Reinhardt)

1860. *Urobelus acanthias* REINHARDT, Vidensk. Medd. Kjøbenhavn, 1860, p. 229, pl. 3 (Guinea).

♀ (U.S.N.M. No. 109057), Gibi

Midbody scale rows 15; ventrals 212; anal entire; subcaudals 17; labials 7, the third and fourth entering the orbit. Total length 533 (505+28) mm. In its oviducts (April 10–16) are about 4 eggs, each measuring *circa* 22 by 7 mm.

APARALLACTUS MODESTUS (Günther)

1859. *Elapops modestus* GÜNTHER, Ann. Mag. Nat. Hist., ser. 3, vol. 4, p. 161, pl. 4, fig. C (West Africa).

1860. *Periaspis plumbeatra* COPE, Proc. Acad. Nat. Sci. Philadelphia, 1860, p. 242 (Liberia).

♀ (U.S.N.M. No. 109635), Harbel

Midbody scale rows 15; ventrals 154; anal entire; subcaudals 36; labials 7, the third and fourth entering the orbit. Total length 465 (407+58) mm.

DENDROASPIS VIRIDIS (Hallowell)

1844. *Leptophis viridis* HALLOWELL, Proc. Acad. Nat. Sci. Philadelphia, 1844, p. 172 (Liberia).

1852. *Dinophis Hammondii* HALLOWELL, Proc. Acad. Nat. Sci. Philadelphia, 1852, p. 203 (Liberia).

♂ (U.S.N.M. No. 109675), Harbel

Midbody scale rows 13; ventrals 220; anal divided; subcaudals 114; labials 8, the fourth entering the orbit; upper temporal separated from its fellow by three scales. Total length 2,040 (1,520+520) mm.

CAUSUS RHOMBEATUS (Lichtenstein)

1823. *Sepedon rhombeatus* LICHTENSTEIN, Verzeichniss der Doubletten des zoologischen Museums . . . zu Berlin, p. 106 (no locality).

1842. *Distichurus Maculatus* HALLOWELL, Journ. Acad. Nat. Sci. Philadelphia, vol. 8, p. 337, pl. 19 (Liberia).

♂ (U.S.N.M. No. 109591), Bendaja
4 ♀♀ (U.S.N.M. Nos. 109641–4), Harbel

Midbody scale rows 19; ventrals 128–141; anal entire; subcaudals 17–20; labials 6; suboculars 1–2. Total length of ♂, 497 (452+45) mm.; of largest ♀, 400 (365+35) mm.

BITIS GABONICA (Duméril and Bibron)

1854. *Echidna Gabonica* DUMÉRIL and BIBRON, Erpétologie générale, vol. 7, p. 1428, pl. 80b (Gaboon).

♂ ♀ (U.S.N.M. Nos. 109683–4), Harbel

Midbody scale rows 36; ventrals 128–130; anal entire; subcaudals 26–28; labials 14. Both specimens are young.

BITIS NASICORNIS (Shaw)

1802. *Coluber Nasicornis* Shaw, Nat. Misc., vol. 3, pl. 94 (interior of Africa) (from the master of a Guinea vessel).

4 ♂♂, 4 ♀♀ (U.S.N.M. Nos. 109018, 109676–82), Gibi
♂ (U.S.N.M. No. 109308), Bromley

Midbody scale rows 30–38; ventrals 121–129; anal entire; subcaudals 15–26; labials 14–17. Largest ♂ (U.S.N.M. No. 109678) measures 651 (570+81) mm.; largest ♀ (U.S.N.M. No. 109680) measures 955 (870+85) mm.

FROGS AND TOADS

XENOPUS TROPICALIS (Gray)

1864. *Silurana tropicalis* Gray, Ann. Mag. Nat. Hist., ser. 3, vol. 14, p. 316 (Lagos, Nigeria).

3 (U.S.N.M. Nos. 109571–3), Bendaja

These frogs have the vestigial lower eyelid and, though less well defined on account of their dry condition, snout and chin beset by pustules characterizing the species as redefined by Parker (1936a, p. 157).

BUFO REGULARIS MACULATUS Hallowell

1850. *Bufo cinereus* Hallowell (not Schneider), Proc. Acad. Nat. Sci. Philadelphia, 1850, p. 169 (Liberia).
1854. *Bufo maculatus* Hallowell, Proc. Acad. Nat. Sci. Philadelphia, 1854, p. 101 (new name for *cinereus*, preoccupied).

5 ♀♀ (U.S.N.M. Nos. 109286–90), Bellyella
1 yng. (U.S.N.M. No. 109305), Bromley
6 yng. (U.S.N.M. Nos. 109554–6, 109666–8), Bendaja
8 ♂♂, 1 ♀ (U.S.N.M. Nos. 109622–30), Harbel
1 yng. (U.S.N.M. No. 11314), Reputa

The series maintains the small size of this western form, the very largest ♂♂ (U.S.N.M. No. 109623, etc.) measuring 53 mm., the largest gravid ♀ (U.S.N.M. No. 109286) measuring 67 mm., the youngest toad (U.S.N.M. No. 109556) 15 mm. One of these toads was recovered from the stomach of a water snake (*Natrix a. anoscopus*).

BUFO CAMERUNENSIS CAMERUNENSIS Parker

1936. *Bufo camerunensis camerunensis* Parker, Proc. Zool. Soc. London, 1936, p. 153 (Oban, Calabar, Nigeria).

♀ (U.S.N.M. No. 109285), Bellyella

This somewhat dried individual has been compared with a paratype of *camerunensis*, a species long confused with *latifrons* Boulenger. First recorded from Liberia by Parker (1936c, p. 97). Length 76 mm.

HYLAMBATES COCHRANAE, new species

Cotypes.—U.S.N.M. Nos. 109569–70, being an adult ♂ and gravid ♀ from Bendaja, Republic of Liberia, collected by William M. Mann, May 14–27, 1940.

Diagnosis.—Color pattern somewhat resembling that of *Kassina senegalensis* from which it differs in the possession of well-developed digital disks. Intermediate in position between *H. cassinoides* Boulenger of McCarthy Island, Gambia (with topotypes of which they have been compared), and *H. leonardi* Boulenger of Fernando Po (with Liberian and Congo examples of which they have been compared). It differs from *cassinoides* in having rather smaller, rounded (instead of subtriangular) disks, broader habit, larger size, and in the thighs and concealed surfaces of tibia and foot exhibiting contrasted black marblings on a white (? red in life) ground. It differs from *leonardi* in possessing smaller disks; shorter hind limb, which reaches axilla instead of eye; smaller size; and pure white (instead of black) breast and belly, etc.

One wonders if the frogs from French Guinea, referred to *Cassina weali* of southeast Africa (!) by Chabanaud (1921, p. 460), might not in reality represent this undescribed tree frog.

Description.—Vomerine teeth in two oblique groups situated somewhat posteriorly between the choanae (poorly developed in the ♀ cotype). Head broader than long; snout rounded, shorter than the diameter of the eye, interorbital space broader than an upper eyelid; tympanum rather more than half the diameter of the eye; fingers long, free, with small rounded disks which are half the size of the tympanum; toes half-webbed, their disks smaller than those of the fingers; inner metatarsal tubercle small, rounded, feebly prominent, tibiotarsal articulation of the adpressed hind limb reaches only to the axilla. Skin smooth (or rugosely warty due to immersion in strong alcohol) above; granular on belly and under the thighs. Length of ♂ 36 mm.; length of ♀ mm.

Color in alcohol.—Above, blackish, everywhere with numerous large, oval, light-edged dark spots (as in *maculatus*); groin, thighs, posterior side of tibia, and upper part of foot, marbled with white (? red in life). Below, throat of ♂ black, that of ♀ white with dusky freckles around its labial border; breast and belly of both sexes white with brown vermiculations along the flanks; limbs white (? red) marbled with black; soles chiefly brown mottled with white.

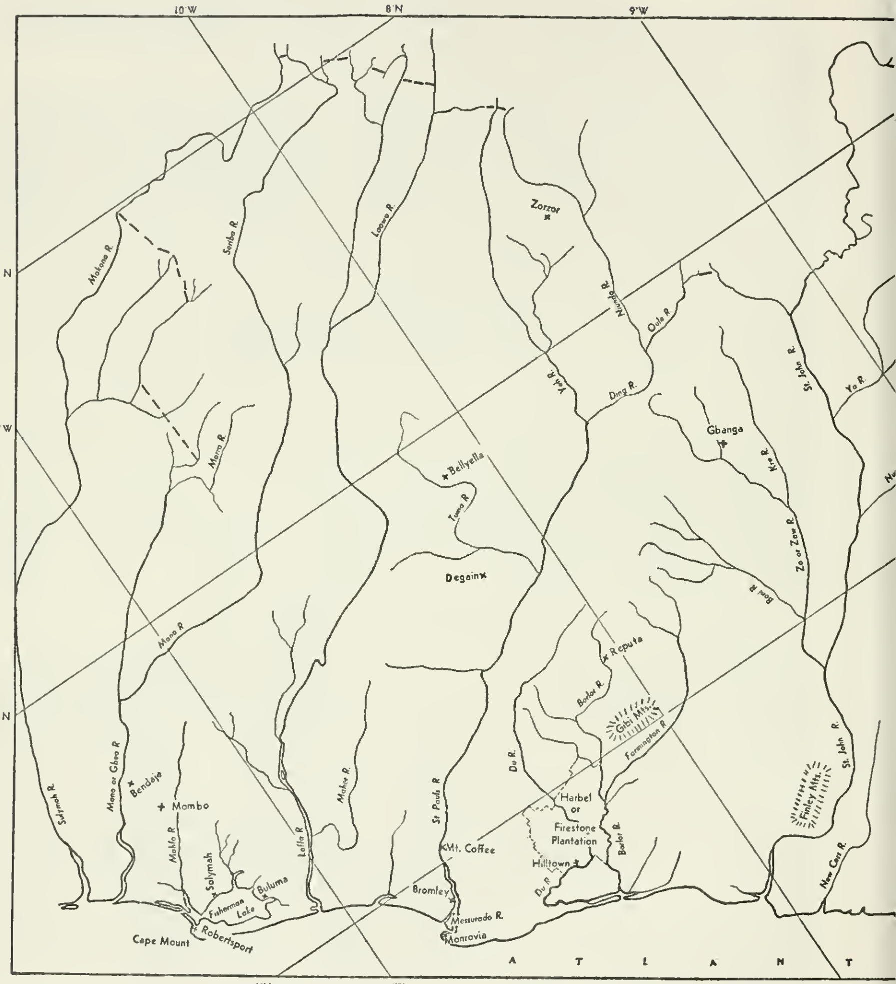
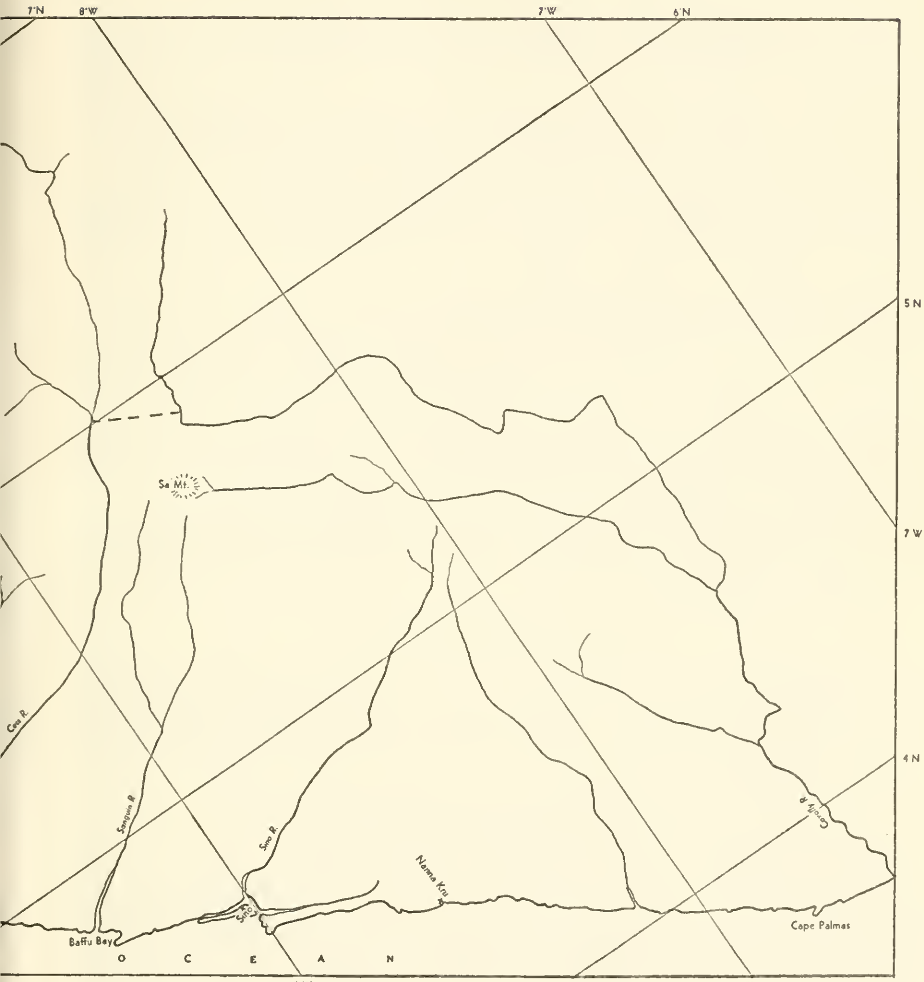


Figure 34.—Liberia. This map was modified by Dr. Leonard P. Schultz from a map of L
made to the Geographical Institute of Harv.



ıted by the Institute of Geographical Exploration, Harvard University. Acknowledgment is
ˈsity for permission to trace the river systems.

HYLAMBATES LEONARDI Boulenger

1906. *Hylambates leonardi* BOULENGER, Ann. Mus. Stor. Nat. Genova, ser. 3, vol. 2, p. 167, pl. 2, fig. 3 (Punta Frailes, Fernando Po, and N'Djole, French Congo).

♂♂ (U.S.N.M. Nos. 109567–8), Bendaja

In view of this record involving a westward extension of the range of nearly a thousand miles, one might have supposed that they would represent a western race for they differ in several details from the description. Their vomerine teeth are between (not behind the level of) the choanae, though situated somewhat posteriorly; the head is distinctly (not slightly) broader than long; the snout is two-thirds (not equal to) the diameter of the eye; the interorbital space is broader than (not as broad as) an upper eyelid; the tympanum is two-thirds (not two-fifths) the diameter of the eye.

In all these respects, however, they agree with a series (M.C.Z. Nos. 21681–8) of females and young from Djamba, Belgian Congo (det. de Witte), and all with the striking color pattern as figured by Boulenger. There is considerable variation in the amount of white (? red, ? yellow) in the groin and elsewhere. These males exhibit the black vocal sacs flanking the central gular disk which is common to males of their allies of the genus *Kassina*. Boulenger gave 54 mm. as the length, probably of his cotype ♀ and not of the ♂ for the Bendaja ♂♂ measure 45–47 mm.

LEPTOPELIS VIRIDIS (Günther)

1868. *Hylambates viridis* GÜNTHER, Proc. Zool. Soc. London, 1868, p. 487 (West Africa).

1929. *Leptopelis liberiensis* AHL, Sitz. Ges. Naturf. Freunde Berlin, 1929, p. 194 (Liberia).

2 ♂♂, 4 ♀♀ (U.S.N.M. Nos. 109530, 109557–61), Bendaja
♂ ♀ (U.S.N.M. Nos. 109620–1), Harbel

Parker (1936c, p. 95) has cleared up the confusion that has long centered about West African frogs of this group and referred *hyloides* Boulenger, *nanus* Ahl, and *togoensis* Ahl to the synonymy. To these I would now add *liberiensis* Ahl, described as having a very faint rudiment of web between the fingers but in all other respects agreeing with *viridis*, which most authors agree to consider as having "fingers free." Males are distinguishable by their dark throats. Length of ♂♂ 30–34 mm., of ♀♀ 36–46 mm.

LEPTOPELIS BEQUAERTI, new species

Correction.—In 1930, Barbour and Loveridge referred certain Liberian frogs to *tessmanni* Nieden (of Makomo, Spanish Guinea). In the absence of topotypic material of Nieden's frog, the Mount Coffee (p. 785) specimens may still be considered to represent *tessmanni*, but the frogs from Gbanga and Du River (p. 782) that I thought to be young *tessmanni* must be considered specifically distinct on account of the less developed webbing on both hand and foot. I take pleasure in naming the new species after its collector, Dr. J. Bequaert, who has done so much to advance our knowledge of African zoology in many fields.

Type.—M.C.Z. No. 12000, a female from Gbanga, Republic of Liberia, collected by Joseph Bequaert, September 1926.

Paratypes.—Young ♀ (M.C.Z. No. 12001), Gbanga, Liberia (J. Bequaert); ♂ and juv. (M.C.Z. Nos. 12002–3), Plantation No. 3, Du River, Liberia (G. M. Allen); ♀ (U.S.N.M. No. 109051), Gibi, Liberia (W. M. Mann).

Diagnosis.—Digits with a mere rudiment of web; toes with a single joint free of web on the first, second, and third, two joints free on the fourth, a single or only half a joint free on the fifth.

In contrast the Mount Coffee frog (M.C.Z. No. 15939) has only the first finger with a rudiment of web, the second has one joint free, the third two joints, the fourth one and a half joints; of its toes only the first has a single joint free, the second, third and fifth are webbed to the disks on at least one side, the fourth has one and a half (right) to 2 (left) joints free of web. It is a ♂ of larger size, viz, 50 mm.

Description.—Vomerine teeth in two small groups between the choanae. Head as broad (or slightly broader than) long; snout roundish, half to two-thirds the diameter of the eye; interorbital space slightly broader than (or as broad as) an upper eyelid; tympanum two-thirds the diameter of the eye; fingers rather long with a mere rudiment of web, their disks as large as the tympanum; toes two-thirds webbed, one joint free of web on the first, second, and third toes, two joints free on fourth, half (or one) joint free on fifth, the disks a little smaller than those on the fingers; inner metatarsal tubercle large, oval, strongly compressed; the tibiotarsal articulation of the adpressed hind limb reaches the nostril (or eye). Skin of dorsum shagreened and with small scattered warts; on the throat, belly, and under the thighs, granular; males with a callous pad on the breast in the region of the axilla.

Coloration.—Above, pale brown, a dark, triangular, interorbital marking, its apex directed posteriorly and often confluent with a more or less distinct hourglass pattern on the back; a dark line from the eye passes over the tympanum to the base of the forearm (and may be continued on the flank as a series of dashes); flanks marbled with brown; forearm, thighs, and to some extent the foot, crossbarred with dark brown; from disk of outer finger to elbow, from disk of outer toe to heel, and above anus a narrow white line. Below, creamy white sparsely mottled with brown (or uniform); limbs brownish merging into purplish brown on palms and soles.

Measurements.—Length from snout to anus of type ♀, 28 mm.; of paratype ♀♀ from Gbanga and Gibi, 29 and 33 mm., respectively; of paratype ♂, 29 mm.; of a juvenile, with rudiment of tail still visible, 15 mm.

MEGALIXALUS FULVOVITTATUS (Cope)

1860. *Hyperolius fulvovittatus* Cope, Proc. Acad. Nat. Sci. Philadelphia, 1860, p. 517 (Liberia).

1876. *Hyperolius vittiger* Peters, Monatsb. Akad. Wiss. Berlin, 1876, p. 122 (Liberia).

17 ♂♂, 5 ♀♀ (U.S.N.M. Nos. 109534–53, 109664–5), Bendaja
2 ♀♀ (U.S.N.M. No. 109618–9), Harbel
♀ (U.S.N.M. No. 109672), Reputa
♂ (U.S.N.M. No. 11318), Cape Mount

All possess the characteristic chocolate-brown dorsal stripes. Length of ♂♂, 23–27 mm., average 24 mm.; length of ♀♀, 24–27 mm., average 26 mm., being somewhat less than that of the enormous series from Ganta, Liberia, reported on elsewhere (Loveridge, 1938, p. 66).

MEGALIXALUS PLATYCEPS (Boulenger)

1900. *Rappia platyceps* Boulenger, Proc. Zool. Soc. London, 1900, p. 444, pl. 27, fig. 4 (Benito River, French Congo).

♂ (U.S.N.M. No. 109533), Bendaja
♂♂ (U.S.N.M. Nos. 109616–7), Harbel

A broad vertebral band or hourglass pattern, dorsal spinosities, and vertical pupil present in all. Length of ♂♂, 26–29 mm. See remarks in Loveridge (1938, p. 66).

HYPEROLIUS CONCOLOR (Hallowell)

1844. *Ixalus concolor* Hallowell, Proc. Acad. Nat. Sci. Philadelphia, 1844, p. 60 (Liberia).

3 ♀♀ (U.S.N.M. Nos. 109531–2, 109655), Bendaja
♀ (U.S.N.M. No. 109669), Reputa
♀ (U.S.N.M. No. 110447), Harbel

Fourth and first toe with one phalange free of web, third scarcely (*riggenbachi*) or fully (*concolor*) webbed, second and fifth fully webbed to disks. Three subadult frogs (U.S.N.M. Nos. 109531–2, 109655) are typically *riggenbachi* Nieden in their dorsal markings, but Mertens (1938, p. 27) considers this to be the juvenile stage of *concolor*, stating that a *riggenbachi*, which he captured in the Cameroons, transformed in his vivarium to a typical, uniform *concolor*.

One of the two adult females still retains its dorsal coloring of vivid green merging into yellow on the flanks, upper arm, and thighs. Below, uniform white. The subadults measure 23–28 mm., adult ♀♀, 38–42 mm. Both the latter are gravid, having been taken between March 10-July 17 and June 21–26, respectively.

HYPEROLIUS PLEUROTAENIUS (Boulenger)

1906. *Rappia pleurotaenia* BOULENGER, Ann. Mag. Nat. Hist., ser. 7, vol. 17, p. 322 (Zima, French Cameroons).

♀ (U.S.N.M. No. 109040), Gibi
♀ (U.S.N.M. No. 109670), Reputa

Fourth toe with one phalange free of web, remaining toes webbed to their disks; tibiotarsal articulation of the adpressed hind limb reaches posterior border of eye. Coloration precisely like that shown on colored plate in Barbour and Loveridge (1930, pl. 465, fig. 4). Length of ♀♀, 29–37 mm.

HYPEROLIUS PICTURATUS Peters

1875. *Hyperolius picturatus* PETERS, Monatsb. Akad. Wiss. Berlin, 1875, p. 206, pl. 2, fig. 2 (Boutry, Ashanti, Gold Coast).

3 ♀♀ (U.S.N.M. Nos. 109309, 109653, 109659), Bendaja
2 ♀♀ (U.S.N.M. Nos. 109609, 110448), Harbel

Fourth and fifth toe with one phalange free of web, second, third, and fifth webbed almost, or entirely, to their disks; tibiotarsal articulation of the adpressed hind limb reaches to between eye and nostril. Above, pale gray to chocolate-brown, uniform, or with a few black flecks; upper lip and flank with characteristic dark, or black, speckling, marbling or vermiculation. Length of ♀♀, 27–30 mm. All five are gravid, having been taken between May 14–27 and March 10–July 17, respectively.

HYPEROLIUS OCELLATUS Günther

1858. *Hyperolius ocellatus* GÜNTHER, Catalogue of the Batrachia Salientia in the collection of the British Museum, p. 88, pl. 7, fig. B (Fernando Po and Angola).

3 ♂♂, 166 ♀♀ (U.S.N.M. Nos. 109310–453, 109462, 109518–29, 109654,
♀ (U.S.N.M. No. 110437), Bendaja

Fourth toe with one phalange free of web, remaining toes webbed to their disks; tibiotarsal articulation of the adpressed hind limb reaches the eye or nostril. Coloration of the largest and smallest frogs is as follows: Above, pinkish white, minutely speckled with brown dots, a few large brown blotches (formed of a concentration of the smaller dots) on back and limbs; a brown canthal streak from nostril to eye. Below, white. Two 23-mm. frogs in the Harbel series are not typical but are so fresh as to have retained certain fugitive colors. Above, pale greenish yellow minutely speckled with brown on back and limbs; a brown canthal streak is overlaid by a blood-red band, which continues on from eye to groin as an undulating line; hands and feet blood red. Below, transparently white. Length of ♀♀, 22–26 mm. The largest is gravid, having been taken at Harbel between March 10 and July 17.

HYPEROLIUS FUSCIVENTRIS Peters

1876. *Hyperolius fusciventris* Peters, Monatsb. Akad. Wiss. Berlin, 1876, p. 122 (Liberia).

♀ (U.S.N.M. No. 109041), Gibi
3 ♂♂, 166 ♀♀ (U.S.N.M. Nos. 109310–453, 109462, 109518–29, 109654, 109656–8, 110438–46), Bendaja
24 ♀♀ (U.S.N.M. Nos. 109595–607, 109646–9, 110451–7), Harbel
♀ (U.S.N.M. No. 109671), Reputa

Fourth and first toe with one phalange free of web, second and third with one-half or one phalange free, fifth webbed to disk; tibiotarsal articulation of the adpressed hind limb reaches the eye or nostril. Coloration, ♀♀: Above, blue-gray (green in life), an irregular, undulating, often broken, black line extends from below commissure of mouth over forearm to groin, sometimes continued over thigh to meet its fellow below anus, similar wavy lines present on anterior and posterior aspect of fore limb, tibia, and foot. Below, pale to lead gray, almost black. A few individuals (U.S.N.M. Nos. 109380, 109394, 109404, 109518–23, 109605) lack the lateral line in varying degrees and may be classed as underpigmented and overpigmented as they vary from very pale gray to dark plumbeous above, and all are paler below, the pallid specimens being actually white. One might suppose that they were young *concolor* but for the fact that most of them are gravid and usually carry, in the shape of scattered specks, some traces of the whereabouts of the typical markings. The ♂♂ differ slightly. Above, pale gray; a black canthal stripe present or absent; a few conspicuous black spots on flanks; a light dorsolateral line (as in *ademetzi*, which see) from posterior border of eye towards groin, just discernible in one frog. Below, white. Length of ♂♂, 21–22 mm.; of 50 ♀♀, 22–28 mm., average 25 mm.

HYPEROLIUS ? ADEMETZI Ahl

1931. *Hyperolius ademetzi* Ahl, Mitt. Zool. Mus. Berlin, vol. 17, p. 37 (Bamenda, British Cameroons).

50 ♂♂, 18 ♀♀ (U.S.N.M. Nos. 109454–61, 109463–517, 109660–3, 11315), Bendaja
9 ♂♂ (U.S.N.M. Nos. 109610–5, 109650–1, 110458), Harbel

Fourth and first toe with one phalange free of web, second and third with one-half a phalange free, or webbed to disk like fifth; tibiotarsal articulation of the adpressed hind limb reaches the eye or nostril. A light dorsolateral line almost always present. Every specimen has a more or less conspicuous, dark-edged, silvery, nasolateral stripe; the density of pigmentation on the dorsum varies considerably, reaching its maximum in U. S. N. M. No. 109469, in which even the gular disk and throat are stippled, though as colorless as the belly in most of the series. Seven males (U.S.N.M. Nos. 109454, 109456, 109459, 109461, 109481, 109610, 109612), though indistinguishable as to color and pattern, may be males of some other dimorphic and slightly larger species, possibly *picturatus*, for they measure 24–29 mm., average 26 mm. Length of 50 ♂♂, 19–23 mm., average 22 mm., length of 18 presumed ♀♀ (assumed to be so as without gular disks, but certainly young, and possibly including some young males among them) 16–23 mm., average 19 mm.

These frogs are conspecific with the 143 ♂♂ and 5 ♀♀ previously reported upon, which I (1938, p. 69) treated in the same way for reasons stated at that time. In view of the preponderance of male *ademetzi* in both collections, paralleled by the predominance of female *fusciventris*, one might be tempted to assume that we were dealing with a single species exhibiting sexual dichromatism. A careful examination of the earlier material, however, lends no weight to such an assumption, and one must conclude that the *ademetzi* males are assembling to summon their females at a time when the *fusciventris* females are ovulating. The majority of *fusciventris* females collected by Dr. Mann are distended with ova, but none of the *ademetzi* females appears gravid.

HYPEROLIUS ? FESTIVUS Barbour and Loveridge

1927. *Hyperolius festivus* Barbour and Loveridge, Proc. New England Zoöl. Club, vol. 10, p. 17 (Firestone Plantation No. 3, Du River, Republic of Liberia).

? ♂ (U.S.N.M. No. 109052), Gibi

Above, brown, but lips and flanks white, instead of dark; the absence of the dark hourglass pattern on the dorsum is of no importance, as it is absent in a ♀ paratype of *festivus*. This rather dried specimen has no gular disk but a baggy singing pouch. Length, 26 mm. It seems probable that *festivus*, as well as *baumanni* Ahl, of which we have a Togo cotype, will probably have to be synonymized with *acutirostris* Peters, of Cameroons, of which we have no typical material.

SYNOPSIS OF THE SPECIES OF RANA IN LIBERIA

In connection with this work I came across a specimen (M.C.Z. No. 24461) of *Rana longirostris* Peters that constitutes the first Liberian record of this Gold Coast (type locality, Keta) species of which *aequiplicata* Werner, of the Cameroons and Congo, is a synonym according to Nieden, who made direct comparison of the types.

The specimen comes from the Firestone Plantation No. 3, on the Du River, Liberia, where it occurs together with *R. maccarthyensis* (M.C.Z. Nos. 24462–3), *R. o. gribinguiensis* (M.C.Z. Nos. 24458–60), *R. o. oxyrhynchus* (M.C.Z. Nos. 24455–7), and *R. m. mascareniensis* (M.C.Z. Nos. 11927–31), the latter having been erroneously recorded under the name *bibronii* in 1930.

In view of the remarkable similarity of all these frogs and the consequent difficulty of distinguishing them, it seemed advisable to draw up the following key after a careful examination of Dr. Mann's material together with that in the Museum of Comparative Zoölogy.

1. A conspicuous transverse fold connects posterior edges of upper eyelids; toes webbed to tips; habit robust ---------- 2
   No transverse fold across crown of head; habit more or less slender ---------- 3
2. Vomerine teeth in two oblique rows, anteriorly touching inner posterior edge of choanae, posteriorly converging; snout acuminate, as long as, or almost as long as, orbital diameter; tympanum sharply distinct, large, its diameter almost that of orbit; tips of toes not dilated, at most thickened ---------- **occipitalis**
   Vomerine teeth (absent in young) in two round groups between, but posterior to an imaginary line connecting hind edges of, choanae; snout rounded, once and a half as long as orbital diameter; tympanum indistinct, small, its diameter about a third that of orbit; tips of toes dilated into distinct, though small, disks ---------- **c. alleni**
3. Vomerine teeth in two oblique rows between, though not in contact with, choanae; tips of fingers and toes dilated into distinct disks.
   Fourth toe with only 1 phalange free of web (or which may be continued up it as a narrow seam to disk), remaining toes webbed to base of their disks; tibiotarsal articulation of adpressed hind limb reaches eye or just beyond end of snout; vocal sacs of ♂ internal, but a glandular swelling present at base of forearm in ♂♂ ---------- **a. albolabris**
   Vomerine teeth in two rows projecting inward from anterior edges of choanae; tips of fingers and toes simple, not dilated ---------- 4
4. An inner *and* an outer metatarsal tubercle, latter connected by a series of minor tubercles with first subarticular tubercle of fourth toe.
   Fourth toe with 2 (rarely 3) phalanges free of web, first toe with 1½ (rarely 1 or 2), second with 1 (rarely 1½), third with 1 (rarely 2), fifth with ½ (rarely 1 or 1½) phalanges free of web; tibiotarsal articulation of adpressed hind limb reaches nostril or well beyond end of snout; vocal sac of ♂ external, its aperture extending posteriorly toward lower insertion of forearm ---------- **maccarthyensis**
   An inner metatarsal tubercle *only*, no minor tubercles on basal phalange of fourth toe ---------- 5

5. Fourth toe with only 1 phalange free of web (though sometimes second represented only by a narrow seam in o. *gribinguiensis*), fifth webbed to tip ---------- 6
   Fourth toe with 2 or more phalanges free of web ---------- 7
6. First, second, and third toes with ½ a phalange free of web; tibiotarsal articulation of adpressed hind limb reaches end of snout or far beyond; adult ♀♀ 50–58 mm ---------- longirostris
   First, second, and third toes webbed to tips; tibiotarsal articulation of adpressed hind limb reaches well beyond or far beyond end of snout; inhabits rain forest; size larger, adult ♀♀ 58–74 mm ---------- o. gribinguiensis
7. Fifth toe webbed to tip; vocal sac of ♂ external, its aperture extending posteriorly toward lower insertion of forearm.
   Fourth toe with 2 phalanges free of web; first, second, and third toes with 1 phalange free of web; tibiotarsal articulation of adpressed hind limb reaches nostril or just beyond end of snout; adult ♀♀ 53–55 mm ---------- o. oxyrhynchus
   Fifth toe with 1 or more phalanges free of web ---------- 8
8. Fourth toe with 2½ phalanges free of web, first, second, and third toes with 1 (or rather more than 1) phalange free, fifth with *only* 1 free; tibiotarsal articulation of adpressed hind limb reaches nostril or just beyond end of snout; vocal sac of ♂ external, its aperture extending posteriorly toward *upper* insertion of forearm ---------- m. mascareniensis
   Fourth toe with 3 phalanges free of web, first, third, and fifth with 2, second with 1½ phalanges free of web; tibiotarsal articulation of adpressed hind limb reaches well beyond or far beyond end of snout; vocal sac of ♂ external, its aperture extending posteriorly toward lower insertion of forearm ---------- bibronii

RANA OCCIPITALIS Günther

1858. *Rana occipitalis* Günther, Catalogue of the Batrachia Salientia in the collection of the British Museum, p. 130, pl. 11 (Gambia) (restricted).

♂, 2 ♀♀ (U.S.N.M. Nos. 109299–301), Bromley
3 ♂♂, 2 ♀♀ (U.S.N.M. Nos. 109574–8), Bendaja

Characters as in foregoing synopsis. Length of ♂♂, 80–93 mm.; of ♀♀, 82–94 mm.

RANA CRASSIPES ALLENI (Barbour and Loveridge)

1927. *Pseudoxenopus alleni* Barbour and Loveridge, Proc. New England Zoöl. Club, vol. 10, p. 14 (Firestone Plantation No. 3, Du River, Liberia).

Yng. and ♂ (U.S.N.M. Nos. 109050, 11313), Gibi

Characters as in foregoing synopsis. Length of ♂, 65 mm. Parker (1931, p. 493) has accidentally reversed the character of snout length in relation to that of *occipitalis*. It seems best to regard *alleni* as the western race of *crassipes* as suggested by Parker.

RANA ALBOLABRIS ALBOLABRIS Hallowell

1856. *Rana albolabris* HALLOWELL, Proc. Acad. Nat. Sci. Philadelphia, 1856, p. 153 (West Africa).

2 ♂♂, 2 ♀♀ (U.S.N.M. Nos. 109053–6), Gibi
♀ (U.S.N.M. No. 109304), Bromley

Characters as in foregoing synopsis. Length of ♂♂, 42–45 mm.; of ♀♀, 38–51 mm. As *R. a. acutirostris* Parker (1936b, p. 141) is preoccupied by *R. acutirostris* Fatio (1872), I take pleasure in renaming the former, of which we have a paratype, *parkeriana*, after its describer.

RANA MACCARTHYENSIS Andersson

1937. *Rana maccarthyensis* ANDERSSON, Arkiv Zool., vol. 29A, No. 16, p. 9, figs. 3–4 (Maccarthy Island, Gambia).

♀ (U.S.N.M. No. 109038), Gibi
3 ♂♂, 3 ♀♀ (U.S.N.M. Nos. 109265–70), Bellyella

Characters as in foregoing synopsis. It is a ♀ and 3 ♂♂ (U.S.N.M. Nos. 109267–70) that have such long hind limbs as to necessitate expanding the description in this respect. Length of ♂♂, 42–43 mm.; of ♀♀, 51–64 mm.

RANA OXYRHYNCHUS OXYRHYNCHUS Smith

1849. *Rana oxyrhynchus* A. SMITH, Illustrations of the zoology of South Africa, Rept., pl. 77, figs. 2, 2a–c (Kaffirland and the region of Port Natal, South Africa).

♂ (U. S. N. M. No. 109039), Gibi
♀ (U.S.N.M. No. 109302), Bromley
juv. (U.S.N.M. No. 109652), Bendaja

Characters as in foregoing synopsis, except that the 23-mm. juvenile has rather more extensive webbing and should perhaps be referred to *R. o. gribinguiensis* Angel, which occurs in the rain-forest areas of Liberia. Length of ♂, 41 mm.; of ♀, 53 mm.

RANA MASCARENIENSIS MASCARENIENSIS Duméril and Bibron

1841. *Rana mascareniensis* DUMÉRIL and BIBRON. Erpétologie générale, vol. 8, p. 350 (Madagascar; Mauritius; Seychelles).

4 ♂♂, 1 ♀ (U.S.N.M. Nos. 109033–7), Gibi
9 ♂♂, 4 ♀♀ (U.S.N.M. Nos. 109271–83), Bellyella
♀ (U.S.N.M. No. 109303), Bromley
♂ (U.S.N.M. No. 109579), Bendaja

Characters as in foregoing synopsis. Length of adult ♂♂, 46–55 mm.; of adult ♀♀, 54–64 mm. While possessing the short hind limbs of the typical form, the Bellyella frogs reach the large size of the rain-forest race *venusta* Werner.

ARTHROLEPTIS POECILONOTUS Peters

1863. *Arthroleptis poecilonotus* PETERS, Monatsb. Akad. Wiss. Berlin, 1863, p. 446 (Boutry, Ashanti, Gold Coast).

2 (U.S.N.M. Nos. 109043, 109049), Gibi
1 (U.S.N.M. No. 109284), Bromley
2 (U.S.N.M. Nos. 110459–60), Harbel
1 (U.S.N.M. No. 110461), Bellyella
1 (U.S.N.M. No. 11321), Reputa
1 (U.S.N.M. No. 111320), Degain

A single metatarsal tubercle; tibiotarsal articulation of the adpressed hind limb reaches to between eye and nostril in all. Length of adults, 25–27 mm.; of juveniles, 12–16 mm.

ARTHROLEPTIS CALCARATUS (Peters)

1863. *Hemimantis calcaratus* PETERS, Monatsb. Akad. Wiss. Berlin, 1863, p. 452 (Boutry, Ashanti, Gold Coast).

Juv. (U.S.N.M. No. 111322), Gibi

Two metatarsal and a tarsal tubercle; tibiotarsal articulation of the adpressed hind limb reaches nostril; upper eyelid with a small wart in lieu of the elongate tubercle characteristic of the adult, with whose coloring it is in fairly close agreement though the spotting on throat and breast is even more pronounced. Length of juv., 12 mm.

ARTHROLEPTIS WERNERI Nieden

1910. *Arthroleptis werneri* NIEDEN, Arch. Naturg., vol. 76, pt. 1, p. 242 (Banjo district and Bamenda, British Cameroons).

♀ (U.S.N.M. No. 111319), Gibi

Two metatarsal and a tarsal tubercle, of which the inner is equidistant from the outer as from the tarsal tubercle; tibiotarsal articulation of the adpressed hind limb reaches the posterior border of the eye; upper eyelid warty; snout slightly longer than the orbit. Throat and lower flanks finely vermiculate. Length of ♀, 20 mm. Gravid when taken April 10–16.

As stated by Parker (1936c, p. 93) the identification of Liberian frogs with *werneri* should be regarded as tentative until direct comparison has been made with Cameroons material.

PHRYNOBATRACHUS NATALENSIS (Smith)

1849. *Stenorhynchus natalensis* A. SMITH, Illustrations of the zoology of South Africa, Rept., App., p. 24 (Natal, South Africa).

♀ (U.S.N.M. No. 109042), Gibi

Three phalanges of the fourth toe free of web, first and second with 1, third and fifth with 2 phalanges free; tibiotarsal articulation of the adpressed hind limb reaches the eye. Length of ♀, 36 mm. This frog, which constitutes the first record of the species from Liberia, has been compared carefully with specimens from the Natal border; it appears to be specifically identical with the juvenile (M.C.Z. No. 11984) from Suahkoko, Liberia, referred to *francisci* Boulenger by Barbour and Loveridge (1930, p. 779).

PHRYNOBATRACHUS LIBERIENSIS Barbour and Loveridge

1927. *Phrynobatrachus liberiensis* Barbour and Loveridge, Proc. New England Zoöl. Club, vol. 10, p. 14 (Gbanga, Liberia).

Hgr. (U.S.N.M. No. 111316), Degain

Three phalanges of the fourth toe free of web, first and second toe narrowly webbed to the disk on one side only, third and fifth with 2 phalanges free; tibiotarsal articulation of the adpressed hind limb reaches just beyond end of snout. Length of hgr., 24 mm.

PHRYNOBATRACHUS PLICATUS (Günther)

1858. *Hyperolius plicatus* Günther, Catalogue of the Batrachia Salientia in the collection of the British Museum, p. 88, pl. 7, fig. C (Coast of Guinea).

Juv. (U.S.N.M. No. 111317), Mombo

Two phalanges of the fourth toe free of web, third phalange with a narrow margin only; remaining toes webbed to their disks though second and third toes only narrowly on one side; tibiotarsal articulation of the adpressed hind limb reaches well beyond tip of snout; characteristic dorsal glandular folds present. Length of juv., 18 mm.

PHRYNOBATRACHUS OGOENSIS BRONGERSMAI Parker

1936. *Phrynobatrachus brongersmai* Parker, Zool. Meded., vol. 19, p. 90 (Grand Cape Mount, Liberia).

2 (U.S.N.M. Nos. 109048, 110462), Gibi
♀ (U.S.N.M. No. 109562), Bendaja
♂ (U.S.N.M. No. 110463), Reputa

Two phalanges of the fourth toe free of web, first and second with half or 1, third and fifth with 1 phalange free; tibiotarsal articulation of the adpressed hind limb reached the eye (in gravid ♀) or beyond end of snout (in three ? ♂ ♂). Length of ♂ 16–17 mm.; of ♀, 26 mm. The latter gravid when taken between May 14–27.

The ♂ has a vocal sac, though this is one of the three characters used by Parker to distinguish the Liberian frog from the slightly smaller *ogoensis* Boulenger, to which Barbour and Loveridge (1930, p. 780) referred certain Liberian frogs. The latter are certainly conspecific with the present material.

PHRYNOBATRACHUS LATIFRONS Ahl

1924. *Phrynobatrachus latifrons* Ahl, Zool. Anz., vol. 60, p. 272 (Dodo, French Cameroons).

3 (U.S.N.M. Nos. 109045–7), Gibi
4 (U.S.N.M. Nos. 109563–6), Bendaja

Two phalanges of the fourth toe free of web, remaining toes webbed to their disks at least on one side, but less fully than in *alleni* for the web is deeply incised between digits; tibiotarsal articulation of the adpressed hind limb reaches the eye or nostril. Lengths 22–25 mm. Females from both localities gravid when taken between April 10–16 and May 14–27 respectively.

PHRYNOBATRACHUS ALLENI Parker

1936. *Phrynobatrachus alleni* Parker, Zool. Meded., vol. 19, p. 91 (Firestone Plantation No. 3, Du River, Liberia).

1 (U.S.N.M. No. 109044), Gibi

Two phalanges of the fourth toe free of web, remaining toes fully webbed to their disks, at least on one side; tibiotarsal articulation of the adpressed hind limb reaches end of snout. Length, 28 mm.

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U. S. GOVERNMENT PRINTING OFFICE: 1941

PROCEEDINGS OF THE UNITED STATES NATIONAL MUSEUM

issued by the

SMITHSONIAN INSTITUTION
U. S. NATIONAL MUSEUM

Vol. 91 Washington: 1941 No. 3129

NOTES ON SOME CRAYFISHES FROM ALABAMA CAVES, WITH THE DESCRIPTION OF A NEW SPECIES AND A NEW SUBSPECIES

By Rendell Rhoades

From Dr. Alvin R. Cahn, formerly chief of the Biological Readjustment Division of the Tennessee Valley Authority, I received a small collection of crayfishes that he had collected in Shelta Cavern and Belgreen Cave, in northern Alabama. Those from Shelta Cavern had been tentatively determined as *Cambarus pellucidus*, but in order to establish their status definitely it was necessary to secure more material. Early the next year I obtained a male, form I, from this same cavern and later additional material from Leslie Hubricht, of the Missouri Botanical Garden. With his aid I have been enabled to study a complete series of this particular crayfish, which is here described as a new subspecies of *Cambarus pellucidus* Tellkampf (1844). The crayfishes from Belgreen Cave are described as a new species of *Cambarus.* This particular species is interesting because it shows affinities to both cave and surface forms.

The types and allotypes of the new forms have been deposited in the United States National Museum; paratypes are in the Alabama Museum of Natural History, the Academy of Natural Sciences of Philadelphia, the collection of Leslie Hubricht, and my own collection.

I am indebted to Dr. Cahn and Mr. Hubricht for the bulk of the material reported on in this paper. Grateful acknowledgment is also made to Dr. Walter B. Jones, director of the Alabama Depart-

ment of Conservation and director of the Alabama Museum of Natural History, who has generously provided me with material from several caves in that State. Dr. Allan F. Archer, director of research, Alabama Department of Conservation, has assisted both in collecting the material and the data. I wish to express my thanks to Dr. A. H. Wiebe, chief of the Biological Readjustment Division, Forestry Relations Department, Tennessee Valley Authority, who has been most cooperative during the course of this study.

Genus CAMBARUS Erichson (1846)

Subgenus Faxonius Ortmann (1905)

CAMBARUS (FAXONIUS) PELLUCIDUS AUSTRALIS, new subspecies

Male I.—Body white, digestive tract dark. Rostrum with margins only slightly converging. Marginal spines short and acute. Acumen long and slender. Upper surface of rostrum moderately concave. Postorbital ridges with short acute spines. Sides of carapace minutely granular. Cervical groove unbroken in front of five or six lateral spines on each side. Spininess usually reduced from typical *C. pellucidus.* Antennae as long as the body. Antennal scale broadest anterior to the middle, with inner margin gently rounded. Apical spine short; half the length of that of typical *C. pellucidus.* Dorsal surface of chelipeds with small tubercles. Tips of fingers sparingly setose. Hooks on the third walking legs prominent, globose, and recurved. Hooks on the fourth walking legs lacking. Gonopods reaching to the coxopodites of the third walking legs. Rami short and nearly equal in length. Outer ramus, with corneus tip, curved tightly around the inner ramus. Inner ramus straight with slightly recurved slender fleshy tip. Setose along the ventral line.

Male II.—Hooks on the third walking legs recurved and rounded but reduced in size. Gonopods with fleshy tips reaching to the coxopodites of the third walking legs. Inner ramus a little more inflated.

Female.—Annulus ventralis contrasting sharply with that of typical *C. pellucidus* in that the large central hemispherical tubercle has its greatest height on the anterior wall. The tubercle recedes posteriorly and levels out to form a narrow flat border for the full width of the annulus. A shallow median furrow marks the posterior slope and becomes deeper and sinuate with a sharp curve to the observer's right in the posterior margin.

Variations.—I have placed in this subspecies a crayfish from several caves in northern Alabama on the basis of identical genitalia. However, there are slight variations from cave to cave. The num-

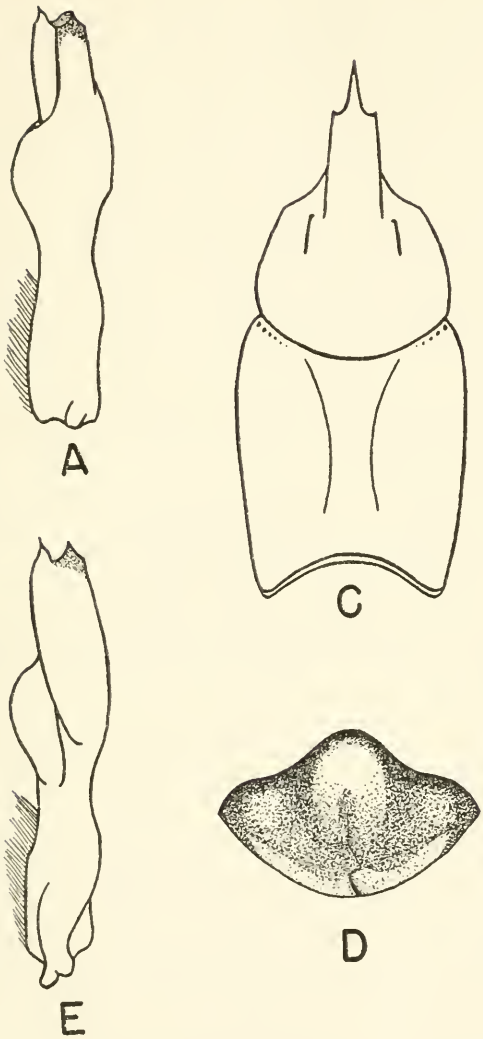

FIGURE 35.—*Cambarus pellucidus australis*, new subspecies: *A*, Gonopod, male, form I, outer view; *E*, gonopod, male, form I, inner view; *C*, dorsal view of carapace; *D*, annulus ventralis; *B*, gonopod, male, form II, outer view; *F*, gonopod, male, form II, inner view.

ber of lateral spines of the carapace varies from two to nine. The spines are not necessarily paired. A specimen may have four spines on the left side and nine on the right side. The areolae of the specimens from Cave Spring Cave range from 33.3 to 36.6 percent of the total length of the carapace. The Shelta material measures 38.5 to 40.5 percent. The crayfishes of this subspecies from other caves in this region range from 36.1 to 39.5 percent. The blind crayfishes of the Mammoth Cave region also vary from cave to cave. The areola of typical *C. pellucidus* is 36 to 41 percent. Shelta Cavern and Huntsville Spring Cave specimens are similar in having very short apical spines of the antennal scale. Other caves yield specimens with long apical spine similar to *C. pellucidus.*

In spite of the variations listed above, the marked similarity of these varieties causes me to place them all in the subspecies *C. pellucidus australis.*

No doubt *C. pellucidus australis* of the South bears the same affinity to *C. pellucidus pellucidus* as does the *Cambarus pellucidus testii* Hay (1893) of the North.

Ecology and distribution.—This crayfish is found throughout the caverns of the limestone region in northern Alabama. According to Dr. Walter B. Jones the presence of crayfishes in caves seems to be correlated with the presence of blind fishes and aquatic insects. In caves without connections with the surface, food chains develop among the animals present. Mr. Hubricht suggests that bat guano may provide some food for crayfishes.

Dr. Jones writes, "Shelta Cavern is a rather large cave with several underground streams and rather large underground lakes. I have never seen muddy waters in Shelta Cavern. There is scarcely any outside trash entering the passages.

"Cave Spring Cave is a typical underground stream although there are some rooms scattered about here and there. That cave is 3,050 feet long, or longer, and the water is quite cold. At times the stream is muddy and completely fills many parts of the passage. In fact, one cannot go very far back into it in wet seasons. The crayfish fauna is rather abundant, and I could easily have taken a gallon of specimens. Cave Spring Cave, as does Shelta Cavern, has white fish.

"Huntsville Spring Cave is about ¾ mile long with a low ceiling and a deep-channeled stream. It is reached by a vertical manhole in a street near the center of the city. The roof and the floor are irregular. The stream is spring-fed and permanent, having an average flow of 39,000,000 gallons a day. The cave is located under the city of Huntsville and is full of narrow passages, crevices, and loose rock. No fish have been found there.

"Saddler Springs Cave is a typical underground stream that has no connection with the surface. Apparently there has never been the slightest bit of sediment or trash in the cave. Stalactites are like crystal, and the floor of the stream is neatly carved out of limestone rock with scarcely any sand or gravel anywhere in the place. The crayfish fauna is somewhat limited, as are the other faunas.

"McFarlen Cave is some 700 feet long and of varying width. The entrance is archlike and of easy access. The stream is located in back of the cave, and is spring-fed. It is my impression that there is no permanent water in the front portion of the cave. The water level may have been higher in former times. Boulders are to be found on the floor of the cave. No fish have been taken there.

"Saltpeter Cave, in the Clear Creek area of Jackson County, is located under a high bluff near the foot of a mountain. It is of the fissure type. It is 1,895 feet long and most of its length is in the zone of total darkness. The floor of the cave has a stream, evidently permanent, and fed by several springs."

Type locality.—Shelta Cavern, SE¼NE¼ sec. 27, T. 3 S., R. 1 W., north of Huntsville, Madison County, Ala.

Material examined.—Two males II, 1937, Alvin R. Cahn coll. (one paratype, U.S.N.M. No. 79365) ; 1 male I, March 1, 1938, Alvin R. Cahn coll. (holotype, U.S.N.M. No. 79363) ; 1 male II, 2 females, August 5, 1939, Leslie Hubricht coll. (one female is the allotype, U.S.N.M. No. 79364) ; 3 males II, 3 females, 5 young, September 28, 1940, Walter B. Jones coll.

Additional records.—Cave Spring Cave, NW¼NE¼ sec. 10, T. 5 S., R. 2 E., near New Hope, Madison County, Ala., September 26, 1939, Walter B. Jones (1 male II, 3 females, 5 young) ; December 1, 1939, Walter B. Jones (4 males II, 6 females).

Huntsville Spring Cave, SE¼SW¼ sec. 36, T. 3 S., R. 1 W., Huntsville, Madison County, Ala., October 6, 1939, Walter B. Jones (1 female).

Saddler Springs Cave, SE¼NE¼ sec. 3, T. 4, R. 1 E., Monte Sano State Park, Madison County, Ala. June 14, 1940, Walter B. Jones (1 male I, 4 males II, 3 females).

McFarlen Cave, SW¼NW¼ sec. 22, T. 3, R. 3 E., near Garth, Jackson County, Ala., February 29, 1940, Walter B. Jones (2 males I, 1 male II, 1 female).

Saltpeter Cave, NW¼SW¼ sec. 16, T. 3, R. 3 E., Jackson County, Ala., June 9, 1940, Walter B. Jones (1 male I, 6 males II, 4 females).

Subgenus CAMBARUS Erichson (1846)

CAMBARUS (CAMBARUS) CAHNI, new species

Male I.—Unknown.

Male II.—Body white, digestive tract dark. Rostrum of moderate length, sides converging and sharply elevated. Marginal spines small and often reduced to angles. Acumen rather short and broad. Broad median carina reaching to a line drawn between the postorbital spines. Carapace slender, rounded, and minutely granular on the sides. Cervical groove sinuate but unbroken, on the sides above small rounded tubercles. Lines of the areola not clearly defined. Length of areola varying from 36.7 to 40.5 percent of the length of the carapace. Width accommodating three rows of widely spaced dots. Epistoma oval, with small acute terminal spine. Lateral margins sharply elevated. Antennae reaching to the telson or beyond. Antennal scale triangular, broadest anterior to the middle. Apical spine short. Chelae rather smooth, two or three rows of low tubercles on the inner margin of the palm. Dots distributed evenly over the hand but tending to form furrows on the dorsal surface of the fingers, two on the immovable finger and three on the movable finger. Fingers two to three times the length of the inner margin of the palm and twice as long as the width of the palm. Merus with prominent furrow in the dorsal surface. Sharp spine on inner surface with 0 to 3 small accessory spines. Carpus with usual biserial row of spines down the ventral. Outer series much exceeded by the inner. Hooks on the third walking legs rather sharp and recurved. Gonopods thick, with fleshy tips recurved at right angles with the shank. Inner ramus with tips slightly outcurved as well as recurved. Setae on the ventral line.

Female.—Chelae slightly shorter. Annulus broadly ovate. Central and posterior regions elevated. Anterior wall somewhat depressed. Fossa anterior and shallow. Median furrow curved to form a small blunt hook to the observer's left in a central position.

Affinities.—*C. cahni* is intermediate between the "Section of *C. hamulatus*" and the "Section of *C. extraneus*" (Ortmann, 1931, pp. 95–96). However, the cave modifications place it in the former section. The carapace is subcylindrical, the chelae are long and subcylindrical, and the eyes are greatly reduced, though not to the extent found in *C. hamulatus.* The gonopods are recurved and the lateral spines are present on the rostrum. I believe this crayfish has sufficient constant and peculiar characteristics to give it the status of a distinct species.

I possess a female crayfish from Saddler Springs Cave that is lightly pigmented on the carapace and the dorsum of the abdomen. It bears close resemblance to *C. cahni* in the subcylindrical carapace and body proportions. However, the eyes are normal, the antennae are shorter, and the antennal scale is much narrower. The sides of the rostrum converge more strongly, and there is no trace of a median carina. The lateral spines of the carapace are small and acute. The annulus ventralis is bisected by a deep median furrow which curves strongly to the observer's left to form a large blunt

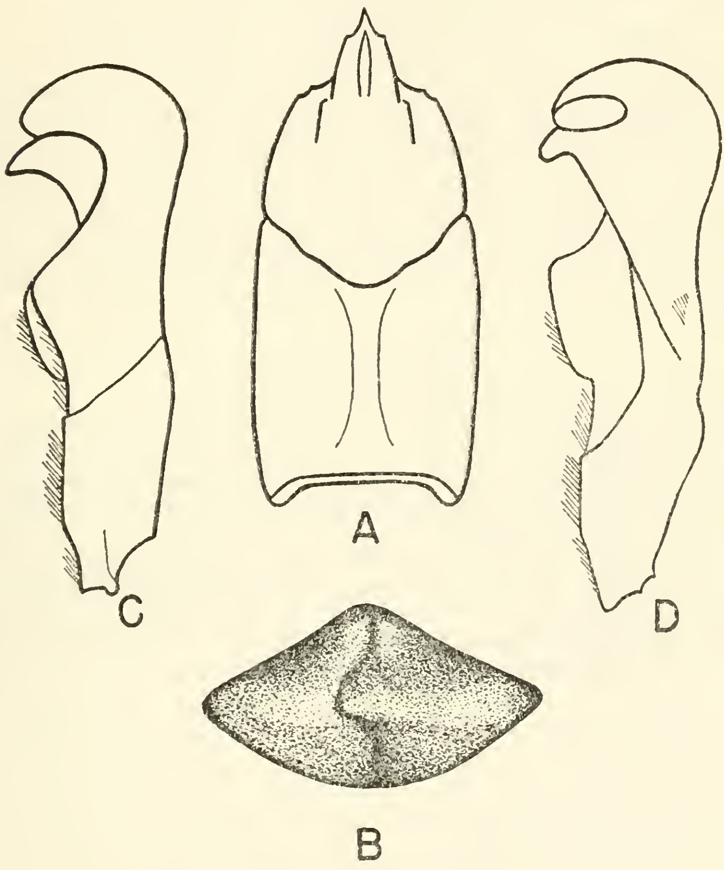

Figure 36.—*Cambarus cahni*, new species: *A*, Dorsal view of carapace; *B*, annulus ventralis; *C*, gonopod, male, form II, outer view; *D*, gonopod, male, form II, inner view.

lobe. I do not place this record with *C. cahni* since the specimen at hand bears greater affinity to the "Section of *C. extraneus*" than to the "Section of *C. hamulatus*."

Distribution.—*C. cahni* is known only from the type locality, but it will probably be found distributed over the limestone cave region of northern Alabama where cave ecology is suitable. Belgreen Cave is a small cave with a very deep underground stream. The stream becomes muddy and almost fills the cavern in wet seasons.

Type locality.—Belgreen Cave, NW¼SW¼ sec. 12, T. 7 S., R. 13 W., Franklin County, Ala.

Material examined.—Five males II; 4 females, May 24, 1937, Alvin R. Cahn coll. (one male is the holotype, U.S.N.M. No. 80031; 1 female is the allotype, U.S.N.M. No. 80032.)

I take pleasure in naming the species for my friend Dr. Alvin Robert Cahn, its collector.

CAMBARUS (CAMBARUS) HAMULATUS (Cope and Packard (1881))

The species is well known from Nickajack Cave and Wine House Cave, Marion County, Tenn. An additional record, a female taken with *C. pellucidus australis* from Shelta Cavern, Huntsville, Madison County, Ala., March 1, 1938, by Alvin R. Cahn, is here contributed. The sides of the rostrum of this specimen are more convergent than typical and the lateral spines are very short. The annulus ventralis is identical with the annuli of the Nickajack female.

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U. S. GOVERNMENT PRINTING OFFICE: 1941

PROCEEDINGS OF THE UNITED STATES NATIONAL MUSEUM

issued by the

SMITHSONIAN INSTITUTION
U. S. NATIONAL MUSEUM

Vol. 91 Washington : 1941 No. 3130

NOTES ON THE SNAKE GENUS TRIMORPHODON

By Hobart M. Smith

There are 13 forms definable at present in the colubrid genus *Trimorphodon*. These very readily fall into two groups of six or seven forms each, one characterized by presence of large, V-shaped marks on head and neck (*biscutatus* group), the other characterized by a transverse, light nuchal collar of varying width (*upsilon* group). The forms contained in the *biscutatus* group are *biscutatus biscutatus*, *b. quadruplex*, *paucimaculatus*, *lyrophanes*, *lambda*, and *vandenburghi*. The members of the *upsilon* group are *latifascia*, *fasciolata*, *upsilon*, *collaris*, *tau*, *vilkinsonii*, and *forbesi*. These two groups form natural assemblages that certainly are of subgeneric rank.

In *Trimorphodon*, as in many other genera of snakes, evolution has produced but few morphological innovations, and those that have been produced are evident almost universally in terminal species that appear to have been recently differentiated from a generalized stock. Evolution in this genus has been evidenced chiefly in pattern; this is the basic medium of speciation. Accordingly, differences in species are to be sought primarily in the pattern, only secondarily in morphology. Likewise, relationships and direction of evolution must be traced through pattern changes, not by morphological variations.

Fortunately many of the steps in pattern evolution are shown or indicated by species yet extant. The most important steps of all, however—those that link the two radically different head and neck patterns of the two groups—are lacking completely, and are not even indicated by variants of the several species. Only by sheer guesswork can the process of divergence of these two types from some common prototype be imagined.

Evolution within each group is relatively clear, and follows amazingly parallel trends.

In the *biscutatus* group are two closely related sections, of which *quadruplex* is the most primitive of one, *paucimaculatus* of the other. Of these two species, the latter exemplifies a more primitive pattern, but both have large blotches and identical ventral counts, and they differ from each other only in subcaudal counts and in extent of subdivision of the blotches. In *paucimaculatus* the spots are very broad but are divided only across the middle by a light streak or spot; in *quadruplex* they are also divided medially, but the light streak has completely split each blotch, and each of the resulting spots is again split medially, so that superficially *quadruplex* very strongly appears to have double the normal complement of blotches of the group.

Modification of the pattern of *quadruplex* resulted in the development of *biscutatus.* This form differs from *quadruplex* only in its pattern, which appears to have been produced by suppression of the alternate blotches of *quadruplex.* That this was the procedure is indicated by the fact that (1) the primary blotches in the northern form are widely separated and number about half as many as in *quadruplex;* (2) the spaces between the blotches in *biscutatus* are frequently occupied by narrow, interrupted dark bands, which occasionally are of the same shape as the primary blotches (more or less H-shaped, light-centered); and (3) these "secondary" bands (suppressed primary blotches), if enlarged to the size and character of the primary bands, would reproduce the pattern of *quadruplex.*

The same process apparently has been followed in the section including *paucimaculatus*, with the production of *lyrophanes*, *lambda*, and *vandenburghi.* The most primitive pattern type among the derivatives of *paucimaculatus* is, curiously enough, that of *vandenburghi* (structurally the most highly modified species of the genus), which represents a phase intermediate between *paucimaculatus* and *lyrophanes.* To explain, the first step beyond the pattern type of the former is the production of quadruple blotches, or, in other words, double the usual number of primary blotches (as in *quadruplex*). The next step is suppression of alternate blotches; in *vandenburghi* about half have been suppressed (and accordingly the number of blotches is distinctly higher than in *paucimaculatus*). In *lyrophanes* nearly all alternating blotches have been suppressed, and secondary bands are made evident betwen the primary blotches; sometimes one or two of the alternate blotches are not completely suppressed but remain evident as very small blotches. In *lambda* the process of suppression is complete; the secondary bands are scarcely evident.

Obviously this succession of pattern types (*paucimaculatus* to *vandenburghi* to *lyrophanes* to *lambda*) is not to be considered as an indication of a similar succession in species evolution, for the morphology here shows otherwise. Certainly *lyrophanes* and *vandenburghi* have been isolated for a long period from *paucimaculatus*, since in them has been developed a spineless (i. e., very minute

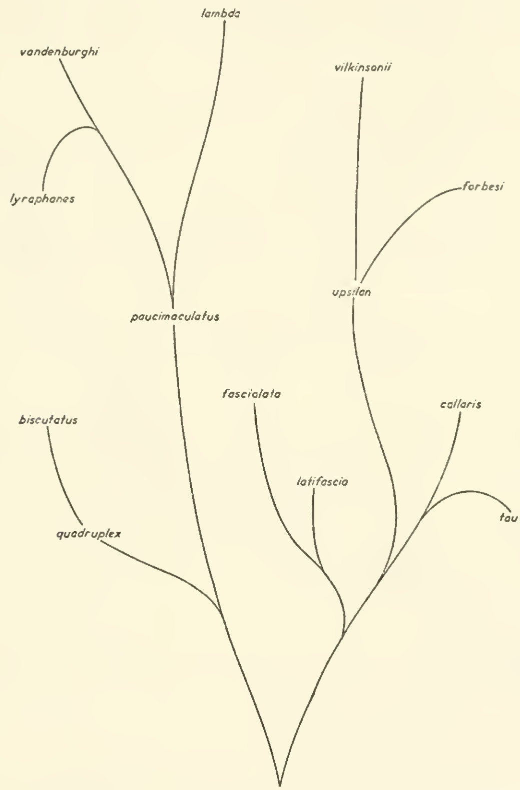

FIGURE 37.—Diagram of the possible phylogeny of *Trimorphodon*.

spines) hemipenis. For some reason pattern change in *vandenburghi* ceased or greatly slowed, and perhaps through its influence *lyrophanes* did not reach the stage of complete suppression of alternate blotches that characterizes *lambda*. The latter, of course, did not have the retarding influence of *vandenburghi;* and presumably its genetic (and geographic) differentiation from *paucimaculatus* was made complete at an early date—very likely at the time the *lyrophanes-vandenburghi* stock was isolated.

This accounts for the *biscutatus* group. The record is not so clear for the *upsilon* group, which has members with more highly modified patterns than the former but (with one exception) without special morphological peculiarities. In this group two primitive forms are still living—*latifascia* and *fasciolata*—of which the former has perhaps the most primitive pattern. Both of these species have very large, few blotches. In distribution they are peripheral to the central plateau of Mexico. In relation to other members of the group these two stand in much the same position as *paucimaculatus* and *quadruplex* do in relation to other members of the *biscutatus* group. However, it is difficult to reconstruct so plausibly the process by which other members of the *upsilon* group were derived from *latifascia* and *fasciolata;* suffice it to remark that their patterns may have evolved by a splitting and suppression process much like that which occurred in the *biscutatus* group.

Evolution within the *upsilon* group is made most apparent by changes in the head pattern. The two most primitive types have none, or only a poorly indicated interocular light bar. The least modification in other species is found in *tau*, in which the interocular light bar is generally complete, and an indentation of the dark head color along the parietal suture is evident. *T. collaris* reproduces this head pattern, and with *tau* delimits an extensive geographic range completely peripheral to the central plateau. Since increase in number of blotches seems to be the trend in the *upsilon* group, *collaris* with few, broad blotches is conceived to be more primitive than *tau*. It is noteworthy that the opposite extreme (from *collaris*) in number of blotches in *tau* occurs in Michoacán, which is also the farthest extreme from *collaris* geographically.

The central-plateau species, *upsilon*, was obviously derived from *tau* or its near ancestor, as its head pattern, with a Y-shaped parietal mark, is clearly derived from that of *tau*. In number of blotches it remains very similar to the latter.

The end form in the *upsilon* group is *vilkinsonii*, in which are apparent the extremes in reduction of head pattern and of body blotches. The latter is not evidenced by trends in other species of the group, although it is generally the case that multiplication in number of blotches is followed by a decrease in their size. The simple 3-spot head pattern of juvenile *vilkinsonii*, however, is the end result of the general trend, observed in other species, toward enlargement of the light areas of the head and consequent reduction in size of the dark areas.

The body pattern of *vilkinsonii* is highly suggestive of the pattern of *Lampropeltis leonis*, which is fairly certainly known to have been derived by suppression of alternate blotches. This similarity at least suggests the possibility that *vilkinsonii*'s pattern was produced in the same manner. The multiplicity of blotches in certain central (Guanajuato?) specimens of *upsilon* is an apparent step in this direction. Possibly specimens from areas between Zacatecas and Chihuahua would show whether such a course may have been pursued in the evolution of *vilkinsonii*.

In view of the fact that several morphological changes took place in the *biscutatus* group, with differences apparent in subcaudals, hemipenis, and anal plate, it is remarkable that only one species in the *upsilon* group possesses morphological characters sufficiently dif-

Figure 38.—Distribution of the species of *Trimorphodon*. Inverted triangles, *tau*; triangles not inverted, *b. biscutatus* (unless otherwise indicated); dots, unless otherwise indicated, *upsilon;* vertical cross hatching, *lambda;* horizontal cross hatching, *lyrophanes;* diagonal cross hatching, *vandenburghi.*

ferent from the group norm to identify it. This species (*forbesi*) is very much like *upsilon* in pattern, and its apparently recent development tempts a chronological association with the development of the species in the other group with a single anal (*vandenburghi*).

With respect to pattern, it is noteworthy that, curiously, the end form in neither group has undergone sufficient morphological differentiation that it may thereby be distinguished from the members of the group to which it belongs.

The relative age of the two groups is difficult to determine. One group (*biscutatus*) appears to be of lowland origin, while the other appears to be of highland origin. Accordingly, the fact that the *biscutatus* group may have a Central American, or at least a more southerly, origin does not necessarily mean that the *upsilon* group is a derivative of it, since it occurs toward the north in the general direction of migration of the *biscutatus* group. In fact, the connection between the two groups is so remote that, were morphological characters available, they would better be separated as different genera.

KEY TO THE GENUS TRIMORPHODON

1. Large V-shaped marks on head and nape — 2
   No such marks; a transverse nuchal collar (or whole neck light, as in *vilkinsonii*) — 7
2. Anal entire — vandenburghi
   Anal divided — 3
3. Light V-shaped mark, which involves parietals, not confluent posterolaterally with light color (or white) of ventral surface, but *cut off by* the continuation posteriorly of *the black band* that on the head precedes the light band. lyrophanes
   Light mark extending posterolaterally direct to ventral surface, or at least not cut off laterally by the preceding dark band — 4
4. Ventrals less than 245; blotches on body relatively numerous (maximum 34), about as broad as long, not connected laterally in pairs (nor such a connection indicated) — lambda
   Ventrals more than 245; blotches on body numerous or few, but if the former, connected laterally in pairs (or such a connection indicated) — 5
5. Blotches on body numerous (about 33), connected laterally in pairs. biscutatus quadruplex
   Blotches on body less numerous (25 or less) — 6
6. Blotches more than twice as long as spaces between; no evidence middorsally of secondary bands or blotches — paucimaculatus
   Blotches less than twice as long as spaces between; usually secondary bands or blotches present middorsally on some part of body. biscutatus biscutatus
7. Anterior dorsal blotch covering 15 or more scale lengths on middorsal line, involving seven or more ventrals; blotches usually gray or black — 8
   Anterior dorsal blotch covering 13 or fewer scale lengths middorsally, involving fewer than seven ventrals — 9
8. Blotches little narrower laterally than dorsally, much broader on belly than interspaces — fasciolata
   Blotches much narrower laterally than dorsally, on belly equal to or narrower than white interspaces — latifascia
9. Blotches very narrow, a third length of interspaces; anterior border of first dorsal blotch 9 or 10 scales behind parietal — vilkinsonii
   Blotches broader, little if any narrower than spaces between; anterior border of first dorsal blotch farther forward, not more than six scales behind parietal — 10
10. Fifth and six labials entering orbit; anterior loreal split, an upper and lower; tail white, unmarked, below — forbesi
    Fourth and fifth labials entering orbit; anterior loreal single; tail marked below or not — 11
11. Bands on body 16 — collaris
    Bands on body 22 or more — 12

12. A roughly Y-shaped mark on parietals, the arms forking just behind frontal, the mark usually enclosed by dark color posteriorly; belly with some, subcaudal surface with numerous dark marks; blotches on body 23 to 32. upsilon

No similar mark on head; dark color of head sharply truncate near posterior edge of parietals, with a narrow or broad, light indentation along parietal suture -- tau

This study was completed, and a number of specimens on which it is based was collected, during my tenure of a Walter Rathbone Bacon Traveling Scholarship of the Smithsonian Institution. I am much indebted to Dr. E. H. Taylor and L. M. Klauber for the loan of numerous important specimens and for invaluable advice and criticism, without which the study would have been impossible.

Genus TRIMORPHODON Cope

TRIMORPHODON PAUCIMACULATUS Taylor

Trimorphodon paucimaculatus Taylor, Kansas Univ. Sci. Bull., vol. 24, pp. 527–529, pl. 46, fig. 1, 1936 (1937) (Mazatlán, Sinaloa) ; *ibid.*, vol. 25, p. 360, pl. 35, fig. 3, 1938 (1939).—Klauber, Trans. San Diego Soc. Nat. Hist., vol. 9, p. 185, 1940.

Diagnosis.—Large V-shaped marks on head, these not continued on neck but disappearing laterally just behind head; hemipenis long, with a middle belt of enlarged spines; ventrals 251 to 253, caudals 76 to 84; anal entire; blotches on body 20 to 25, a little more than twice as long as spaces between; secondary bands reduced to small lateral spots, not extending dorsally; tail blotches 10 to 13.

Specimens examined.—Two, including type.

Locality records.—Mazatlán and Presidio, Sinaloa; San Blas, Nayarit (U. S. N. M. No. 46617).

Remarks.—The San Blas specimen is in very poor condition but can be seen to have very broad blotches; it has 84 caudals.

This species, I believe, possesses the pattern of the ancestral type of *lambda*, *lyrophanes*, *and vandenburghi*, which I interpret as being direct derivatives of it. It is, moreover, near the ancestral type of the whole group, since it is a little less specialized, in pattern, than the direct ancestor (*quadruplex*) of the other member of the group (*biscutatus*).

TRIMORPHODON LAMBDA Cope

Trimorphodon lambda Cope, Proc. Amer. Philos. Soc., vol. 23, pp. 286–287, 1886 (Guaymas, Sonora).—Taylor, Kansas Univ. Sci. Bull., vol. 25, pp. 360–361, pl. 35, fig. 4, 1938 (1939).

Trimorphodon lyrophanes Klauber, Trans. San Diego Soc. Nat. Hist., vol. 9, pp. 181–187 (part), 1940.

Diagnosis.—Large V-shaped marks on head, these not continued on neck but disappearing laterally just behind head; hemipenis long, with a middle belt of spines; ventrals 243 or less, caudals 86 or less; anal entire; spots on body 34 or less.

Specimens examined.—Twelve, including type.

Locality records.—Various localities in California, Nevada, Utah, Arizona, and Sonora (Klauber, *op. cit.*, p. 187).

Remarks.—The hemipenis of a specimen from Guaymas, Sonora (EHT-HMS No. 4572) is more than 16 caudals long (a portion everted, dried); three large flounces cover the length of about 11 caudals; an area of spines covers a length of about five caudals, proximal to area of flounces.

Another specimen from Telegraph Pass, Summit of Gila Mountains, Yuma County, Ariz. (L. M. Klauber, No. 25488) has a hemipenis 22 caudals long; three large flounces, extending to the thirteenth caudal from base, passing *through* an area of enlarged spines covering the length of three caudals; remainder ridged, with tiny spicules. The spinous area in this specimen includes the proximal ends of the flounces, from the fourteenth to the sixteenth caudal inclusive; in other words, the spines begin about seven caudals from the distal tip. This is different from the condition in the Guaymas specimen, but there seems to be a similar variation in position of the spinous area in other species.

TRIMORPHODON LYROPHANES (Cope)

Lycodon lyrophanes Cope, Proc. Acad. Nat. Sci. Philadelphia, vol. 12, p. 343, 1860 (Cape San Lucas, Baja California).

Trimorphodon lyrophanes Cope, Proc. Acad. Nat. Sci. Philadelphia, vol. 13, p. 297, 1861.—Taylor, Kansas Univ. Sci. Bull., vol. 25, p. 363, 1938 (1939).—Klauber, Trans. San Diego Soc. Nat. Hist., vol. 9, pp. 181–187 (part), pl. 7, fig. 2, 1940.

Diagnosis.—Large V-shaped marks on head, these continued onto neck, not terminating laterally behind head; hemipenis relatively short, without enlarged spines; ventrals less than 243; anal divided.

Specimens examined.—Nine.

Locality records.—Various localities in Baja California: Cape San Lucas, San José del Cabo, Santa Anita, Miraflores, Sierra San Lázaro, Todos Santos, La Paz, Santa Rosalia, San Ignacio (Klauber, *loc. cit.*).

Remarks.—The present species differs most markedly from *lambda* in the character of the hemipenis, which is spineless (*i. e.*, without enlarged spines) and shorter in *lyrophanes* (as in *vandenburghi*), while in *lambda* it is longer and with spines (as in all other *Trimorphodon*). Three hemipenes dissected in situ on specimens from Baja California agree well with the description of the extruded hemipenis of *vandenburghi* given by Klauber (*op. cit.*, p. 170), with the exception that there are but three large flounces (instead of four;

an additional, smaller, terminal flounce is not readily discernible in noneverted hemipenes). In addition it may be observed that the hemipenis is 16 to 20 caudals long (in situ) and that the flounces are relatively small, near the tip, and cover a length equal to the length of four or five caudals.

Specimens examined show constant differences in head and neck pattern from *lambda*. In *lyrophanes* the dark, V-shaped mark (which extends nearly or quite to a line even with posterior border of orbits) extends posteriorly onto the neck, without a break; in *lambda* it extends posterolaterally and terminates a little posterior to the labials, about even with a line drawn back from the lip. The light band posterior to this dark band in *lyrophanes* continues onto the neck and terminates with a large neck blotch, or else its arms unite posteriorly and may pierce the neck blotch posteriorly; in *lambda* this mark extends posterolaterally and usually unites with the white of the ventral surface.

A difference in the character of the dorsal blotches in *lyrophanes* and *lambda* is evident to the eye but is not well suited to measurement. The blotches are narrower and longer in *lyrophanes*, and fairly well severed from their lateral extensions; they are broader and shorter in *lambda*, and their lateral extensions are not so strongly differentiated.

TRIMORPHODON VANDENBURGHI Klauber

Trimorphodon vandenburghi Klauber, Bull. Zool. Soc. San Diego, No. 1, pp. 17–18, fig. 3, 1924 (Wildwood Ranch, 1,520 feet, 5 miles southwest of Ramona, San Diego County, Calif.); Trans. San Diego Soc. Nat. Hist., vol. 5, pp. 183–194, pls. 22, 23, 1928; vol. 9, pp. 169–180, pl. 7, fig. 1, 1940.

Diagnosis.—Large V-shaped marks on head, these usually not continued on neck; hemipenis short, without spines; ventrals 244 or less; anal entire.

Specimens examined.—One.

Locality records.—Numerous localities in southern California (see Klauber, *op. cit.*, 1940).

Remarks.—A single hemipenis examined in situ agrees with the description given by Klauber (*op. cit.*, 1940, p. 170), with the exception that only three flounces are discernible (instead of four). In addition, the hemipenis is 14 caudals long and the flounces are relatively small, as in *lyrophanes*.

This very distinct species appears to be directly related to *lyrophanes*. Its chief difference from the latter—the entire anal—is an amazing development in a genus with so few structural variations.

TRIMORPHODON BISCUTATUS QUADRUPLEX, new subspecies

Holotype.—U. S. N. M. No. 89476, female, Esteli, Nicaragua, collected by J. H. Ivy in 1932.

Paratypes.—U. S. N. M. No. 5569, Realejo, Nicaragua; No. 6805, Guatemala; No. 32274, San Juan, Nicaragua.

Diagnosis.—A member of the *biscutatus* group, with large V-shaped marks on head; dark blotches completely divided, each of practically all the resulting sections again partially split medially; counted separately, blotches 33 (pairs numbering 17); ventrals 251 to 263; total counts 334 to 347.

Description of holotype.—Supralabials 9–9, fourth and fifth entering orbit, third smallest, fifth (or sixth) largest; three preoculars, upper largest, in contact with frontal; three large loreals, the smallest lowermost and directly above third supralabial; three subequal postoculars; three anterior temporals; infralabials 13–13, 4–5 in contact with chin shields.

Dorsals in 25–26–17 rows, with two apical pits, those on posterior third of body convex or bluntly keeled; ventrals 261; anal divided; caudals 82.

Maxilla with 11 teeth, the last two grooved, offset from others, slightly shorter than longest anterior teeth, preceded by a short diastema; other teeth separated from each other by equal spaces, decreasing in size posteriorly; anterior smaller than succeeding teeth, which are the largest of maxilla; tooth preceding fangs half length of latter.

Hemipenis (of No. 32274) 25 caudals long; flounces three, large, covering a length equal to between seven and eight caudals; about 70 enlarged spines in a small area (length of four caudals) proximal to flounces.

General color gray; a dark-brown, black-edged bar extending across top of head a little in front of eyes, anterior edge of frontal about in its middle; this followed by a light bar which extends diagonally onto sides of head, reaching labial border at eighth and ninth labials; this followed by a broad, V-shaped black mark, terminating laterally even with mouth, split by a longitudinal white line on middorsum; this followed by a somewhat narrower V-shaped light mark, extending laterally to ventral surface; following this, a similar V-shaped dark mark, but this prolonged posteriorly and uniting with first blotch, enclosing medially a long, broad, light line; this blotch is the first of a series of 33 brownish-gray, dark-edged blotches, many of which are joined in pairs, most with a light, broad, transverse median area which nearly divides them; sides of body with a series of small, irregular spots, one placed between alternating spots (i. e., between the pairs); ventral surface stippled, a little more posteriorly than anteriorly; ends of about every other or every third, occasionally of two adjacent ventrals dark brown; chin and gular region immaculate; ventral surface of tail a little more heavily stippled than body.

Variation.—The paratypes available are in such poor condition that the number of blotches cannot be counted, but they are of the same nature as in the type. The scale characters of Nos. 5569, 6805, and 32274, respectively, are: Scale rows 25–25–17,?, 23–25–?; ventrals 255, ?, ?; caudals 92 (♂), 93 (♂), 90 (♂); supralabials 9–9, preoculars 3–3, postoculars 3–3, in all; infralabials 13–14, 13–14, 12–13; loreals 3–3, 2–3, 2–3; preoculars separated from frontal on one side in one.

Comparisons.—The present form differs from *biscutatus* solely in the extent of subdivision of the blotches, which in this are very complex, consisting of two halves (each of which appears like the primary blotches of *biscutatus*), which again are partially divided. For practical purposes of separation from *biscutatus*, the blotches may be considered separately, whereby the number secured is much greater than the number of primary blotches in *biscutatus*.

TRIMORPHODON BISCUTATUS BISCUTATUS (Duméril and Bibron)

Dipsas biscutata Duméril and Bibron, Erpétologie générale, vol. 7, p. 1153, 1854 (Mexico).

Trimorphodon major Cope, Proc. Amer. Philos. Soc., vol. 11, p. 153, 1869 (Tehuantepec).

Diagnosis.—Large V-shaped marks on head; dorsal blotches 18 to 23 on body, separated from one another by a distance at least a little greater than half their own length (usually equal or greater); a secondary, transverse, broken, narrow, black band between each pair of primary blotches (rarely reduced to lateral spots; in this case the primary blotches do not close the large space between the primary blotches); ventrals 251 to 275; caudals 81 to 102; total counts 343 to 376.

Specimens examined.—Twenty-four.

Locality records.—Acceptable records are from the Isthmus of Tehuantepec (Santa Efigenia, El Barrio, Tres Cruces, Tehuantepec, Cerro Guengola, La Concepción) in the State of Oaxaca; Tonalá and San Ricardo in Chiapas; Huajintlán, Morelos; Agua del Obispo, Organos, Acapulco, and La Crucita, Guerrero; and Hda. El Sabino and 10 miles north of Tafetán, Michoacán.

Remarks.—A specimen from Tehuantepec has a hemipenis 24 caudals long; flounces 3, large, covering a length equal to about 7 caudals; area of spines covering a length of 4 or 5 caudals.

As pointed out by Taylor,[1] northern specimens have higher average ventral and caudal counts than southern specimens. Present specimens are insufficient, however, to show whether the differences are significant and practically recognizable. The counts are given in table 1.

[1] Kansas Univ. Sci. Bull., vol. 24, pp. 358–360, 1939.

TABLE 1.—*Scale counts of* Trimorphodon biscutatus biscutatus

No.	Sex	Ventrals	Caudals	Totals	State
23619	♂	260	100	360	Michoacán.
5339	♂	267	95	362	Do.
5338	♂	269	101	370	Do.
110410	♂	275	100	375	Guerrero.
5508	♂	265	----------	----------	Do.
21404	♂	275	85	360	Do.
4588	♂	270	100	370	Do.
5145	♂	275	101	376	Do.
5146	♂	274	99	373	Do.
5147	♂	272	99	371	Do.
5148	♂	272	102	374	Do.
30406	♂	252	91	343	Oaxaca.
30427	♂	260	94	354	Do.
30428	♂	----------	90	----------	Do.
30429	♂	260	85	345	Do.
46547	♂	260	85	345	Do.
110404	♂	263	81	344	Do.
110405	♂	251	94	345	Do.
110406	♂	255	94	349	Do.
110407	♂	255	96	351	Do.
110409	♂	268	----------	----------	Chiapas.
110403	♀	271	88	359	Oaxaca.
110408	♀	269	90	359	Do.
4589	♀	261	85	346	Chiapas.

TRIMORPHODON LATIFASCIA Peters

Trimorphodon biscutata latifascia PETERS, Monatsb. Akad. Wiss. Berlin, 1869, p. 877 (Puebla).

Trimorphodon latifascia TAYLOR, Kansas Univ. Sci. Bull., vol. 25, pp. 364–365 (part), pl. 36, fig. 2, 1938 (1939); vol. 26, p. 479, pl. 52, 1940.

Diagnosis.—A light, transverse nuchal collar; hemipenis long, with a median belt of spines; blotches very long, 13 to 15 on body, 5 to 7 on tail, the first covering 15 or more scale lengths middorsally; number of ventrals involved by each dark band slightly more to half number involved by adjacent light areas.

Specimens examined.—Ten.

Locality records.—"Puebla" (perhaps the region of Matamoras); 12 miles south of Puente de Ixtla, Morelos; Huajintlán, Morelos; between Cuernavaca and Tepoztlán, Morelos.

Remarks.—Hemipenis (EHT–HMS No. 5540, Huajintlán, Morelos) 28 caudals long (in situ), with three large flounces extending 10 caudal lengths proximally, followed by an area of enlarged spines about three caudals long; remainder with longitudinal ridges surmounted by tiny spines.

TRIMORPHODON FASCIOLATA, new species

Holotype.—U.S.N.M. No. 110400, male, from near Zaráracua Falls, 6 kilometers southeast of Uruapan, Michoacán.

Diagnosis.—A member of the *upsilon* group, having a transverse, light nuchal collar; dorsal bands few (13 in type), little narrower on sides than on middorsal line, and much longer ventrally than light spaces between; ventrals 219, caudals 76, scale rows 23, in type; no interocular light bar.

Description of holotype.—Supralabials 8 or 9, fourth and fifth entering orbit on one side, third also on other; two large loreals and on one side a third small loreal at posterolateral border of second loreal; preoculars 2 or 3, upper somewhat the largest and in contact with frontal; three postoculars, median somewhat the smallest; three anterior temporals, followed by three secondary temporals on one side, four on other; 12 infralabials, six in contact with chin shields, five with anterior pair; posterior chin shields separated medially, narrower and shorter than, and about two-thirds the size of anterior chin shields.

Scales in 21–23–15 rows, smooth, with paired apical pits; scales above anus slightly convex; ventrals 219; caudals 76; anal divided.

Maxilla with 10 teeth, in four groups; three anterior teeth, the anterior smallest of the three and subequal in size to ungrooved teeth in other groups, the posterior somewhat larger than second, which is very nearly as large as posterior grooved teeth; one tooth in second group, about size of first tooth, separated from other teeth on either side by a short but very evident diastema; four teeth follow, smallest of the maxilla, very slightly decreasing in size; two posterior teeth enlarged, offset, separated by a distinct diastema (subequal in length to other diastemata) from preceding teeth.

Hemipenis long (25 caudals), slender (not everted); proximal third with numerous ridges capped by very minute, scarcely discernible spines; adjacent sixth with about 50 small spines, which extend to the middle of the hemipenis; distal half without spines, ridged, with three large flounces, which have tiny papillae on their free edges; distal half with tiny papillae; tip with somewhat larger papillae, apparently not bifurcate; sulcus single.

Top of head dark, with numerous tiny light flecks, no trace of regular markings except a median, V-shaped mark posteriorly, apex forward; sides of head more light than dark, top of head more dark than light; nuchal collar white, with some dark stippling, its posterior border nearly straight, somewhat concave, a little more than two scale lengths behind parietals medially; anterior border of nuchal collar vague, grading into darker color of head, especially laterally. Thirteen very broad, dark cross bands on body, four on tail; first five bands covering 19 to 21 scale lengths medially, remaining bands decreasing in length posteriorly; first five bands covering 15 to 18 scale lengths on first scale row, remaining bands fewer, but all bands covering about three-fourths as many scale lengths laterally as on middorsal line; each dark band with a narrow, broken, transverse white line dividing it into two halves; spaces between bands white, covering one and one-half to two and one-half scale lengths medially, all except the anterior three and nuchal collar enclosing laterally a small dark spot, which involves two scales of the first scale row and the end of the ventral scale between them; dark bands encroaching on ventral surface, the median and posterior completely encircling body, although with numerous light flecks on midventral surface; numerous dark flecks on venter between posterior bands; ventral surface of tail irregularly mottled with light and dark; chin immaculate.

Comparisons.—This species most closely approaches *latifascia* Peters, as defined by the specimens reported by Taylor.[2] One of these is described as having the first four bands covering 19, 15, 16, 16 scales (first five covering 19 to 21 in *fasciolata*), but they are distinctly narrower laterally, involving 7 to 9 ventrals, while the white areas between involve 9 or 10 (dark bands involve 13 to 17, light bands 6 ventrals in *fasciolata*).

TRIMORPHODON UPSILON Cope

Trimorphodon upsilon Cope, Proc. Amer. Philos. Soc., vol. 11, p. 152, 1869 (Guadalajara; type, U.S.N.M. No. 31358).—Taylor, Kansas Univ. Sci. Bull., vol. 25, pp. 365–366, pl. 35, fig. 2, 1938 (1939).

Diagnosis.—A light, transverse nuchal collar; head largely dark, but with a light interocular bar and a Y-shaped light mark on parietal region, the arms of which fork immediately behind frontal; 23 to 32 body blotches, 11 to 15 tail blotches.

Specimens examined.—Twelve.

Locality records.—Known from the central, southern, and northwestern plateau region. Recorded from the States of Chihuahua (Batopilas), Durango (Ventanas); Guanajuato; Hidalgo (Zacualtipan; 10 km. north of Jacala); Jalisco (Cumbre de los Arrastrados; Guadalajara; Magdalena); Michoacán (Tacícuaro); Nayarit (Sierra de Nayarit); Zacatecas (San Juan Capistrano).

Remarks.—The dorsal bands of a specimen observed in life (from Magdalena, Jalisco) were reddish brown; the color and general character of the rhombs resembled to some extent those of certain *Lampropeltis.*

The ventral surface in this species is distinctly marked with irregular black spots; the subcaudal surface is more heavily blotched than the belly. A single exception is a somewhat faded, soft speci-

[2] Kansas Univ. Sci. Bull., vol. 25, pp. 364–365, pl. 36, fig. 2, 1939; vol. 26, p. 479, pl. 52, 1940.

men evidently preserved just before shedding, so the color is greatly obscured (No. 12419, Guadalajara); another specimen, nearly perfect, from the same locality, has the whole ventral surface very heavily pigmented. In this respect *upsilon* differs from typical specimens of *tau*, *collaris*, *forbesi*, *and vilkinsonii* and agrees with *fasciolata* and *latifascia*.

The hemipenis of a specimen from "Mexico" (with 30 body blotches) is 26 caudals long; three large flounces, covering the length of eight caudals; area of spines covering the length of four caudals.

In general there appears to be an increase in number of body blotches toward the east. Western specimens (three from Guadalajara, and Magdalena, Jalisco) have the fewest (23, 24, 25), while specimens from eastern localities (Guanajuato, Hidalgo, Zacatecas) have 27 to 32.

TRIMORPHODON FORBESI, new species

Holotype.—U.S.N.M. No. 110402, male, from San Diego (about 5 miles south of Tehuacán), Puebla, collected by Dyfrig McH. Forbes.

Diagnosis.—A transverse nuchal collar, heavily suffused dorsally with dark pigment, so that the first dorsal band is more or less confluent with the dark head color; belly very light, dark markings dim; no markings on ventral surface of tail; bands on body 21, the first five covering 13, 8, 9, 10, 10 scale lengths, respectively; nine supralabials, fifth and sixth entering orbit; anterior loreal divided; a large light area on head, including posterior portions of supraocular and frontal, and more than half (anterior) the parietals, indented posteriorly by a dark area, which reaches nearly to the posterior tip of frontal.

Description of holotype.—Frontal as high as wide, portion visible from above a little longer than its distance from prefrontals, as long as internasals; latter two-fifths as large as prefrontals; length of frontal equal to its distance from tip of snout; nasal completely divided, anterior section somewhat smaller than posterior; anterior loreal wedged between internasals and prefrontals, divided into an upper and lower part; a large posterior loreal; on one side a small subloreal, making a total of three loreals on one side, four on other; three preoculars; three postoculars, middle smallest, lowest largest; temporals 3–4–5; supralabials nine, fifth and sixth entering eye, fourth smallest, sixth perhaps largest; infralabials 12, five in contact with anterior chin shields, two with posterior; first infralabial largest; anterior chin shields twice size of posterior.

Dorsal scales smooth, with two apical pits, in 23–23–16 rows; supra-anal scales convex; ventrals 213; anal divided; caudals 77. Total length 818 mm.; tail 150 mm.

Hemipenis 23 caudals long; three large flounces, covering eight caudal lengths; area of spines covering four caudal lengths.

Color.—Dorsal color very light brownish gray, lighter in vertebral region; 21 rhombs on body, 11 on tail; rhombs light brown, with a slightly reddish tinge; a narrow black border on each rhomb, the borders not extending below about the third scale row; rhombs extending to ventral scales; first five rhombs covering 13, 8, 9, 10, 10 scale lengths, last five 6, 5, 6, 6, 7 scale lengths, respectively (on middorsum); spaces between rhombs about equal to three scale lengths middorsally; on first scale row rhombs cover only one or two scale lengths; a series of very small, lateral spots alternating with the rhombs, these involving the lower part of the first scale row and the ends of the ventrals, each spot covering an area about equal to the size of three lateral scales.

Ventral surface of body nearly white; lateral spots encroaching upon venter, but very subdued, as are all other dorsal markings where they reach the venter; ventral surface of tail white, immaculate.

General tone of head color gray-brown; snout light gray, stippled; this color extending in a wide band along the prefrontal suture to frontal; latter band with a black border extending a little anterior to middle of prefrontals, posteriorly continuing onto corner of frontal and then curving onto supraocular; area enclosed by these dark borders on the frontal is dark, confluent with a *dark* interocular bar, which is black-edged posteriorly, passes through the middle of the supraocular and occupies the same position as the usual interocular *light* bar; posterior to this a narrowly black-edged, extensive light area, which occupies the posterior half of frontal, posterior portion of supraoculars, and anterior half of parietals; this light area notched posteriorly, the dark edge curving sharply forward nearly to tip of frontal; posterior and lateral to this is a darkly suffused area, which medially extends to the anterior border of the first dorsal rhomb; nuchal light collar present; its posterior border nearly straight (anterior edge of first rhomb), but the collar itself very dim, due to the dark dorsal suffusion; sides of head gray; posterior supralabial region suffused with pink.

Remarks.—One of the most remarkable features of this snake is the peculiar head pattern, which is, in general, much like that figured for *tau* (Taylor, *op. cit.*, 1940, fig. 8), except that the dark area of the frontal and parietals is *light*, although just as distinctly outlined; the dorsal nuchal area, light in *tau* (and in all other members of the *upsilon* group) is dark in *forbesi;* the interocular light bar, characteristic of the entire group, is dark in *forbesi.*

It appears that a pattern reversal has taken place; whether it is an anomaly in the single type or is characteristic of the species cannot now be stated. It is remarkable that the reversal of pattern begins anteriorly precisely at the frontal-prefrontal suture; anterior to this suture the head pattern is normal, with a light snout and a light, longitudinal median line with darker sides; posterior to this suture the light color is very sharply changed to dark, and vice versa, with the exception of the black borders, which outline the markings and which remain constant.

While the head pattern of *forbesi* is very different from that of other species of the group, it cannot be considered in differentiation of the species from *upsilon*, since there is a strong possibility it may be anomalous. There are numerous other unique characters in *forbesi*. No specimens of other species of *Trimorphodon* of the *upsilon* group have the anterior loreal divided; and no other of that group has the fifth and sixth labials entering the eye. These characters, combined with a faintly marked belly and white, unmarked subcaudal surface (*upsilon* has the belly, and especially the tail, distinctly dark-mottled); number of rhombs (fewer than in *upsilon* and *tau* with a minimum of 23, and more than in *collaris* with 16); narrow black borders of the rhombs (broad in *tau*, possibly in *collaris*); length of rhombs on middorsal line (as long as in *collaris*, longer than in *tau* or *upsilon*); all define a species very different from any other of the *upsilon* group.

The closest relative of *forbesi*, I believe, is *upsilon;* the general appearance of the dorsal rhombs is much the same. The elimination of the ventral markings and lightening of the dorsal markings may be compared with the same tendency in other deserticolous reptiles which develop a faded pattern. The remarkable changes in cephalic scutellation bring to mind a somewhat similar, recent change in *vandenburghi* of the other (*biscutatus*) group, in which a single anal is developed. Neither of these two species is otherwise greatly (although somewhat) different from its closest relative.

The type is from a semiarid region. So far as known *upsilon* is restricted to more humid areas.

TRIMORPHODON COLLARIS Cope

Trimorphodon collaris Cope, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 8, p. 131, 1875 ("Orizaba").—Sumichrast, La Naturaleza, vol. 6, p. 14, 1882.

Trimorphodon latifascia Taylor (part), Kansas Univ. Sci. Bull., vol. 25, pp. 364–365, 1938 (1939).

Diagnosis.—A light, tranverse nuchal collar; an interocular light bar; snout light; 16 bands on body, the longest covering 13 scale lengths middorsally, eight on venter; spaces between blotches covering four and one-half to six scale lengths middorsally.

Specimens examined.—The only one known, the type (U. S. N. M. No. 26499).

Locality records.—Described from "Orizaba," but doubt is cast upon this locality by the presence of two different labels (in the same handwriting) with the type, both stating "Tehuantepec" as the locality. Sumichrast, the collector, states that "the typical individuals came from Tuxpango, near Orizaba" (*loc. cit.*).

Remarks.—In the absence of well-differentiated scale characters in the group, color differences must be relied upon to distinguish various species. It is true the type of *collaris* has nine labials, as do *latifascia* and *fasciolata*, but this of itself means very little, since occasional specimens of *upsilon* also have nine. I have considered *collaris* distinct from *latifascia* because (1) the bands are considerably smaller on the middorsal line (13 scale lengths, maximum), and the intervening spaces cover four and one-half to six scale lengths; and (2) there are distinct head markings, including sharp differentiation of head pattern from nuchal collar, latter encroaching upon parietals, interocular light bar evident, a light bar evident along internasal and prefrontal suture, and snout white. These characters place it in the section with *upsilon*.

Essentially the only difference between this and *upsilon* is the small number of blotches (16) on body. The minimum in *upsilon* is 23 (specimen from Guadalajara, Jalisco, type locality).

This is the only specimen of the genus that has ever been taken on Atlantic slopes, at least in Mexico.

TRIMORPHODON TAU Cope

Trimorphodon tau Cope, Proc. Amer. Philos. Soc., vol. 11, p. 152, 1869 ("Tehuantepec," in error).—Sumichrast, La Naturaleza, vol. 6, p. 14, 1882.—Taylor, Kans. Univ. Sci. Bull., vol. 25, pp. 365–366, pl. 35, fig. 2, 1938 (1939); vol. 26, pp. 464–477, pl. 51, fig. 8, 1940.

Diagnosis.—A light nuchal collar; an interocular light bar indicated; an indentation posteriorly of black head cap, but no Y-shaped head mark behind frontal.

Specimens examined.—Five.

Locality records.—Quiótepec (U. S. N. M. No. 30338, type), San Felipe (EHT–HMS No. 5507), and Oaxaca (EHT–HMS No. 5506), all in the State of Oaxaca; 7 miles east of Chilpancingo, Guerrero (EHT–HMS No. 23417); and between Morelia and Hidalgo, Michoacán (EHT–HMS No. 21402).

Remarks.—The type locality of this species is not Tehuantepec, as stated by Cope, since Sumichrast (*loc. cit.*) states, "I found the type of this species near Quiótepec, between Tehuacán and Oaxaca."

The primary difference between *tau* and *upsilon* is in head pattern. In the former the dark head color is abruptly truncate near the posterior tips of the parietals, and a light indentation (broad or narrow) is visible along the parietal suture. In *upsilon* the dark head color is not so abruptly truncate posteriorly, terminating posterior to the parietals; and the light, midparietal indentation of *tau* is replaced by a narrow, Y-shaped mark, the arms of which follow near the posterior sutures of the frontal, and sometimes reach to the outer edge of the supraoculars, where they join with the tips of the interocular light bar.

Variation in body pattern in *tau* is so great that no contrast of the species as a whole with *upsilon* is possible. The variants of *tau* appear to be segregated geographically but are represented by so few specimens that the apparent differential characters of the three populations indicated may not be well founded.

The range of *tau* is apparently the periphery of the central Mexican plateau. The extreme southern records near Oaxaca city, in the isolated mountains of central Guerrero, and in the mountains at the extreme edge of the plateau in Michoacán all indicate such a peripheral distribution. All three loci represented by specimens, however, are so far removed from each other that the peculiarities of each population (two of which are represented by single specimens) may prove to have special significance: that is, at least three subspecies may exist in *tau:*

1. Oaxaca specimens (3). Dorsal blotches 23 to 26; tail bands 9 to 10; belly very little pigmented; subcaudal surface nearly uniform white; interocular band complete; nuchal blotch two to three scale lengths behind parietal; body blotches (except two nuchal ones) involving three or fewer scales in first row, average two.

2. Guerrero specimen (1). Dorsal body blotches 22; tail blotches 8; belly heavily pigmented, the dorsal bands visible (not sharply defined); subcaudal surface very strongly mottled; interocular band reduced to a round spot in middle of frontal; nuchal blotch five scale lengths behind parietal; body blotches (except two nuchal) involving two to six scales in outer row, average five.

3. Michoacán specimen (1). Dorsal body blotches 34; tail bands 11; belly with some dark spots, poorly defined; subcaudal surface moderately pigmented; interocular band complete; nuchal blotch one scale length behind parietal; body blotches not well defined on outer scale rows, involving two or three scales on outer row where visible.

TRIMORPHODON VILKINSONII Cope

Trimorphodon vilkinsonii Cope, Proc. Amer. Philos. Soc., vol. 23, pp. 285–286, 1886 (Chihuahua).—Taylor, Kansas Univ. Sci. Bull., vol. 25, pp. 361–363, fig. 1, pl. 38, 1938 (1939).—Klauber, Trans. San Diego Soc. Nat. Hist., vol. 9, pp. 187–189, 1940.

Diagnosis.—A broad, light area on neck, between dark areas on head and first body blotch; bands a third length of interspaces; dark head area only three spots in young.

Specimens examined.—One, the type, U. S. N. M. No. 14268.

Locality records.—Chihuahua and El Paso, Tex.

Remarks.—This species obviously is a close relative of *upsilon*, from which it differs chiefly in the narrowness of the dark bands, which are a third as broad as the spaces between them.

U. S. GOVERNMENT PRINTING OFFICE: 1941

PROCEEDINGS OF THE UNITED STATES NATIONAL MUSEUM

issued by the

SMITHSONIAN INSTITUTION
U. S. NATIONAL MUSEUM

Vol. 91 Washington: 1942 No. 3131

CATALOG OF HUMAN CRANIA IN THE UNITED STATES NATIONAL MUSEUM COLLECTIONS: ESKIMO IN GENERAL

By Aleš Hrdlička

INTRODUCTION

In 1924 the United States National Museum published the first of its catalogs of crania. This included the measurements of 245 Eskimo skulls from one locality (St. Lawrence Island), with four small series of other Alaskan skulls, which at that time was the total from these peoples or localities in the Museum's possession. Since then, under the auspices of the Smithsonian Institution, no less than 18 expeditions to Alaska have been made, 10 of them conducted by the author. These expeditions covered all the more important parts of the coast, the main rivers, and the principal islands. Their purpose was to study the living Eskimo, to collect skeletal remains over all the once-inhabited territory, and to excavate old sites, which everywhere in Alaska yield both cultural and skeletal materials.

Most of the results of researches on the living Eskimo have been published, as have those on much of the skeletal material collected before 1930[1]; but today the Eskimo material alone comprises more than 2,200 crania, 2,100 of which are adult, mostly in an excellent state of preservation and in a large proportion of cases accompanied by the rest of the skeleton. The whole constitutes an exceedingly precious series, data on which will be of basic importance. These data are

[1] Hrdlička, Aleš, *in* Smithsonian Exploration Pamphlets, 1926–39; Anthropological survey in Alaska, 46th Ann. Rep. Bur. Amer. Ethnol., 374 pp., 1930; The Eskimo of the Kuskokwim, Amer. Journ. Phys. Anthrop., vol. 18, pp. 93–135, 1933.

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assembled in the present publication, and no pains have been spared to make them thoroughly reliable. All the measurements were made by the author, using the same tested instruments and identical methods throughout. Several parts of the series have been sexed two or even three times; some, for the sake of accuracy, were completely remeasured and some determinations have been added to those of the first Catalog.[2] It has been necessary to make only inconsequential changes in the earlier figures, so far as they went.

The methods used are given in the author's "Practical Anthropometry," [3] but for the sake of completeness they are repeated herewith:

THE VAULT

Maximum length of the skull, or greatest anteroposterior diameter.—From the center of the glabella to the most distant normal point of the occiput.

Maximum breadth of the vault, or the greatest transverse diameter.—Above the supramastoid crests (posterior roots of the zygomae).

Height of the vault: The basibregmatic height.—The linear distance from the midpoint on the anterior edge of the foramen magnum (basion) to bregma.

FACE

Menton–nasion height.—Total morphological facial height on the skull. The distance from menton to nasion, with the lower jaw in place and the teeth in normal apposition.

Alveolar point—nasion height.—The upper facial height on the skull. The distance from the upper alveolar point to nasion.

Maximum bizygomatic diameter.—The greatest bizygomatic breadth.

BASE

Endobasion–nasion diameter.—Distance between the endobasion and nasion.

Endobasion-subnasal point diameter.—Distance between endobasion and the left subnasal point.

Endobasion–prealveolar point diameter.—Distance between endobasion and the prealveolar point.

Angles of facial and alveolar prognathism.—The most satisfactory way of obtaining these angles is to chart, with the aid of the sliding compass, the three measurements together with the nasal and naso-alveolar heights, and measure the angles directly by a transparent (celluloid) goniometer. For the naso-alveolar height for this purpose it suffices to take the difference between the nasal and nasion-alveolar point measurements.

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[2] Catalogue of human crania in the United States National Museum collections: The Eskimo, Alaska and related Indians, northeastern Asiatics. Proc. U. S. Nat. Mus., vol. 63, art. 12, 51 pp., 1924.

[3] Wistar Institute, Philadelphia, 1939.

ORBITS

Orbital height.—The maximum height between normal inferior and superior borders, exclusive of any notches. Seldom perfectly vertical, though near.

Orbital breadth.—The greatest breadth of the orbital lumen, from the lacrimal point. It is only incidentally at exact right angle with the height, though always near.

NOSE

Nasal height.—Height from midpoint of line connecting lowest parts of the borders of the two nasal notches, to nasion.

Nasal breadth.—The maximum breadth of the nasal cavity.

UPPER ALVEOLAR PROCESS

The *length* of the arch is its anteroposterior diameter, in the median line, from the prealveolar point to the midpoint of a line connecting the posterior limits of the arch. These limits are the posterior tuberosity of the arch on either side, or, when this is not developed, the alveolo-palatine suture.

The *breadth* of the upper alveolar process is its breadth maximum, obtained by applying the branches of the sliding compass, symmetrically, to the greatest bulge of the process above the molar teeth.

SKULL CAPACITY

See pages 135–138 of "Practical Anthropometry."

THE LOWER JAW

Height at the symphysis.—The height from the lowest median point of the jaw, at the symphysis, to the lower alveolar point; the lower alveolar point being the tip of the process of the bone between the median incisors.

THE GROUPS AND TERRITORY INCLUDED

In addition to the Eskimo proper, it would be important to include in this catalog measurements of crania of Alaskan peoples who, on account of linguistic affinities, were hitherto classed with the Eskimo but who now, with the present available skeletal remains, are recognized as quite different. Furthermore, satisfactory data can now be provided on two extinct groups of southwestern Alaska and on additional Alaskan Indians, all of which will permit for the first time a definite view of both the older and the more recent population of Alaska, which is one of the basic desiderata of American anthropology. Unfortunately the costs forbid, so that the data on the non-Eskimo Alaskan people and those on the Siberians must be left over for future publication; but a few remarks concerning these groups will be useful in these connections.

Of the physically non-Eskimo peoples of the coast and islands of Alaska there are now known four groups, and it seems probable that no other larger units will be discovered. These are the Aleuts and the Kodiak Island Koniags, with the Pre-Aleuts and Pre-Koniags unearthed in our excavations; and there are the people of the eastern third of the Alaska Peninsula, who are a mixture of the Eskimo and the Aleut. As for the Indians, some additions are now possible from southern and southeastern Alaska.

The statement that no further large ethnic unit is likely to be discovered in Alaska should not be taken to mean that no other contingents have ever passed through or along the Territory. It means that no trace of occupancy by any such group has been discovered in our general and intensive survey of the region. This survey covered all the more important parts of the coasts, rivers, and islands, and it is unlikely that evidence of occupancy by an additional physical or cultural group was missed; the same applies to evidence of any really ancient occupation. But the present shores of rivers, coasts, and islands are far from where they were three, four, or more thousands of years ago. Alaska is a land of living geology, with erosion everywhere very active. Banks and shores are constantly being cut or undermined, and the silts and debris build new bars, shallows, islands, and eventually flats. Yet man at all times in these parts has been obliged to live close to the sea or on the banks of the larger streams, and such settlements in the course of time have all had to be abandoned, or else be ultimately cut away. These matters were discussed, with some examples, in the report "Anthropological Survey in Alaska," already cited. What chance, under such circumstances, would there be of a survival of evidence of any ancient human occupation? Moreover, as long as the road "toward the sun" was free, man would hardly stop in the inhospitable Far North for any permanent or long-lasting settlement. Thus, the absence of evidence in Alaska of human groups other than those here mentioned cannot be a negation of the probability of other, older contingents of man having passed through; it only emphasizes the fact that there is little possibility of their being discovered.

The Eskimo territory, as is well known, spreads from Greenland and Labrador in the east to the Alaska Peninsula in the west, skirting everywhere the seashores. The linguistic and cultural similarities over all this region indicate that the spread of the group must be relatively recent, and the close physical likenesses sustain this opinion. There are some dialectic differences, but they do not show satisfactory lines of demarcation. From place to place the Eskimo differ somewhat in stature and even in head form, but with one exception there is no possibility of subdividing them into distinct types. The arrangement of the data given herein must therefore be merely geographical.

FIGURE 39.—The region of the western Eskimo.

ESKIMO OF THE GREAT ALASKAN RIVERS

NUSHAGAK RIVER: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, Wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
	(*A. H.*)														
363526	U.S.N.M.	Kákuak	65		18.0	13.6	13.2	*75.56*	*83.54*		14.93				
363524	do	Near Hurley	65		17.4	13.3	13.1	*76.44*	*85.34*		14.60				
365510	do	do	60		18.5	14.2	12.8	*76.76*	*78.29*		15.17				7.8
363520	do	do	45		18.0	13.9	13.4	*77.22*	*84.01*		15.10			12.0	6.7
363512	do	Kákuak	35		17.8	13.9	12.7	*78.09*	*80.13*		14.80			12.2	7.5
363531	do	Woods Lake	60		18.8	14.7	14.5	*78.19*	*86.57*		16.0			13.0	7.5
363532	do	do	25		18.3	14.4	13.8	*78.69*	*84.40*		15.50			12.5	7.6
363508	do	Kákuak	40		19.4	15.3	14.6	*78.87*	*84.15*		16.43			14.8	8.8
363525	do	do	23		17.8	14.1	13.3	*79.21*	*83.39*		15.07			12.1	7.3
363504	do	do	65		18.3	14.6	13.7	*79.78*	*83.28*		15.53				
363534	do	Woods Lake	35		18.6	15.0	14.0	*80.65*	*83.33*		15.87			13.7	8.2
363501	do	Near Hurley	25		17.6	14.4	13.4	*81.82*	*83.75*		15.13			12.9	8.1
363528	do	Kákuak	25		17.6	15.0	13.7	*85.23*	*84.05*		15.43			12.2	7.8
Specimens			(13)		(13)	(13)	(13)	*(13)*	*(13)*		(13)			(9)	(10)
Totals			568		236.10	186.4	176.2				199.56			115.40	77.30
Averages			43.7		18.16	14.34	13.55	*78.95*	*83.41*		15.04			12.82	7.73
Minima			23		17.4	13.3	12.7	*75.56*	*78.29*		14.60			12.0	6.7
Maxima			65		19.4	15.3	14.6	*85.23*	*86.57*		16.43			14.8	8.8

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion [2]-Alveolar Pt.	Basion [2] Subnasal Pt.	Basion [2]-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
363526	13.6	......	......	......	8.7	10.2	......	......	......	3.7	......	4.0	......	*92.50*	5.1	2.3	*45.10*	......	......	......	3.6
365524	13.5	......	......	......	8.7	10.0	......	......	3.75	3.65	4.2	4.1	*89.29*	*89.02*	5.35	2.6	*48.60*	......	......	......	3.5
365510	13.6	......	*57.35*	10.1	9.1	10.4	69.5	58.5	3.5	3.55	3.95	3.9	*88.61*	*91.03*	5.4	2.4	*44.44*	5.2	6.3	*82.54*	......
363520	13.5	*88.89*	*49.63*	9.7	8.6	10.0	72.5	48.0	......	3.55	......	3.8	......	*93.42*	5.1	2.3	*45.10*	5.4	6.3	*85.71*	3.4
363512	14.0	*87.14*	*53.57*	9.7	9.0	10.4	73.0	67.0	......	3.6	......	4.0	......	*90*	5.1	2.4	*47.06*	5.1	6.4	*79.69*	2.8
363531	14.3	*90.91*	*52.45*	......	9.3	10.6	......	......	3.65	3.45	4.2	4.2	*86.90*	*82.14*	5.3	2.5	*47.17*	5.5	6.4	*85.94*	4.1
363532	14.5	*86.21*	*52.41*	10.1	8.8	10.1	67.5	47.5	3.5	3.55	4.1	4.0	*85.37*	*88.75*	5.55	2.1	*37.84*	5.6	7.0	*80.0*	3.6
363508	14.5	*(102.1)*	*60.69*	10.5	9.2	10.9	68.0	56.5	......	4.0	......	4.5	......	*88.89*	5.85	2.25	*38.46*	5.8	6.8	*85.29*	4.5
363525	13.5	*89.63*	*54.07*	10.1	9.2	10.2	70.0	58.5	3.6	3.7	4.0	4.0	*90.0*	*92.50*	5.2	2.5	*48.08*	5.3	6.8	*77.94*	3.3
363504	14.4	......	......	......	......	10.8	......	......	......	......	......	......	......	......	......	......	......	......	......	......	3.8
363534	14.5	*94.48*	*56.55*	10.4	9.0	10.1	64.0	52.0	3.65	3.5	4.1	4.0	*89.02*	*87.50*	5.5	2.8	*50.91*	5.7	6.7	*85.07*	3.8
363501	13.7	*94.16*	*59.12*	10.3	9.0	10.4	68.0	54.5	3.6	3.65	4.3	4.1	*83.72*	*89.02*	5.6	2.4	*42.86*	5.7	6.7	*85.07*	3.7
363528	14.3	*85.31*	*54.54*	10.6	9.5	11.0	71.5	56.0	......	......	......	......	......	......	5.6	2.4	*42.86*	5.1	6.0	*77.94*	3.2
Specimens	(13)	(8)	*(10)*	(9)	(12)	(13)	(9)	(9)	(7)	(11)	(7)	(11)	(7)	*(11)*	(12)	(12)	*(12)*	(10)	(10)	*(10)*	(12)
Totals	181.90	......	......	91.50	108.10	135.10	624.0	498.5	25.25	39.9	28.85	44.6	......	......	64.65	28.95	......	54.40	65.40	......	43.3
Averages	13.99	*89.58*	*55.06*	10.17	9.0	10.39	69.33	55.39	3.61	3.63	4.12	4.05	*87.52*	*89.46*	5.39	2.41	*44.78*	5.44	6.54	*83.18*	3.61
Minima	13.5	*85.31*	*49.63*	9.7	8.6	10.0	64.0	47.5	3.5	3.45	3.95	3.8	*83.72*	*82.14*	5.1	2.1	*37.84*	5.1	6.0	*77.94*	2.8
Maxima	14.5	*94.48*	*60.69*	10.6	9.5	11.0	73.0	67.0	3.75	4.0	4.3	4.5	*90.0*	*93.42*	5.85	2.8	*50.91*	5.8	7.0	*85.94*	4.5

[1] Allowance made for wear of teeth.

[2] I. e., Endobasion, throughout.

NUSHAGAK RIVER: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in cc. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
363521	(*A. H.*) U.S.N.M.	Near Hurley	55		17.4	13.0	13.0	*74.71*	*85.53*		14.47			12.5	7.2
363533	do	Woods Lake	24		18.2	13.6	13.0	*74.73*	*81.76*		14.93			11.8	7.4
363527	do	Kákuak	65		17.0	13.0	12.9	*76.47*	*86.0*		14.30			12.3	7.1
363529 (prob. ♀)	do	do	50		17.2	13.2	13.2	*76.74*	*86.84*		14.53			12.2	7.2
363517	do	Near Hurley	50		17.9	13.8	12.6	*77.09*	*79.50*		14.77			12.0	7.3
363523	do	Woods Lake	35		16.3	12.6	12.4	*77.30*	*85.81*		13.77			10.9	6.8
363522	do	do	70		18.0	14.0	13.1	*77.78*	*81.88*		15.03				
363519	do	Near Hurley	50		17.0	13.3	13.2	*78.24*	*87.13*		14.50			12.1	7.1
363502	do	do	55		17.1	13.4	13.2	*78.36*	*86.56*		14.57				
363514	do	do	70		16.7	13.1	12.4	*78.44*	*83.22*		14.07				
363530	do	Woods Lake	50		17.3	13.7	12.6	*79.19*	*81.29*		14.53			12.0	7.4
363503	do	Near Hurley	55		16.9	13.4	13.1	*79.29*	*86.47*		14.47			11.4	6.5
363509	do	Kákuak	30		17.1	13.6	12.4	*79.53*	*80.78*		14.37			11.8	7.2
363506	do	Woods Lake	24		16.7	13.3	12.6	*79.64*	*84.0*		14.20			11.9	7.1
363505	do	Kákuak	30		17.5	14.0	13.4	*80.0*	*85.08*		14.97			11.7	7.1
363507	do	do	70		17.7	14.2	13.4	*80.23*	*84.01*		15.10				
363513	do	Near Hurley	40		17.0	13.8	12.7	*81.18*	*82.47*		14.50			10.9	6.7
363516	do	do	40		16.7	13.7	12.6	*82.04*	*82.89*		14.33			11.0	6.4
363535	do	Woods Lake	40		16.8	14.0	13.3	*83.33*	*86.36*		14.70			12.4	7.8
363515	do	Near Hurley	25		16.7	14.9	13.3	*(89.22)*	*84.18*		14.97			11.7	6.9
Specimens			(20)		(20)	(20)	(20)	(20)	(20)		(20)			(16)	(16)
Totals			928		343.2	271.6	258.4				291.08			188.6	113.2
Averages			46.4		17.16	13.58	12.92	*79.14*	*84.06*		14.55			11.79	7.08
Minima			24		16.3	12.6	12.4	*74.71*	*79.50*		13.77			10.9	6.4
Maxima			70		18.2	14.9	13.4	*83.33* *(89.22)*	*87.13*		15.10			12.4	7.8

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
363521	13.0	96.15	55.38	9.9	8.8	10.0	70.0	52.0	3.4		3.9		87.18		4.8	2.35	48.96	5.3	6.1	86.89	3.9
363533	13.3	88.72	55.64	10.4	9.2	10.4	69.0	50.5	3.6	3.55	3.8	3.95	94.74	89.87	5.4	2.65	49.07	5.5	6.4	85.94	3.1
363527	12.5	98.40	56.80	10.3	9.0	10.2	69.0	49.5	3.3	3.45	3.9	3.85	84.62	89.61	5.0	2.2	44.0				3.9
363529 (prob. ♀)	13.2	92.42	54.55	9.5	8.4	9.8	71.0	55.0		3.5		3.8		92.11	5.1	2.35	46.08	5.3	5.9	89.83	3.4
363517	12.8	93.75	57.03	9.4	8.4	9.6	69.0	57.0	3.55	3.65	3.9	3.85	91.03	94.81	5.15	2.2	42.72	4.9	6.2	79.03	3.1
363523	11.9	91.60	57.14	9.1	8.2	9.2	69.0	57.5	3.5	3.6	3.8	3.8	92.11	94.74	4.9	2.3	46.94	4.9	5.4	90.74	3.1
363522						10.1															2.9
363519	12.8	94.53	55.47	9.9	8.8	9.8	68.5	55.0		3.4		3.7		91.89	4.85	2.35	48.45	5.0	5.7	87.72	3.5
363502	13.2					10.2				3.2		3.85		83.12							
363514	12.2				8.2	9.6			3.15	3.3	3.8	3.7	82.89	89.19	4.65	2.4	51.61				3.5
363530	13.1	91.60	56.49	9.5	8.6	9.2	64.5	61.0	3.5	3.6	3.8	3.9	92.11	92.31	4.95	2.15	43.43	5.0	5.8	86.21	3.4
363503	12.2	93.44	53.28	9.4	8.2	9.6	70.5	47.0	3.15	3.3	3.7	3.6	85.14	91.67	4.8	2.5	52.08	5.0	6.1	81.97	2.9
363509	12.5	94.40	57.60	9.8	8.8	9.8	68.0	55.0	3.65	3.65	3.75	3.55	97.33	102.8	5.2	2.5	48.08	5.3	6.3	84.13	3.2
363506	13.4	88.81	52.99	9.1	7.8	9.6	70.5	48.0	3.45	3.4	3.8	3.8	90.79	89.47	5.1	2.5	49.02	5.0	6.0	83.33	3.55
363505	13.5	86.67	52.59	9.3	8.2	9.8	72.0	50.0	3.85	3.6	3.85	3.75	100.0	96.0	5.35	2.4	44.86	4.9	6.5	75.38	3.2
363507	12.9				8.9	10.6			3.7	3.8	4.2	4.0	88.10	95.0	4.95	2.55	51.52				3.1
363513	13.0	83.85	51.54	10.0	8.7	9.6	67.0	49.0	3.25	3.25	3.75	3.65	86.67	89.04	4.6	2.25	48.91	5.3	6.1	86.89	2.8
363516	12.7	86.61	50.39	8.9	8.2	9.5	75.0	60.0	3.75		3.9		96.15		4.8	2.05	42.71	4.8	6.0	80.0	2.3
363535	13.7	90.51	56.93	9.6	8.6	9.8	68.0	59.5	3.65	3.55	3.9	3.7	93.59	95.95	5.25	2.75	52.38	5.3	6.2	85.48	3.35
363515	13.7	85.40	50.36	9.3	8.4	10.0	74.5	55.5	3.7	3.9	3.7	3.7	100.0	105.4	5.1	2.4	47.06	4.9	6.0	81.67	3.2
Specimens	(19)	(16)	(16)	(16)	(18)	(20)	(16)	(16)	(16)	(17)	(16)	(17)	(16)	(17)	(18)	(18)	(18)	(15)	(15)	(15)	(19)
Totals	245.6			153.4	153.4	196.4	1,115.5	861.5	56.15	59.70	61.45	64.15			89.95	42.85		76.4	90.7		61.4
Averages	12.93	90.98	54.61	9.59	8.52	9.82	69.72	53.84	3.51	3.51	3.84	3.77	91.38	93.06	5.0	2.38	47.64	5.09	6.05	84.23	3.23
Minima	11.9	83.85	50.36	8.9	7.8	9.2	64.50	47.0	3.15	3.2	3.7	3.55	82.89	83.12	4.6	2.05	42.71	4.8	5.4	75.38	2.3
Maxima	13.7	98.40	57.60	10.4	9.2	10.6	75.00	61.0	3.85	3.9	4.2	4.0	100.0	105.4	5.4	2.75	52.38	5.5	6.5	90.74	3.9

[1] Allowance made for wear of teeth.

KUSKOKWIM RIVER: MALES
(Lower River, below Bethel)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
351319	(*A.H.*) U.S.N.M	Lomavik	45		18.9	13.6	13.3	*71.96*	*81.85*		15.27				8.0
351313	do	Akulurak	70		19.1	14.0	13.6	*73.30*	*82.18*		15.57				
351253	do	Jocelyn Village	50		18.3	13.5	13.8	*73.77*	*86.79*		15.20				7.6
351269	do	Apokak	40		18.5	13.8	13.4	*74.59*	*82.97*		15.23			12.7	7.7
351256	do	Lomavik	70		18.9	14.1	14.1	*74.60*	*85.45*		15.70				
351266	do	Apokak	45		19.0	14.2	13.8	*74.74*	*83.13*		15.67			14.2	8.4
351315	do	Akulurak	70		18.2	13.6	13.5	*74.73*	*84.91*		15.10				
351205	do	Napaskiak	55		18.2	13.9	13.7	*76.37*	*85.36*		15.27			12.8	7.6
351204	do	do	55		18.0	13.8	12.8	*76.67*	*80.50*		14.87				7.7
351202	do	do	65		18.5	14.2	13.2	*76.76*	*80.73*		15.43				
351201 (small ♂)	do	do	35		17.4	13.4	13.3	*77.01*	*86.36*		14.70			12.0	7.3
351208	do	do	65		18.1	14.0	13.2	*77.35*	*82.24*		15.10				
351317	do	do	25		18.3	14.2	13.2	*77.60*	*81.23*		15.23			12.2	7.6
351249	do	Jocelyn Village	55		18.5	14.4	13.4	*77.84*	*81.46*		15.43			13.4	8.2
351272	do	Apokah	50		18.3	14.3	13.3	*78.14*	*81.60*		15.30			12.9	7.8
351278	do	do	65		18.8	14.7	13.1	*78.19*	*78.21*		15.53				
351318	do	Lomavik	45		17.9	14.0	13.4	*78.21*	*84.01*		15.10				
351261	do	Apokak	40		17.6	13.8	13.6	*78.41*	*86.62*		15.0			12.2	7.4
351260	do	do	35		17.7	13.9	13.6	*78.53*	*86.08*		15.07			12.9	7.6
351275	do	do	35		17.8	14.0	13.9	*78.65*	*87.42*		15.23			12.0	7.3
351274	do	do	30		17.6	14.0	12.9	*79.55*	*81.65*		14.83			12.8	8.0
351203	do	Napaskiak	60		17.7	14.2	13.6	*80.23*	*85.27*		15.03				
351268	do	Apokak	55		18.4	14.8	13.8	*80.43*	*83.13*		15.67				
351270	do	do	35	Small asymmetry	17.5	14.5	13.3	*82.86*	*83.13*		15.10			12.6	8.0
351314	do	Akulurak	60		17.6	14.6	13.3	*82.95*	*82.61*		15.17				7.6
351255	do	Jocelyn Village	70		17.9	14.9	13.4	*83.24*	*85.98*		15.40				
351259	do	Apokak	55		17.3	14.4	13.6	*83.24*	*85.80*		15.10			13.5	7.7
351316	do	Akulurak	55		17.9	15.0	13.8	*83.80*	*83.89*		15.57				8.1
351273	do	Apokak	30		18.8	15.8	14.6	*84.04*	*84.39*		16.40			13.3	8.1
351199	do	Napaskiak	55		17.2	14.5	13.5	*84.30*	*85.17*		15.07				
Specimens			(30)		(30)	(30)	(30)	*(30)*	*(30)*		(30)			(14)	(19)
Totals			1,520		543.9	426.10	405.0				458.34			179.50	147.7
Averages			50.7		18.13	14.20	13.50	*78.34*	*83.51*		15.28			12.82	7.77
Minima			25		17.2	13.4	12.8	*71.96*	*78.21*		14.70			12.0	7.3
Maxima			70		19.1	15.8	14.1	*84.30*	*87.42*		16.40			14.20	8.4

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Aleolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Upper—Index*	Lower Jaw—Height at Symphysis
351319	14.1		*56.74*	10.4	9.0	10.4	67.5	52.5	3.7	3.75	4.2	4.25	*88.10*	*88.24*	5.3	2.35	*44.34*	5.5	6.4	*85.94*	
351313	13.6				9.2	10.7			3.3	3.5	3.75	3.95	*88.0*	*88.61*	5.65	2.3	*40.71*				
351253	13.2		*57.58*	10.3	9.0	10.2	67.5	51.5	3.4	3.45	4.05	3.9	*83.95*	*88.46*	5.3	2.25	*42.45*	5.5	6.3	*87.30*	
351269	13.9	*91.37*	*55.40*	9.8	8.8	10.2	70.5	57.5	3.55	3.55	4.1	4.1	*86.59*	*86.59*	5.5	2.5	*45.45*	5.2	6.1	*85.25*	3.55
351256	14.1				8.9	10.4			3.65	3.65	4.1	4.0	*89.02*	*91.25*	5.5	2.3	*41.82*				3.6
351266	14.2	*100.0*	*59.15*	10.5	9.2	10.8	69.0	57.5	3.4	3.2	4.2	4.1	*80.95*	*78.05*	5.4	2.4	*44.44*	5.9	6.7	*88.06*	4.5
351315	13.9					10.0			3.6		4.25		*84.71*								
351205	14.1	*90.78*	*53.90*	9.7	8.5	10.2	71.5	54.0		3.7		4.2		*88.10*	5.35	2.4	*44.86*	5.0	6.4	*78.13*	3.8
351204	14.6		*52.74*	10.3	9.2	10.2	67.0	55.5	3.35	3.5	4.0	3.75	*83.75*	*93.33*	5.45	2.35	*43.12*	5.4	6.6	*81.82*	4.0
351202	14.8				9.1	10.7			3.75	3.8	4.4	4.2	*85.23*	*90.48*	5.95	2.55	*42.86*				3.7
351201 (small ♂)	13.5	*88.89*	*54.07*	9.8	8.6	9.6	66.5	48.5	3.45	3.45	3.6	3.6	*95.83*	*95.83*	5.4	2.35	*43.52*	5.4	6.3	*85.71*	3.3
351208	14.1				8.8	9.6			3.35	3.25	3.8	3.8	*88.16*	*85.53*	5.0	2.4	*48.0*				4.0
351317	13.8	*88.41*	*55.07*	10.8	9.4	10.1	63.5	49.5	3.85	3.8	4.1	3.9	*93.90*	*97.44*	5.2	2.35	*45.19*	5.8	6.8	*85.29*	3.4
351249	14.6	*91.78*	*56.16*	9.7	8.7	10.1	68.0	58.5	3.65	3.75	4.0	4.1	*91.25*	*91.46*	5.85	2.5	*42.74*	5.4	6.5	*83.08*	3.5
351272	13.9	*92.81*	*56.12*	10.6	9.2	10.1	64.5	52.5	3.45	3.5	4.05	4.05	*85.19*	*96.42*	5.2	2.55	*49.04*	5.7	6.6	*86.36*	3.95
351278	14.3				8.6	10.3			3.4	3.45	3.9	3.9	*87.18*	*88.46*	5.6	2.5	*44.64*				3.9
351318	14.0				9.4	10.2				3.4		4.0		*85.0*	4.8	2.7	*56.25*	5.0	6.3	*79.37*	
351261	13.9	*87.77*	*53.24*	9.6	8.6	10.0	71.0	56.0	3.5	3.45	3.7	3.7	*94.59*	*93.24*	5.4	2.3	*42.59*	5.1	6.6	*77.27*	3.3
351260	14.2	*90.85*	*53.52*	9.4	8.6	10.0	71.5	63.0	3.55	3.5	3.9	3.9	*91.03*	*89.74*	5.25	2.1	*40.0*	5.2	6.3	*82.54*	3.9
351275	13.8	*86.96*	*52.90*	10.2	9.1	10.2	69.0	56.0	3.25	3.2	3.9	3.8	*83.33*	*84.21*	5.1	2.2	*43.14*	5.4	6.4	*84.38*	3.3
351274	14.1	*90.78*	*56.74*	9.9	8.9	10.2	68.5	56.0	3.8		4.1		*92.68*		6.0	2.55	*42.50*	5.3	6.6	*80.30*	
351203	14.2				8.6	10.0			3.4	3.4	4.0	4.0	*85.0*	*85.0*	5.15	2.3	*44.66*				3.5
351268	14.3				8.9	10.4			3.6	3.6	4.0	4.0	*90.0*	*90.0*	5.3	2.2	*41.51*				3.7
351270	14.5	*86.90*	*55.17*	10.9	9.6	10.2	63.0	53.0	3.8	3.7	4.2	4.1	*90.48*	*90.24*	5.5	2.4	*43.64*	6.1	6.7	*91.04*	3.35
351314	14.9		*51.0*	10.4	9.3	10.4	68.5	55.0		3.85		4.1		*93.90*	5.4	2.45	*45.37*	5.4	6.8	*79.41*	
351255	14.5				9.0	10.8			3.7	3.7	4.1	4.0	*90.24*	*92.50*	6.1	2.55	*41.80*	5.4	6.7	*80.60*	4.0
351259	14.5	*93.10*	*53.10*	9.9	8.7	10.2	69.5	51.0	3.7	3.8	4.2	4.1	*88.10*	*92.68*	5.7	2.4	*42.11*	5.6	6.8	*82.35*	4.0
351316	15.5		*52.26*	10.5	9.0	10.2	64.5	51.0	3.5	3.65	4.2	4.0	*83.33*	*91.25*	5.4	2.4	*44.44*	5.9	7.1	*83.10*	
351273	14.7	*90.48*	*55.10*	9.9	8.8	10.4	70.0	58.0	3.75	3.7	4.0	3.9	*93.75*	*94.87*	5.6	2.45	*43.75*	5.5	7.3	*75.34*	3.8
351199	14.4				8.4	9.6			3.55	3.55	4.1	4.0	*86.59*	*88.75*	5.5	2.6	*47.27*				4.15
Specimens	(30)	(14)	(19)	(19)	(29)	(30)	(19)	(19)	(27)	(28)	(27)	(28)	*(27)*	*(28)*	(29)	(29)	*(29)*	(21)	(21)	*(21)*	(22)
Totals	426.2			192.6	259.10	306.4	1,291.0	1,036.5	95.95	99.80	108.9	111.40			157.85	69.65		114.7	138.3		82.2
Averages	14.21	*90.79*	*54.70*	10.14	8.93	10.21	67.95	54.55	3.55	3.56	4.03	3.98	*88.11*	*89.59*	5.44	2.40	*44.12*	5.46	6.59	*82.94*	3.74
Minima	13.2	*86.90*	*51.0*	9.4	8.4	9.6	63.00	48.5	3.25	3.2	3.6	3.6	*80.95*	*78.05*	4.8	2.1	*40.0*	5.0	6.1	*75.34*	3.3
Maxima	15.5	*100.0*	*59.15*	10.9	9.6	10.8	71.50	63.0	3.85	3.85	4.4	4.25	*95.83*	*97.44*	6.1	2.7	*56.25*	6.1	7.3	*91.04*	4.5

[1] Allowance made for wear of teeth.

KUSKOKWIM RIVER: FEMALES

(Lower River, below Bethel)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
	(*A. H.*)														
351281	U.S.N.M.	Nanapiagamute	60		18.5	13.8		*74.59*							
351312	do	Akulurak	35		18.4	14.0	13.0	*76.09*	*80.25*		15.13				7.6
351311	do	do	60		17.9	13.8	13.0	*77.09*	*82.02*		14.90				
351280	do	Nanapiagamute	25		17.4	13.5	12.2	*77.59*	*78.96*		14.37				6.8
351271	do	Apokak	50		17.0	13.2	12.8	*77.65*	*84.77*		14.33			12.0	7.1
351209	do	Napaskiak	50		18.0	14.0	12.8	*77.78*	*80.00*		14.93				7.2
351276	do	Apokak	50		17.4	13.6	12.8	*78.16*	*82.58*		14.60				
351258	do	Old Crow Village	55		17.5	13.7	12.8	*78.29*	*82.05*		14.67			11.0	6.5
351200	do	Napaskiak	40		16.9	13.4	12.7	*79.29*	*83.83*		14.33			10.9	6.6
351267	do	Apokak	40		17.6	14.0	13.1	*79.55*	*82.91*		14.90			13.1	8.1
351309	do	Akulurak	40		17.7	14.1	13.0	*79.66*	*81.76*		14.93				
351310	do	do	45		16.4	13.1	12.4	*79.88*	*84.07*		13.97				6.7
351277	do	Apokak	40		16.9	13.5	12.4	*79.88*	*81.58*		14.27			12.4	7.4
351262	do	do	70		16.8	13.5	13.0	*80.36*	*85.81*		14.43				
351263	do	do	30		17.4	14.0	12.9	*80.46*	*82.17*		14.77			11.5	7.1
351207	do	Napaskiak	35		17.3	14.0	12.2	*80.92*	*77.96*		14.50			11.3	7.0
351250	do	Jocelyn Village	65		17.2	14.0	12.7	*81.40*	*81.41*		14.63			11.6	7.1
351254	do	do	80		17.2	13.5	13.2	*82.35*	*85.99*		14.63				
351252	do	do	40		16.6	13.8	12.2	*83.13*	*80.26*		14.20				
351197	do	Napaskiak	55		16.8	14.0	12.8	*83.33*	*83.12*		14.53			12.5	7.4
351279	do	Beacon Point	23		17.6	14.7	13.6	*83.52*	*84.21*		15.30			11.6	7.5
Specimens			(21)		(21)	(21)	(20)	(21)	(20)		(20)			(10)	(14)
Totals			988		364.5	289.2	255.6				292.32			117.9	100.1
Averages			47.0		17.36	13.77	12.78	*79.34*	*82.27*		14.62			11.79	7.15
Minima			23		16.4	13.1	12.2	*74.59*	*77.96*		13.97			10.9	6.5
Maxima			80		18.5	14.7	13.6	*83.52*	*85.99*		15.30			13.1	8.1

Catalog No.	Diam. Bizygomatic maxim.	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
351281																					
351312	13.0		*58.46*	10.0	8.6	9.6	64.5	49.5	3.35	3.35	3.8	3.7	*88.16*	*90.54*	5.3	2.65	*50.0*	5.3	6.6	*80.30*	
351311						9.9															
351280				9.9	8.7	9.4	65.5	51.0		3.5		3.8		*92.11*	4.7	2.55	*54.26*	5.3	5.9	*89.83*	
351271	12.5	*96.0*	*56.80*	9.1	8.0	9.0	66.0	55.5	(3.25)	3.7	(3.7)	3.7	*(87.84)*	*100.0*	4.7	2.25	*47.87*	4.9	6.1	*80.33*	3.6
351209	13.6		*52.94*	10.3	9.2	10.2	68.5	56.5	3.2	3.2	4.0	4.0	*80.0*	*80.00*	4.9	2.45	*50.0*	5.3	6.1	*86.89*	
351276						9.6															
351258	13.3	*82.71*	*48.87*	9.6	8.5	9.8	72.0	50.5		3.4		3.8		*89.47*	4.7	2.6	*55.32*				2.8
351200	13.0	*83.85*	*50.77*	9.9	8.9	9.8	69.5	52.0	3.4	3.4	4.1	3.9	*82.93*	*87.18*	4.95	2.5	*50.51*	5.2	6.3	*82.54*	2.9
351267	13.3	*98.50*	*60.90*	10.2	8.8	10.0	64.5	49.5	3.55	3.45	4.1	3.9	*86.59*	*88.46*	5.7	2.25	*39.47*	5.7	6.4	*89.06*	3.7
351309	13.6				8.8	10.0			3.45	3.5	4.1	3.9	*84.15*	*89.74*	4.9	2.6	*53.06*				
351310	12.8		*52.34*	9.2	8.2	9.4	70.5	54.5	3.35	3.35	3.7	3.8	*90.54*	*88.16*	4.8	2.4	*50.0*	5.0	6.1	*81.97*	
351277	13.1	*94.66*	*56.49*	9.4	8.0	9.5	68.0	50.0	3.65	3.55	4.0	4.0	*91.25*	*88.75*	5.1	2.3	*45.10*	5.1	5.7	*89.47*	3.7
351262	12.7				8.4	9.6			3.6	3.6	3.9	3.9	*92.31*	*92.31*	4.95	2.2	*44.44*				3.15
351263	13.1	*87.79*	*54.20*	9.6	8.4	9.7	69.0	50.0	3.45	3.3	3.8	3.95	*90.79*	*83.54*	5.1	2.35	*46.08*	4.9	6.2	*79.03*	3.1
351207	13.4	*84.33*	*52.24*	10.2	8.8	9.6	65.0	49.0	3.65	3.7	4.1	4.0	*89.02*	*92.50*	4.7	2.4	*51.06*	5.4	6.2	*87.10*	3.2
351250	13.0	*89.23*	*54.62*	9.4	8.2	9.6	69.5	50.5	3.7	3.7	4.1	4.0	*90.24*	*92.50*	5.1	2.6	*50.98*	5.2	6.1	*85.25*	3.15
351254	13.3				8.9	10.2				3.6		4.05		*88.89*	5.35	2.6	*48.60*				
351252						9.4			(2.9)		(3.5)		*(82.86)*								
351197	13.0	*96.15*	*56.92*	9.4	8.3	9.5	67.5	56.0	3.5	3.5	3.9	3.9	*89.74*	*89.74*	5.0	2.4	*48.0*	5.2	6.3	*82.54*	4.0
351279	14.0	*82.86*	*53.57*	10.4	9.2	10.2	67.0	51.5		3.55		3.7		*95.95*	5.35	2.15	*40.19*	5.3	6.9	*76.81*	3.0
Specimens	(16)	(10)	(13)	(14)	(17)	(20)	(14)	(14)	(12)	(17)	(12)	(17)	(12)	(17)	(17)	(17)	(17)	(13)	(13)	(13)	(11)
Totals	210.7			136.6	145.9	194.0	947.0	726.0	41.85	59.35	47.60	66.0			85.30	41.25		67.8	80.9		36.3
Averages	13.17	*89.52*	*54.53*	9.76	8.58	9.70	67.64	51.86	3.49	3.49	3.97	3.88	*87.92*	*89.92*	5.02	2.43	*48.36*	5.22	6.22	*83.81*	3.30
Minima	12.5	*82.71*	*48.87*	9.1	8.0	9.0	64.5	49.0	3.2	3.2	3.7	3.7	*80.0*	*80.0*	4.7	2.15	*39.47*	4.9	5.7	*76.81*	2.8
Maxima	14.0	*98.50*	*60.90*	10.4	9.2	10.2	72.0	56.5	3.7	3.7	4.1	4.05	*92.31*	*100.0*	5.7	2.65	*55.32*	5.7	6.9	*89.83*	4.0

[1] Allowance made for wear of teeth, where needed.

KUSKOKWIM RIVER: MALES

(Upper River, Above Bethel)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
	(*A. H.*)														
351345	U.S.N.M.	Upper River	40		20.0	14.0	14.3	*70.0*	*84.12*		16.10			13.1	8.0
351284	do	Napaimute	60		20.0	14.0	14.2	*70.0*	*83.53*		16.07			12.7	7.6
351327	do	Old Bethel	55		18.7	13.3	13.6	*71.12*	*85.00*		15.20			12.8	7.6
351304	do	Below Akiak	75		18.4	13.2	13.5	*71.74*	*85.44*		15.03				
351291	do	Napaimute	40		18.7	13.6	14.4	*72.73*	*89.16*		15.57			13.7	8.1
351231	do	Kushogamute	60		18.7	13.6	13.8	*72.73*	*85.45*		15.37			13.3	8.0
351302	do	Napaimute	60		18.7	13.7	13.9	*73.26*	*85.80*		15.43			13.5	7.7
351246	do	Bogus Creek	50		18.4	13.5	13.2	*73.37*	*82.76*		15.03			13.3	7.7
351289	do	Napaimute	60		18.3	13.5	13.9	*73.77*	*87.42*		15.23			13.6	8.0
351329	do	Old Bethel	70		18.0	13.3	13.2	*73.89*	*84.35*		14.83				
351339	do	do	50		18.4	13.6	13.9	*73.91*	*86.88*		15.30			13.0	7.8
351296	do	Kwishluk	55		18.6	13.8	13.9	*74.19*	*85.80*		15.43			14.0	8.3
351243	do	Bogus Creek	60		18.5	13.8	13.2	*74.59*	*81.73*		15.17			12.5	
351220	do	Kuskogamute	60	Some postmortem	19.1	14.3	15.4	*74.87*	*92.22*		16.27			13.3	7.6
351222	do	do	60		18.1	13.6	13.8	*75.14*	*87.07*		15.17			13.4	8.1
351299	do	Kwishluk	25		18.6	14.0	13.4	*75.27*	*82.21*		15.33			12.4	7.6
351223	do	Kuskogamute	40		18.4	13.9	13.5	*75.54*	*83.59*		15.27			13.4	8.1
351240	do	Bogus Creek	80		18.6	14.1	13.5	*75.81*	*82.57*		15.40				
351224	do	Kuskogamute	50		18.0	13.7	12.9	*76.11*	*81.39*		14.87				8.0
351297	do	Kwishluk	50		17.8	13.6	13.2	*76.40*	*84.08*		14.87			12.9	7.3
351287	do	Napaimute	55		18.3	14.0	13.3	*76.50*	*82.35*		15.20			13.5	7.8
351333	do	Old Bethel	65		18.5	14.4	13.6	*77.84*	*82.67*		15.50				
351328	do	do	35		18.6	14.5	14.2	*77.96*	*85.80*		15.77			13.3	7.9
351212	do	Okahamute	60		18.6	14.6	13.6	*78.49*	*81.93*		15.60			13.0	7.6
351295 (small ♂)	do	Kwishluk	70		17.4	13.7	13.5	*78.74*	*86.82*		14.87				
351239	do	Bogus Creek	45		16.8	14.1	12.9	*83.93*	*83.50*		14.60			12.0	7.1
351226	do	Kuskogamute	60		17.8	15.0	13.2	*84.27*	*80.49*		15.33				
Specimens			(27)		(27)	(27)	(27)	*(27)*	*(27)*		(27)			(20)	(20)
Totals			1,490		498.0	374.4	369.0				413.81			262.70	155.9
Averages			55.2		18.44	13.87	13.67	*75.18*	*84.59*		15.33			13.14	7.80
Minima			25		16.8	13.2	12.9	*70.0*	*80.49*		14.60			12.0	7.1
Maxima			80		20.0	15.0	15.4	*84.27*	*92.22*		16.27			14.0	8.3

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
351345	14.1	*92.91*	*57.74*	11.0	9.9	11.4	71.5	56.5	3.35	3.35	4.05	4.05	*82.72*	*82.72*	5.75	2.45	*42.61*	5.8	7.3	*79.45*	3.9
351284	13.9	*91.37*	*54.68*	10.5	9.4	10.4	68.0	57.0	3.6	3.65	3.9	3.8	*92.31*	*96.05*	5.25	2.65	*50.48*	5.8	7.0	*82.86*	3.4
351327	13.8	*92.75*	*55.07*	10.5	9.5	10.4	68.0	58.5	3.7	3.8	4.1	4.2	*90.24*	*90.48*	5.35	2.4	*44.86*	5.3	6.3	*84.13*	3.8
351304					9.0	10.1			3.9		4.2		*92.86*		5.3	2.35	*44.34*				3.7
351291	14.3	*95.80*	*56.64*	10.3	9.1	10.7	70.0	56.0	3.9	3.75	4.2	4.1	*92.86*	*91.46*	5.6	2.2	*39.29*	5.5	6.7	*82.09*	4.0
351231	13.4	*99.25*	*59.70*	9.9	8.6	10.0	67.0	53.0	3.6	3.9	3.95	3.85	*91.14*	*101.3*	5.55	2.45	*44.14*	5.6	6.7	*83.58*	3.8
351302	13.8	*97.83*	*55.80*	10.5	9.4	10.8	70.5	57.5	3.75	3.75	4.05	4.05	*92.59*	*92.59*	5.4	2.2	*40.74*	5.5	6.3	*87.30*	4.0
351246	14.0	*95.0*	*55.0*	10.7	9.4	10.4	66.5	53.0	3.2	3.35	3.9	3.7	*82.05*	*90.54*	5.3	2.35	*44.34*	6.0	7.3	*82.19*	4.1
351289	14.6	*93.15*	*54.79*	10.7	9.5	10.4	66.0	58.0	3.45	3.55	4.1	3.8	*84.15*	*93.42*	5.4	2.65	*49.07*	5.6	6.7	*83.58*	4.1
351329	13.4				9.4	10.7			3.6	3.65	4.3	4.3	*83.72*	*82.56*	5.4	2.45	*45.37*				3.7
351339	13.6	*95.59*	*57.35*	10.0	9.0	10.4	70.5	60.5	3.4	3.35	3.85	3.8	*88.31*	*88.16*	5.25	2.25	*42.86*	5.4	6.5	*83.08*	3.9
351296	13.7	*102.2*	*60.58*	11.0	9.8	11.1	68.5	57.0	3.35	3.55	4.0	4.0	*83.75*	*88.75*	5.7	2.5	*43.86*	5.7	6.6	*86.36*	4.3
351243	14.2	*88.03*			9.3	10.1			3.5	3.55	3.95	4.1	*88.61*	*86.59*	5.2	2.5	*48.08*	5.5	6.6	*83.33*	3.7
351220	13.5	*98.52*	*56.30*			12.4				3.6		4.1		*87.80*	5.6	2.6	*46.43*	5.8	6.9	*84.06*	4.0
351222	14.1	*95.04*	*57.45*	10.1	9.0	10.8	71.5	56.5	3.6		3.9		*92.31*		5.7	2.5	*43.86*	5.4	6.3	*85.71*	3.8
351299	13.5	*91.85*	*56.30*	10.0	9.0	10.0	68.0	59.5	3.45	3.45	3.9	3.9	*88.46*	*88.46*	5.1	2.1	*41.18*	5.6	6.7	*83.58*	3.5
351223	13.6	*98.53*	*59.56*	10.5	8.8	10.0	63.5	47.0		3.6		3.8		*94.74*	5.4	2.4	*44.44*	5.4	6.8	*79.41*	4.0
351240						10.8															
351224	13.2		*60.61*	10.1	9.0	10.2	67.5	57.0	3.35	3.4	3.8	3.8	*88.16*	*89.47*	5.6	2.4	*42.86*	5.3	6.1	*86.89*	3.65
351297	13.0	*99.23*	*56.15*	10.1	8.8	9.8	66.5	54.5	3.25	3.3	3.7	3.7	*87.84*	*89.19*	4.7	2.15	*45.74*	5.4	6.2	*87.10*	4.0
351287	14.1	*95.74*	*55.32*	9.9	8.7	9.9	66.5	55.5	3.5	3.55	4.1	3.8	*85.37*	*93.42*	5.2	2.45	*47.12*	5.7	6.8	*83.82*	3.9
351333	14.8				9.2	10.5			3.55	3.65	4.1	4.1	*86.59*	*89.02*	5.4	2.95	*54.63*				3.8
351328	14.1	*94.33*	*56.03*	10.6	9.1	10.0	63.5	52.5	3.25	3.25	3.8	3.8	*85.53*	*85.53*	4.95	2.3	*46.46*	5.8	6.6	*87.88*	4.0
351212	15.0	*86.67*	*50.67*	10.3	9.4	10.8	72.5	59.0	3.75	3.75	4.4	4.25	*85.23*	*88.24*	5.55	2.8	*50.45*	5.5	6.8	*80.88*	3.5
351295 (small ♂)	14.4				9.2	10.8			3.5		4.2		*83.33*		5.45	2.4	*44.04*				3.6
351239	13.9	*86.33*	*51.08*	9.6	8.7	9.9	71.0	57.5	3.35	3.45	4.0	3.9	*83.75*	*88.46*	5.15	2.5	*48.54*	5.0	6.5	*76.92*	3.3
351226	13.8				9.2	10.2				3.45		3.95		*87.34*	5.3	2.85	*53.77*				3.65
Specimens	(25)	*(20)*	*(20)*	(19)	(25)	(27)	(19)	(19)	(23)	(23)	(23)	(23)	*(23)*	*(23)*	(26)	(26)	*(26)*	(21)	(21)	*(21)*	(26)
Totals	347.8			196.3	229.4	283.0	1,297.0	1,066.0	80.85	81.65	92.45	90.85			139.55	63.80		116.6	139.7		99.10
Averages	13.91	*94.43*	*56.24*	10.33	9.18	10.48	68.26	56.11	3.52	3.55	4.02	3.95	*87.45*	*89.87*	5.37	2.45	*45.72*	5.55	6.65	*83.46*	3.81
Minima	13.0	*86.33*	*50.67*	9.6	8.6	9.8	63.50	47.00	3.2	3.25	3.7	3.7	*82.05*	*82.56*	4.7	2.1	*39.29*	5.0	6.1	*76.92*	3.3
Maxima	15.0	*102.2*	*60.61*	11.0	9.9	12.4	72.50	60.50	3.9	3.9	4.4	4.3	*92.86*	*101.3*	5.75	2.95	*54.63*	6.0	7.3	*87.88*	4.3

[1] Allowance made for wear of teeth.

KUSKOKWIM RIVER: FEMALES

(Upper River, Above Bethel)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Naison Height (b)
351330	(*A.H.* U.S.N.M.	Old Bethel	65		17.7	12.7	13.0	*71.75*	*85.53*		14.47			12.2	7.1
351248	do	Georgetown	55		18.3	13.3	13.4	*72.68*	*84.81*		15.0				
351337	do	Old Bethel	75		17.9	13.2	13.3	*73.74*	*85.53*		14.80				
351326	do	do	60		17.6	13.0	13.6	*73.86*	*88.89*		14.73				
351301	do	Napaimute	60		17.5	13.0	12.6	*74.29*	*82.62*		14.37				
351320	do	Kwichak	60		17.6	13.2	13.0	*75.00*	*84.42*		14.60			12.4	7.3
351308	do	Kwishluk	40		18.2	13.8	13.6	*75.82*	*85.00*		15.20			12.0	7.3
351324	do	Old Bethel	27		17.6	13.4	13.0	*76.14*	*83.87*		14.67			11.6	7.1
351288	do	Naparmute	55		17.2	13.1	12.8	*76.16*	*84.49*		14.37			12.1	7.0
351227	do	Kushogamute	65		16.8	12.8	11.9	*76.19*	*80.41*		13.83				
351225	do	do	50		17.8	13.6	13.2	*76.40*	*84.08*		14.87			12.3	7.6
351294	do	Kwishluk	50		17.4	13.3	12.7	*76.44*	*82.74*		14.47				6.7
351293	do	Napaimute	40		17.0	13.0	12.4	*76.47*	*82.67*		14.13			12.3	7.2
351238	do	Bogus Creek	45		17.5	13.4	12.9	*76.57*	*83.50*		14.60			11.7	6.9
351216	do	Kushogamute	60		17.7	13.6	12.6	*76.84*	*80.51*		14.63			11.2	6.8
351236	do	Bogus Creek	50		18.3	14.1	13.4	*77.05*	*82.72*		15.27			12.0	7.3
351300	do	Napaimute	60		16.8	13.0	12.6	*77.38*	*84.56*		14.13				
351336	do	Old Bethel	65		16.8	13.0	13.0	*77.38*	*87.25*		14.27			11.9	6.9
351331	do	do	55		17.3	13.5	12.3	*78.03*	*79.87*		14.37			11.6	7.1
351218	do	Kuskogamute	50		17.3	13.5	12.2	*78.03*	*79.22*		14.33			11.4	6.6
351221	do	do	70		17.9	14.0	12.7	*78.21*	*79.62*		14.87				6.6
351307	do	Kwishluk	70		17.2	13.5	13.2	*78.49*	*85.99*		14.63				
351306	do	do	70		17.3	13.6	13.0	*78.61*	*84.14*		14.63				
351283	do	Napamute	60		17.3	13.6	12.7	*78.61*	*82.20*		14.53			12.0	7.1
351334	do	Old Bethel	60		17.6	13.9	13.0	*78.98*	*82.54*		14.83			12.5	7.4
351298	do	Kwishluk	55		17.2	13.6	13.0	*79.07*	*84.42*		14.60			12.2	7.3
351335	do	Old Bethel	60		17.3	13.7	12.6	*79.19*	*81.29*		14.53			12.6	7.3
351242	do	Bogus Creek	70		17.9	14.2	13.0	*79.33*	*81.0*		15.03				
351213	do	Okakamute	45		18.1	14.4	12.6	*79.56*	*77.54*		15.03			12.2	7.1
351237	do	Bogus Creek	40		17.2	13.8	11.6	*80.23*	*74.84*		14.20			11.0	6.5
351211	do	Okakamute	50		17.0	13.7	13.2	*80.59*	*85.99*		14.63			12.2	7.7
351234	do	Kuskogamute	60		17.0	13.8	13.3	*81.18*	*86.36*		14.70				

[1] Allowance made for wear of teeth, where needed.

351244	do	Bogus Creek	70		16.9	13.8	12.8	81.66	83.39		14.50				
351214	do	Okahamute	70		17.2	14.1	12.2	81.98	77.96		14.50				
351245	do	Bogus Creek	60		17.1	14.1	13.1	82.46	83.97		14.77			12.0	7.4
351341	do	Old Bethel	75		16.2	13.4	11.9	82.72	80.41		13.83				
Specimens			(36)		(36)	(36)	(36)	(36)	(36)		(36)			(21)	(23)
Totals			2,072		626.7	486.7	461.4				524.92			251.4	163.3
Averages			57.6		17.41	13.52	12.82	77.66	82.88		14.58			11.97	7.10
Minima			27		16.2	12.7	11.6	71.75	74.84		13.83			11.0	6.5
Maxima			75		18.3	14.1	13.6	82.72	88.89		15.27			12.6	7.7

Catalog No.	Diam. Bizygomatic maxim. (c)	Facial Index, total $\left(\frac{a \times 100}{c}\right)$	Facial Index, upper $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	Orbital Index, right	Orbital Index, left	Nose—Height	Nose—Breadth, maxim.	Nasal Index	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	Upper Alveolar Arch—Index	Lower Jaw—Height at Symphysis
351330	13.1	93.13	54.20	10.8	9.6	10.3	67.0	54.5		3.3		3.9		84.62	4.75	2.5	52.63	5.9	6.2	95.16	3.3
351243	13.7					10.4															3.7
351337	12.7				8.4	9.6			3.7	3.6	4.05	3.95	91.36	91.14	4.7	2.45	52.13				3.9
351326	13.5				9.2	10.6			3.7	3.7	4.3	4.1	86.05	90.24	5.35	2.45	45.79	5.5	6.8	80.88	3.7
351301	12.6					10.1			3.4		4.2		80.95								3.1
351320	12.7	97.64	58.46	9.1	8.0	9.5	70.0	56.0	3.35	3.5	3.95	3.8	84.81	92.11	5.0	2.15	43.00	5.0	5.6	89.29	3.8
351308	13.1	91.60	55.73	9.5	8.6	9.8	70.0	60.0	3.65	3.65	4.2	4.1	86.90	89.02	5.05	2.4	47.52	5.0	6.3	79.37	3.1
351324				9.5	8.6	9.8												4.9	6.4	76.56	
351288	13.6	88.97	51.47	10.1	9.0	10.0	69.0	55.0	3.65	3.6	4.5	4.0	84.88	90.00	4.9	2.5	51.02	5.4	6.6	81.82	3.2
351227					8.4	9.4				3.65		3.9		93.59	5.0	2.5	50.00				3.2
351225	12.7	96.85	47.83	10.4	9.0	10.4	69.0	50.5	3.4	3.5	3.75	3.75	90.67	93.33	5.3	2.3	43.40	5.5	5.9	93.22	3.35
351294	12.9		51.94	9.5	8.5	9.4	68.5	57.0	3.55	3.6	3.9	3.7	91.03	97.30	4.5	2.15	47.78	4.9	5.6	87.50	
351293	12.5	98.40	57.60	10.0	8.8	9.6	65.5	54.0	3.55	3.6	4.00	3.8	88.75	94.74	4.9	2.35	47.96	5.2	6.4	81.25	3.5
351239	12.2	95.90	56.56	9.1	7.9	9.0	67.0	57.5		3.35		3.6		93.06	4.7	2.15	45.74	5.0	6.1	81.97	3.3
351216	13.6	82.35	50.00	10.3	9.0	9.8	66.5	43.0		3.8		3.8		100.00	5.1	2.3	45.10	5.0	5.7	87.72	2.8
351236	12.7	94.49	57.48	10.1	8.5	10.0	68.0	41.5		3.5		3.7		94.59	5.3	2.65	50.00	5.3	6.5	81.54	3.1
351300				9.1	8.0	9.0			3.45	3.45	3.9	3.9	88.46	88.46	4.8	2.6	54.17	5.00	6.1	81.97	3.5
351336	13.1	90.84	52.67	10.2	9.1	9.9	67.5	51.0	3.5	3.55	4.2	4.0	88.33	88.75	5.05	2.3	45.54	5.5	6.1	90.16	3.4
351331	13.3	87.22	53.38	10.3	9.0	10.0	67.0	50.0	3.4	3.5	3.9	3.85	87.18	90.91	5.0	2.3	46.00	5.6	5.9	94.92	3.45
351218	13.1	87.02	50.38	9.8	8.6	9.6	68.0	49.0	3.4	3.4	3.9	3.85	87.18	88.31	4.7	2.45	52.13	5.4	6.2	87.10	3.2
351221	13.8		47.83	10.4	9.2	10.4	71.5	48.5	3.25	3.2	3.75	3.8	86.67	84.21	4.8	2.45	51.04	5.7	6.3	90.48	3.55
351307	12.6				9.0	10.2				3.25		3.75		86.67	4.9	2.15	43.88				3.6
351306	13.0				9.0	9.8			3.55		4.1		86.59		4.9	2.7	55.10				3.5
351283	14.0	85.71	50.71		8.5	10.0				3.45		3.75		92.00							
351334	13.5	92.59	54.81	9.2	8.3	9.6	69.5	60.0	3.6	3.7	3.9	3.9	92.31	94.87	5.1	2.6	50.98	4.9	6.3	77.78	3.3
351298	13.1	93.13	55.73	9.6	8.2	9.3	65.0	50.0		3.35		3.9		85.90	4.8	2.4	50.0	5.5	5.8	94.83	3.45
351335	13.0	96.92	56.15	9.6	8.4	9.4	66.0	53.0	3.5	3.45	3.8	3.8	92.11	90.79	5.15	2.25	43.69	5.3	6.0	88.33	3.7

KUSKOKWIM RIVER: FEMALES—Continued

(Upper River, Above Bethel)

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
351242	14.2	----	----	----	9.0	10.4	----	----	3.4	3.5	4.1	4.0	*82.93*	*87.50*	5.35	2.6	*48.60*	----	----	----	3.7
351213	13.4	*91.04*	*52.99*	9.9	8.5	9.8	68.5	47.0	3.4	3.6	4.0	4.0	*85.00*	*90.00*	5.1	2.55	*50.00*	5.1	5.9	*86.44*	3.5
351237	12.6	*87.30*	*51.59*	----	----	9.0	----	----	----	3.35	----	3.45	----	*97.10*	4.45	2.3	*51.69*	5.0	5.7	*87.72*	3.0
351211	12.8	*95.31*	*60.16*	10.3	8.5	9.6	62.5	43.0	----	3.3	----	3.9	----	*84.62*	5.15	2.45	*47.57*	5.8	6.4	*90.63*	3.4
351234	13.2	----	----	----	9.0	10.2	----	----	3.5	3.55	4.1	3.95	*85.37*	*89.87*	5.0	2.6	*52.00*	----	----	----	3.4
351244	13.6	----	----	----	9.1	10.3	----	----	3.55	3.55	3.9	3.9	*91.03*	*91.03*	5.05	2.3	*45.54*	----	----	----	3.1
351214	13.3	----	----	----	----	9.7	----	----	3.45	3.45	4.1	4.0	*84.15*	*86.25*	4.95	2.2	*44.44*	----	----	----	3.7
351245	13.6	*88.24*	*54.41*	10.1	8.9	10.0	67.5	51.5	3.65	3.75	4.1	4.0	*89.02*	*93.75*	5.3	2.5	*47.17*	5.3	6.3	*84.13*	3.2
351341	12.7	----	----	----	----	9.2	----	----	3.4	----	3.9	----	*87.18*	----	----	----	----	----	----	----	3.8
Specimens	(33)	(20)	(22)	(22)	(31)	(36)	(20)	(20)	(24)	(31)	(24)	(31)	(24)	(31)	(31)	(31)	(31)	(24)	(24)	(24)	(33)
Totals	433.5	----	----	216.9	269.8	353.1	1,353.5	1,032.0	83.95	108.7	96.3	119.8	----	----	154.1	74.55	----	126.7	147.10	----	112.5
Averages	13.14	*91.63*	*54.16*	9.86	8.70	9.82	67.68	51.60	3.50	3.51	4.01	3.86	*87.18*	*90.73*	4.97	2.40	*48.38*	5.28	6.13	*86.13*	3.41
Minima	12.2	*82.35*	*47.83*	9.1	7.9	9.0	62.50	41.50	3.25	3.2	3.75	3.45	*80.95*	*84.21*	4.7	2.15	*43.0*	4.9	5.6	*76.56*	2.8
Maxima	14.0	*98.40*	*60.16*	10.8	9.6	10.6	71.50	60.0	3.7	3.8	4.3	4.1	*92.31*	*100.0*	5.35	2.7	*55.10*	5.9	6.8	*95.16*	3.9

KUSKOKWIM RIVER: MALES

(Whole Region)

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	Cranial Index	Mean Height Index	Height-Breadth Index	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
Lower River	(30) 1,520	(30) 543.9	(30) 426.1	(30) 405.0	(30)	(30)		(30) 458.34			(14) 179.5	(19) 147.7	(30) 426.2
Upper River	(27) 1,490	(27) 498.0	(27) 374.4	(27) 369.0	(27)	(27)		(27) 413.81			(20) 262.7	(20) 155.9	(25) 347.8
Totals	(57) 3,010	(57) 1,041.9	(57) 800.5	(57) 774.0	(57)	(57)		(57) 872.15			(34) 442.2	(39) 303.6	(55) 774.0
Averages	52.8	18.28	14.04	13.58	76.8	84.0		15.30			13.0	7.78	14.07

Locality	Facial Index, total $\left(\frac{a\times100}{c}\right)$	Facial Index, upper $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—length maxim.	Upper Alveolar Arch—breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
Lower River	(14) 1,271.1	(19) 1,039.3	(19) 192.6	(29) 259.1	(30) 306.4	(19) 1,291.0	(19) 1,036.5	(27) 95.95	(28) 99.8	(27) 108.9	(28) 111.4	(27)	(28)	(29) 157.85	(29) 69.65	(29)	(21) 114.7	(21) 138.3	(21)	(22) 82.2
Upper River	(20) 1,888.6	(20) 1,124.8	(19) 196.3	(25) 229.4	(27) 283.0	(19) 1,297.0	(19) 1,066.0	(23) 80.85	(23) 81.65	(23) 92.45	(23) 90.85	(23)	(23)	(26) 139.55	(26) 63.8	(26)	(21) 116.6	(21) 139.7	(21)	(26) 99.1
Totals	(34) 3,159.7	(39) 2,164.0	(38) 388.9	(54) 488.5	(57) 589.4	(38) 2,588.0	(38) 2,102.5	(50) 176.8	(51) 181.45	(50) 201.35	(51) 202.25	(50)	(51)	(55) 297.4	(55) 133.45	(55)	(42) 231.3	(42) 278.0	(42)	(48) 181.3
Averages	92.9	55.5	10.23	9.05	10.34	68.1	55.3	3.54	3.56	4.03	3.97	87.8	89.7	5.41	2.43	44.9	5.51	6.62	83.2	3.78

KUSKOKWIM RIVER: FEMALES
(Whole Region)

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	Cranial Index	Mean Height Index	Height-Breadth Index	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
Lower River	(21)	(21)	(21)	(20)	(21)	(20)	------	(20)	------	------	(10)	(14)	(16)
	988	364.5	289.2	255.6	------	1,645.4	------	292.32	------	------	117.9	100.1	210.7
Upper River	(36)	(36)	(36)	(36)	(36)	(36)	------	(36)	------	------	(21)	(23)	(33)
	2,072	626.7	486.7	461.4	------	2,983.7	------	524.92	------	------	251.4	163.3	433.5
Totals	(57)	(57)	(57)	(56)	(57)	(56)	------	(56)	------	------	(31)	(37)	(49)
	3,060	991.2	775.9	717.0	------	4,629.1	------	817.24	------	------	369.3	263.4	644.2
Averages	53.7	17.39	13.61	12.80	78.3	82.7	------	14.59	------	------	11.91	7.12	13.15

Locality	Facial Index, total $\left(\frac{a\times100}{c}\right)$	Facial Index, upper $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—length maxim.	Upper Alveolar Arch—breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
Lower River	(10)	(13)	(14)	(17)	(20)	(14)	(14)	(12)	(17)	(12)	(17)	(12)	(17)	(17)	(17)	(17)	(13)	(13)	(13)	(11)
	895.2	708.9	136.6	145.9	194.0	947.0	726.0	41.85	59.35	47.6	66.0	------	------	85.3	41.25	------	67.8	80.9	------	36.3
Upper River	(20)	(22)	(22)	(31)	(36)	(20)	(20)	(24)	(31)	(24)	(31)	(24)	(31)	(31)	(31)	(31)	(24)	(24)	(24)	(33)
	1,832.6	1,191.5	216.9	269.8	353.1	1,353.5	1,032.0	83.95	108.7	96.3	119.8	------	------	154.1	74.55	------	126.7	147.1	------	112.5
Totals	(30)	(35)	(36)	(48)	(56)	(34)	(34)	(36)	(48)	(36)	(48)	(36)	(38)	(48)	(48)	(48)	(37)	(37)	(37)	(43)
	2,727.8	1,900.4	353.5	415.7	547.1	2,300.5	1,758.0	125.8	168.05	143.9	185.8	------	------	239.4	115.8	------	194.5	228.0	------	148.8
Averages	90.9	54.3	9.82	8.66	9.77	67.7	51.7	3.49	3.50	4.0	3.87	87.4	90.4	4.99	2.41	48.4	5.26	6.16	85.3	3.46

LOWER YUKON RIVER: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
342072	(*A. H.*) U.S.N.M.	Bonasila	55		18.6	13.9	14.1	*74.7*	*86.8*		15.53	1,555			7.9
345347	do	Paimute	50		18.0	14.4	14.3	*80.0*	*88.27*		15.57			12.2	7.5
351346	do	Russian Mission	23		18.1	14.2	13.9	*78.45*	*86.07*		15.40				7.6
345334	do	Ingrehak	65		18.8	14.0	14.1	*74.47*	*85.98*		15.63				
345745	do	do	30		17.7	13.8	13.3	*77.97*	*84.44*		14.93			11.7	7.4
345738	do	Old Andreieoski	35		17.5	14.0	13.0	*80.0*	*82.54*		14.83			11.7	7.3
345317	do	Pilot Station	50	Asymmetry	18.2	13.6	13.8	*74.73*	*86.79*		15.20			12.0	7.5
345346	do	do	40	do	18.0	13.5	14.2	*75.0*	*90.16*		15.23			12.2	7.8
345724	do	do	55		18.4	14.4	14.2	*78.26*	*86.59*		15.67			12.4	7.4
341215	do	do	60	Asymmetry	19.2	15.2	13.6	*79.2*	*79.1*		16.0	1,695		12.3	7.7
341213	do	do	65	Slight asymmetry.	19.0	15.2	14.1	*80.0*	*82.4*		16.10	1,680			
341214	do	do	40	do	18.5	14.8	13.6	*80.0*	*81.7*		15.63	1,605		12.5	8.0
345400 (small ♂)	do	do	50		17.0	13.4	14.0	*78.82*	*92.11*		14.80			12.1	7.3
345348	do		45		17.9	14.2	13.6	*79.33*	*84.74*		15.23			12.7	7.7
345701	do	New and Old Hamilton	30		18.9	14.0	14.5	*74.07*	*88.15*		15.80			13.6	8.4
345746	do	do	35		18.8	14.0	13.9	*74.47*	*84.76*		15.57			13.6	8.4
345302	do	do	30		18.6	14.2	13.2	*76.34*	*80.49*		15.33			13.1	8.2
345308	do	do	65		18.2	14.2	14.2	*78.02*	*87.65*		15.53			12.7	8.0
345303	do	do	35		18.2	14.3	13.0	*78.57*	*80.0*		15.17			13.6	8.4
345305	do	do	45		17.5	13.9	14.0	*79.43*	*89.17*		15.13			12.5	7.5
345321	do	do	70		17.4	14.1	13.1	*81.03*	*83.17*		14.87			12.2	7.7
332556	do	Pastolik	Adult		18.8	13.5	13.5	*71.8*	*83.3*		15.27	1,435		13.2	8.4
332536	do	do	do		18.5	13.4	13.3	*72.4*	*83.1*		15.07	1,455			
332537	do	do	do		18.7	13.6	14.0	*72.7*	*86.4*		15.43	1,530		12.2	7.5
332544	do	do	do		18.4	13.5	14.1	*73.4*	*88.1*		15.33	1,465		12.4	7.4
332546	do	do	do		18.6	13.7	13.4	*73.7*	*82.7*		15.23	1,520		12.9	7.8
332539	do	do	do		18.6	13.8	13.4	*74.2*	*82.7*		15.27	1,500			7.7
332527	do	do	do		18.3	13.6	13.2	*74.3*	*82.5*		15.03	1,390			
332534	do	do	do		18.5	14.2	13.7	*76.8*	*83.5*		15.47	1,555		12.6	7.8
332535	do	do	do		17.7	14.0	13.3	*79.1*	*84.2*		15.0	1,395		12.6	7.7
332551	do	do	do		18.5	14.8	13.6	*80.0*	*81.9*		15.63	1,500			8.0
332553	do	do	do		18.2	14.8	14.1	*81.3*	*85.4*		15.70	1,600		12.8	7.7
345739	do	Kwiguk Pass	70		18.8	13.7	14.5	*72.87*	*89.23*		15.67			12.4	7.5

[1] Allowance made for wear of teeth, where needed.

LOWER YUKON RIVER: MALES—Continued

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a) [1]	Alveol. Pt.-Nasion Height (b)
345707	(A.H.) U.S.N.M.	Kwiguk Pass	60		18.0	13.5	13.5	*75.0*	*85.71*		15.0				
345388	do	Lowest Yukon	65		18.2	13.8	14.4	*75.82*	*90.0*		15.47				
345730	do	Kwiguk Pass	65		17.2	13.7	13.6	*79.65*	*88.03*		14.83			11.3	7.2
345394	do	Lowest Yukon	24	Asymmetry	17.8	14.2	13.2	*79.78*	*82.50*		15.07			11.9	7.2
345736	do	Kwiguk Pass	22		17.9	14.3	13.0	*79.89*	*80.75*		15.07			11.7	7.0
242828	do	Lower Yukon	60		18.8	14.2	13.7	*75.5*	*83.0*		15.57	1,535			7.1
339798	do	Kashunak, mid-mouth of Yukon.	50		18.4	14.0	13.7	*76.1*	*84.6*		15.37	1,425			8.5
339799	do		20		18.5	14.2	13.5	*76.8*	*83.2*		15.43	1,510			8.0
Specimens			(30)		(41)	(41)	(41)	(41)	(41)		(41)	(18)		(28)	(35)
Totals			1,409		748.9	575.8	562.4				629.0	27,350		349.1	270.2
Averages			47.0		18.27	14.04	13.72	*76.9*	*84.9*		15.34	1,520		12.46	7.72
Minima			20		17.0	13.4	13.0	*71.8*	*79.1*		14.80	1,390		11.3	7.0
Maxima			70		19.2	15.2	14.5	*81.3*	*92.1*		16.10	1,695		13.6	8.5

	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Aleolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
342072	14.1		*56.0*	10.0	8.7	10.4	70.0	53.0	3.65	3.75	4.2	4.2	*86.9*	*89.3*	5.5	2.3	*41.8*	5.6	6.5	*86.2*	
345347	13.6	*89.71*	*55.15*	10.6	9.6	10.7	70.0	56.5		3.7		3.9		*94.87*	5.5	2.3	*41.82*	5.3	6.3	*84.13*	3.6
351346	13.1		*58.02*	9.7	8.6	10.1	70.0	55.0	3.55	3.45	3.9	3.8	*91.03*	*90.79*	5.3	2.1	*39.62*	5.1	6.1	*83.61*	
345334	14.1				9.2	10.0			3.6	3.5	4.1	4.1	*87.80*	*85.37*	4.8	2.3	*47.92*				3.5
345745	13.9	*84.17*	*53.24*	9.9	8.8	10.1	69.5	52.5	3.55	3.65	4.2	4.0	*84.52*	*91.25*	5.45	2.2	*40.37*	5.3	6.5	*81.54*	3.3

345738	13.8	84.78	52.90	9.5	8.5	9.9	70.0	54.5	3.55	3.65	3.95	3.9	89.87	93.59	5.0	2.3	46.0	5.5	6.4	85.94	3.6
345317	14.4	83.33	52.08	10.8	9.6	11.0	71.0	49.0	(3.1)	3.5	4.0	4.2	(77.50)	83.33	5.6	2.45	43.75	5.6	6.8	82.35	3.45
345346	14.0	87.14	55.71	10.9	9.8	10.7	67.5	54.0	3.6	3.55	3.95	3.9	91.14	91.03	5.75	2.1	36.52	5.9	6.9	85.51	3.6
345724	14.3	86.71	51.75	10.6	9.6	10.9	72.0	54.0	3.75	3.75	4.2	4.0	89.29	93.75	5.6	2.5	44.64	5.3	6.4	82.81	3.7
341215	15.2	80.9	50.6	11.0	9.8	11.0	69.5	52.5	3.5	3.6	4.1	4.1	85.4	87.8	5.6	2.7	48.2	5.9	7.5	78.7	3.7
341213	14.8	-------	-------	-------	9.0	9.4	-------	-------	3.45	3.4	4.1	4.2	84.1	81.0	5.0	2.5	50.0	-------	-------	-------	3.6
341214	14.9	83.9	53.7	9.7	8.4	10.4	71.0	54.0	3.7	3.75	4.0	3.9	92.5	96.2	5.5	2.5	45.4	5.5	7.3	75.3	3.6
345400 (small ♂)	14.0	86.43	52.14	10.1	9.2	10.6	73.0	60.0	-------	3.6	-------	3.8	-------	94.74	5.1	2.3	45.10	5.2	6.4	81.25	3.55
345348	14.2	89.44	54.23	10.2	8.9	10.2	67.5	48.0	3.9	3.8	4.15	4.05	93.98	93.83	5.65	2.4	42.48	5.6	6.2	90.32	3.7
345701	14.3	95.11	58.74	10.9	9.7	10.8	66.5	59.5	3.6	3.7	3.85	3.85	93.51	96.10	5.3	2.4	45.28	5.9	6.8	86.76	4.25
345746	14.0	97.14	60.0	11.4	10.3	11.3	67.5	60.0	3.7	3.7	4.2	4.1	88.10	90.24	5.65	2.45	43.36	5.9	7.0	84.29	4.1
345302	13.8	94.93	59.42	11.3	10.1	10.8	65.0	56.5	3.7	3.65	4.0	3.9	92.50	93.59	5.6	2.25	40.18	5.7	7.2	79.17	3.9
345308	14.3	88.81	55.94	9.5	8.4	10.2	71.0	56.0	4.0	3.9	4.1	4.1	97.56	96.12	5.6	2.4	42.86	5.4	6.2	87.10	4.1
345303	14.4	94.44	58.33	10.6	9.4	10.5	66.0	56.0	3.65	3.65	4.1	4.1	89.02	89.02	5.75	2.2	38.26	6.0	6.8	88.24	4.3
345305	13.6	91.91	55.15	9.6	8.6	10.2	72.5	59.0	3.85	3.8	4.05	3.9	95.06	97.44	5.2	2.1	40.38	5.4	6.1	88.52	3.6
345321	14.0	87.14	55.0	10.8	9.6	10.4	66.0	55.0	3.45	3.3	3.7	3.9	93.24	84.62	5.4	2.4	44.44	5.7	6.9	82.61	3.6
332556	14.4	91.7	58.3	-------	9.5	10.4	-------	-------	3.5	3.4	3.7	3.8	94.6	89.5	6.1	2.75	45.1	-------	-------	-------	3.5
332536	-------	-------	-------	-------	8.6	9.9	-------	-------	3.5	3.4	3.95	3.95	88.6	86.1	5.35	2.4	44.9	-------	-------	-------	3.7
332537	14.0	87.1	53.6	10.6	9.7	11.1	73.5	61.5	4.05	4.05	4.3	4.3	94.2	94.2	5.15	2.6	50.5	5.6	6.3	88.9	3.5
332544	13.6	91.2	54.4	10.3	9.2	10.5	70.5	56.5	3.45	3.65	3.9	3.8	88.5	96.0	5.1	2.4	47.1	5.6	6.7	83.6	3.8
332546	14.5	89.0	53.8	10.0	8.8	10.2	68.5	54.0	-------	3.85	-------	4.05	-------	95.1	5.5	2.45	44.5	5.5	6.5	84.6	4.0
332539	14.1	-------	54.7	11.2	9.7	10.5	64.5	47.0	3.5	3.55	4.0	4.0	87.5	88.8	5.4	2.55	47.2	5.7	7.2	79.2	4.0
332527	-------	-------	-------	-------	-------	10.5	-------	-------	3.8	3.8	4.05	4.05	93.8	93.8	5.75	2.35	40.9	-------	-------	-------	4.0
332534	13.7	92.0	56.9	10.4	9.3	10.6	69.5	58.0	3.55	3.55	3.9	3.9	91.0	91.0	5.25	2.2	41.9	5.6	6.6	84.8	3.5
332535	13.8	91.3	55.8	10.2	9.0	10.1	67.0	55.0	3.45	3.55	3.7	3.75	93.2	94.7	5.3	2.6	49.1	5.6	7.1	78.9	3.8
332551	14.7	-------	54.4	-------	8.8	10.2	-------	-------	3.9	3.9	4.0	4.0	97.5	97.5	5.6	2.75	49.1	-------	-------	-------	3.7
332553	14.4	88.9	53.5	10.1	9.1	10.5	71.0	59.5	3.8	3.9	4.2	4.2	90.5	92.9	5.3	2.55	48.1	5.4	6.5	83.1	3.8
345739	13.8	89.86	54.35	10.0	9.4	10.6	73.0	66.5	3.55	3.55	4.1	4.1	86.59	86.59	5.6	2.5	44.64	5.2	6.7	77.61	3.6
345707	-------	-------	-------	-------	9.2	10.7	-------	-------	3.55	3.55	3.95	4.0	89.87	88.75	5.25	2.55	48.57	-------	-------	-------	-------
345388	13.9	-------	-------	-------	9.2	10.8	-------	-------	3.4	3.6	4.1	4.1	82.93	87.80	5.35	2.6	48.60	-------	-------	-------	3.55
345730	13.1	86.26	54.96	10.0	8.9	10.6	74.5	52.0	3.85	-------	4.1	-------	93.90	-------	5.35	2.35	43.93	-------	-------	-------	3.4
345394	13.8	86.23	52.17	10.0	8.8	10.2	71.0	49.0	3.55	3.6	4.0	3.8	88.75	94.74	5.35	2.5	46.73	4.9	6.6	74.24	3.3
345736	13.8	84.78	50.72	9.5	8.7	10.2	75.0	60.0	3.8	3.9	4.0	3.95	95.0	98.73	5.15	2.25	43.69	5.1	6.5	78.46	3.2
242828	14.4	-------	49.3	10.3	9.4	10.8	74.0	60.0	-------	3.55	-------	4.0	-------	88.7	5.05	2.15	42.6	5.4	6.6	81.8	-------
339798	15.0	-------	56.7	10.2	9.0	10.3	66.5	56.5	3.85	3.85	4.0	4.0	96.2	96.2	5.9	2.3	39.0	5.4	6.9	78.3	-------
339799	13.5	-------	59.2	10.1	9.2	10.0	66.0	63.0	3.75	3.75	3.9	3.75	96.2	100.0	5.4	2.25	41.7	5.4	6.4	84.4	-------
Specimens	(38)	(28)	(35)	(33)	(40)	(41)	(33)	(33)	(37)	(40)	(37)	(40)	(37)	(40)	(41)	(41)	(41)	(32)	(32)	(32)	(35)
Totals	535.3	-------	-------	340.0	367.3	428.3	2,300.01	843.5	134.65	146.3	148.7	159.4	-------	-------	222.05	98.2	-------	176.2	212.9	-------	129.1
Averages	14.09	88.7	54.9	10.30	9.18	10.45	69.7	55.9	3.69	3.66	4.02	3.99	90.6	91.8	5.42	2.40	44.2	5.51	6.65	82.8	3.69
Minima	13.1	80.9	49.3	9.5	8.4	9.4	65.0	48.0	3.4	3.3	3.7	3.75	82.9	81.0	4.8	2.1	36.5	4.9	6.1	74.2	3.2
Maxima	15.2	97.1	60.0	11.4	10.3	11.3	75.0	66.5	4.05	4.05	4.3	4.3	97.6	100.0	6.1	2.75	50.5	6.0	7.5	90.3	4.3

[1] Allowance made for wear of teeth, where needed.

LOWER YUKON RIVER: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
345337	(A. H.) U.S.N.M.	Paimute	50		18.2	13.1	13.4	71.98	85.62		14.90			12.1	7.8
345330	do	do	35		17.8	13.1	13.5	73.60	87.38		14.80			12.1	7.5
345349	do	do	35		17.2	13.1	12.9	76.16	85.15		14.40				
345397	do	do	30		17.0	13.2	13.1	77.65	86.75		14.43			11.0	6.7
345373	do	do	65		17.1	13.6	12.3	79.53	80.13		14.33			11.5	7.1
345333	do	do	35		17.2	13.7	12.9	79.65	83.50		14.60			12.3	7.6
345355	do	do	50	Moderate occipital flattening.	(16.9)	(13.9)	(13.9)	(82.25)	(90.26)		14.90			11.1	6.7
345338	do	do	30		16.6	13.9	12.4	83.73	81.31		14.30			11.9	7.1
363911	do	Russian Mission	45		18.0	13.2	13.2	73.33	84.62		14.80				
345741	do	Ingrehak	65		17.4	13.0	13.5	74.71	88.82		14.77				
345396	do	do	65		17.5	13.1	13.2	74.86	86.27		14.60			11.9	
345385	do	do	55		17.6	13.6	13.0	77.27	83.33		14.73			11.5	7.2
345343	do	do	45		17.6	13.8	12.4	78.41	78.98		14.60			11.9	7.1
345735	do	do	20		17.2	13.5	12.9	78.49	84.04		14.53			11.3	7.0
345395	do	do	50		17.0	14.0	14.1	82.35	90.97		15.03			11.6	7.0
345703	do	Andreievski	25		17.2	14.5	12.8	84.30	80.76		14.83			11.3	6.8
345311	do	Pilot Station	45		18.1	13.7	13.1	75.69	82.39		14.97		Medium	12.0	7.9
345324	do	do	70		16.7	12.8	12.4	76.65	84.07		13.97				
345715	do	do	40	Small asymmetry	17.4	13.5	13.0	77.59	84.14		14.63		Medium	11.6	7.4
345318	do	do	40		16.8	13.1	13.0	77.98	86.96		14.30		Medium	11.5	6.8
341217	do	do	30		17.7	13.8	13.0	78.0	82.5		14.83	1,460	Slight	12.3	7.7
341218	do	do	40		17.9	14.0	13.4	78.2	84.0		15.10	1,465	Slight		7.2
345323	do	do	60		17.4	13.7	13.6	78.74	87.46		14.90		Considerable.		
345710	do	do	25		17.0	13.4	12.8	78.82	84.21		14.40			11.7	7.6
345357	do	do	22	Asymmetry	17.3	13.8	13.7	79.77	88.10		14.93			12.0	7.6
341216	do	do	40		17.8	14.2	13.2	79.8	82.5		15.07	1,400	Slight to medium.	11.5	7.3
345310	do	do	40		17.0	13.9	13.3	81.76	86.08		14.73		Moderate.	11.6	7.2

345727	do	do	50		16.9	13.9	12.7	*82.25*	*82.47*		14.50		Medium	11.0	7.0
345705	do	do	60		17.0	14.2	13.8	*83.53*	*88.46*		15.0		Considerable.		
345322	do	do	60		17.0	14.6	12.8	*85.88*	*81.01*		14.80				
345300	do	Old and New Hamilton	35		18.2	13.1	13.1	*71.98*	*83.71*		14.80			11.3	7.6
345751	do	do	30		18.20	13.5	13.6	*74.18*	*85.80*		15.10			12.0	7.6
345304	do	do	60	Asymmetry	18.0	13.4	14.0	*74.44*	*89.17*		15.13			11.6	7.1
345306	do	do	24		17.4	13.4	12.7	*77.01*	*82.47*		14.50			11.0	6.9
345307	do	do	30		17.4	13.5	13.0	*77.59*	*84.14*		14.63			11.7	7.5
345704	do	do	26		17.6	13.8	12.6	*78.41*	*80.25*		14.67			11.6	7.2
345742	do	do	65		17.1	13.5	12.8	*78.95*	*83.66*		14.47			11.0	6.9
345309	do	do	60		17.7	14.0	13.3	*79.10*	*83.91*		15.0			11.9	7.2
345301	do	do	45		17.7	14.5	13.5	*81.92*	*83.85*		15.23			11.9	7.7
332555	do	Pastolik	Adult		18.5	13.0	13.3	*70.3*	*84.2*		14.93	1,420			7.9
332538	do	do	do		18.4	13.0	13.5	*70.6*	*86.0*		14.97	1,390		11.8	7.3
332528	do	do	do		18.2	13.2	13.0	*72.5*	*82.8*		14.80	1,375		11.9	7.5
332541	do	do	do		18.2	13.5	12.9	*74.2*	*81.6*		14.87	1,440		11.6	7.5
332529	do	do	do		17.6	13.2	13.0	*75.0*	*84.4*		14.60	1,310		10.7	6.6
332532	do	do	do		17.8	13.4	12.9	*75.3*	*82.7*		14.70	1,300		12.7	8.2
332548	do	do	do		18.2	13.7	13.6	*75.3*	*85.0*		15.17	1,430		12.5	7.8
332540	do	do	do		18.2	13.8	12.9	*75.8*	*80.6*		14.97	1,390		12.4	7.8
332533	do	do	do		17.5	13.3	13.5	*76.0*	*87.7*		14.77	1,350		11.5	7.5
323547	do	do	do		17.7	13.5	12.9	*76.3*	*82.7*		14.70	1,270		12.2	7.7
332549	do	do	do		17.8	13.6	13.3	*76.4*	*84.7*		14.90	1,400		12.3	7.6
332543	do	do	do		17.8	13.9	12.4	*78.1*	*78.5*		14.70	1,370		11.7	7.5
332545	do	do	do		17.5	13.7	12.7	*78.3*	*81.4*		14.63	1,400		11.8	7.6
332550	do	do	do		16.6	13.3	12.8	*80.1*	*85.3*		14.23	1,240		11.4	7.0
332542	do	do	do		17.9	14.4	13.5	*80.4*	*83.3*		15.27	1,400			
332554	do	do	do		18.0	14.5	12.9	*80.6*	*79.6*		15.13	1,490		12.0	7.6
332552	do	do	do		17.0	14.0	13.3	*82.4*	*85.8*		14.77	1,345			
332531	do	do	do		16.1	13.5	12.3	*83.8*	*83.1*		13.97	1,140		10.6	6.7
345703	do	Andreievski	25		17.2	14.5	12.8	*84.30*	*80.76*		14.83			11.3	6.8
345315	do	Kwiguk Pass	70		17.5	13.3	13.2	*76.0*	*85.71*		14.67				
345721	do	do	30		17.1	13.2	12.4	*77.19*	*81.85*		14.23			11.4	7.0
345702	do	do	50		17.6	13.8	13.3	*78.41*	*84.71*		14.90			11.5	7.3
345390	do	do	70		16.8	13.3	12.6	*79.17*	*83.72*		14.23			11.3	7.2
345313	do	do	70		17.3	14.4	11.9	*83.24*	*75.08*		14.53				
339800	do	Kashunak, mouth of Yukon	60		18.7	13.9	12.4	*74.3*	*76.1*		15.0				
Specimens			(46)		(63)	(63)	(63)	*(63)*	(63)		(64)	(21)		(50)	(51)
Totals			2,072		1,103.1	858.6	821.3				942.68	28,785		583.3	373.1
Averages			45.0		17.51	13.63	13.04	*77.84*	*83.73*		14.73	1,371		11.67	7.32
Minima			20		16.10	12.8	11.9	*70.3*	*75.08*		13.97	1,140		10.6	6.6
Maxima			70		18.7	14.6	14.1	*85.88*	*90.97*		15.27	1,490		12.7	8.2

[1] Allowance made for wear of teeth, where needed.

LOWER YUKON RIVER: FEMALES—Continued

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
345337	12.3	98.37	63.41	10.7	9.2	10.0	63.0	48.5	3.4	3.4	3.8	3.9	89.47	87.18	5.3	2.55	48.11	5.9	6.3	93.65	3.6
345330	13.4	90.30	55.97	9.6	8.6	9.9	69.5	58.5	3.7	3.7	4.2	4.0	88.10	92.50	5.2	2.2	42.31	5.4	6.6	81.82	3.6
345349	12.8	--	--	--	--	9.9	--	--	--	3.15	--	3.8	--	82.89	--	--	--	--	--	--	3.65
345397	12.5	88.0	53.60	9.8	8.8	9.7	69.0	57.0	3.3	3.5	3.9	3.8	84.62	92.11	4.5	2.1	46.67	5.1	6.1	83.61	2.85
345373	12.7	90.55	55.91	10.2	9.0	9.8	67.0	51.5	--	3.4	--	3.6	--	94.44	5.0	2.35	47.0	5.3	6.0	88.33	3.65
345333	13.2	93.18	57.58	10.1	8.6	10.0	67.0	47.0	3.75	3.65	3.85	3.85	97.40	94.81	5.3	2.65	50.0	5.6	6.7	83.58	3.7
345355	13.3	83.46	50.38	10.3	9.2	10.3	71.0	50.0	3.6	3.5	3.7	3.7	97.30	94.59	5.0	2.5	50.0	5.3	6.2	85.48	2.95
345338	12.8	92.97	55.47	9.9	8.9	9.4	64.5	57.0	3.6	3.6	3.75	3.7	96.0	97.30	4.9	2.25	45.92	--	--	--	3.65
363911	12.7	--	--	--	9.0	10.4	--	--	--	3.4	--	4.0	--	85.0	5.25	2.4	45.71	--	--	--	--
345741	12.7				8.5	10.2			3.65	3.65	3.9	3.7	93.59	98.65	5.1	2.05	40.20				3.2
345396	13.5	88.15	--	--	9.2	10.2	--	--	3.35	3.3	3.7	3.5	90.54	94.29	4.95	2.3	46.46	--	--	--	3.7
345385	13.5	85.19	53.33	10.2	9.0	10.0	68.0	53.0	3.8	3.65	4.0	4.0	95.0	91.25	5.0	2.35	47.0	5.5	6.6	83.33	3.6
345343	13.0	91.54	54.62	10.4	9.0	10.3	69.0	47.0	3.5	3.5	3.8	3.9	92.11	89.74	5.0	2.3	46.0	5.4	6.2	87.10	3.7
345735	12.0	94.17	58.33	9.5	8.2	9.3	66.5	48.0	--	(3.8)	--	(3.5)	--	(108.6)	4.9	2.0	40.82	5.3	6.1	86.89	2.9
345395	13.5	85.93	51.85	10.1	9.2	10.1	70.0	58.5	3.6	3.6	4.0	3.9	90.0	92.31	5.0	2.3	46.0	5.1	6.8	75.0	3.6
345703	13.1	86.26	51.91	9.7	8.4	9.9	71.5	47.5	3.75	3.75	3.95	3.8	94.94	98.68	4.9	2.6	53.06	5.1	6.0	85.0	3.15
345311	13.2	90.91	59.85	9.9	9.1	10.0	67.5	65.0	3.85	3.9	3.85	3.8	100.0	102.6	5.1	2.55	50.0	5.5	6.4	85.94	3.6
345324	--	--	--	--	8.6	9.6	--	--	3.35	3.25	3.65	3.6	91.78	90.28	4.9	2.5	51.02	--	--	--	--
345715	12.9	89.92	57.36	9.6	8.2	9.3	65.0	49.0	3.5	--	3.85	--	90.91	--	5.1	2.05	40.20	5.2	6.3	82.54	3.35
345318	12.6	91.27	53.97	9.2	8.3	9.6	72.0	56.5	3.4	--	3.7	--	91.89	--	5.0	2.45	49.0	4.8	5.5	87.27	3.35
341217	12.9	95.3	59.7	10.4	8.7	9.8	63.5	45.0	3.7	3.65	3.9	3.95	94.9	92.4	5.2	2.5	48.1	5.6	6.5	86.2	4.0
341218	13.7	--	52.6	9.9	8.7	10.0	69.5	54.0	3.4	3.5	3.9	3.85	87.2	90.9	4.95	2.2	44.4	5.1	6.6	77.3	--
345323	--	--	--	--	--	10.1	--	--	(4.15)	3.9	(3.7)	4.1	(112.2)	95.12	5.4	2.5	46.30	--	--	--	--
345710	13.0	90.0	58.46	10.3	9.2	10.1	67.0	57.0	3.9	3.9	3.8	3.8	102.6	102.6	5.2	2.4	46.15	5.8	6.5	89.23	3.2
345357	13.1	91.60	58.02	10.3	9.2	10.2	67.5	57.5	3.8	3.8	3.9	3.75	97.44	101.3	5.1	2.15	42.16	5.5	6.3	87.30	3.6
341216	13.8	83.3	52.9	10.2	9.0	10.1	68.0	55.5	3.5	3.5	3.85	3.9	90.9	89.7	4.85	2.3	47.4	5.5	6.7	82.1	3.35
345310	13.4	86.57	53.73	10.2	8.9	10.2	69.5	51.0	3.4	3.45	3.7	3.65	91.89	94.52	4.95	2.3	46.46	5.3	6.2	85.48	3.6
345727	13.3	82.71	52.63	9.4	8.3	9.7	71.0	51.0	3.6	3.65	3.9	3.9	92.31	93.59	5.15	2.5	48.54	5.3	6.3	84.13	3.4
345705	13.5	--	--	--	8.6	10.0	--	--	--	3.6	--	3.9	--	92.31	5.3	2.4	45.28	--	--	--	--
345322	13.1	--	--	--	--	10.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
345300		86.26	58.02	10.6	9.4	10.6	69.0	50.5	3.9	3.9	4.0	4.1	97.50	95.12	5.6	2.55	45.54	5.8	6.5	89.23	2.9
345751	12.9	93.02	58.91	10.6	9.5	10.7	70.0	57.0	3.35	3.45	3.85	3.7	87.01	93.24	5.25	2.15	40.85	5.3	7.0	75.71	3.45

345304	14.0	82.86	50.71	10.4	9.4	10.4	70.0	54.0	3.4	3.65	3.9	3.9	87.18	93.59	5.2	2.65	50.96				3.15
345306	13.5	81.48	51.11	10.0	9.0	10.0	70.0	54.0	3.55	3.5	3.8	3.9	93.42	89.74	5.05	2.2	43.56	5.3	6.6	80.30	2.9
345307	12.8	91.41	58.59	10.4	9.6	10.4	69.0	64.0	3.8	3.85	3.8	3.85	100.0	100.00	5.15	2.2	42.72	5.4	6.3	85.71	3.6
345704	12.4	93.55	58.06	10.3	8.9	9.7	65.0	49.5	3.15	3.15	3.7	3.5	85.14	90.0	4.9	2.2	44.90	5.8	6.2	93.55	3.65
345742	13.5	81.48	51.11	10.1	9.3	10.4	73.0	54.0	3.6	3.7	4.2	4.1	85.71	90.24	5.6	2.6	46.43	5.3	6.6	80.30	2.9
345309	13.9	85.61	51.80	11.6	10.0	10.8	65.5	42.0	3.65	3.6	3.95	4.0	92.41	90.0	5.1	2.3	45.10	5.8	6.6	87.88	3.8
345301	13.5	88.15	57.04	10.3	9.3	10.1	67.0	58.5	3.2	3.25	4.0	3.9	80.0	83.33	5.4	2.55	47.22	5.7	6.9	82.61	3.9
332555	13.0		60.8	10.1	8.9	10.0	66.0	54.5	3.65	3.65	4.0	3.9	91.2	93.6	5.5	2.2	40.0	5.4	6.2	87.1	3.6
332538	12.8	92.2	57.0	11.0	9.7	10.8	69.0	51.0	3.2	3.15	3.9	3.9	82.0	80.8	5.15	2.3	44.7	5.8	6.6	87.9	3.8
332528	13.4	88.8	56.0	9.8	8.5	9.8	67.5	50.0	3.9	3.9	3.9	3.75	100.0	104.0	5.3	2.35	44.3				3.6
332541	13.1	88.6	57.2	10.2	9.2	9.9	66.0	59.5	3.4	3.4	3.7	3.6	91.9	94.4	5.1	2.4	47.1	5.5	6.1	90.2	3.6
332529	13.3	80.4	49.6	9.8	8.8	10.2	74.0	54.5	3.75	3.75	4.0	3.9	93.8	96.2	4.75	2.3	48.4	5.2	6.2	83.9	3.0
332532	12.8	99.2	64.1	10.7	9.4	10.3	64.5	55.5	3.65	3.65	4.0	4.0	91.2	91.2	5.35	2.3	43.0	5.9	6.4	92.2	4.0
332548	13.2	94.7	59.1	10.2	8.7	10.3	68.5	49.5	3.7	3.8	3.8	3.8	97.4	100.0	5.3	2.2	41.5	5.8	6.9	84.1	4.0
332540	13.5	91.8	57.8	10.7	9.2	10.3	65.5	48.5	3.75	3.85	4.1	3.95	91.5	97.5	5.4	2.55	47.2	5.6	6.5	86.2	3.8
322533	13.3	88.0	56.4	9.6	8.6	10.2	72.0	57.5	3.55	3.5	3.85	3.7	92.2	94.6	5.3	2.15	40.6	5.2	6.2	83.9	3.5
333547	14.4	84.7	53.5	10.6	9.0	9.9	63.5	46.0	3.75	3.75	4.0	3.95	93.8	94.9	5.3	2.35	44.3	5.7	6.9	82.6	3.5
332549	13.6	90.4	55.9	10.1	8.9	9.9	66.5	55.0	3.6	3.65	3.9	3.8	92.3	96.0	5.1	2.45	48.0	5.5	6.9	79.7	4.0
332543	13.6	86.0	55.2	9.9	8.4	9.3	63.0	47.5	3.4	3.45	3.8	3.7	89.5	93.2	5.1	2.35	46.1	5.6	6.1	91.8	3.2
332545	13.3	88.7	57.1	9.6	8.5	9.8	68.0	55.5	3.8	3.7	3.7	3.8	102.7	97.4	5.3	2.3	43.4	5.1	6.1	83.6	3.3
332550	12.5	91.2	56.0	9.8	8.6	9.6	67.5	50.0	3.5	3.55	3.65	3.7	95.9	95.9	5.0	2.0	40.0	5.3	6.5	81.5	3.35
332542					8.7	10.3			3.6		4.2		85.7		5.0	2.2	44.0				
332554	13.5	88.9	56.3	9.6	8.4	9.5	66.0	55.0	3.5	3.5	3.8	3.8	92.1	92.1	5.05	2.3	45.6	5.2	5.9	87.4	3.6
332552					8.5	9.8			3.8		4.1		92.7		5.45	2.6	47.7				3.6
332531	12.9	82.2	51.9	9.8	8.8	9.8	70.0	52.0	3.6	3.6	3.75	3.75	96.0	96.0	4.95	2.3	46.5	5.0	6.2	80.6	3.1
315703	13.1	86.26	51.91	9.7	8.4	9.9	71.5	47.5	3.75	3.75	3.95	3.8	94.94	98.68	4.9	2.6	53.06	5.1	6.0	85.0	3.15
345315	12.8				8.3	9.7			3.6	3.6	3.8	3.7	94.74	97.30	5.0	2.45	49.0				3.1
345721	12.6	90.48	55.56	10.4	9.2	9.8	65.0	51.5	3.75	3.9	3.9	3.8	96.15	102.6	4.9	2.5	51.02	5.4	6.3	85.71	3.2
345702	13.2	87.12	55.30	9.9	8.5	9.7	67.0	49.0	3.5	3.6	3.8	3.8	92.11	94.74	5.0	2.4	48.0	5.5	6.3	87.30	3.55
345390	12.8	88.28	56.25	10.1	8.9	9.7	65.5	55.0	3.5		3.85		90.91		4.75	2.4	50.53	5.4	6.2	87.10	3.85
345313	13.6				9.3	10.2			3.35	3.25	3.7	3.7	90.54	87.84	5.0	2.6	52.0				
339800	13.9				8.9	10.2			3.5		3.8		92.1		5.5	2.45	44.5				
Specimens	(59)	(50)	(51)	(51)	(61)	(64)	(51)	(51)	(57)	(56)	(57)	(56)	(57)	(56)	(62)	(62)	(62)	(48)	(48)	(48)	(55)
Totals	776.2			515.8	542.3	610.1	3,461.5	2,693.0	204.05	200.85	220.7	214.10			317.2	146.1		260.2	306.15		190.55
Averages	13.16	92.10	55.63	10.11	8.89	10.0	67.87	52.80	3.58	3.59	3.87	3.82	92.46	93.81	5.12	2.36	46.06	5.42	6.38	84.99	3.46
Minima	12.0	80.4	49.6	9.2	8.2	9.3	63.0	42.0	3.15	3.15	3.65	3.5	80.0	80.8	4.5	2.0	40.0	4.8	5.5	75.0	2.85
Maxima	14.4	99.2	64.1	11.6	10.0	10.8	74.0	65.0	3.9	3.9	4.2	4.1	102.7	104.0	5.6	2.65	53.06	5.9	7.0	93.65	4.0

WEST COAST ESKIMO: BRISTOL BAY–YUKON–INTERMEDIATE COAST

SOUTHWESTERN ALASKA: MALES (Togiak)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*Collins and Stewart*)														
339039	U.S.N.M.	Togiak	55		18.1	13.6	13.0	75.1	82.0		14.90	1,420	Medium	12.6	7.7
339047	do	do	55		18.8	14.6	13.0	77.7	77.8		15.47	(1,530)			
339038	do	do	55		18.5	14.4	13.4	77.8	81.5		15.43	1,535	Medium	13.2	8.2
339036	do	do	30		17.8	14.2	13.6	79.8	85.0		15.20	1,385			8.1
339034	do	Coffee Point, Nushagak Bay.	45		17.4	14.4	13.4	82.3	84.3		15.07	1,440	Medium	12.6	7.6
Specimens			(5)		(5)	(5)	(5)	(5)	(5)		(5)	(4)		(3)	(4)
Totals			240		90.6	71.2	66.4				76.07	5,780		38.4	31.6
Averages			48		18.12	14.24	13.28	78.6	82.1		15.21	1,445		12.80	7.9
Minima			30		17.4	13.6	13.0	75.1	77.8		14.90	1,385		12.6	7.6
Maxima			55		18.8	14.6	13.6	82.3	85.0		15.47	1,535		13.2	8.2

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
339039	13.4	94.0	57.5	10.0	9.1	10.2	69.0	62.0	3.9	3.9	14.0	4.0	97.5	97.5	5.25	2.2	41.9	5.5	6.1	90.2	3.5
339047																					
339038	13.6	97.1	60.3	10.6	9.2	10.4	66.0	53.0	3.65	3.65	4.1	4.0	89.0	91.3	5.6	2.55	45.5	5.8	6.5	89.2	4.1
339036	15.2		53.3	10.7	9.8	10.8	69.5	60.0	3.4	3.35	3.8	3.8	89.4	88.2	5.85	2.3	39.3	5.5	6.7	82.1	
339034	14.6	86.3	52.1	[1] 10.0	8.6	9.9	67.5	49.0	3.7	3.65	3.9	3.9	94.9	93.6	5.3	2.45	46.2	[1] 5.5	6.6	83.3	4.0
Specimens	(4)	(3)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(3)
Totals	56.8			41.3	36.7	41.3	272.0	226.0	14.65	14.55	15.8	15.7			22.0	9.5		22.3	25.9		11.6
Averages	14.20	92.3	55.6	10.32	9.18	10.32	68.0	56.5	3.66	3.64	3.95	3.92	92.7	92.7	5.50	2.38	43.2	5.58	6.48	86.1	3.87
Minima	13.4	86.3	52.1	10.0	8.6	9.9	66.0	53.0	3.4	3.35	3.8	3.8	89.0	88.2	5.25	2.2	39.3	5.5	6.1	82.1	3.5
Maxima	15.2	97.1	60.3	10.7	9.8	10.8	69.5	62.0	3.9	3.9	4.1	4.0	97.5	97.5	5.85	2.55	46.2	5.8	6.7	90.2	4.1

[1] Near.

SOUTHWESTERN ALASKA: FEMALES (Togiak)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(Collins and Stewart)														
339044	U.S.N.M.	Togiak	60		17.3	13.7	12.8	79.2	82.6		14.60				
339040	do	do	45		17.7	14.2	12.8	80.2	80.2		14.90	1,450			7.3
339033	do	do	45		17.6	14.4	13.1	81.8	81.9		15.03	1,410			
339046	do	do	40		16.8	13.8	13.0	82.1	85.0		14.53	1,320			
339031	do	do	25		17.4	14.5	12.9	83.3	80.9		14.93	1,430	Medium	11.9	7.7
339043	do	do	25		17.1	14.5	12.8	84.8	78.5		14.80	[1] 1,380	+	12.3	7.5
339045	do	do	65		16.3	14.1	12.6	86.5	82.9		14.33	[1] 1,260			
339041	do	do	30												6.7
Specimens			(8)		(7)	(7)	(7)	(7)	(7)		(7)	(6)		(2)	(4)
Totals			335		120.2	99.2	90.0				103.1	8,250		24.2	29.2
Averages			41.9		17.17	14.17	12.86	82.7	82.0		14.73	1,375		12.10	7.30
Minima			25		16.3	13.7	12.6	79.2	78.5		14.33	1,260		11.9	6.7
Maxima			65		17.7	14.5	13.1	86.5	85.0		15.03	1,450		12.3	7.7

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
339044																					
339040	13.9		52.5	10.3	9.0	10.0	66.5	48.0	3.55	3.6	[1] 4.0	[1] 4.0	88.0	90.0	5.3	2.3	43.4	5.5	6.6	83.3	
339033						9.7									4.9	2.3	46.9				
339046	12.8	93.0	60.2	9.8	8.6	9.7	66.0	56.0	3.7	3.75	3.9	3.85	94.9	97.4	5.1	[1] 2.2	43.1	5.0	6.2	80.6	3.6
339031	13.2	93.2	56.8	9.1	7.6	9.0	65.0	46.0	(3.1)	(3.5)	(3.5)	(3.6)	(88.6)	(97.2)	5.2	2.4	46.2	5.2	6.5	80.0	3.4
339043						9.6															
339045						9.5															
339041	[1] 12.6		53.2	9.9	9.0	9.4	66.0	57.5	3.5	3.45	3.7	[1] 3.6	94.6	94.6	4.8	2.4	50.0	[1] 5.0	6.3	79.4	
Specimens	(4)	(2)	(4)	(4)	(4)	(7)	(4)	(4)	(3)	(3)	(3)	(3)	(3)	(3)	(5)	(5)	(5)	(4)	(4)	(4)	(2)
Totals	52.5			39.1	34.2	66.9	261.0	206.0	10.75	10.80	11.60	11.45			25.3	11.6		20.7	25.6		7.0
Averages	13.12	93.1	55.6	9.78	8.55	9.56	66.0	51.5	3.58	3.60	3.87	3.82	92.7	94.3	5.06	2.32	45.8	5.18	6.40	80.9	3.50
Minima	12.6	93.0	52.5	9.1	7.6	9.0	65.0	46.0	3.5	3.45	3.7	3.6	88.0	90.0	4.8	2.2	43.1	5.0	6.2	79.4	3.4
Maxima	13.9	93.2	60.2	10.3	9.0	10.0	66.5	57.5	3.7	3.75	4.0	4.0	94.9	97.4	5.3	2.4	50.0	5.5	6.6	83.3	3.6

[1] Near.

SOUTHWESTERN ALASKA: MALES (Mumtrak)

Catlaog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(Collins and Stewart)														
339052	U.S.N.M.	Mumtrak	55		19.2	14.1	13.6	*73.4*	*81.7*		15.63	1,560	Considerable	12.0	7.8
339053	do	do	35		18.1	13.6	13.3	*75.1*	*87.1*		15.00	1,410	Slight	12.1	7.5
339054	do	do	40		17.9	14.6	13.2	*81.6*	*81.2*		15.23	1,510	Moderate	12.4	7.5
339058	do	do	70		17.2	14.5	13.3	*84.3*	*83.9*		15.00	1,380	{4. All lost. 1. Considerable		
Specimens			(4)		(4)	(4)	(4)	*(4)*	*(4)*		(4)	(4)		(3)	(3)
Totals			200		72.4	56.8	53.4				60.83	5,860		36.5	22.8
Averages			50.0		18.10	14.20	13.35	*78.5*	*82.7*		15.22	1,465		12.17	7.60
Minima			35		17.2	13.6	13.2	*73.4*	*81.2*		15.00	1,380		12.0	7.5
Maxima			70		19.2	14.6	13.6	*84.3*	*87.1*		15.63	1,560		12.4	7.8

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
339052	13.3	*90.2*	*58.7*	10.5	9.6	10.8	70.5	60.0	3.6	3.65	4.2	4.25	*85.7*	*85.8*	5.7	2.5	*43.9*	5.2	6.4	*81.2*	3.4
339053	13.8	*87.7*	*54.4*	10.1	8.8	10.0	67.0	50.5	3.4	3.45	4.0	4.0	*85.0*	*86.3*	5.35	2.6	*48.6*	5.5	6.8	*80.9*	3.6
339054	14.0	*88.6*	*53.6*	10.5	9.4	10.4	68.0	55.0	3.35	3.3	4.05	4.05	*82.7*	*81.5*	5.4	2.55	*47.2*	5.5	6.7	*82.1*	3.8
339058	14.5				8.7	10.1			3.5	3.35	4.1	4.1	*85.4*	*81.7*	5.5	2.5	*45.6*				3.4
Specimens	(4)	*(3)*	*(3)*	(3)	(4)	(4)	(3)	(3)	(4)	(4)	(4)	(4)	*(4)*	*(4)*	(4)	(4)	*(4)*	(3)	(3)	*(3)*	(4)
Totals	55.6			31.1	36.5	41.3	207.0	165.0	13.85	13.75	16.35	16.40			21.95	10.15		16.2	19.9		14.2
Averages	13.90	*88.8*	*55.5*	10.37	9.12	10.32	69.0	55.0	3.46	3.44	4.09	4.10	*84.7*	*83.8*	5.49	2.54	*46.3*	5.40	6.63	*81.4*	3.55
Minima	13.3	*87.7*	*53.6*	10.1	8.7	10.0	67.0	50.5	3.35	3.3	4.0	4.0	*82.7*	*81.5*	5.35	2.5	*43.9*	5.2	6.4	*80.9*	3.4
Maxima	14.5	*90.2*	*58.7*	10.5	9.7	10.8	70.5	60.0	3.6	3.65	4.2	4.25	*85.7*	*86.3*	5.7	2.6	*48.6*	5.5	6.8	*82.1*	3.8

SOUTHWESTERN ALASKA: FEMALES (Mumtrak)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*Collins and Stewart*)														
339055	U.S.N.M.	Mumtrak	25		18.2	13.5	12.7	74.2	80.1		14.80	1,380			[1] 7.4
339062	do	do	24		16.6	13.4	12.3	80.7	82.0		14.10		N.+	11.2	6.6
339061	do	do	40		17.3	14.0	13.6	80.9	86.9		15.30	1,410	+	11.5	7.3
339059	do	do	35		17.0	13.8	13.0	81.2	84.4		14.60	1,345	+		6.8
339060	do	do	50		17.3	14.1	13.2	81.5	84.1		14.87	1,370	Considerable	10.9	7.3
339057	do	do	24		17.2	14.7	12.3	85.5	77.1		14.73	(1,545)	+	11.6	6.9
Specimens			(6)		(6)	(6)	(6)	(6)	(6)		(6)	(4)		(4)	(6)
Totals			198		103.6	83.5	77.1				88.07	5,505		45.2	42.3
Averages			33.0		17.27	13.92	12.85	80.6	82.4		14.68	1,376		11.30	7.05
Minima			24		16.6	13.4	12.3	74.2	77.1		14.10	1,345		10.9	6.6
Maxima			50		18.2	14.7	13.6	85.5	86.9		15.30	1,410		11.6	7.4

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
339055	12.6		58.7	[1] 9.3	8.3	9.7	70.5	56.5	3.4	3.3	3.5	3.6	97.1	91.7	5.45	2.4	44.0	[1] 4.9	6.1	80.3	
339062	[1] 13.3	84.2	49.6	9.5	8.4	9.2	67.0	52.5		3.3		4.0		82.5	4.65	2.0	43.0	5.2	6.2	83.9	3.3
339061	13.4	85.8	54.5	10.0	8.8	10.0	69.0	50.5	3.55	3.5	3.8	3.9	93.4	89.7	5.3	2.25	42.5	5.1	6.6	77.3	3.4
339059	13.0		52.3	9.1	8.2	9.2	69.5	54.5	3.55	3.55	3.65	3.65	97.3	97.3	5.1	2.2	43.1	4.9	5.9	83.0	
339060	13.5	80.7	54.1	10.0	8.9	10.0	69.0	57.0	3.55	3.6	4.0	4.0	88.8	90.0	4.9	2.15	43.9	5.3	5.8	91.4	
339057	13.1	88.6	52.7	9.3	8.4	9.0	65.0	59.0	3.7	3.8	4.0	3.85	92.5	98.7	4.8	2.35	46.9	4.8	6.2	77.4	3.2
Specimens	(6)	(4)	(6)	(6)	(6)	(6)	(6)	(6)	(5)	(6)	(5)	(6)	(5)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(3)
Totals	78.9			57.2	51.0	57.1	411.0	333.0	17.75	21.05	18.95	23.00			30.2	13.35		30.2	36.8		9.9
Averages	13.15	84.8	53.6	9.53	8.50	9.52	68.5	55.5	3.55	3.51	3.78	3.83	93.7	91.5	5.03	2.23	44.2	5.03	6.13	82.1	3.30
Minima	12.6	80.7	49.6	9.1	8.20	9.0	65.0	50.5	3.4	3.3	3.5	3.60	88.8	82.5	4.63	2.0	42.5	4.8	5.8	77.3	3.20
Maxima	13.5	88.6	58.7	10.0	8.9	10.0	70.5	59.0	3.7	3.8	4.0	4.0	97.3	98.7	5.45	2.4	46.9	5.3	6.6	91.4	3.4

[1] Near.

HOOPER BAY: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(Misc.)														
377936	U.S.N.M.	Hooper Bay	40		18.6	13.8	13.0	*74.19*	*80.25*		15.13			13.4	7.8
351642	do	do	40		18.1	13.7	13.4	*75.69*	*84.28*		15.07				
351641	do	do	30		18.4	14.0	13.4	*76.09*	*82.72*		15.27				7.8
377990	do	do	65		19.1	14.6	14.0	*76.44*	*83.09*		15.90				
377938	do	do	40		18.0	13.8	13.6	*76.67*	*85.53*		15.13			12.9	8.1
377937	do	do	55		17.7	13.8	13.9	*77.97*	*88.25*		15.13			13.0	7.7
	(Collins & Stewart)														
339119♂	U.S.N.M.	do	55		17.4	13.4	13.6	*77.0*	*85.5*		14.80	1,350		13.0	8.2
399110	do	do	50		18.2	14.2	13.8	*78.0*	*85.2*		15.40	1,475		13.0	8.1
339118	do	do	30		19.1	15.1	13.4	*79.1*	*78.4*		15.87	1,725		12.7	7.8
339120	do	do	35		17.8	14.1	12.9	*79.2*	*80.9*		14.93	1,510		11.5	7.3
339111	do	do	50		18.7	15.1	13.9	*80.8*	*82.3*		15.90	1,620			
339124♂	do	do	24		17.0	13.9	14.0	*81.8*	*90.6*		14.97	1,475		12.5	7.7
339123	do	do	60		18.2	14.9	13.7	*81.9*	*82.8*		15.60	1,595		12.2	7.6
339121	do	do	50		17.4	14.6	13.8	*83.9*	*86.3*		15.27	1,490			7.6
339125♂	do	do	40		16.9	14.6	13.3	*86.4*	*84.4*		14.93	1,430		12.2	7.2
Specimens			(15)		(15)	(15)	(15)	(15)	(15)		(15)	(9)		(10)	(12)
Totals			664		270.6	213.6	203.7				229.3	13,670		126.4	92.9
Averages			44.3		18.04	14.24	13.58	*78.9*	*84.1*		15.29	1,519		12.64	7.74
Minima			24		16.9	13.4	12.9	*74.2*	*78.4*		14.80	1,350		11.5	7.2
Maxima			65		19.1	15.1	14.0	*86.4*	*90.6*		15.90	1,725		13.4	8.2

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
377936	14.1	*95.04*	*55.32*	10.3	9.1	10.4	68.5	54.5	3.5	3.45	3.75	3.75	*93.33*	*92.00*	5.4	2.3	*42.59*	5.4	6.0	*90.0*	3.9
351642	14.3					10.6															
351641	14.1		*55.32*	10.0	8.8	10.2	68.0	48.0	3.65	3.7	4.3	4.0	*84.88*	*92.50*	5.85	2.3	*39.32*	5.5	6.8	*80.88*	
377990	14.6				9.0	10.4			3.8	3.95	4.1	4.2	*92.68*	*94.05*	5.4	2.35	*43.52*				
377938	13.8	*93.48*	*58.70*	10.1	9.2	10.8	72.0	62.0	3.65	3.7	4.05	3.95	*90.12*	*93.67*	5.6	2.25	*40.18*	5.2	6.5	*80.0*	3.65
377937	14.0	*92.86*	*55.0*	10.2	9.0	10.2	68.0	55.5	3.75	3.8	4.0	3.8	*93.75*	*100.0*	5.2	2.45	*47.12*	5.2	6.6	78.79	3.6
339119♂	14.4	*90.3*	*56.9*	10.4	9.2	10.4	67.0	57.0	3.4	3.5	3.8	3.75	*89.5*	*93.4*	5.5	2.3	*41.8*	5.9	6.8	*86.8*	4.1
339110	14.2	*91.6*	*57.0*	10.2	9.2	11.0	73.0	60.0	4.0	4.0	4.1	4.1	*97.6*	*97.6*	5.6	2.5	*44.6*	5.5	6.9	*79.7*	3.8
339113	14.3	*88.8*	*54.5*	10.3	9.3	10.4	68.5	58.5	3.8	3.8	3.95	3.95	*96.2*	*96.2*	5.5	2.55	*46.4*	5.6	6.7	*83.6*	3.5
339120	14.5	*79.3*	*50.4*	10.6	9.6	10.2	66.5	57.0	3.4	3.5	4.1	4.0	*82.9*	*87.5*	5.2	2.2	*42.3*	5.6	6.4	*87.5*	3.4
339111	13.8				9.0	10.6			3.85		4.0		*96.3*		5.6	2.4	*42.9*				
339124♂	13.6	*91.9*	*56.6*	10.5	9.2	10.0	64.5	51.5	3.6	3.65	3.85	3.8	*93.5*	*93.4*	5.35	2.5	*46.7*	5.7	6.4	*89.1*	3.7
339123	14.2	*85.9*	*53.5*	10.5	9.0	10.0	65.0	44.5	3.3	3.2	3.85	3.75	*85.7*	*85.3*	5.5	2.6	*47.3*	5.3	6.7	*79.1*	3.8
339121	14.1		*53.9*	10.0	9.0	10.2	69.5	58.0	3.7	3.7	4.0	3.8	*92.5*	*97.4*	5.4	2.3	*42.6*	5.2	6.6	*78.8*	3.3
339125♂	14.4	*84.7*	*50.0*	9.5	8.6	9.8	70.5	60.5	3.8	4.0	3.85	3.95	*98.7*	*101.3*	5.0	2.5	*50.0*	4.9	6.7	*73.1*	3.3
Specimens	(15)	(10)	(12)	(12)	(14)	(15)	(12)	(12)	(14)	(13)	(14)	(13)	(14)	(13)	(14)	(14)	(14)	(12)	(12)	(12)	(11)
Totals	212.5			122.6	127.2	155.2	821.0	66.7	51.2	47.95	55.7	50.8			76.1	33.5		65.0	79.1		40.05
Averages	14.17	*89.3*	*54.7*	10.22	9.09	10.35	68.4	55.6	3.66	3.69	3.98	3.91	*91.9*	*94.4*	5.44	2.39	*44.0*	5.42	6.59	*82.2*	3.64
Minima	13.6	*79.3*	*50.0*	9.5	8.6	9.8	64.5	44.5	3.3	3.2	3.75	3.75	*82.9*	*85.3*	5.0	2.2	*39.3*	4.9	6.0	*73.1*	3.3
Maxima	14.6	*95.0*	*58.7*	10.6	9.6	11.0	73	62	4.0	4.0	4.3	4.2	*98.7*	*101.3*	5.85	2.6	*50.0*	5.9	6.9	*90.0*	4.1

[1] Allowance made for wear of teeth, where needed.

HOOPER BAY: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a) [1]	Alveol. Pt.-Nasion Height (b)
	(*Misc.*)														
377939	U.S.N.M.	Hooper Bay	40		17.7	13.2	13.4	*74.58*	*86.73*		14.77			12.2	7.4
339114	do	do	35		18.3	13.9	13.0	*76.0*	*80.80*		15.07	1,380		12.6	7.6
345754	do	do	60		17.5	13.4	13.0	*76.57*	*84.14*		14.63			[2] 11.8	7.2
345752	do	do	70		17.6	13.6	13.4	*77.27*	*85.90*		14.87				
377993	do	do	70		17.1	13.4	13.0	*78.36*	*85.25*		14.50				
339117	do	do	50		16.9	13.3	12.4	*78.70*	*82.10*		14.20	1,150			
377991	do	do	50		17.4	13.7	13.6	*78.74*	*87.46*		14.90				7.4
339115	do	do	60		17.5	14.0	12.5	*80.0*	*79.40*		14.67	1,210			
339116	do	do	25		17.0	13.6	12.6	*80.0*	*82.40*		14.40	1,245		11.0	7.0
Specimens			(9)		(9)	(9)	(9)	(9)	(9)		(9)	(4)		(4)	(5)
Totals			460		157.0	122.1	116.9				132.0	4,985		47.6	36.6
Averages			51.1		17.44	13.57	12.99	*77.8*	*83.8*		14.67	1,246		11.90	7.32
Minima			25		16.9	13.2	12.4	*74.6*	*79.4*		14.20	1,150		11.0	7.0
Maxima			70		18.3	14.0	13.4	*80.0*	*87.5*		15.07	1,380		12.6	7.6

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
377939	13.1	93.13	56.49	11.1	9.8	10.6	66.5	53	3.3	3.4	4.0	3.8	82.50	89.47	5.0	2.3	46.0	5.8	6.2	93.55	3.65
339114	13.4	94.0	56.70	9.4	8.1	9.6	68	55	3.5	3.55	3.9	3.9	89.70	91.0	4.95	2.2	44.44	5.4	6.4	84.40	3.8
345754	12.4	95.16	58.06	9.9	8.9	10.0	67	55	3.3	3.3	3.7	3.7	89.19	89.19	5.0	2.2	44.0	-----	-----	-----	3.6
345752	13.0	-----	-----	-----	8.8	10.2	-----	-----	-----	3.6	-----	3.9	-----	92.31	4.8	2.4	50.0	-----	-----	-----	3.5
377993	13.3	-----	-----	-----	8.7	9.9	-----	-----	3.25	3.35	3.9	3.8	83.33	88.16	4.8	2.4	50.0	-----	-----	-----	-----
339117	13.1	-----	-----	-----	8.6	9.6	-----	-----	3.5	3.6	3.8	3.9	92.11	92.31	4.8	2.5	52.08	-----	-----	-----	3.3
377991	-----	-----	-----	-----	8.2	10.0	-----	-----	3.35	3.5	3.8	3.6	88.16	97.22	5.1	2.5	49.02	-----	-----	-----	-----
339115	13.7	-----	-----	-----	8.7	9.8	-----	-----	3.6	3.6	4.1	4.1	87.80	87.80	4.95	2.4	48.49	-----	-----	-----	3.4
339116	13.3	82.7	52.6	9.8	8.8	9.8	69	55	3.55	3.6	3.7	3.7	96.0	97.30	5.1	2.3	45.10	5.1	6.5	78.50	3.1
Specimens	(8)	(4)	(4)	(4)	(9)	(9)	(4)	(4)	(8)	(9)	(8)	(9)	(8)	(9)	(9)	(9)	(9)	(3)	(3)	(3)	(7)
Totals	105.3	-----	-----	40.2	78.6	89.5	270.5	218	27.35	31.5	30.9	34.4	-----	-----	44.5	21.3	-----	16.3	19.1	-----	24.35
Average	13.16	91.2	55.9	10.05	8.73	9.94	67.6	54.5	3.42	3.50	3.86	3.82	88.5	91.6	4.94	2.37	47.9	5.43	6.37	85.3	3.48
Minima	12.4	82.7	52.6	9.4	8.1	9.6	66.5	53	3.25	3.3	3.7	3.7	82.5	88.2	4.8	2.2	44.0	-----	-----	-----	3.1
Maxima	13.7	95.2	58.1	11.1	9.8	10.6	69	55	3.6	3.6	4.1	4.1	96.0	97.3	5.1	2.5	52.1	-----	-----	-----	3.8

[1] Allowance made for wear of teeth, where needed.
[2] Near.

ESKIMO OF THE GREAT ALASKAN RIVERS AND INTERMEDIATE REGIONS

(Abstract)

MALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
	(13)	(13)	(13)	(13)	(13)	(13)		(13)			(9)	(10)	(13)
Nushagak River	568 (Totals)	236.1	186.4	176.2		1,084.2		199.56			115.4	77.3	181.9
	43.7 (Means)	18.16	14.34	13.55	*78.9*	*83.4*		15.04			12.82	7.73	13.99
	(57)	(57)	(57)	(57)	(57)	(57)		(57)			(34)	(39)	(55)
Kuskokwim River	3,010 (Totals)	1,041.9	800.5	774.0				872.15			442.2	303.6	774.0
	52.8 (Means)	18.28	14.04	13.58	*76.8*	*84.0*		15.30			13.0	7.78	14.07
	(30)	(41)	(41)	(41)	(41)	(41)		(41)	(18)		(28)	(35)	(38)
Yukon River	1,409 (Totals)	748.9	575.8	562.4				629.0	27,350		349.1	270.2	535.3
	47.0 (Means)	18.27	14.04	13.72	*76.9*	*84.9*		15.34	1,520		12.46	7.72	14.09
	(24)	(24)	(24)	(24)	(24)	(24)		(24)	(17)		(16)	(19)	(23)
Intermediate Coasts	1,104 (Totals)	433.6	341.6	323.5				366.2	25,310		201.3	147.3	321.9
	46 (Means)	18.07	14.23	13.48	*78.8*	*83.5*		15.26	1,489		12.58	7.75	14.13
Specimens	(124)	(135)	(135)	(135)	(135)	(135)		(135)	(35)		(87)	(103)	(129)
Totals	6,091 (Grand totals)	2,460.5	1,904.3	1,836.1				2,066.9	52,660		1,108.0	798.4	1,816.1
Averages	49.1 (General years means)	18.23	14.11	13.60	*77.4*	*84.1*		15.31	1,505		12.74	7.75	14.08

Locality	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height. left.	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
Nushagak River	(8)	(10)	(9)	(12)	(13)	(9)	(9)	(7)	(11)	(7)	(11)	(7)	(11)	(12)	(12)	(12)	(10)	(10)	(10)	(12)
	716.8	551.0	91.5	108.1	135.1	624.0	498.5	25.25	39.9	28.85	44.6	------	------	64.65	28.95	------	54.4	65.4	------	43.3
	89.6	*55.1*	10.17	9.0	10.39	69.3	55.4	3.61	3.63	4.12	4.05	*87.5*	*89.5*	5.39	2.41	*44.8*	5.44	6.54	*83.2*	3.61
Kuskokwim River	(34)	(39)	(38)	(54)	(57)	(38)	(38)	(50)	(51)	(50)	(51)	(50)	(51)	(55)	(55)	(55)	(42)	(42)	(42)	(48)
	3,159.7	2,164.0	388.9	488.5	589.4	2,588.0	2,102.5	176.8	181.45	201.35	202.25	------	------	297.4	133.45	------	231.3	278.0	------	181.3
	92.9	*55.5*	10.23	9.05	10.34	68.1	55.3	3.54	3.56	4.03	3.97	*87.8*	*89.7*	5.41	2.43	*44.9*	5.51	6.62	*83.2*	3.78
Yukon River	(28)	(35)	(33)	(40)	(41)	(33)	(33)	(37)	(40)	(37)	(40)	(37)	(40)	(41)	(41)	(41)	(32)	(32)	(32)	(35)
	2,483.6	1,921.5	340.0	367.3	428.3	2,300.0	1,843.5	134.65	146.3	148.7	159.4	------	------	222.05	98.2	------	176.2	212.9	------	129.1
	88.7	*54.9*	10.30	9.18	10.45	69.7	55.9	3.69	3.66	4.02	3.99	*90.6*	*91.8*	5.42	2.40	*44.2*	5.51	6.65	*82.8*	3.69
Intermediate Coasts	(16)	(19)	(19)	(22)	(23)	(19)	(19)	(22)	(21)	(22)	(21)	(22)	(21)	(22)	(22)	(22)	(19)	(19)	(19)	(18)
	1,436.3	1,045.3	195.0	200.4	237.8	1,300.0	1,058.0	79.7	76.25	87.85	82.9	------	------	120.05	53.15	------	103.5	124.9	------	65.85
	89.8	*55.0*	10.26	9.11	10.34	68.4	55.7	3.62	3.63	3.99	3.95	*90.7*	*92.0*	5.46	2.42	*44.3*	5.45	6.57	*82.9*	3.66
Specimens	(86)	(103)	(99)	(128)	(134)	(99)	(99)	(116)	(123)	(116)	(123)	(116)	(123)	(130)	(130)	(130)	(103)	(103)	(103)	(113)
Totals	--------	--------	1,015.4	1,164.3	1,390.6	6,812.0	5,502.5	416.4	443.9	466.75	489.15	------	------	704.15	313.75	------	565.4	681.2	------	419.55
Averages	*90.7*	*55.2*	10.26	9.10	10.38	68.8	55.6	3.59	3.61	4.02	3.98	*89.2*	*90.8*	5.42	2.41	*44.6*	5.49	6.61	*83.0*	3.71

ESKIMO OF THE GREAT ALASKAN RIVERS AND INTERMEDIATE REGIONS—Continued

(Abstract)

FEMALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
Nushagak River	(20)	(20)	(20)	(20)	(20)	(20)		(20)			(16)	(16)	(19)
	928 (Totals)	343.2	271.6	258.4		1,682.0		291.08			188.6	113.2	245.6
	46.4 (Means)	17.16	13.58	12.92	*79.1*	*84.1*		14.55			11.79	7.08	12.93
Kuskokwim River	(57)	(57)	(57)	(56)	(57)	(56)		(56)			(31)	(37)	(49)
	3,060 (Totals)	991.2	775.9	717.0		4,629.0		817.24			369.3	263.4	644.2
	53.7 (Means)	17.39	13.61	12.80	*78.3*	*82.7*		14.59			11.91	7.12	13.15
Yukon River	(46)	(63)	(63)	(63)	(63)	(63)		(64)	(21)		(50)	(51)	(59)
	2,072 (Totals)	1,103.1	858.6	821.3		5,273.0		942.7	28,785		583.3	373.1	776.2
	45 (Means)	17.51	13.63	13.04	*77.8*	*83.7*		14.73	1,371		11.67	7.32	13.16
Intermediate Coasts	(23)	(22)	(22)	(22)	(22)	(22)		(22)	(14)		(10)	(15)	(18)
	993 (Totals)	380.8	304.8	284.0		1,821.5		323.17	18,740		117.0	108.1	236.7
	43.2 (Means)	17.31	13.85	12.91	*80.0*	*82.8*		14.69	1,339		11.70	7.21	13.15
Specimens	(146)	(162)	(162)	(161)	(162)	(161)		(161)	(35)		(107)	(119)	(145)
Totals	7,053 (Grand totals)	2,818.3	2,210.9	2,080.7				2,374.2	47,525		1,258.2	857.8	1,902.7
Averages	48.3 (General years means)	17.40	13.65	12.92	*78.5*	*83.3*		14.66	1,358		11.76	7.21	13.12

Locality	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
	(16)	(16)	(16)	(18)	(20)	(16)	(16)	(16)	(17)	(16)	(17)	(16)	(17)	(18)	(18)	(18)	(15)	(15)	(15)	(19)
Nushagak River	1,455.7	873.6	153.4	153.4	196.4	1,115.5	861.5	56.15	59.7	61.45	64.15	------	------	89.95	42.85	------	76.4	90.7	------	61.4
	91.0	*54.6*	9.59	8.52	9.82	69.7	53.8	3.51	3.51	3.84	3.77	*91.4*	*93.1*	5.0	2.38	*47.6*	5.09	6.05	*84.2*	3.23
	(30)	(35)	(36)	(48)	(56)	(34)	(34)	(36)	(48)	(36)	(48)	(36)	(48)	(48)	(48)	(48)	(37)	(37)	(37)	(43)
Kuskokwim River	2,727.8	1,900.4	353.5	415.7	547.1	2,300.5	1,758.0	125.8	168.05	143.9	185.8	------	------	239.4	115.8	------	194.5	228.0	------	148.8
	90.9	*54.3*	9.82	8.66	9.77	67.7	51.7	3.49	3.50	4.00	3.87	*87.4*	*90.4*	4.99	2.41	*48.4*	5.26	6.16	*85.3*	3.46
	(50)	(51)	(51)	(61)	(64)	(51)	(51)	(57)	(56)	(57)	(56)	(57)	(56)	(62)	(62)	(62)	(48)	(48)	(48)	(55)
Yukon River	4,605.0	2,837.0	515.8	542.3	640.1	3,461.5	2,693.0	204.05	200.85	220.7	214.1	------	------	317.2	146.1	------	260.2	306.15	------	190.55
	92.1	*55.6*	10.11	8.89	10.0	67.9	52.8	3.58	3.59	3.87	3.82	*92.5*	*93.8*	5.12	2.36	*46.1*	5.42	6.38	*85.0*	3.46
	(10)	(14)	(14)	(19)	(22)	(14)	(14)	(16)	(18)	(16)	(18)	(16)	(18)	(20)	(20)	(20)	(13)	(13)	(13)	(12)
Intermediate Coasts	890.2	764.6	136.5	163.8	213.5	945.5	757.0	55.85	63.35	61.45	68.85	------	------	100.0	46.25	------	67.2	81.5	------	41.25
	89.0	*54.6*	9.75	8.62	9.70	67.5	54.1	3.49	3.52	3.84	3.83	*90.9*	*92.0*	5.0	2.31	*46.3*	5.17	6.27	*82.5*	3.44
Specimens	(106)	(116)	(117)	(146)	(162)	(115)	(115)	(125)	(139)	(125)	(139)	(125)	(139)	(148)	(148)	(148)	(113)	(113)	(113)	(129)
Totals	------	------	1,159.2	1,275.2	1,597.1	7,823.0	6,069.5	441.85	491.95	486.87	532.9	------	------	746.55	351.0	------	598.3	706.35	------	442.0
Averages	*91.3*	*55.0*	9.91	8.73	9.86	68.0	52.8	3.53	3.54	3.89	3.83	*90.8*	*92.3*	5.04	2.37	*47.0*	5.29	6.25	*84.7*	3.43

WEST COAST ESKIMO: BRISTOL BAY-YUKON-INTERMEDIATE COASTS

(Abstract)

MALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
Togiak	(5)	(5)	(5)	(5)	(5)	(5)		(5)	(4)		(3)	(4)	(4)
	240	90.6	71.2	66.4				76.07	5,780		38.4	31.6	56.8
Mumtrak	(4)	(4)	(4)	(4)				(4)	(4)		(3)	(3)	(4)
	200	72.4	56.8	53.4				60.83	5,860		36.5	22.8	55.6
Hooper Bay	(15)	(15)	(15)	(15)				(15)	(9)		(10)	(12)	(15)
	664	270.6	213.6	203.7				229.3	13,670		126.4	92.9	212.5
Specimens	(24)	(24)	(24)	(24)	(24)	(24)		(24)	(17)		(16)	(19)	(23)
Totals	1,104	433.6	341.6	323.5				366.2	25,310		201.3	147.3	324.9
Averages	46 years	18.07	14.23	13.48	*78.8*	*83.5*		15.26	1,489		12.58	7.75	14.13

Locality	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
Togiak	(3)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)			(4)	(4)		(4)	(4)		(3)
	276.9	222.4	41.3	36.7	41.3	272.0	226.0	14.65	14.55	15.8	15.7			22.0	9.5		22.3	25.9		11.6
Mumtrak	(3)	(3)	(3)	(4)	(4)	(3)	(3)	(4)	(4)	(4)	(4)			(4)	(4)		(3)	(3)		(4)
	266.4	166.5	31.1	36.5	41.3	207.0	165.0	13.85	13.75	16.35	16.40			21.95	10.15		16.2	19.9		14.2
Hooper Bay	(10)	(12)	(12)	(14)	(15)	(12)	(12)	(14)	(13)	(14)	(13)			(14)	(14)		(12)	(12)		(11)
	893.0	656.4	122.6	127.2	155.2	821.0	667.0	51.2	47.95	55.7	50.8			76.1	33.5		65.0	79.1		40.05
Specimens	(16)	(19)	(19)	(22)	(23)	(19)	(19)	(22)	(21)	(22)	(21)	(22)	(21)	(22)	(22)	(22)	(19)	(19)	(19)	(18)
Totals	1,436.3	1,045.3	195.0	200.4	237.8	1,300.0	1,058.0	79.7	76.25	87.85	82.9			120.05	53.15		103.5	124.9		65.85
Averages	*89.8*	*55.0*	10.26	9.11	10.34	68.4	55.7	3.62	3.63	3.99	3.95	*90.7*	*92.0*	5.46	2.42	*44.3*	5.45	6.57	*82.9*	3.66

FEMALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Naison Height (b)	Diam. Bizygomatic maxim. (c)
Togiak	(8) 335	(7) 120.2	(7) 99.2	(7) 90.0				(7) 103.1	(6) 8,250		(2) 24.2	(4) 29.2	(4) 52.5
Mumtrak	(6) 198	(6) 103.6	(6) 83.5	(6) 77.1				(6) 88.07	(4) 5,505		(4) 45.2	(6) 42.3	(6) 78.9
Hooper Bay	(9) 460	(9) 157.0	(9) 122.1	(9) 116.9				(9) 132.0	(4) 4,985		(4) 47.6	(5) 36.6	(8) 105.3
Specimens	(23)	(22)	(22)	(22)	(22)	(22)		(22)	(14)		(10)	(15)	(18)
Totals	993	380.8	304.8	284.0				323.17	18,740		117.0	108.1	236.7
Averages	43.2	17.31	13.85	12.91	*80.0*	*82.8*		14.69	1,339		11.70	7.21	13.15

Locality	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
Togiak	(2) 186.2	(4) 222.4	(4) 39.1	(4) 34.2	(7) 66.9	(4) 26.40	(4) 206.0	(3) 10.75	(3) 10.80	(3) 11.60	(3) 11.45			(5) 25.3	(5) 11.6		(4) 20.7	(4) 25.6		(2) 7.0
Mumtrak	(4) 339.2	(6) 318.6	(6) 57.2	(6) 51.0	(6) 57.1	(6) 411.0	(6) 333.0	(5) 17.75	(6) 21.05	(6) 18.95	23.0			(6) 30.2	(6) 13.35		(6) 30.2	(6) 36.8		(3) 9.9
Hooper Bay	(4) 364.8	(4) 223.6	(4) 40.2	(9) 78.6	(9) 89.5	(4) 270.5	(4) 218.0	(8) 27.35	(9) 31.5	(8) 30.9	(9) 34.4			(9) 44.5	(9) 21.3		(3) 16.3	(3) 19.1		(7) 24.35
Specimens	(10)	(14)	(14)	(19)	(22)	(14)	(14)	(16)	(18)	(16)	(18)	(16)	(18)	(20)	(20)	(20)	(13)	(13)	(13)	(12)
Totals	890.2	764.6	136.5	163.8	213.5	945.5	757.0	55.85	63.35	61.45	68.85			100.0	46.25		67.2	81.5		41.25
Averages	*89.0*	*54.6*	9.75	8.62	9.70	67.5	54.1	3.49	3.52	3.84	3.83	*90.9*	*92.0*	5.0	2.31	*46.3*	5.17	6.27	*82.5*	3.44

EASTERN BERING SEA ISLANDS AND NORTHEASTERN BERING SEA ESKIMO

NUNIVAK ISLAND: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*Collins & Stewart*)														
339166	U.S.N.M.	Nunivak	35		19.0	13.4	13.7	*70.5*	*84.6*		15.37	[1] 1,530	Moderate		6.8
339158	do	do	35		19.5	13.8	13.4	*70.8*	*80.5*		15.57	1,555	Slight	12.7	8.1
339213	do	do	60		19.6	13.9	13.4	*70.9*	*80.0*		15.63	[1] 1,550	Uppers all lost		[1] 7.9
339135	do	do	50		19.1	13.7	14.2	*71.7*	*86.6*		15.67	[1] 1,435	Slight		7.3
339168	do	do	45		19.0	13.8	14.2	*72.6*	*86.6*		15.67	1,555	Moderate	13.5	8.0
339220	do	do	45		19.6	14.3	13.5	*73.0*	*79.6*		15.80	1,585	Medium		7.7
339241	do	do	55		19.6	14.3	14.4	*73.0*	*85.0*		16.10	1,655	Medium	13.1	7.9
339256	do	do	55		18.9	13.8	13.9	*73.0*	*85.0*		15.53	1,430	Uppers, medium, lowers, all lost (scurvy?)		8.0
339100	do	do	40		19.5	14.3	14.4	*73.3*	*85.2*		16.07	1,705	Moderate		7.9
339227	do	do	50		18.4	13.5	13.1	*73.4*	*82.1*		15.00	1,355	Medium	12.4	7.5
339230	do	do	45		18.4	13.5	14.2	*73.4*	*89.0*		15.37	[1] 1,545	Medium	12.0	7.5
551640	do	do	75		18.9	13.9		*73.5*							
339242	do	do	40		19.3	14.2	13.6	*73.6*	*81.2*		15.70	1,460	Moderate	13.3	8.0
339106	do	do	45		18.6	13.7	13.9	*73.6*	*86.1*		15.40	1,450	Medium	13.6	8.4
339136	do	do	60		18.6	13.7	13.5	*73.7*	*83.6*		15.27	1,380	Considerable		7.6
339186	do	do	45		18.4	13.6	13.5	*73.9*	*84.4*		15.17	1,450	Medium		7.4
242752	do	do	55		18.4	13.6	13.5	*73.9*	*84.4*		15,17	1,395			7.8
339160	do	do	60		19.6	14.5	14.1	*74.0*	*82.7*		16.07	1,570	Considerable	13.9	8.6
339217	do	do	55		18.9	14.0	13.7	*74.1*	*83.3*		15.53	1,480	Medium		8.0
339226	do	do	40		18.6	13.8	13.7	*74.2*	*84.6*		15.37	1,440	Moderate	13.0	7.9
339250	do	do	45		18.6	13.8	13.4	*74.2*	*82.7*		15.27	1,500	Lost p. m.		7.3
339259	do	do	23		18.3	13.6	13.0	*74.3*	*81.5*		14.97	1,450	+	12.5	8.0
339251	do	do	35		19.2	14.3	13.7	*74.5*	*81.8*		15.73	1,480	Moderate		7.8
339174	do	do	25		19.6	14.6	13.9	*74.5*	*81.3*		16.03	1,675	+	13.0	7.8
339175	do	do	45		18.8	14.0	13.9	*74.5*	*84.8*		15.57	1,490	Moderate	13.0	8.2
339219	do	do	40		19.1	14.4	13.9	*75.4*	*83.0*		15.80	1,650	Slight		8.0
339231	do	do	40		18.3	13.8	13.6	*75.4*	*84.7*		15.23	1,420	Medium	11.5	7.3
339133	do	do	35		18.7	14.1	13.4	*75.4*	*81.7*		15.40	1,525	Slight	12.2	7.4
339101	do	do	45		18.6	14.1	13.1	*75.8*	*80.1*		15.27	[1] 1,495	do	13.8	8.1
339099	do	Southwest coast	35		18.8	14.3	13.7	*76.1*	*82.8*		15.60	1,435	Moderate		7.8

339171	do	Nash Harbor	45		18.5	14.1	13.2	76.2	81.0		15.27	1,450	Medium		7.4
339162	do	do	25		18.5	14.1	13.8	76.2	84.7		15.47	1,605	Slight	12.5	7.8
339139	do	Cape Etolin	45		19.0	14.5	14.0	76.3	83.6		15.83	1,535	Moderate	13.5	7.9
339109	do	Southwest coast	55		18.6	14.2	12.9	76.3	78.7		15.23	1,465	Medium	12.8	[1] 7.8
339145	do	Cape Etolin	60		19.5	14.9	14.1	76.4	82.0		16.17	1,545	Considerable	(13.2)	8.4
339254	do	North Cape Mohican.	55		18.8	14.4	13.5	76.6	81.3		15.57	1,500	Medium	13.2	8.3
339138	do	Cape Etolin	75		18.3	14.1	13.1	77.1	80.9		15.17	1,310	Uppers all, lowers considerable.		
339210	do	Koot	30		18.4	14.2	13.4	77.2	82.2		15.33	1,435	Moderate	13.3	8.2
339102	do	Southwest coast	23	Premature synostosis, sagittal suture.	18.6	14.4	13.7	77.4	83.0		15.57	1,550	+	13.3	7.9
339167	do	Nash Harbor	50		18.4	14.3	13.7	77.7	83.8		15.47	1,505	Medium		7.7
339208	do	Koot	30		18.0	14.0	13.4	77.9	83.8		15.13	1,390	Slight	13.1	8.3
339155	do	Nash Harbor	55		18.7	14.6	13.7	78.1	82.3		15.67	1,530	Medium	12.9	7.9
339184	do	do	60		17.8	13.9	13.8	78.1	87.1		15.17	1,485	Considerable		
339108	do	Southwest coast	45		19.3	14.6	13.6	78.5	80.2		15.83	1,440	Medium	12.7	7.7
339218	do	Koot	30		19.1	15.0	14.6	78.5	85.6		16.23	1,720	+		7.7
339173	do	Nash Harbor	40		18.2	14.3	13.9	78.6	85.5		15.47	1,555	Medium		
339107	do	Southwest coast	35		18.4	14.8	13.8	80.4	83.1		15.67	1,540	Moderate		7.6
Specimens			(46)		(46)	(46)	(46)	(46)	(46)		(46)	(46)		(24)	(43)
Totals			2,116		865.1	648.8	629.7				714.5	69,205		310.8	336.6
Averages			46		18.81	14.09	13.69	75.0	83.2		15.53	1,504		12.95	7.83
Minima			23		17.8	13.4	12.9	70.5	78.7		14.97	1,310		11.5	6.8
Maxima			75		19.6	15.0	14.6	80.4	89.0		16.23	1,720		13.9	8.6

[1] Near.

NUNIVAK ISLAND: MALES—Continued

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Breadth maxim.	Upper Alveolar Arch—Length maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
339166	13.5	------	50.4	11.0	10.0	10.6	68.5	53.0	3.6	------	4.1	------	87.8	------	5.0	[1] 2.3	46.0	5.6	6.2	90.3	------
339158	14.1	90.1	57.5	9.9	9.0	10.2	68.5	62.5	3.75	3.8	4.0	4.1	93.8	92.7	5.6	2.45	43.8	5.3	6.8	77.9	3.6
339213	14.5	------	54.5	11.1	10.0	10.3	63.0	------	------	3.6	------	4.3	------	83.7	------	------	------	6.4	8.0	80.0	------
339135	[1] 13.8	------	52.9	10.7	9.8	10.6	69.0	56.5	3.6	------	4.0	------	90.0	------	5.5	2.5	45.5	5.7	6.7	85.1	------
339168	15.2	88.8	52.6	10.9	9.6	10.9	68.5	53.0	3.5	3.6	4.25	4.2	82.4	85.7	5.6	2.6	46.4	5.9	7.3	80.8	4.2
339220	15.0	------	51.3	10.4	9.6	10.5	69.0	63.5	3.75	3.65	4.1	4.0	91.5	91.2	5.4	2.45	45.4	5.6	6.6	84.8	------
339241	14.5	90.3	54.5	10.8	9.9	11.0	70.0	63.5	3.7	3.65	4.3	4.3	86.0	84.9	5.2	2.3	44.2	5.5	7.1	77.5	4.2
339256	14.0	------	57.1	11.0	9.8	10.8	67.0	56.0	3.9	3.8	4.2	4.1	92.9	92.7	5.5	2.3	41.8	5.8	6.8	85.3	------
339100	14.3	------	55.2	11.0	10.0	10.9	68.0	61.5	3.5	3.5	4.0	3.85	87.5	90.9	5.2	2.3	44.2	5.5	6.7	82.1	------
339227	13.5	91.9	55.6	------	9.2	10.6	------	------	3.65	3.65	4.0	3.8	91.2	96.1	5.4	2.3	42.6	5.2	6.3	82.5	4.7
339230	13.5	89.0	55.6	10.6	9.4	10.8	71.0	56.5	3.55	------	4.0	------	88.8	------	5.0	2.3	46.0	5.3	6.9	76.8	3.5
551640	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
339242	15.3	86.9	52.3	11.0	10.0	10.9	68.0	62.5	3.5	3.45	4.2	4.0	83.3	86.2	5.2	2.5	48.1	6.0	6.9	87.0	4.3
339106	14.7	92.5	57.1	10.9	9.8	11.0	68.0	61.5	3.7	3.65	4.2	4.2	88.1	86.9	5.3	2.25	42.5	6.1	7.1	85.9	4.05
339136	13.8	------	55.1	9.8	8.9	10.4	72.0	61.5	3.5	3.55	3.9	3.95	89.7	89.9	5.2	2.2	42.3	4.9	6.5	75.4	3.55
339186	13.9	------	53.2	11.0	9.8	10.8	68.5	53.0	3.7	3.6	4.05	4.0	91.4	90.0	5.25	2.4	45.7	5.6	6.3	88.9	------
242752	13.9	------	------	10.9	9.4	10.6	66.5	51.0	3.4	3.4	4.2	4.2	81.0	81.0	5.2	2.3	44.2	5.8	6.5	89.2	------
339160	14.5	95.9	59.3	10.9	9.6	10.9	67.0	58.5	------	3.85	------	4.1	------	93.9	5.4	2.3	42.6	6.0	6.5	92.3	4.5
339217	14.7	------	54.4	10.8	9.6	10.6	66.5	54.5	3.7	3.7	4.05	4.05	91.4	91.4	5.65	2.4	42.5	5.7	6.8	83.8	------
339226	14.5	89.7	54.5	10.4	9.0	10.4	67.5	52.0	3.6	3.6	3.95	3.9	91.1	92.3	5.35	2.4	44.9	5.7	7.3	78.1	4.1
339250	13.9	------	52.5	10.0	9.2	10.2	70.5	63.5	3.3	3.3	4.1	4.0	80.5	82.5	5.0	2.25	45.0	5.5	6.2	88.7	------
339259	13.3	94.0	60.2	9.8	8.8	10.0	67.5	60.5	3.8	3.9	4.0	3.9	95.0	100.0	5.4	2.3	42.6	5.4	N. 7.0	77.1	3.7
339251	14.3	------	54.5	10.9	9.8	10.7	67.5	56.5	3.6	3.6	4.1	4.1	87.8	87.8	5.55	2.5	45.0	5.6	6.8	82.4	------
339174	14.5	89.7	53.8	10.7	9.8	11.0	71.0	61.5	3.6	3.6	4.1	4.1	87.8	87.8	5.5	2.6	47.3	5.7	7.2	79.2	4.1
339175	14.1	92.2	58.2	10.6	9.5	11.0	70.5	59.5	3.45	3.4	4.0	4.2	86.2	81.0	5.55	2.15	38.7	5.7	6.8	83.8	3.8
339219	14.5	------	55.2	10.8	9.6	10.4	65.0	58.0	3.65	3.65	3.9	3.9	93.6	93.6	5.2	2.0	38.5	5.6	6.9	81.2	------
339231	13.8	83.3	52.9	10.5	9.4	10.6	70.5	56.0	3.35	3.35	4.0	4.0	83.8	83.8	5.05	2.2	43.6	5.6	6.4	87.5	3.35
339133	14.3	85.3	51.8	10.5	9.5	10.4	68.5	58.5	3.6	3.6	4.0	3.9	90.0	92.3	5.2	2.4	46.2	5.6	6.8	82.4	3.7
339101	15.0	92.0	54.0	10.0	8.9	10.2	67.5	55.0	3.7	------	4.1	------	90.2	------	5.9	2.5	42.4	5.4	6.7	80.6	4.0
339099	15.2	------	51.3	10.7	9.5	10.4	66.5	54.0	3.5	3.5	4.0	4.0	87.5	87.5	5.5	2.8	50.9	5.8	7.0	82.9	------
339171	[1] 13.3	------	55.6	10.4	9.1	10.0	66.0	52.5	------	3.45	------	3.9	------	88.5	5.0	2.2	44.0	5.4	6.2	87.1	------
339162	14.3	87.4	54.5	11.1	10.0	10.7	66.5	59.0	3.7	3.6	3.8	3.75	97.4	96.0	5.2	2.1	40.4	6.0	6.8	88.2	3.9
339139	14.5	93.1	54.5	11.1	9.8	10.8	67.0	57.0	3.55	3.5	3.9	3.9	91.0	89.7	5.5	2.15	42.6	5.8	7.0	82.9	4.6
339109	14.9	85.9	52.3	[1] 10.4	8.9	10.1	65.5	49.5	3.8	3.9	4.15	4.1	91.6	95.1	5.3	2.5	47.2	[1] 5.8	7.0	82.9	3.85
339145	15.3	86.3	54.9	11.3	10.2	11.0	66.0	60.0	3.8	3.85	4.0	4.1	95.0	93.9	5.7	2.25	39.5	5.8	6.5	89.2	4.3
339254	13.9	95.0	59.7	11.0	9.7	10.6	65.0	56.0	3.8	3.8	4.0	3.8	95.0	100.0	5.5	2.2	40.0	6.1	6.7	91.0	4.2

339138	[1] 14.0	-----	-----	-----	9.0	10.3	-----	-----	3.4	3.5	4.0	3.9	*85.0*	*89.7*	5.4	2.7	*50.0*	-----	-----	-----	4.1
339210	14.5	*91.7*	*56.6*	10.6	9.6	10.5	67.0	60.5	3.45	3.5	4.0	3.8	*86.2*	*92.1*	5.7	2.4	*42.1*	5.7	6.6	*86.4*	4.1
339102	13.3	*100.0*	*59.4*	9.6	8.6	10.1	70.0	60.5	3.45	3.55	4.0	3.9	*86.2*	*91.0*	5.3	2.35	*44.1*	5.3	6.8	*77.9*	3.95
339167	14.9	-----	*51.7*	10.9	9.6	10.6	67.0	53.5	3.4	3.35	4.1	4.0	*82.9*	*83.8*	5.3	2.4	*45.3*	5.9	7.1	*83.1*	-----
339208	14.5	*90.3*	*57.2*	10.4	9.1	10.3	66.0	57.0	3.35	3.5	4.1	3.95	*81.7*	*88.6*	5.3	2.05	*38.7*	5.8	7.1	*81.7*	4.1
339155	[1] 14.3	*90.2*	*55.2*	10.5	9.3	10.6	68.5	55.0	3.5	3.5	4.1	3.9	*85.4*	*89.7*	5.5	2.45	*44.6*	5.4	7.2	*75.0*	3.7
339184	-----	-----	-----	-----	-----	9.8	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	5.3	6.3	*84.1*	-----
339108	15.1	*84.1*	*51.0*	11.6	10.4	11.2	67.5	55.0	3.7	3.6	4.0	3.9	*92.5*	*92.3*	5.4	2.4	*44.4*	5.9	6.9	*85.5*	4.0
339218	15.1	-----	*51.0*	10.8	9.8	10.7	68.0	60.5	3.65	3.6	4.3	4.3	*84.9*	*83.7*	5.15	2.4	*46.6*	5.8	6.7	*86.6*	-----
339173	14.3	-----	-----	-----	-----	10.5	-----	-----	3.8	3.7	4.0	3.9	*95.0*	*94.9*	5.6	2.2	*39.3*	-----	-----	-----	4.0
339107	14.3	-----	*53.2*	10.0	9.0	10.0	67.5	59.5	3.3	3.3	3.8	3.8	*86.8*	*86.8*	5.2	2.2	*42.3*	5.5	6.6	*83.3*	-----
Specimens	(45)	*(24)*	*(43)*	(42)	(44)	(46)	(41)	(41)	(42)	(41)	(42)	(41)	*(42)*	*(41)*	(44)	(44)	(44)	(44)	(44)	*(44)*	(28)
Totals	644.6	-----	-----	447.3	418.5	485.5	-----	-----	150.8	147.1	170.0	164.05	-----	-----	235.4	103.2	-----	249.0	298.6	-----	112.15
Averages	14.32	*90.3*	*54.6*	10.65	9.51	10.55	68.0	58.0	3.59	3.59	4.05	4.0	*88.7*	*89.7*	5.35	2.35	*43.8*	5.66	6.79	*83.4*	4.0
Minima	13.3	*83.3*	*50.4*	9.6	8.6	9.8	63.0	49.5	3.3	3.3	3.8	3.75	*80.5*	*81.0*	5.0	2.0	*38.5*	4.9	6.2	*75.0*	3.35
Maxima	15.3	*100.0*	*60.2*	11.6	10.4	11.2	72.0	63.5	3.9	3.9	4.3	4.3	*97.4*	*100.0*	5.9	2.8	*50.9*	6.4	8.0	*92.3*	4.7

NUNIVAK ISLAND: FEMALES

Catalog No.	Collection	Locality	Ap-proxi-mate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
339142	(*Collins and Stewart*) U.S.N.M.	Nunivak	50		19.0	13.3	13.5	*70.0*	*83.6*		15.27	[1] 1,300	Medium		7.5
339192	do	do	50		18.6	13.4	13.9	*72.0*	*86.9*		15.30	1,475			7.3
339193	do	do	55		18.8	13.6	13.4	*72.3*	*82.7*		15.27	1,365	Medium		7.9
339194	do	do	55		18.5	13.4	13.4	*72.4*	*84.0*		15.10	1,435	Considerable		[1] 7.8
339189	do	do	40		18.2	13.2	13.4	*72.5*	*85.4*		14.93	1,220			
339223	do	do	23		17.9	13.0	13.1	*72.6*	*84.8*		14.67	[1] 1,290	+		7.2
339105	do	do	30		18.4	13.5	12.8	*73.4*	*80.2*		14.90	1,315	Moderate	12.3	7.6
339196	do	do	35		18.5	13.6	13.4	*73.5*	*83.5*		15.17	1,350			7.4
339095	do	do	50		18.6	13.7	13.3	*73.7*	*82.4*		15.20	1,435	Considerable		[1] 7.5
339141	do	do	40		18.5	13.7	13.3	*74.1*	*82.6*		15.17	1,395	Uppers all		
339098	do	do	50		17.8	13.2	12.7	*74.2*	*81.9*		14.57	1,285	Considerable	11.4	7.2
339132	do	do	25		18.3	13.6	12.8	*74.3*	*80.2*		14.90	1,375	Slight	12.4	7.4
339249	do	do	70		18.0	13.4	13.4	*74.4*	*85.4*		14.93	1,310	Uppers all		
339096	do	do	50		17.7	13.2	13.4	*74.6*	*86.7*		14.77	1,350	Medium	11.1	[1] 7.0
339154	do	do	40		18.2	13.6	12.7	*74.7*	*79.9*		14.83	1,265	do	11.8	7.4
339161	do	do	60		17.4	13.0	13.4	*74.7*	*88.2*		14.60	1,250	Considerable	10.4	[1] 6.6
339248	do	do	50		18.6	13.9	13.3	*74.7*	*81.8*		15.27	1,375			
339134	do	do	24		18.3	13.7	13.6	*74.9*	*85.0*		15.20	1,415	+	12.0	7.6
339187	do	do	50		18.7	14.0	13.2	*74.9*	*80.7*		15.30	1,520	Considerable		7.6
339185	do	do	35		18.4	13.8	13.7	*75.0*	*85.1*		15.30	1,450			
339148	do	do	23		17.6	13.2	13.8	*75.0*	*89.6*		14.87	1,330	+	12.2	7.5
339131	do	do	55		18.1	13.6	13.3	*75.1*	*83.9*		15.00	1,325	Considerable	11.4	7.2
339157	do	do	35		18.1	13.6	12.8	*75.1*	*80.8*		14.83	1,300	Medium	11.5	7.2
339164	do	do	30		17.8	13.4	13.1	*75.3*	*84.0*		14.77	1,390	Slight		7.4
339181	do	do	40		18.2	13.7	[1] 13.2	*75.3*	*82.8*		15.03	[1] 1,440			
339247	do	do	50		17.4	13.1	12.8	*75.3*	*83.9*		14.43		Medium		
339104	do	do	24		18.1	13.7	13.6	*75.7*	*85.5*		15.13	1,420	+	12.2	7.4
339140	do	do	60		17.7	13.4	13.0	*75.7*	*83.6*		14.70	1,330	Considerable	10.7	6.8
339202	do	do	50		18.2	13.8	13.0	*75.8*	*81.2*		15.00	1,365			
339177	do	do	75		17.4	13.2	13.0	*75.9*	*85.0*		14.53	1,255	Uppers all lost		
351639	do	do	22		17.9	13.6	12.2	*76.0*	*77.5*		14.57				6.9
339195	do	do	60		18.3	13.9	13.5	*76.0*	*83.8*		15.23				
339216	do	do	45		17.5	13.3	12.6	*76.0*	*81.8*		14.47	1,250	Considerable		7.0
339221	do	do	35		17.9	13.6	13.5	*76.0*	*85.7*		15.00	1,355	Slight		7.5
339225	do	do	35		17.9	13.6	[1] 12.5	*76.0*	*79.4*		14.67	1,310			

339228	do	do	45		17.9	13.6	13.3	*76.0*	*84.4*		14.93	1,340	Slight	12.6	7.7
339257	do	do	35		17.6	13.4	12.6	*76.1*	*81.3*		14.53	1,245	Moderate	12.5	8.0
339246	do	do	45		18.1	13.8	13.3	*76.2*	*83.4*		15.07	1,375	Considerable		
339212	do	do	65		18.5	14.1	13.4	*76.2*	*82.2*		15.33	1,370	Uppers all lost		
339151	do	do	55		17.2	13.1	13.4	*76.2*	*88.4*		14.57		do		
339165	do	do	40		17.8	13.6	13.6	*76.4*	*86.6*		15.00	1,340	Considerable		7.1
339188	do	do	30		18.3	14.0	13.2	*76.5*	*81.7*		15.17	1,460	Moderate		7.8
339183	do	do	55		17.5	13.4	12.8	*76.6*	*82.8*		14.57	[1]1,320	Considerable		[1]7.1
339244	do	do	70		17.3	13.3	13.2	*76.9*	*86.3*		14.60	1,340	Uppers all lost		
399255	do	do	50		18.2	14.0	13.0	*76.9*	*80.8*		15.07	1,360	Medium	11.3	7.0
399103	do	do	21		17.4	13.4	13.4	*77.0*	*87.0*		14.73	1,320	+	11.1	7.1
339179	do	do	55		17.4	13.4	13.2	*77.0*	*85.7*		14.67	1,190	Considerable		7.1
339190	do	do	55		17.9	13.8	13.4	*77.1*	*84.5*		15.03	1,400			
339097	do	do	45		18.0	13.9	13.0	*77.2*	*81.5*		14.97	1,380	Considerable		7.1
339176	do	do	55		18.3	13.6	13.5	*77.6*	*84.6*		15.47	1,545	do	11.3	7.5
339214	do	do	21		17.0	13.2	12.4	*77.7*	*82.1*		14.20	1,290	+		6.6
339243	do	do	24		17.9	13.9	12.9	*77.7*	*81.1*		14.90	1,440	+	11.0	6.7
339178	do	do	55		17.6	13.7	12.4	*77.8*	*79.2*		14.57	1,285	Considerable		6.9
339253	do	do	45		17.7	13.8	12.6	*78.0*	*80.0*		14.70	1,325	Medium	11.4	7.3
339252	do	do	55		17.9	14.0	13.2	*78.2*	*82.8*		15.03	1,390	Considerable	11.3	7.0
339215	do	do	35		17.4	13.6	13.4	*78.2*	*86.4*		14.80	1,315	Medium		7.3
339211	do	do	55		18.1	14.2	13.4	*78.5*	*83.0*		15.23	1,480	Considerable		
339170	do	do	70		18.2	14.3	13.5	*78.6*	*83.1*		15.33	1,520	do		7.3
339229	do	do	25		17.3	13.6	12.4	*78.6*	*80.2*		14.43	1,350	+	12.6	7.8
339224	do	do	50		17.4	13.7	13.2	*78.7*	*84.9*		14.77	1,245	Considerable		7.1
339209	do	do	50		17.5	13.8	13.0	*78.9*	*83.1*		14.77	1,280	Medium	12.3	7.4
339094	do	do	50		17.7	14.0	12.8	*79.1*	*80.8*		14.83	[1]1,330	Considerable	10.5	7.0
339979	do	do	50		17.3	13.7	12.9	*79.2*	*83.2*		14.63	1,275			7.1
339258	do	do	40		17.4	13.8	12.6	*79.3*	*80.8*		14.60	1,260	Moderate	11.4	7.3
339232	do	do	45		17.5	13.9	12.7	*79.4*	*80.9*		14.70	1,275	do	11.4	7.1
339180	do	do	35		17.3	13.8	12.9	*79.8*	*83.0*		14.67	1,425	Slight		7.1
339150	do	do	75		17.5	14.0	13.6	*80.0*	*86.3*		15.03	1,330	All lost		
339182	do	do	30		17.8	[1]14.3	12.7	*80.3*	*79.1*		14.93		Slight		6.9
339156	do	do	40		17.2	13.9	13.0	*80.8*	*83.6*		14.70	1,325	Medium	12.4	7.5
339191	do	do	30		17.9	14.7	13.8	*82.1*	*84.7*		15.47	1,545	Moderate		7.3
339159	do	do	50		16.9	14.1	13.3	*83.4*	*85.8*		14.77	1,370	Medium	11.4	6.9
Specimens			(70)		(70)	(70)	(70)	(70)	(70)		(70)	(66)		(27)	(52)
Totals			3,175		1,252.5	955.3	920.4				1,042.7	89,285.0		313.9	378.1
Averages			45.4		17.89	13.65	13.15	*76.3*	*83.4*		14.90	1,353.0		11.62	7.27
Minima			21		16.9	13.0	12.4	*70.0*	*79.1*		14.20	1,190.0		10.4	6.6
Maxima			75		19.0	14.7	13.9	*83.4*	*89.6*		15.47	1,545.0		12.6	8.0

[1] Near.

NUNIVAK ISLAND: FEMALES—Continued

Catalog No.	Diam. Bizygomatic maxim. (c)	Facial Index, total $\left(\frac{a \times 100}{c}\right)$	Facial Index, upper $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	Orbital Index, right	Orbital Index, left	Nose—Height	Nose—Breadth maxim.	Nasal Index	Upper Alveolar Arch—Length, maxim.	Upper Alveolar Arch—Breadth, maxim.	Upper Alveolar Arch—Index	Lower Jaw—Height at Symphysis
339142	12.8		58.6						3.15	3.3	3.9	3.9	80.8	84.6	5.3	2.4	45.3	5.2	6.0	86.7	
339192	13.8		52.9	10.6	9.8	10.5	69.0	64.0	3.2	3.2	3.9	3.8	82.1	84.2	5.1	2.05	40.2	5.6	6.4	87.5	
339193	13.7		57.7	11.0	9.6	10.5	65.5	52.0	3.7	3.7	4.1	4.1	90.2	90.2	5.3	2.3	43.4	5.6	6.4	87.5	
339194	13.3		58.7			10.4			3.65	3.65	3.95	3.85	92.4	94.8	[1] 5.4	2.4	44.4				
339189						10.1															
339223	13.1		55.0	[1] 10.3	[1] 9.0	[1] 9.8	65.5	47.0		3.35		3.6		93.1	5.2	2.4	46.2	5.5	7.2	76.4	
339105	13.3	92.5	57.1	10.0	8.6	10.1	68.5	50.0	3.7	3.8	3.9	3.8	94.9	100.0	5.3	2.45	46.2	5.7	6.6	86.4	3.8
339196	14.1		52.5	10.4	9.4	10.4	69.0	59.0	3.7	3.65	4.2	4.1	88.1	89.0	5.1	2.2	43.1	5.2	6.4	81.2	
339095	13.7		54.7	[1] 10.3	9.4	10.1	67.0	61.0	3.6	3.65	4.05	4.0	88.9	91.3	5.3	2.15	40.6	[1] 5.3	6.3	84.1	
339141	13.6				9.4	10.4			3.4	3.4	3.75	[1] 3.75	90.7	90.7	5.2	2.2	42.3				
339098	13.3	85.7	54.1	10.3	9.1	10.2	69.0	52.5	3.5	3.5	3.9	3.8	89.7	92.1	5.1	2.4	47.1	5.4	6.1	88.5	3.5
339132	13.3	93.2	55.6	10.6	9.1	10.2	66.5	48.5	3.45	3.35	4.2	4.0	82.1	83.8	5.0	2.2	44.0	5.7	6.5	87.7	3.9
339249	13.5				9.0	10.0			3.6	3.6	3.9	3.8	92.3	94.7	4.85	2.45	50.5				
339096	12.9	86.1	54.3		8.8	10.4			3.15	3.2	3.8	3.7	82.9	86.5	5.0	2.2	44.0	[1] 5.1	[1] 6.3	81.0	3.2
339154	13.6	86.8	54.4	10.6	9.4	10.4	68.0	56.0	3.25	3.35	3.7	3.7	87.8	90.5	4.9	2.4	49.0	5.9	6.5	90.8	3.7
339161	[1] 12.6	82.5	52.4		8.7	9.8			3.0	3.0	3.8	3.9	79.0	76.9	4.5	2.3	51.1				3.2
339248						10.5															
339134	12.9	93.0	58.9	10.8	9.6	10.2	65.0	62.5	3.4	3.4	3.7	3.8	92.0	89.5	5.2	2.1	40.4	5.7	6.4	89.1	3.55
339187	14.0		54.3		9.0	10.3			3.7	3.8	3.8	3.8	97.4	100.0	5.2	2.15	41.3				
339185	13.3					10.4															
339148	13.1	93.1	57.3	10.5	9.6	10.7	70.5	59.0	3.5	3.5	3.7	3.8	94.6	92.1	5.4	2.55	47.2	5.7	6.8	83.8	3.65
339131	13.2	86.4	54.6	10.0	8.6	9.9	68.0	48.5	3.6	3.55	3.9	3.9	92.3	91.0	5.0	2.3	46.0	5.3	6.8	77.9	3.45
339157	13.4	85.8	53.7	10.0	8.9	10.0	69.0	56.0	3.6	3.65	3.9	3.9	92.3	93.6	4.9	2.5	51.0	5.2	6.3	82.5	3.4
339164	12.6		58.7	10.5	9.5	10.2	67.0	59.0	3.7	3.7	3.7	3.75	100.0	98.6	5.1	2.25	44.1	5.2	6.0	86.7	
339181	13.7					[1] 9.7															
339247					8.6	9.9									5.0	2.1	42.0				3.3
339104	13.7	89.1	54.0	10.6	9.2	10.3	67.0	51.0	3.55	3.7	3.9	3.8	91.0	97.4	4.95	2.7	54.5	5.6	6.7	83.6	3.7
339140	[1] 13.2	81.1	51.5	10.0	8.8	9.7	67.5	53.0	3.2	3.3	3.9	4.0	82.1	82.5	4.6	2.2	47.8	5.4	5.9	91.5	3.3
339202						10.4															
339177	13.0				8.8	10.0			3.5	3.5	3.8	3.85	92.1	90.9	4.8	2.4	50.0				
351639	12.3		56.1	9.4	8.6	9.4	68.0	61.0	3.35	3.5	3.8	3.6	88.2	97.2	4.8	2.25	46.9	5.1	6.1	83.6	
339195						9.9															
339216	13.1		53.4	9.7	8.4	9.4	66.5	49.0	3.85	3.85	4.15	4.25	92.8	90.6	4.9	2.3	46.9	5.4	6.0	90.0	
339221	13.8		54.4	10.1	9.0	10.0	67.5	58.0	3.5	3.5	3.7	3.7	94.6	94.6	5.0	2.3	46.0	5.1	6.4	79.7	
339225	12.8					9.5			3.3	3.35	3.8	3.8	86.8	88.2	4.6	2.35	51.1				
339228	13.6	92.7	56.6	10.2	9.0	10.0	66.0	56.0	3.75	3.65	3.8	3.9	98.7	93.6	5.1	2.2	43.1	5.4	6.4	84.4	3.7
339257	13.2			10.1	8.8	10.0	66.0	54.0	3.35	3.45	3.9	3.9	85.9	88.5	5.4	2.3	42.6	5.6	6.4	87.5	3.6

339246	13.0	------	------	------	8.6	9.8	------	------	3.5	3.5	3.9	3.8	*89.7*	*92.1*	4.8	2.3	*47.9*	------	------	------	------
339212	13.9	------	------	------	8.9	9.8	------	------	3.65	3.7	4.0	4.0	*91.3*	*92.5*	5.1	2.5	*49.0*	------	------	------	------
339151	12.6	------	------	------	8.6	10.1	------	------	------	3.55	------	3.9	------	*91.0*	4.9	2.2	*44.9*	------	------	------	------
339165	[1] 12.9	------	*55.0*	10.0	9.0	10.1	70.0	60.0	3.3	3.5	4.15	3.8	*79.5*	*92.1*	4.6	2.4	*52.2*	5.2	6.1	*85.2*	------
339188	13.4	------	*58.2*	9.7	8.7	10.0	68.5	59.5	3.8	------	3.8	------	*100.0*	------	5.3	[1] 2.5	*47.2*	5.2	5.8	*89.7*	------
339183	13.6	------	*52.3*	------	8.8	10.1	------	------	3.45	3.4	4.0	3.9	*86.3*	*87.2*	5.0	2.2	*44.0*	------	------	------	------
339244	13.1	------	------	------	8.7	10.0	------	------	3.45	3.5	4.2	4.15	*82.1*	*84.4*	4.9	2.35	*47.9*	------	------	------	3.3
339255	------	------	------	------	8.4	9.9	------	------	3.6	3.6	3.9	3.8	*92.3*	*94.7*	4.95	2.4	*48.5*	[1] 5.2	6.3	*82.5*	3.5
339103	12.8	*86.7*	*55.5*	9.5	8.5	9.8	70.5	54.5	------	3.65	------	3.7	------	*98.7*	5.2	2.3	*42.3*	5.1	6.3	*81.0*	2.9
339179	[1] 12.8	------	*55.5*	9.7	8.8	10.0	71.0	61.0	3.3	3.4	3.9	3.85	*84.6*	*88.3*	4.8	2.2	*45.8*	5.0	6.5	*76.9*	3.7
339190	13.6	------	------	------	9.6	10.4	------	------	------	3.35	------	3.8	------	*87.5*	4.9	2.55	*52.0*	------	------	------	------
339097	13.0	------	*54.6*	10.2	9.0	9.8	66.5	53.5	3.5	3.6	3.9	3.9	*89.7*	*92.3*	4.8	2.55	*53.1*	5.7	6.2	*91.9*	------
339176	13.8	*81.9*	*54.4*	10.2	9.2	10.4	70.0	59.5	3.4	3.4	3.8	3.8	*89.5*	*89.5*	5.1	2.45	*46.2*	5.4	6.2	*87.1*	3.25
339214	12.2	------	*54.1*	9.9	9.0	9.4	66.0	57.5	3.4	3.3	3.7	3.6	*91.9*	*94.4*	4.6	2.2	*47.8*	5.7	6.5	*87.7*	------
339243	13.3	*82.7*	*50.4*	10.0	9.0	9.7	67.5	50.5	3.3	[1] 3.6	3.7	3.8	*89.2*	*94.7*	5.0	2.35	*47.0*	4.9	6.1	*80.3*	3.0
339178	13.3	------	*51.9*	9.9	8.8	9.8	68.5	55.0	3.5	3.45	3.9	3.8	*89.7*	*90.6*	4.7	2.45	*52.1*	------	------	------	3.3
339253	12.6	*90.5*	*57.9*	10.0	8.9	9.8	67.0	56.5	3.6	3.6	3.9	3.7	*92.3*	*97.3*	4.95	2.35	*47.4*	5.2	5.5	*94.6*	3.2
339252	13.0	*86.9*	*53.9*	10.8	9.6	10.2	66.0	53.0	3.6	3.65	3.9	3.75	*92.3*	*97.3*	4.8	2.45	*51.0*	5.5	6.3	*87.3*	3.7
339215	13.9	------	*52.5*	10.1	9.0	10.0	68.0	57.0	3.6	3.55	3.9	3.8	*92.3*	*93.4*	4.9	2.5	*51.0*	5.2	6.3	*82.5*	------
339211	------	------	------	------	------	10.4	------	------	3.6	------	3.9	------	*92.3*	------	------	------	------	------	------	------	------
339170	14.1	------	*51.8*	10.1	8.8	9.9	67.0	50.0	3.55	3.5	3.8	3.8	*93.4*	*92.1*	5.1	2.5	*49.0*	5.5	6.5	*84.6*	3.5
339229	12.9	*97.7*	*60.5*	10.1	8.4	9.2	60.0	43.5	3.8	3.85	3.7	3.85	*105.6*	*100 0*	5.3	2.4	*45.3*	5.8	6.4	*90.6*	3.7
339224	12.6	------	*56.4*	10.4	9.1	9.9	66.0	52.5	3.3	3.3	4.0	3.9	*82.5*	*84.6*	4.7	2.1	*44.7*	5.5	6.2	*88.7*	------
339209	13.2	*93.2*	*56.1*	10.3	8.8	10.1	67.5	48.5	3.5	3.6	3.9	3.9	*89.7*	*92.3*	5.0	2.15	*43.0*	5.7	6.5	*87.7*	4.0
339094	[1] 13.3	*79.0*	*52.6*	10.4	9.2	9.9	66.0	51.0	------	3.55	------	4.2	------	*84.5*	4.95	[1] 2.3	*47.3*	------	------	------	3.0
339979	12.9	------	*55.0*	9.6	8.6	9.9	71.0	57.0	3.6	3.6	3.9	3.7	*92.3*	*97.3*	5.0	2.3	*46.0*	5.0	5.9	*84.7*	------
339258	[1] 12.7	*89.8*	*57.5*	9.8	8.6	9.4	65.0	55.0	3.6	3.6	3.6	3.55	*100.0*	*101.4*	4.8	2.05	*42.7*	5.4	6.3	*85.7*	3.5
339232	13.2	*86.4*	*53.8*	10.6	9.3	10.0	65.5	51.5	3.6	3.55	3.8	3.7	*94.7*	*96.0*	4.8	2.45	*51.0*	5.7	6.1	*93.4*	3.5
339180	13.3	------	*53.4*	9.3	8.6	10.0	74.0	63.5	3.5	3.6	3.9	3.9	*89.7*	*92.3*	5.1	2.45	*48.0*	5.1	6.3	*81.0*	------
339150	13.3	------	------	------	8.6	9.7	------	------	3.5	------	4.0	------	*87.5*	------	5.0	2.1	*42.0*	------	------	------	------
339182	[1] 13.6	------	*50.7*	10.1	9.2	10.0	69.0	56.0	3.6	------	4.0	------	*90.0*	------	5.1	2.1	*41.2*	5.3	6.0	*88.3*	------
339156	13.6	*91.2*	*55.1*	10.1	9.0	9.8	66.0	57.0	3.6	3.6	4.0	3.9	*90.0*	*92.3*	5.1	2.3	*45.1*	5.4	6.3	*85.7*	3.7
339191	14.1	------	*51.8*	10.2	9.0	10.1	68.0	55.5	3.55	3.65	3.65	3.7	*97.3*	*98.7*	4.8	2.0	*41.7*	5.3	6.9	*76.8*	------
339159	13.3	*85.7*	*51.9*	10.1	8.8	9.8	67.5	51.0	3.35	3.3	3.8	3.8	*88.2*	*86.8*	4.65	2.35	*50.5*	5.1	6.1	*83.6*	3.6
Specimens	(63)	*(26)*	*(51)*	(45)	(60)	(69)	(45)	(45)	(58)	(59)	. (58)	(59)	*(58)*	*(59)*	(63)	(63)	*(63)*	(46)	(46)	*(46)*	(32)
Totals	836.1	------	------	457.7	538.2	691.5	3,037.5	2,475	203.15	207.62	25.2	226.7	------	------	314.4	145.95	------	247.9	290.4	------	111.30
Averages	13.27	*88.2*	*54.8*	10.17	8.97	10.02	67.5	55.0	3.50	3.52	3.88	3.84	*90.2*	*91.6*	4.99	2.32	*46.4*	5.39	6.31	*85.4*	3.48
Minima	12.2	*79.0*	*50.4*	9.3	8.4	9.2	60.0	43.5	3.0	3.0	3.6	3.55	*79.0*	*76.9*	4.5	2.0	*40.2*	4.9	5.5	*76.4*	2.9
Maxima	14.1	*97.7*	*60.5*	11.0	9.8	10.7	74.0	64.0	3.85	3.85	4.2	4.25	*105.6*	*101.4*	5.4	2.7	*54.5*	5.9	7.2	*94.6*	4.0

[1] Near.

NELSON ISLAND: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(Collins and Stewart)														
339064	U.S.N.M.	Tanunuk	40		20.1	14.1	14.3	*70.2*	*83.6*		16.50	1,605	Moderate	14.1	8.6
339067	do	do	45		19.1	13.9	13.4	*72.8*	*81.2*		15.47	1,505	Considerable	13.4	8.7
339068	do	do	65		19.6	14.8	14.1	*75.5*	*82.0*		16.17	1,700	do	12.4	[1] 8.0
339070	do	do	30		18.2	13.8	13.1	*75.8*	*81.9*		15.03	1,510			8.1
339065	do	do	50		18.5	14.3	13.4	*77.3*	*81.7*		15.40	1,560	Considerable		[1] 8.3
339091	do	do	55		18.2	14.3	13.4	*78.6*	*82.5*		15.30	1,550	Medium	12.2	7.6
339071	do	do	50		18.6	15.0	13.4	*80.7*	*79.8*		15.67	1,550	Considerable	12.6	8.0
339069	do	do	55		17.7	14.6	13.6	*82.5*	*84.2*		15.30	1,430	do	12.9	8.4
339066	do	do	50		18.4	15.2	13.7	*82.6*	*81.6*		15.77	1,680	Slight	13.4	8.0
Specimens			(9)		(9)	(9)	(9)	*(9)*	*(9)*		(9)	(9)		(7)	(9)
Totals			440		168.4	130.0	122.4				140.27	14,090		91.0	73.7
Averages			48.9		18.73	14.44	13.60	*77.2*	*82.0*		15.59	1,566		13.0	8.19
Minima			30		17.7	13.8	13.1	*70.2*	*79.8*		15.03	1,430		12.2	7.6
Maxima			65		20.1	15.2	14.3	*82.6*	*84.2*		16.50	1,700		14.1	8.7

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
339064	14.6	96.6	58.9	11.0	10.0	11.1	68.0	64.0	3.6	3.5	4.1	4.1	87.8	85.4	5.4	2.5	46.3	5.8	7.1	81.7	4.5
339067	14.2	94.4	61.3	10.0	8.8	10.6	69.0	55.0	3.8	3.85	4.1	4.2	92.7	91.7	6.3	2.4	38.1	5.5	6.8	80.9	3.7
339068	14.4	86.1	55.6	-------	9.5	10.8	-------	-------	3.75	3.65	4.15	4.25	90.4	85.9	5.7	2.45	42.9	[1] 5.8	6.9	84.1	3.7
339070	[1] 14.3	-------	56.6	10.7	9.3	10.2	64.0	49.0	3.75	3.7	3.8	3.8	98.7	97.4	5.8	2.5	43.1	5.9	6.6	89.4	-------
339065	14.8	-------	56.1	-------	9.4	10.4	-------	-------	3.7	3.8	4.2	4.1	88.1	92.7	5.5	2.4	43.6	-------	-------	-------	4.1
339091	14.0	87.1	54.3	10.1	8.8	10.0	67.0	50.5	3.95	3.95	3.95	3.8	100.0	104.0	5.4	2.1	39.0	5.4	6.3	85.7	3.6
339071	14.3	88.1	55.9	10.6	9.2	10.5	67.0	52.5	3.7	3.65	3.95	3.95	93.7	92.4	5.4	2.4	44.4	5.9	6.6	89.4	3.8
339069	14.8	87.2	56.8	10.9	9.6	10.3	63.0	56.0	3.75	3.8	4.15	4.0	90.4	95.0	5.6	2.4	42.9	5.8	6.5	89.2	3.8
339066	15.6	91.8	54.8	11.2	8.9	10.2	62.0	38.5	3.8	3.8	4.35	4.4	87.9	86.4	5.2	2.5	48.1	5.7	6.6	86.4	4.1
Specimens	(9)	(7)	(9)	(7)	(9)	(9)	(7)	(7)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(8)	(8)	(8)	(8)
Totals	130.0	-------	-------	74.3	83.5	94.1	462.0	371.0	33.8	33.7	36.75	36.6	-------	-------	50.3	21.65	-------	45.8	53.4	-------	31.3
Averages	14.44	90.5	56.7	10.61	9.28	10.46	66.0	53.0	3.76	3.74	4.08	4.07	92.0	92.1	5.59	2.41	43.0	5.73	6.68	85.8	3.91
Minima	14.0	86.1	54.3	10.0	8.8	10.0	62.0	38.5	3.6	3.5	3.8	3.8	87.8	85.4	5.2	2.1	38.1	5.4	6.3	80.9	3.6
Maxima	14.8	96.6	61.3	11.2	10.0	11.1	69.0	64.0	3.95	3.95	4.35	4.4	100.0	104.0	6.3	2.5	48.1	5.9	7.1	89.4	4.5

[1] Near.

NELSON ISLAND: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	lveol. Pt.-Nasion Height (b)
	(Collins and Stewart)														
339080	U.S.N.M.	Tanunuk	23		18.4	13.9	13.0	*75.4*	*80.5*		15.10	1,435	+	11.9	7.2
339077	do	do	25		17.6	13.4	12.6	*76.2*	*81.3*		14.53	1,345	+	11.0	6.9
339083	do	do	55		17.2	13.2	12.1	*76.7*	*79.6*		14.17	1,280	Considerable	12.0	7.8
339085	do	do	30		17.6	13.5	12.4	*76.7*	*79.7*		14.50				
339078	do	do	45		17.8	13.7	12.7	*77.0*	*80.6*		14.73	1,425	Considerable	11.5	7.2
339084	do	do	55		17.4	13.6		*78.2*							
339093	do	do	35		18.1	14.2	13.3	*78.5*	*82.4*		15.20	1,340			7.2
339079	do	do	24		17.3	13.6	12.2	*78.6*	*79.0*		14.37	1,290	+		7.2
339082	do	do	45		17.0	13.4	13.5	*78.8*	*88.8*		14.63	1,280	Medium	11.3	6.9
339075	do	do	55		17.3	13.7	12.6	*79.8*	*81.3*		14.53	1,305	do	11.4	7.2
339074	do	do	25		16.8	13.4	12.5	*79.8*	*82.8*		14.23	1,145	N.+	10.9	6.7
339076	do	do	55		16.9	[1] 13.5	13.1	*79.9*	*86.2*		14.50	1,340	N. lost; Lowers considerable		
339092	do	do	40		17.5	14.0	12.7	*80.0*	*80.6*		14.73	1,385			6.8
339086	do	do	30		17.0	13.7	12.6	*80.6*	*82.1*		14.43		Slight		7.2
339072	do	do	24		17.0	13.7	12.7	*80.6*	*82.7*		14.47	1,275	+	12.0	7.2
339081	do	do	30		17.6	14.2	13.1	*80.7*	*82.4*		14.97	1,410	Moderate	11.9	7.3
339073	do	do	24		17.6	14.4	13.4	*81.8*	*83.8*		15.13	1,420	+	12.3	7.7
Specimens			(17)		(17)	(17)	(16)	*(17)*	*(16)*		(16)	(14)		(10)	(14)
Totals			617		296.1	233.1	204.5				234.2	18,675		116.2	100.5
Averages			36.3		17.42	13.71	12.78	*78.7*	*82.1*		14.64	1,334		11.62	7.18
Minima			23		16.8	13.2	12.1	*75.4*	*79.0*		14.17	1,145		10.9	6.7
Maxima			55		18.4	14.4	13.5	*81.8*	*88.8*		15.20	1,435		12.3	7.8

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
339080	13.6	87.5	52.9	10.1	9.0	10.0	68.5	58.0	3.5	3.7	3.8	3.9	92.1	94.9	4.8	2.3	47.9	5.3	6.4	82.8	3.3
339077	13.3	82.7	51.9	10.0	8.8	9.5	66.0	49.0	3.4	3.35	3.7	3.8	91.9	88.2	4.95	2.3	46.7	5.5	6.2	88.7	3.2
339083	13.2	90.9	59.1	9.8	8.3	9.6	65.0	49.5	3.6	3.65	4.0	3.9	90.0	93.6	5.3	2.35	44.4	5.5	6.3	87.3	3.4
339085																					
339078	12.9	89.2	55.8	9.9	8.4	9.3	63.5	47.0	3.45	3.45	3.8	3.8	90.6	90.6	5.0	2.4	48.0	5.2	6.1	85.2	3.3
339084																					
339093	13.9		52.9	10.8	9.5	10.2	66.0	52.5	3.5	3.4	4.0	3.9	87.5	87.2	4.95	2.25	45.5	5.8	6.8	85.3	
339079	12.4		58.1	9.6	8.0	9.1	64.5	41.0	3.5	3.5	3.6	3.6	97.2	97.2	5.2	2.3	44.2	5.5	6.3	87.3	
339082	13.4	84.3	51.5	10.6	9.2	10.0	66.0	47.0	3.45	3.7	3.9	4.0	88.5	92.5	4.9	2.25	45.9	5.6	6.3	88.9	3.3
339075	13.2	86.4	54.6	[1] 10.2	8.8	9.8	63.5	37.0	3.35	3.35	3.7	3.6	90.5	93.1	5.2	2.4	46.2	5.4	6.5	83.1	3.5
339074	13.0	83.9	51.5	10.2	9.0	9.9	68.5	53.5	3.5	3.6	3.9	3.8	89.7	94.7	4.7	2.3	48.9	5.2	5.8	89.7	3.3
339076	13.1				8.7	9.7			3.4	3.5	3.7	3.7	91.9	94.6	5.25	2.5	47.6				3.4
339092	14.4		47.2	9.5	8.4	9.5	69.5	50.0	3.6	3.65	4.0	3.8	90.0	96.1	5.1[1]	2.4	47.1	5.1	6.2	82.3	
339086	13.3		54.1	10.3	9.1	9.8	65.5		3.45	3.55	4.0	4.0	86.3	88.8				5.4	6.6	81.8	
339072	[1]13.5	88.9	53.3	10.1	9.0	9.9	67.5	56.5	3.4	3.45	3.9	3.75	87.1	92.0	5.0	2.45	49.0	5.2	6.1	85.2	3.6
339081	13.4	88.8	54.5	9.5	8.1	9.4	67.0	50.0	3.35	3.4	3.7	3.7	90.5	91.9	4.95	2.25	45.5	5.2	6.2	83.9	3.7
339073	[1]14.0	87.7	55.0	10.2	9.1	10.2	69.0	59.0	3.65	3.8	3.8	3.8	96.1	100.0	5.5	2.3	41.8	5.6	6.7	83.6	3.4
Specimens	(15)	(10)	(14)	(14)	(15)	(15)	(13)	(13)	(15)	(15)	(15)	(15)	(15)	(15)	(14)	(14)	(14)	(14)	(14)	(14)	(11)
Totals	200.6			140.8	131.4	145.9	864.5	650.0	52.1	53.05	57.5	57.05			70.8	32.75		75.5	88.5		37.4
Averages	13.37	87.0	53.6	10.06	8.76	9.73	66.5	50.0	3.47	3.54	3.83	3.80	90.6	93.0	5.06	2.34	46.3	5.39	6.32	85.3	3.40
Minima	12.4	82.7	47.2	9.5	8.0	9.1	63.5	37.0	3.35	3.35	3.6	3.6	86.3	87.2	4.7	2.25	41.8	5.1	5.8	81.8	3.2
Maxima	14.4	90.9	59.1	10.8	9.5	10.2	69.5	59.0	3.65	3.8	4.0	4.0	97.2	100.0	5.5	2.5	49.0	5.8	6.8	89.7	3.7

[1] Near.

UNALAKLEET: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
	(*Chambers and Ford*)														
365752	U. S. N. M.	Unalakleet	50		20.0	13.9	14.2	*69.50*	*83.78*		16.03			13.8	8.4
365761	do	do	55		19.6	14.0	13.6	*71.43*	*80.95*		15.73				7.6
365753	do	do	55		19.2	14.0	14.4	*72.92*	*86.75*		15.87				8.2
365767	do	do	35		19.0	13.9	13.9	*73.16*	*84.50*		15.60				
365759	do	do	50		18.7	14.0	13.8	*74.87*	*84.40*		15.50				8.1
365758	do	do	45		18.8	14.5	13.8	*77.13*	*82.88*		15.70			13.6	8.4
365760	do	do	40		18.9	14.8	14.3	*78.31*	*84.87*		16.0				7.6
Specimens			(7)		(7)	(7)	(7)	(7)	(7)		(7)			(2)	(6)
Totals			330		134.2	99.1	98.0				110.4			27.4	48.3
Averages			47.1		19.17	14.16	14.0	*73.8*	*84.0*		15.78			13.7	8.05
Minima			35		18.7	13.9	13.6	*69.5*	*80.9*		15.50				7.6
Maxima			55		20	14.8	14.4	*78.3*	*86.7*		16.03				8.4

Catalog No.	Diam. Bizygomatic maxim (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Sugnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
365752	14.3	*96.50*	*58.74*	11.0	10.0	11.6	72.0	62.5	3.55	3.55	4.2	4.1	*84.52*	*86.59*	5.5	2.1	*38.18*	5.8	6.5	*89.23*	4.2
365761	13.3		*57.14*	10.8	9.8	10.4	66.0	61.0		3.65		4.05		*90.12*	4.9	2.3	*46.94*	5.6	6.8	*82.35*	
365753	14.2		*57.75*	11.0	9.7	10.8	66.5	55.5	3.8	3.8	4.4	4.4	*86.36*	*86.36*	5.45	2.5	*45.87*	5.9	7.1	*83.10*	
365767						10.6															
365759	13.6		*59.56*	10.8	10.0	10.9	68.5	64.5	3.55	3.55	4.0	3.9	*88.75*	*91.03*	5.6	2.15	*38.39*	5.8	7.3	*92.06*	
365758	14.3	*95.10*	*58.74*	9.8	8.8	10.3	68.5	58.5	3.6	3.7	3.95	3.8	*91.14*	*97.37*	5.9	2.35	*39.83*	5.2	6.6	*78.79*	4.1
365760	[2] 14.5		*52.41*	10.5	9.4	10.8	71.5	54.0	3.5	3.5	4.1	4.1	*85.37*	*85.37*	5.5	2.5	*45.45*	5.5	6.6	*83.33*	
Specimens	(6)		(6)	(6)	(6)	(7)	(6)	(6)	(5)	(6)	(5)	(6)	(5)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(2)
Totals	84.2			63.9	57.7	75.4	413.6	356.0	18.0	21.75	20.65	24.35			32.85	13.9		33.8	40.9		8.3
Averages	14.03		57.4	10.65	9.62	10.77	68.8	59.3	3.60	3.62	4.13	4.06	*87.2*	*89.3*	5.47	2.32	*42.3*	5.63	6.82	*82.6*	4.15
Minima	13.3		*52.4*	9.8	8.8	10.3	66.0	54.0	3.5	3.5	3.95	3.8	*84.5*	*85.4*	4.9	2.1	*38.2*	5.2	6.5	*78.8*	
Maxima	14.5		*59.6*	11.0	10.0	11.6	72.0	64.5	3.8	3.8	4.4	4.4	*91.1*	*97.4*	5.9	2.5	*46.9*	5.9	7.3	*92.1*	

[1] Allowance made for wear of teeth, where needed.
[2] Near.

UNALAKLEET: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a) [1]	Alveol. Pt.-Nasion Height (b)
363176	(*Chambers and Ford*) U.S.N.M.	Unalakleet	50	------	18.5	13.7	12.6	*74.05*	*78.26*	------	14.93	------	------	13.5	8.3
365764	do	do	30	------	17.9	13.5	13.2	*75.42*	*84.08*	------	14.87	------	------	------	6.8
365754	do	do	35–40	------	17.9	13.6	13.2	*75.98*	*83.81*	------	14.9	------	------	------	7.2
363177	do	do	50	------	17.9	13.6	13.5	*75.98*	*85.71*	------	15.0	------	------	------	------
365765	do	do	35	------	17.8	13.7	13.2	*76.97*	*83.81*	------	14.9	------	------	------	7.6
365766	do	do	60	------	17.8	13.7	13.6	*76.97*	*86.35*	------	15.03	------	------	(2)	------
365755	do	do	65	------	17.9	13.8	13.0	*77.09*	*82.02*	------	14.9	------	------	[2] 12.2	7.3
365756	do	do	28	------	17.6	13.6	13.0	*77.27*	*83.33*	------	14.73	------	------	12.3	7.6
365763	do	do	50	------	17.7	14.0	13.2	*79.10*	*83.28*	------	14.97	------	------	------	7.2
Specimens	------	------	(9)	------	(9)	(9)	(9)	(9)	(9)	------	(9)	------	------	(3)	(7)
Totals	------	------	398	------	161.0	123.2	118.5	------	------	------	134.2	------	------	38.0	52.0
Averages	------	------	44.2	------	17.89	13.69	13.17	*76.5*	*83.4*	------	14.91	------	------	12.67	7.43
Minima	------	------	28	------	17.6	13.5	12.6	*74.1*	*78.3*	------	14.73	------	------	------	6.8
Maxima	------	------	65	------	18.5	14.0	13.6	*79.1*	*86.4*	------	15.03	------	------	------	8.3

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Aleolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
363176	13.2	*97.78*	*62.88*	9.9	8.8	10.4	69.0	60.0	3.85	3.85	4.3	4.15	*89.53*	*92.77*	5.3	2.25	*42.45*	5.7	5.8	*98.28*	3.65
365764	13.5	-	*50.37*	10.0	8.9	9.9	69.0	50.5	3.5	3.5	4.0	4.1	*87.5*	*85.37*	4.9	2.6	*53.06*	5.3	6.4	*82.81*	-
365754	13.7	-	*52.55*	10.3	9.2	9.8	65.5	55.5	3.3	3.4	4.0	4.0	*82.50*	*85.0*	4.9	2.4	*48.98*	5.3	6.6	*80.3*	-
363177	-	-	-	-	-	10.1	-	-	3.75	-	4.0	-	*93.75*	-	-	-	-	-	-	-	-
365765	13.4	-	*56.72*	10.2	9.0	9.9	65.5	57.5	3.5	3.6	4.05	3.9	*86.42*	*92.31*	4.8	2.15	*44.79*	5.7	6.7	*85.07*	-
365766	13.3	-	-	-	8.6	9.6	-	-	3.5	3.35	3.65	3.6	*95.89*	*93.06*	5.8	2.4	*41.38*	-	-	-	-
365755	13.5	*90.37*	*54.07*	-	8.8	10.2	-	-	3.6	3.65	4.0	3.9	*90.0*	*93.59*	5.55	2.1	*37.84*	[3] 5.5	6.5	*84.62*	3.8
365756	13.7	*89.78*	*55.47*	10.1	8.9	10,6	67.0	54,0	3.6	3.6	3.8	3.75	*94.74*	*96.0*	5.2	2.3	*44.23*	5.4	6.9	*78.26*	3.8
365763	12.2	-	*59.02*	9.8	8.6	9.8	68.5	54,0	3.35	3.35	3.7	3.7	*90.54*	*90.54*	4.85	2.15	*44.33*	5.1	6.3	*80.95*	-
Specimens	(8)	(3)	(7)	(6)	(8)	(9)	(6)	(6)	(9)	(8)	(9)	(8)	(9)	(8)	(8)	(8)	(8)	(7)	(7)	(7)	(3)
Totals	106.5	-	-	60.3	70.8	89.7	401.5	331.5	31.95	28.30	38.5	31.1	-	-	41.3	18.35	-	38.0	45.2	-	11.25
Averages	13.31	*91.4*	*53.9*	10.05	8.85	9.97	67.4	55.2	3.55	3.54	3.94	3.89	*90.0*	*91.0*	5.16	2.29	*44.4*	5.43	6.46	*84.1*	3.75
Minima	12.2	-	*50.4*	9.8	8.6	9.6	65.5	50.5	3.35	3.35	3.7	3.7	*82.5*	*85.0*	4.85	2.1	*37.8*	5.1	5.8	*78.3*	-
Maxima	13.7	-	*62.9*	10.3	9.2	10.4	69.0	60.0	3.85	3.85	4.3	4.15	*95.9*	*96.0*	5.8	2.6	*53.1*	5.7	6.9	*98.3*	-

[1] Allowance made for wear of teeth, where needed.
[2] All upper incisors lost long ago (ablation)
[3] Near.

ST. MICHAEL ISLAND: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
242763	U.S.N.M.	St. Michael Island	20		18.5	13.1	13.5	*70.8*	*85.4*		15.03	1,395	+		7.5
242578	do	do	45		18.2	13.4	13.8	*73.6*	*87.3*		15.13	1,405	Moderate		8.1
242764	do	do	25		18.2	13.6	13.8	*74.7*	*86.8*		15.20	1,470	N.+	12.1	7.3
228285	do	do	55		18.8	14.2	13.8	*75.5*	*89.7*		15.93	1,540	Moderate to medium.		8.5
242785	do	do	45		18.6	14.1	14.5	*75.8*	*88.7*		15.73	1,590	Slight		7.9
248577	do	do	40		18.0	14.1	13.6	*78.3*	*84.7*		15.23	1,420	+		8.0
242876	do	do	75		17.9	14.2	13.8	*79.3*	*86.0*		15.30	1,515	All lost		
242814	do	do	50		17.6	14.0	12.8	*79.6*	*81.0*		14.80	1,355	Moderate	12.3	7.7
Specimens			(8)		(8)	(8)	(8)	(8)	(8)		(8)	(8)		(2)	(7)
Totals			355		145.8	110.7	110.6				122.37	11,690		24.4	55.0
Averages			44.4		18.23	13.84	13.83	*75.9*	*86.2*		15.30	1,461		12.20	77.86
Miuima			25		17.6	13.1	12.8	*70.8*	*81.0*		14.80	1,355		12.1	7.3
Maxima			75		18.8	14.2	14.8	*79.6*	*89.7*		15.93	1,590		12.3	8.5

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Aleolar Pt.	Basion Subnasal Pt.	Basion-Naslon	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth; right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
242763	13.7	-------	54.7	10.8	9.7	10.9	70.5	58.0	3.65	3.75	4.05	4.1	90.1	91.5	5.0	2.3	46.0	5.5	6.5	84.6	------
242578	14.2	-------	57.0	10.2	8.8	10.2	66.5	54.0	3.85	3.85	4.0	3.8	96.2	101.3	5.2	2.15	41.3	5.7	6.7	85.1	------
242764	13.9	87.0	52.5	10.0	9.2	10.4	72.0	60.5	3.8	3.7	4.1	4.05	92.7	91.4	5.4	2.2	40.7	5.3	6.4	82.8	3.6
228285	14.4	-------	59.0	10.8	9.6	11.0	68.5	59.0	3.75	3.75	4.1	4.0	91.5	93.8	5.5	2.3	41.8	5.5	7.2	76.4	------
242785	13.7	-------	57.7	10.3	9.0	10.6	70.0	54.0	3.7	------	4.1	------	90.2	-------	5.4	2.35	43.5	5.5	6.2	88.7	------
248577	13.8	-------	58.0	9.9	8.6	10.0	67.0	54.5	3.65	3.65	3.9	3.9	93.6	93.6	5.3	2.25	42.5	5.4	6.7	80.6	------
242876	14.3	-------	-------	-------	9.0	10.5	-------	-------	3.8	3.85	4.2	4.2	90.5	91.7	5.7	2.3	40.4	-------	-------	-------	------
242814	13.9	88.5	55.4	9.5	8.4	9.9	69.5	56.0	3.7	3.65	3.95	4.0	93.7	91.2	5.35	2.2	41.1	5.2	6.7	77.6	3.7
Specimens	(8)	(2)	(7)	(7)	(8)	(8)	(7)	(7)	(8)	(7)	(8)	(7)	(8)	(7)	(8)	(8)	(8)	(7)	(7)	(7)	(2)
Totals	111.9	-------	-------	71.5	72.3	83.5	483.0	395.5	29.9	26.2	32.4	28.05	-------	-------	42.85	18.05	-------	38.1	46.4	-------	7.3
Averages	13.99	87.8	56.4	10.21	9.04	10.44	69.0	56.5	3.74	3.74	4.05	4.01	92.3	93.4	5.36	2.26	42.1	5.44	6.63	82.1	3.65
Minima	13.7	87.0	52.5	9.5	8.4	9.9	66.5	54.0	3.65	3.65	3.9	3.8	90.1	91.2	5.0	2.15	40.4	5.2	6.2	76.4	3.6
Maxima	14.4	88.5	59.0	10.8	9.7	11.0	72.0	60.5	3.85	3.85	4.2	4.2	96.2	101.3	5.7	2.35	46.0	5.7	7.2	88.7	3.7

ST. MICHAEL ISLAND: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
242781	U.S.N.M.	St. Michael Island	30		18.2	13.4	13.8	*73.6*	*87.3*		15.13	1,395	Slight	12.2	7.3
225030	do	do	35		17.8	13.2	13.7	*74.2*	*88.4*		14.90	1,260	do	11.5	7.4
242782	do	do	55		17.5	13.0	12.9	*74.3*	*84.6*		14.47	1,195	Considerable		
255602	do	do	65		18.0	13.8	13.3	*76.7*	*83.6*		15.03	1,340	do		
242783	do	do	45		17.2	13.2	12.6	*76.7*	*82.9*		14.33	1,250	Slight to moderate	10.8	6.7
242942	do	do	[1] 18		17.6	13.7	12.1	*77.8*	*77.3*		14.47	1,320	+		[2]
Specimens			(6)		(6)	(6)	(6)	*(6)*	*(6)*		(6)	(6)		(3)	(3)
Totals			248		106.3	80.3	78.4				88.33	7,760		34.5	21.4
Averages			41.3		17.72	13.38	13.07	*75.5*	*84.0*		14.72	1,293		11.50	7.13
Minima			18		17.2	13.00	12.1	*73.6*	*77.3*		14.33	1,195		10.8	6.7
Maxima			65		18.2	13.8	13.8	*77.8*	*88.4*		15.13	1,395		12.2	7.4

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
242781	13.0	*93.8*	*56.2*	9.6	8.6	10.1	72.0	57.0	3.55	3.45	3.95	3.95	*89.9*	*87.4*	5.15	2.15	*41.8*	[1] 5.4	6.4	*84.4*	3.4
225030	13.1	*87.8*	*56.5*	10.0	8.8	10.3	71.0	55.0	3.65	3.65	3.65	3.7	*100.0*	*98.6*	5.0	2.1	*42.0*	5.4	6.6	*81.8*	3.45
242782	13.0	------	------	------	9.4	10.4	------	------	3.5	3.6	3.95	3.85	*88.6*	*93.5*	4.8	2.2	*45.8*	------	------	------	------
255602	13.5	------	------	------	9.2	10.3	------	------	3.8	3.85	3.85	3.8	*98.7*	*101.3*	5.1	2.3	*45.1*	------	------	------	3.6
242783	13.0	*83.1*	*51.5*	9.7	8.8	9.8	71.0	58.0	3.5	3.6	3.55	3.6	*98.6*	*100.0*	4.7	2.1	*44.7*	5.4	5.7	*94.7*	3.1
242942	(2)	------	------	------	8.0	9.0	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Specimens	(5)	*(3)*	*(3)*	(3)	(6)	(6)	(3)	(3)	(5)	(5)	(5)	(5)	*(5)*	*(5)*	(5)	(5)	*(5)*	(3)	(3)	*(3)*	(4)
Totals	65.6	------	------	29.3	52.8	59.9	213	171	18.0	18.15	18.95	18.90	------	------	24.75	10.85	------	16.2	18.7	------	13.55
Averages	13.12	*88.2*	*54.7*	9.77	8.80	9.98	71.0	57.0	3.60	3.63	3.79	3.78	*95.0*	*96.0*	4.95	2.17	*43.8*	5.40	6.23	*86.6*	3.39
Minima	13.0	*83.1*	*51.5*	9.6	8.6	9.0	71.0	55.0	3.5	3.45	3.55	3.6	*88.6*	*87.4*	4.7	2.1	*41.8*	5.4	5.7	*81.8*	3.1
Maxima	13.5	*93.8*	*56.5*	10.0	9.4	10.4	72.0	58.0	3.8	3.85	3.95	3.95	*100.0*	*101.3*	5.15	2.3	*45.8*	5.4	6.6	*94.7*	3.6

[1] Near.
[2] Not fully developed.

NORTON BAY: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
	(*H. B. Collins*)														
346,223	U.S.N.M.	Koyuk	30		18.8	[2]13.2	13.7	*70.21*	*85.63*		15.23			12.9	7.8
346,217	do	do	45		18.9	13.9	13.7	*73.54*	*83.54*		15.50			12.8	7.4
346,220	do	do	50		18.5	13.8	13.4	*74.59*	*82.97*		15.23			14.0	8.4
346,204	do	do	55		18.4	14.2	13.9	*77.17*	*85.28*		15.53				
346,012	do	Norton Bay	65		18.3	14.0	13.6	*76.50*	*84.21*		15.30				7.7
346,002	do	do	65		19.2	14.8	14.4	*77.08*	*84.71*		16.14				7.8
Specimens			(6)		(6)	(6)	(6)	(6)	(6)		(6)			(3)	(5)
Totals			31.0		112.1	83.9	82.7				92.9			39.7	39.1
Averages			51.7		18.68	13.65	13.78	*74.8*	*85.3*		15.48			13.23	7.82
Minima			30		18.3	13.2	13.4	*70.2*	*83.0*		15.23				7.4
Maxima			65		19.2	14.8	14.4	*77.2*	*85.6*		16.14				8.4

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
346223	[2] 13.2	97.73	59.09	10.2	9.2	10.4	69	59	3.85	3.8	4.2	4.0	91.67	95.00	5.3	2.1	39.62	5.6	6.4	87.50	3.8
346217	14.0	91.43	52.86	10.3	9.4	10.4	69.5	60	3.9	3.6	4.3	4.2	90.70	92.86	5.2	2.3	44.23	5.5	6.6	83.23	3.7
346220	14.4	97.22	58.33	10.5	9.4	10.4	66.0	59	3.8	3.8	4.0	4.0	95.0	95.0	5.7	2.45	42.98	5.8	6.8	85.29	3.9
346204	14.6	--------	--------	--------	9.0	10.4	--------	--------	3.8	3.9	4.3	4.3	88.37	90.70	5.3	2.3	43.40	--------	--------	--------	3.8
346012	14.7	--------	52.38	--------	9.4	9.8	--------	--------	4.0	3.95	4.0	4.15	100.0	95.18	5.4	2.4	44.44	--------	--------	--------	3.6
346002	15.0	--------	52.0	[2] 10.3	9.3	10.8	72	58	3.55	3.6	4.1	4.1	86.60	91.46	5.65	2.4	42.48	5.4	6.7	80.60	3.8
Specimens	(6)	(3)	(5)	(4)	(6)	(6)	(4)	(4)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(4)	(4)	(4)	(6)
Totals	85.9	--------	--------	41.3	55.7	62.2	276.5	236.0	22.9	22.65	24.9	24.75	--------	--------	32.55	13.95	--------	22.3	26.5	--------	22.6
Averages	14.32	95.4	54.8	10.32	9.28	10.37	69.1	59.0	3.82	3.78	4.15	4.12	92.0	91.5	5.42	2.32	42.9	5.57	6.62	84.2	3.77
Minima	13.2	--------	52.0	10.2	9.0	9.8	66.0	58.0	3.55	3.6	4.0	4.0	86.6	90.7	5.2	2.1	39.6	5.4	6.4	80.6	3.6
Maxima	15.0	--------	59.1	10.5	9.4	10.8	72.0	60.0	4.0	3.95	4.3	4.2	100.00	95.2	5.7	2.45	44.4	5.8	6.8	87.5	3.9

[1] Allowance made for wear of teeth.
[2] Near.

NORTON BAY: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, Wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
	(*H. B. Collins*)														
346214	U.S.N.M.	Koyuk	35		18.2	13.1	12.2	*71.98*	*77.96*		14.50			11.7	
346250	do	do	55		18.0	13.1	12.8	*72.78*	*82.32*		14.63				
346264	do	do	40		17.9	13.4	13.3	*74.86*	*84.98*		14.87				
346213	do	do	65		17.9	13.8	13.3	*77.09*	*89.31*		15.0				
346212	do	do	60		17.2	13.3	13.0	*77.33*	*85.25*		14.50				
346266	do	do	30		17.7	13.8	13.0	*77.97*	*82.54*		14.83				
346265	do	do	30		16.8	13.5	12.9	*80.36*	*85.15*		14.40			11.3	7.1
346017	do	Norton Bay	35		17.7	13.2	13.0	*74.56*	*84.14*		14.63			11.2	6.6
346007	do	do	23		17.9	13.9	12.6	*77.65*	*79.25*		14.80			11.8	7.1
346024	do	do	35		16.8	13.1	12.2	*77.98*	*81.61*		14.03			12.0	7.3
346023	do	do	20		18.0	14.2	(1)	*78.89*						12.0	7.3
Specimens			(11)		(11)	(11)	(10)	(11)	(10)		(10)			(6)	(5)
Totals			428		194.1	148.4	128.3				146.2			70.0	35.4
Averages			38.9		17.64	13.49	12.83	*76.5*	*82.7*		14.62			11.67	7.08
Minima			20		16.8	13.1	12.2	*72.0*	*78.0*		14.03			11.2	6.6
Maxima			60		18.2	14.2	13.3	*80.4*	*89.3*		15.0			12.0	7.3

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
346264				9.4	8.1	9.4				3.65		4.0		*91.25*	5.2	2.45	*47.12*	5.2	6.1	*85.25*	
346250	12.9				9.0	10.1			3.5	3.45	3.9	3.8	*89.74*	*90.79*	5.2	2.4	*46.15*	4.7	5.9	*79.66*	
346264					9.2	10.2			3.5		4.2		*83.33*		4.85	2.4	*49.48*				
346213	13.2				8.4	9.8			3.4	3.5	4.0	3.9	*85.0*	*89.74*	5.2	2.5	*48.08*				
346212	13.2				8.6	10.2			3.85	3.95	4.4	4.2	*87.50*	*94.05*	5.1	2.3	*45.10*				
346266	12.9	*87.60*	*55.04*	10.1	9.0	10.1	69.0	48.5	3.75		4.0		*93.75*		5.3	2.05	*38.68*	5.3	5.6	*94.64*	2.9
346265	13.0	*86.15*	*50.77*	9.4	8.6	9.2	67.0	61.5	3.6	3.7	4.0	3.8	*90.0*	*97.37*	4.6	1.9	*41.30*	4.9	5.8	*84.48*	3.3
346017	12.3	*95.93*	*57.72*	9.5	8.4	9.8	70.5	56.0	3.7	3.75	4.0	3.9	*92.50*	*96.15*	4.8	2.2	*45.83*	5.3	5.6	*94.64*	3.75
346007	12.9	*93.02*	*56.59*	10.1	8.9	9.8	66.0	55.5	3.65	3.65	3.7	3.7	*98.65*	*98.65*	4.6	1.9	*41.30*	5.4	6.2	*87.10*	3.95
346024						9.1															
346023	12.9		*55.88*						3.6	3.65	3.8	3.85	*94.74*	*94.81*	4.75	2.1	*44.21*	5.3	6.4	*82.81*	
Specimens	(8)	*(4)*	*(5)*	(5)	(9)	(10)	(4)	(4)	(9)	(8)	(9)	(8)	(9)	(8)	(10)	(10)	(10)	(7)	(7)	(7)	(4)
Totals	103.3			48.5	78.2	97.7	272.5	221.5	32.55	29.3	36.0	31.15			49.6	22.2		36.1	41.6		13.9
Averages	12.91	*91.1*	*55.3*	9.70	8.69	9.77	68.1	55.4	3.62	3.66	4.0	3.89	*90.4*	*94.1*	4.96	2.22	*44.7*	5.16	5.94	*86.8*	3.47
Minima	12.3	*86.2*	*50.8*	9.4	8.1	9.1	66.0	48.5	3.4	3.45	3.7	3.7	*83.3*	*89.7*	4.6	1.9	*38.7*	4.7	5.6	*79.7*	2.9
Maxima	13.2	*95.9*	*57.7*	10.1	9.2	10.2	70.5	61.5	3.85	3.95	4.4	4.2	*98.6*	*98.6*	5.3	2.5	*49.5*	5.4	6.4	*94.6*	3.95

[1] Moderate.

EASTERN BERING SEA ISLANDS AND NORTHEASTERN BERING SEA
(Abstract)

MALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Naison Height (b)	Diam. Bizygomatic maxim. (c)
Nunivak Island	(46)	(46)	(46)	(46)	(46)	(46)		(46)	(46)		(24)	(43)	(45)
	2,116	865.1	648.8	629.7				714.5	69,205		310.8	336.6	644.6
	46	18.81	14.09	13.69	*75.0*	*83.2*		15.53	1,504		12.95	7.83	14.32
Nelson Island	(9)	(9)	(9)	(9)	(9)	(9)		(9)	(9)		(7)	(9)	(9)
	440	168.4	130.0	122.4				140.27	14,090		91.0	73.7	130.0
	48.9	18.73	14.44	13.60	*77.2*	*82.0*		15.59	1,566		13.0	8.19	14.44
Unalakleet	(7)	(7)	(7)	(7)	(7)	(7)		(7)			(2)	(6)	(6)
	330	134.2	99.1	98.0				110.4			27.4	48.3	84.2
	47.1	19.17	14.16	14.0	*73.8*	*84.0*		15.78			(13.7)	8.05	14.03
St. Michael Island	(8)	(8)	(8)	(8)	(8)	(8)		(8)	(8)		(2)	(7)	(8)
	355	145.8	110.7	110.6				122.37	11,690		24.4	55.0	111.9
	44.4	18.23	13.84	13.83	*75.9*	*86.2*		15.30	1,461		(12.20)	7.86	13.99
Norton Bay	(6)	(6)	(6)	(6)	(6)	(6)		(6)			(3)	(5)	(6)
	310	112.1	83.9	82.7				92.9			39.7	39.1	85.9
	51.7	18.68	13.65	13.78	*74.8*	*85.3*		15.48			(13 23)	7.82	14.32
Specimens	(76)	(76)	(76)	(76)	(76)	(76)		(76)	(63)		(38)	(70)	(74)
Totals	3,551	1,425.6	1,072.5	1,043.4				1,180.4	94,985		493.3	552.7	1,056.6
Averages	46.7	18.76	14.11	13.73	*75.2*	*83.5*		15.53	1,508		12.98	7.90	14.28

FEMALES

	(70)	(70)	(70)	(70)	(70)	(70)		(70)	(66)		(27)	(52)	(63)
Nunivak Island	3,175	1,252.5	955.3	920.4				1,042.7	89,285		313.9	378.1	836.1
	45.4	17.89	13.65	13.15	*76.8*	*83.4*		14.90	1,353		11.62	7.27	13.27
	(17)	(17)	(17)	(16)	(17)	(16)		(16)	(14)		(10)	(14)	(15)
Nelson Island	617	296.1	233.1	204.5				234.24	18,675		116.2	100.5	200.6
	36.3	17.42	13.71	12.78	*78.7*	*82.1*		14.64	1,334		11.62	7.18	13.37
	(9)	(9)	(9)	(9)	(9)	(9)		(9)			(3)	(7)	(8)
Unalakleet	398	161.0	123.2	118.5				134.2			38.0	52.0	106.5
	44.2	17.89	13.69	13.17	*76.5*	*83.4*		14.91			(12.67)	7.43	13.31
	(6)	(6)	(6)	(6)	(6)	(6)		(6)	(6)		(3)	(3)	(5)
St. Michael Island	248	106.3	80.3	78.4				88.33	7,760		34.5	21.4	65.6
	41.3	17.72	13.38	13.07	*75.5*	*84.0*		14.72	1,293		(11.50)	(7.13)	13.12
	(11)	(11)	(11)	(10)	(11)	(10)		(10)			(6)	(5)	(8)
Norton Bay	428	194.1	148.4	128.3				146.2			70.0	35.4	103.3
	38.9	17.64	13.49	12.83	*76.5*	*82.7*		14.62			11.67	7.08	12.91
Specimens	(113)	(113)	(113)	(111)	(113)	(111)		(111)	(86)		(49)	(81)	(99)
Totals	4,866	2,010.0	1,540.3	1,450.1				1,645.7	115,720		572.6	587.4	1,312.1
Averages	43.1	17.79	13.63	13.06	*76.6*	*83.2*		14.83	1,346		11.69	7.25	13.25

EASTERN BERING SEA ISLANDS AND NORTHEASTERN BERING SEA—Continued

(Abstract)

MALES

Locality	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt	Basion Subnasal Pt	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
	(24)	(43)	(42)	(44)	(46)	(41)	(41)	(42)	(41)	(42)	(41)	(42)	(41)	(44)	(44)	(44)	(44)	(44)	(44)	(28)
Nunivak Island	2,167.0	2,348.0	447.3	418.5	485.5	2,788.0	2,378.0	150.8	147.1	170.0	164.05	------	------	235.4	103.2	------	249.0	298.6	------	112.15
	90.3	*54.6*	10.65	9.51	10.55	68	58.0	3.59	3.59	4.05	4.0	*88.7*	*89.7*	5.35	2.35	*43.8*	5.66	6.79	*83.4*	4.0
	(7)	(9)	(7)	(9)	(9)	(7)	(7)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(8)	(8)	(8)	(8)
Nelson Island	63.35	510.3	74.3	83.5	9.41	462.0	371.0	33.8	33.7	36.75	36.6	------	------	50.3	21.65	------	45.8	53.4	------	31.3
	90.5	*56.7*	10.61	9.28	10.46	66.0	53.0	3.76	3.74	4.08	4.07	*92.0*	*92.1*	5.59	2.41	*43.0*	5.73	6.68	*85.8*	3.91
	(2)	(6)	(6)	(6)	(7)	(6)	(6)	(5)	(6)	(5)	(6)	(5)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(2)
Unalakleet	191.6	344.4	63.9	57.7	75.4	413.0	356.0	18.0	21.75	20.65	24.35	------	------	32.85	13.9	------	33.8	40.9	------	8.3
	(95.8)	*57.4*	10.65	9.62	10.77	68.8	59.3	3.6	3.62	4.13	4.06	*87.2*	*89.3*	5.47	2.32	*42.3*	5.63	6.82	*82.6*	(4.15)
	(2)	(7)	(7)	(8)	(8)	(7)	(7)	(8)	(7)	(8)	(7)	(8)	(7)	(8)	(8)	(8)	(7)	(7)	(7)	(2)
St. Michael Island	175.6	394.8	71.5	72.3	83.5	483.0	395.5	29.9	26.2	32.4	28.05	------	------	42.85	18.05	------	38.1	46.4	------	7.3
	(87.8)	*56.4*	10.21	9.04	10.44	69.0	56.5	3.74	3.74	4.05	4.01	*92.3*	*93.4*	5.36	2.26	*42.1*	5.44	6.63	*82.1*	(3.65)
	(3)	(5)	(4)	(6)	(6)	(4)	(4)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(4)	(4)	(4)	(6)
Norton Bay	286.2	274.0	41.3	55.7	62.2	276.5	236.0	22.9	22.65	24.9	24.75	------	------	32.55	13.95	------	22.3	26.5	------	22.6
	(95.4)	*54.8*	10.32	9.28	10.37	69.1	59.0	3.82	3.78	4.15	4.12	*92.0*	*91.5*	5.42	2.32	*42.9*	5.57	6.62	*84.2*	3.77
Specimens	(38)	(70)	(66)	(73)	(74)	(65)	(65)	(70)	(69)	(70)	(69)	(70)	(69)	(73)	(73)	(73)	(69)	(69)	(69)	(46)
Totals	3,453.9	3,871.5	698.3	687.7	800.7	4,422.5	3,736.5	255.4	251.4	284.7	277.8	------	------	393.95	170.75	------	389.0	465.8	------	181.65
Averages	*90.9*	*55.3*	10.58	9.42	10.82	68.0	57.5	3.65	3.64	4.07	4.03	*89.7*	*90.5*	5.40	2.34	*43.3*	5.64	6.75	*83.5*	3.95

FEMALES

	(26)	(51)	(45)	(60)	(69)	(45)	(45)	(58)	(59)	(58)	(59)	(58)	(59)	(63)	(63)	(63)	(46)	(46)	(46)	(32)
Nunivak Island	2,293.0	2,795.0	457.7	538.2	691.5	3,037.5	2,475.0	203.15	207.6	225.2	226.7	-----	-----	314.4	145.95	-----	247.9	290.4	-----	111.3
	88.2	*54.8*	10.17	8.97	10.02	67.5	55.0	3.50	3.52	3.88	3.84	*90.2*	*91.6*	4.99	2.32	*46.4*	5.39	6.31	*85.4*	3.48
	(10)	(14)	(14)	(15)	(15)	(13)	(13)	(15)	(15)	(15)	(15)	(15)	(15)	(14)	(14)	(14)	(14)	(14)	(14)	(11)
Nelson Island	870.0	750.4	140.8	131.4	145.9	864.5	650.0	52.1	53.05	57.5	57.05	-----	-----	70.8	32.75	-----	75.5	88.5	-----	37.4
	87.0	*53.6*	10.06	8.76	9.73	66.5	50.0	3.47	3.54	3.83	3.80	*90.6*	*93.0*	5.06	2.34	*46.3*	5.39	6.32	*85.3*	3.40
	(3)	(7)	(6)	(8)	(9)	(6)	(6)	(9)	(8)	(9)	(8)	(9)	(8)	(8)	(8)	(8)	(7)	(7)	(7)	(3)
Unalakleet	274.2	377.3	60.3	70.8	89.7	404.5	331.5	31.95	28.30	38.5	31.1	-----	-----	41.3	18.35	-----	38.0	45.2	-----	11.25
	91.4	*53.9*	10.05	8.85	9.97	67.4	55.2	3.55	3.54	3.94	3.89	*90.0*	*91.0*	5.16	2.29	*44.4*	5.43	6.46	*84.1*	(3.75)
	(3)	(3)	(3)	(6)	(6)	(3)	(3)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(3)	(3)	(3)	(4)
St. Michael Island	264.6	164.1	29.3	52.8	59.9	213.0	171.0	18.0	18.15	18.95	18.9	-----	-----	24.75	10.85	-----	16.2	18.7	-----	13.55
	(88.2)	*(54.7)*	(9.77)	8.80	9.98	(71)	(57)	3.60	3.63	3.79	3.78	*95.0*	*96.0*	4.95	2.17	*43.8*	(5.40)	(6.23)	*(86.6)*	3.39
	(4)	(5)	(5)	(9)	(10)	(4)	(4)	(9)	(8)	(9)	(8)	(9)	(8)	(10)	(10)	(10)	(7)	(7)	(7)	(4)
Norton Bay	364.4	276.5	48.5	78.2	97.7	272.5	221.5	32.55	29.3	36.0	31.15	-----	-----	49.6	22.2	-----	36.1	41.6	-----	13.9
	91.1	*55.3*	9.70	8.69	9.77	68.1	55.4	3.62	3.66	4.0	3.89	*90.4*	*94.1*	4.96	2.22	*44.7*	5.16	5.94	*86.8*	3.47
Specimens	(46)	(80)	(73)	(98)	(109)	(71)	(71)	(96)	(95)	(96)	(95)	(96)	(95)	(100)	(100)	(100)	(77)	(77)	(77)	(54)
Totals	4,066.2	4,363.3	736.6	871.4	1,084.7	4,792.0	3,849.0	337.75	336.4	376.15	364.9	-----	-----	500.85	230.1	-----	413.7	484.4	-----	187.4
Averages	*88.4*	*54.5*	10.09	8.89	9.95	67.5	54.2	3.52	3.54	3.92	3.84	*89.8*	*92.2*	5.01	2.30	*45.9*	5.37	6.29	*85.4*	3.47

SEWARD PENINSULA ESKIMO

GOLOVIN BAY: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
279209	U.S.N.M.	Golovin Bay	Adult		19.8	13.7	14.3	*69.2*	*85.1*		15.93	1545	Considerable	[1]13.0	8.5
333453	do	do	Adult		19.2	13.3	14.0	*69.3*	*86.4*		15.50	1385	do	12.6	7.9
346021	do	do	60		19.2	13.5	14.0	*70.31*	*85.63*		15.57		Medium	12.8	8.0
346020	do	do	19		19.0	13.4	13.6	*70.53*	*83.95*		15.33		+	12.3	7.5
346015	do	do	45		18.7	13.4	14.0	*71.66*	*87.23*		15.37		Moderate	12.9	8.0
346018	do	do	65		18.8	13.6	14.4	*72.34*	*88.89*		15.60		N. All		7.8
346037	do	do	50		18.8	13.6	13.9	*72.34*	*85.80*		15.43		(?)		7.6
346014	do	do	70		19.3	14.0	14.0	*72.54*	*84.08*		15.77		N. All		
346108	do	do	60		18.6	13.5	14.2	*72.58*	*88.47*		15.43		Considerable	12.2	7.6
346005	do	do	65		18.8	13.7	14.2	*72.87*	*87.38*		15.57		(?)		8.0
346011	do	do	35		18.9	14.0	13.8	*74.07*	*83.89*		15.57		Slight	13.6	8.0
333454	do	do	45		18.7	14.0	14.1	*74.90*	*86.0*		15.60	1520	Medium	12.4	7.5
346019	do	do	60		19.2	14.4	13.6	*75.00*	*80.95*		15.73		Considerable	12.9	8.2
346033	do	do	23		18.3	13.8	13.9	*75.41*	*86.60*		15.33		+	13.5	8.0
346003	do	do	50		17.8	13.8	13.4	*77.53*	*84.81*		15.00		Moderate		7.8
346277	do	Cheenik	60		19.1	13.2	13.9	*69.11*	*86.07*		15.40				8.0
Specimens			(14)		(16)	(16)	(16)	(16)	(16)		(16)	(3)		(10)	(15)
Totals			707		302.2	218.9	223.3				248.1	4450		128.2	118.4
Averages			50.5		18.89	13.68	13.96	*72.44*	*85.70*		15.51	1483		12.82	7.89
Minima			19		17.8	13.2	13.4	*69.1*	*81.0*		15.0			12.2	7.5
Maxima			70		19.8	14.4	14.4	*77.5*	*88.9*		15.93			13.6	8.5

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle
279209	14.6	*89.0*	*58.2*	------	9.7	11.4	------	------
333453	14.0	*90.0*	*56.4*	10.2	9.5	10.6	70	66
346021	14.2	*90.14*	*56.34*	------	10.1	11.2	------	------
346020	13.2	*93.18*	*56.82*	10.4	9.2	10.4	68.5	53.0
346015	14.3	*90.21*	*55.94*	11.1	10.0	11.0	68.0	59.5
346018	14.2	------	*54.93*	------	8.8	10.5	------	------
346037	14.1	------	*53.90*	9.6	8.6	10.2	72.0	60.0
346014	14.8	------	------	------	9.5	11.0	------	------
346108	14.2	*85.92*	*53.52*	[2] 10.6	9.6	11.2	73.5	57.5
346005	13.9	------	*57.55*	10.6	9.4	10.5	67.0	57.5
346011	13.6	*100.0*	*58.82*	10.5	9.0	10.2	65.0	51.5
333454	14.5	*85.5*	*51.7*	10.6	9.5	10.6	69.5	55.5
346019	14.9	*86.58*	*55.03*	10.5	9.4	10.2	65.0	58.0
346033	13.2	*102.27*	*60.61*	10.7	9.2	10.6	67.5	48.0
346003	13.4	------	*58.21*	10.1	8.8	10.2	68.0	53.5
346277	14.0	------	*55.17*	11.7	10.3	11.0	64	56
Specimens	(16)	(10)	(15)	(12)	(16)	(16)	(12)	(12)
Totals	225.1	------	------	126.6	150.6	170.8	818.0	676.0
Averages	14.07	*91.12*	*56.30*	10.55	9.41	10.67	68.2	56.3
Minima	13.2	*85.5*	*53.5*	9.6	8.6	10.2	64.0	48.0
Maxima	14.9	*102.3*	*60.6*	11.7	10.3	11.4	73.5	66.0

Catalog No.	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height
279209	3.85	3.95	4.25	4.15	*90.6*	*95.2*	5.8
333453	3.7	3.7	4.3	4.1	*86.0*	*90.2*	5.6
346021	3.7	3.6	4.05	3.95	*91.36*	*91.14*	5.65
346020	3.6	3.55	3.9	3.7	*92.31*	*95.95*	5.35
346015	3.4	3.5	4.0	3.9	*85.0*	*89.74*	5.3
346018	3.45	3.5	4.0	4.0	*86.25*	*87.50*	5.5
346037	3.65	3.5	4.0	3.9	*91.25*	*89.74*	5.0
346014	4.1	4.05	4.3	4.5	*95.35*	*90.0*	5.65
346108	3.65	3.6	4.2	4.2	*86.90*	*85.71*	5.5
346005	3.7	3.65	4.1	4.0	*90.24*	*91.25*	5.2
346011	3.6	3.7	4.1	4.0	*87.80*	*92.50*	5.25
333454	3.35	3.4	4.3	4.1	*77.90*	*82.90*	5.3
346019	3.35	3.5	4.0	3.9	*83.75*	*89.74*	5.55
346033	3.7	3.7	3.75	3.75	*98.67*	*98.67*	5.35
346003	3.7	3.7	4.05	4.0	*91.36*	*92.50*	5.3
346277	3.85	3.55	4.35	4.25	*88.51*	*83.53*	5.6
Specimens	(16)	(16)	(16)	(16)	(16)	(16)	(16)
Totals	58.35	58.15	65.65	64.40	------	------	86.9
Averages	3.65	3.63	4.10	4.03	*88.88*	*90.28*	5.43
Minima	3.35	3.4	3.75	3.7	*77.9*	*82.9*	5.0
Maxima	4.1	4.05	4.35	4.5	*98.7*	*98.7*	5.8

Catalog No.	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
279209	2.25	*38.8*	6.2	6.8	*91.20*	4.1
333453	2.5	*44.6*	6.0	7.2	*83.30*	3.9
346021	2.5	*44.25*	6.2	7.4	*83.78*	4.0
346020	2.25	*42.06*	5.9	6.7	*88.06*	3.5
346015	2.1	*39.62*	5.9	7.0	*84.29*	4.0
346018	2.2	*40.0*	5.6	6.7	*83.58*	------
346037	2.3	*46.0*	5.4	6.6	*81.82*	------
346014	2.5	*44.25*	------	------	------	3.8
346108	2.5	*45.45*	5.5	6.7	*82.09*	3.4
346005	2.35	*45.19*	5.7	7.3	*78.08*	------
346011	2.1	*40.00*	5.8	6.7	*86.57*	4.4
333454	2.3	*43.40*	6.2	7.0	*88.60*	4.0
346019	2.4	*43.24*	6.1	7.3	*83.56*	3.9
346033	2.2	*41.12*	6.5	6.7	*97.01*	4.3
346003	2.3	*43.40*	5.6	6.4	*87.50*	------
346277	2.45	*43.75*	6.0	7.6	*78.95*	------
Specimens	(16)	(16)	(15)	(15)	(15)	(11)
Totals	37.2	------	88.6	104.1	------	43.3
Averages	2.33	*42.81*	5.54	6.51	*85.11*	3.94
Minima	2.1	*38.8*	5.4	6.4	*78.1*	3.4
Maxima	2.5	*46.0*	6.5	7.6	*97.0*	4.4

[1] Allowance made for wear of teeth.
[2] Near.

GOLOVIN BAY: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*H. B. Collins*)														
346016	U.S.N.M.	Golovin Bay	55		19.2	13.0	13.8	*67.71*	*85.71*		15.33		Medium		7.5
346111	do	do	50		17.3	12.3	13.2	*71.10*	*89.19*		14.27				
346010	do	do	35		17.6	12.6	12.6	*71.59*	*83.44*		14.27		Slight	11.8	7.3
346004	do	do	70		18.8	13.5	13.4	*71.81*	*82.97*		15.23		Considerable		
346013	do	do	60		17.8	12.8	13.2	*71.90*	*86.27*		14.60		do		7.6
346006	do	do	50		17.9	13.0	13.2	*72.63*	*85.44*		14.70		Medium	11.3	[1]7.0
346032	do	do	55		17.8	13.1	12.8	*73.60*	*82.85*		14.57		Considerable		[1]7.0
346001	do	do	65		18.2	13.5	13.5	*74.18*	*85.17*		15.07		do		7.7
346008	do	do	55		18.2	13.6	13.6	*74.73*	*85.53*		15.13		do		7.9
346022	do	do	35		18.3	13.7	13.2	*74.86*	*82.50*		15.07		Slight	12.4	7.5
346029	do	do	55		17.9	13.6	12.8	*75.98*	*81.27*		14.77		Considerable		7.3
346028	do	do	80		17.6	13.7	12.6	*77.84*	*80.51*		14.63		All		
346110	do	do	30		17.8	13.9	13.8	*78.09*	*87.07*		15.17		Moderate	11.1	6.8
346278	do	Cheenik	60		18.6	13.2	12.5	*70.97*	*78.62*		14.77				
346240		Fish River	25		16.8	13.1	12.2	*77.98*	*81.61*		14.03				6.0
Specimens			(15)		(15)	(15)	(15)	(15)	(15)		(15)			(4)	(11)
Totals			780		269.8	198.6	196.4				221.6			46.6	79.6
Averages			52		17.99	13.24	13.10	*73.6*	*83.9*		14.77			11.65	7.24
Minima			25		16.8	12.3	12.6	*67.7*	*78.6*		14.03			11.1	6.8
Maxima			80		19.2	13.9	13.8	*78.1*	*89.2*		15.33			12.4	7.9

Catalog No.	Diam. Bizygomatic maxim. (c)	Facial Index, total $\left(\frac{a \times 100}{c}\right)$	Facial Index, upper $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	Orbital Index, right	Orbital Index, left	Nose—Height	Nose—Breadth maxim.	Nasal Index	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	Upper Alveolar Arch—Index	Lower Jaw—Height at Symphysis
346016	12.9	-------	58.14	10.3	9.0	10.2	67.5	54.0	3.4	3.4	3.85	3.85	88.31	88.31	4.8	2.15	44.79	5.8	6.7	86.57	-----
346111	[1] 12.6	-------	-------	-------	-------	10.3	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-----
346010	13.5	87.41	54.07	10.9	9.4	10.3	65.5	48.0	3.55	3.6	3.95	4.0	89.87	[1] 90.0	4.85	2.35	48.45	5.7	6.4	89.06	3.7
346004	12.8	-------	-------	-------	9.2	10.0	-------	-------	3.5	3.5	3.85	3.85	90.91	90.91	5.15	2.4	46.60	-------	-------	-------	-----
346013	13.0	-------	58.46	9.8	8.7	10.0	68.0	54.5	3.65	3.8	4.0	4.0	91.25	95.0	5.3	2.35	44.34	5.4	[1] 5.9	91.53	3.85
346006	[1] 13.3	84.96	52.63	-------	8.5	9.6	-------	-------	3.55	3.5	3.7	3.7	95.95	94.59	5.0	2.15	43.00	[1] 5.4	6.5	83.08	3.3
346032	13.4	-------	52.24	10.6	9.3	10.0	65.0	45.5	3.35	3.4	3.9	3.95	85.90	86.08	5.1	2.3	45.10	5.7	6.6	86.36	3.6
346001	13.4	-------	57.46	10.1	9.0	10.4	70.0	58.5	3.4	3.4	4.0	3.9	85.00	87.18	5.05	2.55	50.50	5.9	6.8	86.76	-----
346008	13.4	-------	58.96	10.6	9.1	10.2	65.0	50.0	3.7	3.65	4.05	4.0	91.36	91.25	5.3	2.35	44.43	5.7	7.0	81.43	-----
346002	13.6	91.18	55.15	10.7	9.4	10.2	65.0	50.0	3.55	3.55	3.9	4.0	91.03	93.75	5.3	2.4	45.28	5.9	7.0	84.29	4.1
346029	13.0	-------	56.15	10.1	9.0	9.9	62.0	52.0	3.7	3.65	3.75	3.65	98.67	100.0	5.3	2.4	45.28	5.5	[1] 6.4	85.94	3.65
364028	13.4	-------	-------	-------	8.7	10.0	-------	-------	3.65	3.8	4.2	4.2	86.90	90.48	5.2	2.45	47.12	-------	-------	-------	-----
346110	[1] 13.6	81.62	50.0	9.7	8.8	10.2	73.5	57.0	3.7	3.7	3.9	3.9	94.87	94.87	4.8	2.15	44.79	5.1	6.2	82.26	3.1
346278	13	-------	-------	-------	8.7	9.8	-------	-------	3.6	3.7	4.2	4.1	85.71	90.24	5.1	2.35	46.08	-------	-------	-------	-----
346240	12.4	-------	48.39	8.4	7.6	8.8	72.5	56	-------	3.3	-------	3.6	-------	91.67	(4.45)	2.5	(56.18)	-------	-------	-------	-----
Specimens	(15)	(4)	(11)	(10)	(14)	(15)	(10)	(10)	(13)	(14)	(13)	(14)	(13)	(14)	(13)	(14)	(13)	(10)	(10)	(10)	(7)
Totals	197.3	-------	-------	101.2	124.4	149.9	674.0	525.5	46.3	49.95	51.25	54.7	-------	-------	66.25	30.35	-------	56.1	65.5	-------	25.3
Averages	13.15	86.30	54.71	10.12	8.89	9.99	67.4	52.6	3.56	3.57	3.94	3.91	90.34	91.32	5.10	2.17	45.81	5.61	6.55	85.65	3.61
Minima	12.4	81.6	48.4	8.4	7.6	8.8	62.0	45.5	3.35	3.3	3.7	3.6	85.0	86.1	4.8	2.15	43.0	5.1	5.9	81.4	3.1
Maxima	13.6	91.2	59.0	10.9	9.4	10.4	73.5	57	3.7	3.8	4.2	4.2	98.7	100.0	5.3	2.55	50.5	5.9	7.0	91.5	4.1

[1] Near.

GOLOVIN BAY (ROCKY POINT): MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
352369	(*H. B. Collins*) U.S.N.M	Rocky Point, Golovin Bay.	55		19 2	13.4	13.7	*69.79*	*84.05*		15.43			13.9	8.0
352376	do	do	55		19.2	13.6	14.1	*70.83*	*85.98*		15.63				8.2
352386	do	do	50		18.6	13.4	13.8	*72.04*	*86.25*		15.27				6.9
352355	do	do	60		18.5	13.5	13.8	*72.97*	*86.25*		15.27				
352394	do	do	60		18.6	13.6	13.2	*73.12*	*81.99*		15.13				7.5
352398	do	do	45		18.7	13.7	14.0	*73.26*	*86.42*		15.47			14.1	8.6
352373	do	do	55		18.6	13.7	13.5	*73.66*	*83.59*		15.27				7.5
352357	do	do	40		18.4	13.6	14.0	*73.91*	*87.50*		15.33				7.9
352406	do	do	65		18.4	13.6	13.8	*73.91*	*86.25*		15.27				
352374	do	do	60		19.3	14.4	14.2	*74.61*	*84.27*		15.97			13.9	7.9
352399	do	do	65		18.6	13.9	13.2	*74.73*	*81.23*		15.23				
352395	do	do	55		19.2	14.4	13.8	*75.00*	*82.14*		15.80			13.5	8.1
352358	do	do	60		14.2	14.2	14.2	*75.53*	*86.06*		15.73				8.1
352367	do	do	50		18.3	13.9	13.3	*75.96*	*82.61*		15.17				7.9
352366	do	do	40		18.4	14.0	13.8	*76.09*	*85.19*		15.40				8.3
352375	do	do	25		18.4	14.2	13.8	*77.17*	*84.66*		15.47			12.6	7.5
352365	do	do	30		18.9	14.6	13.4	*77.25*	*80.00*		15.63				7.9
352400	do	do	65		18.5	14.3	13.6	*77.30*	*82.93*		15.47				
Specimens			(18)		(18)	(18)	(18)	(18)	(18)		(18)			(5)	(14)
Totals			935.0		336.6	250.	247.2				277.9			68	110.3
Averages			51.9		18.64	13.89	13.73	*74.27*	*84.28*		15.44			14.60	7.88
Minima			25		18.3	13.4	13.2	*69.8*	*80.0*		15.13			12.6	6.9
Maxima			65		19.3	14.6	14.2	*77.3*	*87.5*		15.97			14.1	8.6

Catalog No.	Diam. Bizygomatic maxim. (c)	Facial Index, total $\left(\frac{a \times 100}{c}\right)$	Facial Index, upper $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	Orbital Index, right	Orbital Index, left	Nose—Height	Nose—Breadth, maxim.	Nasal Index	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	Upper Alveolar Arch—Index	Lower Jaw—Height at Symphysis
352369	14.2	97.89	56.34	10.6	9.3	10.6	68.0	54.0	3.55	3.55	4.0	3.9	88.75	91.03	5.5	2.3	41.82	6.0	7.0	85.71	4.0
352376	13.9		58.99	10.5	9.4	10.8	69.0	60.5	3.5	3.5	4.2	4.0	83.33	87.50	5.3	2.4	45.28	5.6	6.4	87.50	
352386	13.8		50.0	10.4	9.5	10.6	72.5	56.0	3.55	3.55	4.05	4.05	87.65	87.65	5.1	2.35	46.08	5.4	6.5	83.08	3.5
352355					8.6	10.3				3.75		3.9		96.15	5.25	2.35	44.76				
352394	14.3			10.5	9.2	10.4	68.0	54.5	3.7	3.75	4.3	4.1	86.05	91.46	4.95	2.4	48.48	5.5	6.6	83.33	
352398	13.8	102.17	62.32	9.8	8.8	10.8	71.5	60.5	3.75	3.7	4.15	4.05	90.36	91.36	5.7	2.3	40.35	5.2	6.6	78.79	4.0
352373	14.0		53.57	10.3	9.0	10.3	68.5	52.0	3.65	3.7	4.2	4.1	86.90	90.24	5.2	2.2	42.31	5.6	6.4	87.50	
352357	14.4		54.86	11.4	10.2	10.6	63.5	58.5	3.55	3.6	4.2	4.1	84.52	87.80	5.15	2.25	43.69	6.4	7.0	91.43	
352406	14.1				9.6	10.6			3.55	3.6	4.15	4.05	85.54	88.89	5.5	2.4	43.64				
352374	14.8	93.92	53.38	10.6	9.5	10.5	67.5	58.0	3.4	3.4	4.1	4.1	82.93	82.93	5.5	2.5	45.45	5.9	7.3	80.82	4.05
352399									4.0	3.95	4.2	4.1	95.24	96.34	5.45	2.15	39.45				4.1
352395	14.1	95.74	52.45	10.2	9.0	10.4	68.0	55.0	3.6	3.6	4.0	4.0	90.0	90.0	5.6	2.5	44.64	5.7	6.9	82.61	4.0
352358	14.6		55.48	10.7	9.5	10.6	66.5	53.0	3.6	3.6	4.0	4.0	90.0	90.0	5.7	2.6	45.61				
352367	13.7		57.66	9.5	8.5	9.9	69.0	58.0	3.4	3.5	3.8	3.8	89.47	92.11	5.7	2.3	40.35				
352366	13.7		60.58	10.6	9.6	10.5	66.5	59.0	3.4		3.9		87.18		5.85	2.55	43.59				
352375	14.3	88.11	52.45	9.5	8.6	10.1			4.0		4.4		90.91								3.7
352365	13.4		58.96	10.2	8.7	10.2	67.0	47.5	3.5		3.9		89.74		5.5	2.1	38.18				
352400	14.5				9.2	10.3			3.7	3.75	4.2	4.1	88.10	91.22	5.6	2.15	38.39	5.3	6.6	80.30	
Specimens	(16)	(5)	(13)	(14)	(17)	(17)	(13)	(13)	(17)	(15)	(17)	(15)	(17)	(15)	(17)	(17)	(17)	(10)	(10)	(10)	(7)
Totals	225.6			144.8	156.2	177.5	885.5	726.5	61.4	54.5	69.75	60.35			92.55	39.8		56.6	67.3		27.35
Averages	14.10	95.51	56.0	10.34	9.19	10.44	68.1	55.9	3.61	3.63	4.10	4.02	88.03	90.31	5.44	2.34	43.0	5.66	6.73	84.10	3.91
Minima	13.4	85.1	50.0	9.5	8.5	9.9	63.5	47.5	3.4	3.4	3.8	3.8	82.9	82.9	4.95	2.1	28.2	5.2	6.4	78.8	3.5
Maxima	14.8	102.2	62.3	11.4	10.2	10.8	72.5	60.5	4.0	3.95	4.4	4.1	95.2	96.3	5.85	2.6	48.5	6.4	7.3	91.4	4.1

GOLOVIN BAY (ROCKY POINT): FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$
352354	(*H.B. Collins*) U.S.N.M.	Rocky Point, Golovin Bay	25		17.4	12.1	13.0	*69.54*	*88.14*		14.17							
352401	do	do	55		17.8	12.6	12.8	*70.79*	*84.21*		14.40				7.7	12.9		*59.69*
352384	do	do	60		18.3	13.0	13.4	*71.04*	*85.62*		14.90				7.4	13.0		*56.92*
352359	do	do	45		17.8	12.7	13.0	*71.35*	*85.25*		14.50				6.8	13.6		*50.00*
352385	do	do	80		17.9	13.0	13.1	*72.63*	*84.79*		14.67					12.3		
352393	do	do	23		18.3	13.3	13.6	*72.68*	*86.08*		15.07			11.9	7.4	13.2	*90.15*	*56.06*
352387	do	do	25		17.3	12.6	12.4	*72.83*	*82.94*		14.10			11.9	7.7	12.7	*93.70*	*60.63*
352377	do	do	75		17.5	12.8	12.7	*73.14*	*83.83*		14.33				7.0	13.0		*53.85*
352364	do	do	55		17.8	13.2	14.0	*74.16*	*90.32*		15.00				7.8	13.9		*56.12*
352381	do	do	25		17.5	13.0	12.9	*74.29*	*84.59*		14.47			11.5	7.3	13.0	0 *88.46*	*56.15*
352351	do	do	50		17.9	13.3	13.2	*74.30*	*84.62*		14.80				7.7	13.2		*58.33*
352396	do	do	55		18.4	13.7	13.8	*74.46*	*85.98*		15.30			13.0	7.9	13.5	*96.30*	*58.52*
352356	do	do	40		17.9	13.4	13.0	*74.86*	*83.07*		14.77				7.3	13.8		*52.90*
352380	do	do	60		17.3	13.0	12.4	*75.14*	*81.85*		14.20					12.9		
353353	do	do	30		18.4	13.9	13.0	*75.54*	*80.50*		15.10				7.9	12.9		*61.24*
352388	do	do	40		17.6	13.3	12.8	*75.57*	*82.85*		14.57			10.5	5.9	13.1	*80.15*	*45.04*
353352	do	do	45		17.7	13.4	13.3	*75.71*	*85.53*		14.80				6.9	13.3		*51.88*
352370	do	do	60		17.9	13.6	13.5	*75.96*	*85.71*		15.00			12.0	7.2	13.0	*92.31*	*55.38*
352403	do	do	70		17.9	13.6	13.3	*75.98*	*84.44*		14.93					13.4		
352382	do	do	40		16.9	13.0	13.6	*76.92*	*90.97*		14.50			11.8	7.2	13.1	*90.08*	*54.96*
352361	do	do	45		17.9	13.8	13.2	*77.09*	*83.28*		14.97				6.7	13.4		*50.0*
352362	do	do	30		17.5	13.5	13.6	*77.14*	*87.74*		14.87				7.6	13.0		*58.46*
352391	do	do	55		17.1	13.2	12.4	*77.19*	*81.85*		14.23			12.4	7.6	13.5	*91.85*	*56.30*
352390	do	do	60		17.6	13.6	12.8	*77.27*	*82.05*		14.67					12.9		
352363	do	do	50		17.8	13.8	13.2	*77.53*	*83.54*		14.93				7.8	13.1		*59.54*
352378	do	do	50		17.2	13.6	12.8	*79.07*	*83.12*		14.53			12.1	7.1	12.9	*93.80*	*55.04*
352379	do	do	60		18.0	14.3	13.3	*79.44*	*82.35*		15.20							
Specimens			(27)		(27)	(27)	(27)	(27)	(27)		(27)			(9)	(21)	(25)	(9)	(21)
Totals			1308		478.6	358.3	354.1				397.0			107.1	153.9	328.6		
Averages			48.4		17.73	13.27	13.11	*7486*	*84.62*		14.70			11.90	7.33	13.14	*90.76*	*55.54*
Minima			25		16.9	12.1	12.4	*69.5*	*80.5*		14.17			11.5	6.7	12.3	*80.2*	*45.0*
Maxima			25		18.4	14.3	14.0	*79.4*	*91.0*		15.30			13.0	7.9	13.9	*96.3*	*61.2*

Catalog No.	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
352354	----	----	9.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
352401	10.6	9.4	10.4	67.0	54.5	3.35	3.3	4.0	3.95	83.75	83.54	5.3	2.1	39.62	5.7	6.5	87.69	----
352384	10.5	9.3	10.2	67.0	56.0	3.6	3.6	3.95	3.9	91.14	92.31	4.8	2.4	50.00	5.5	6.3	87.30	----
352359	9.9	8.8	9.7	63.5	51.0	3.5	3.65	4.1	3.85	85.37	94.81	5.0	2.5	50.0	5.6	6.6	84.85	----
352385	----	8.5	10.1	----	----	----	3.65	----	3.9	----	93.59	4.6	2.1	45.65	----	----	----	----
352393	9.7	8.8	10.3	73.0	58.5	3.75	3.7	3.95	3.9	94.94	94.87	5.3	2.15	40.57	5.4	6.6	81.82	3.3
352387	10.4	9.0	10.2	67.0	50.0	3.75	3.7	4.1	4.0	91.46	92.50	5.4	2.15	39.81	5.7	6.1	93.44	3.4
352377	10.2	9.0	10.1	69.0	51.0	3.5	3.6	3.8	3.8	92.11	94.74	4.9	2.35	47.96	----	----	----	----
352364	10.1	9.2	10.5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
352381	9.9	8.8	10.0	68.05	56.5	3.4	3.35	3.9	3.7	87.18	90.54	4.9	2.15	43.88	5.4	6.8	79.41	3.3
352351	9.9	8.6	10.0	68.0	52.5	3.65	3.65	4.1	4.0	89.02	91.25	5.3	2.4	45.28	5.6	6.8	82.35	----
352396	10.5	9.4	10.6	68.0	56.5	3.8	3.8	4.1	3.9	92.68	97.44	5.4	2.5	46.30	5.9	6.8	86.76	3.9
352356	9.9	8.8	10.0	68.5	55.0	3.65	3.5	4.0	3.8	91.25	92.11	4.95	2.3	46.46	5.2	6.3	82.54	----
352380	----	8.2	9.6	----	----	3.9	3.8	4.1	4.1	95.12	92.68	5.3	2.1	39.62	----	----	----	3.6
352353	10.3	9.0	10.0	65.0	55.5	3.55	3.45	4.0	3.95	88.75	87.34	5.15	2.35	45.63	5.6	6.5	86.15	----
352388	10.2	8.9	9.6	67.0	44.0	3.2	----	3.75	----	85.33	----	4.2	2.25	53.57	5.4	6.0	90.0	3.2
352352	10.7	9.6	10.2	61.5	55.0	3.45	3.45	3.9	3.9	88.46	88.46	4.7	2.15	45.74	5.3	6.1	86.89	----
352370	10.1	9.0	10.1	68.5	52.0	3.55	3.55	4.05	4.0	87.65	88.75	5.2	2.15	41.35	5.5	6.1	90.16	3.7
352403	----	9.5	10.6	----	----	3.6	3.6	4.0	4.0	90.00	90.00	5.5	2.3	41.82	----	----	----	----
352382	10.8	9.5	10.5	67.5	51.5	3.65	3.65	3.8	3.9	96.05	93.59	4.95	2.3	46.46	5.6	6.6	84.85	3.6
352361	9.9	8.9	10.0	70.5	54.0	3.5	3.6	4.1	4.05	85.37	88.89	4.85	2.3	47.42	5.2	6.1	85.25	----
352362	9.8	8.5	9.8	67.0	54.0	3.55	3.6	4.0	3.9	88.75	92.31	5.0	2.1	42.0	5.4	6.0	90.0	----
352319	9.2	8.5	9.8	70.0	62.5	3.5	3.55	3.8	3.7	92.11	95.95	5.55	2.25	40.54	5.0	6.3	79.37	3.6
352390	----	9.0	10.1	----	----	3.5	3.5	3.9	3.85	89.74	90.91	5.0	2.1	42.0	5.2	6.3	82.54	3.25
352363	9.8	8.6	9.6	64.0	53.0	3.95	3.95	3.95	3.9	100.0	101.28	5.5	2.2	40.0	5.3	6.0	88.33	----
352378	----	8.2	9.6	----	----	3.55	3.65	4.0	3.9	88.75	93.59	4.95	2.15	43.43	5.0	6.1	81.97	3.2
352379	----	8.6	9.8	----	----	3.75	3.7	4.0	4.1	93.75	90.24	5.3	2.45	46.23	5.3	6.2	85.48	----
Specimens	(20)	(26)	(27)	(19)	(19)	(24)	(24)	(24)	(24)	(24)	(24)	(25)	(25)	(25)	(21)	(21)	(21)	(11)
Totals	202.4	231.6	271.3	1,285	1,025	86.15	86.55	95.35	93.95	----	----	127.0	56.25	----	113.8	133.1	----	38.05
Averages	10.12	8.91	10.05	67.6	54	3.59	3.61	3.97	3.91	90.35	92.12	5.08	2.25	44.29	5.42	6.34	85.50	3.46
Minima	9.2	8.2	9.6	61.5	44.0	3.2	3.3	3.75	3.7	83.8	83.5	4.2	2.1	39.6	5.0	6.0	79.4	3.2
Maxima	10.8	9.6	10.6	73.0	62.5	3.95	3.95	4.1	4.1	100.0	101.3	5.55	2.5	53.6	5.9	6.8	93.4	3.9

CAPE DARBY AND CAPE NOME: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a) [1]	Alveol. Pt.-Nasion Height (b)
	(H. B. Collins)														
346237	U.S.N.M	Cape Darby	70		18.9	[2] 13.6	13.6	*71.96*	*83.69*		15.37				8.1
346238	do	do	25		18.8	13.6	13.8	*72.34*	*85.19*		15.40				8.2
346234	do	do	35		18.8	13.7	14.2	*72.87*	*87.38*		15.57			13.9	8.2
346228	do	do	55		18.6	13.9	14.2	*74.73*	*87.38*		15.57			13.6	8.2
	(A. H.)														
322501	U.S.N.M	Cape Nome	35		18.0	13.5	13.6	*75.00*	*86.1*		15.03			12.6	8.0
Specimens			(5)		(5)	(5)	(5)	(5)	(5)		(5)			(3)	(5)
Totals			220		93.1	68.3	69.4				76.9			40.1	40.7
Averages			44		18.62	13.66	13.88	*73.4*	*86.0*		15.39			13.37	8.14
Minima			25		18.0	13.5	13.6	*72.0*	*83.7*		15.03			12.6	8.0
Maxima			70		18.9	13.9	14.2	*75.0*	*87.4*		15.57			13.9	8.2

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breath maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
346237	14.1	-------	*57.45*	9.9	8.6	10.5	70.5	54.0	3.8	3.8	4.25	4.15	*89.41*	*91.57*	5.6	2.4	*42.86*	5.2	6.6	*78.79*	------
346238	13.3	-------	*61.65*	9.7	8.7	10.6	72.0	58.0	3.45	3.6	3.9	3.9	*88.46*	*92.31*	5.75	1.9	*33.04*	5.5	7.2	*76.39*	------
346234	14.0	*99.29*	*58.57*	10.7	9.3	10.5	66.0	54.0	3.7	3.7	4.1	4.0	*90.24*	*92.50*	5.4	1.9	*35.19*	5.9	6.5	*90.77*	4.3
346228	14.8	*91.89*	*55.41*	10.5	9.4	11.3	72.5	58.5	3.6	3.55	4.3	4.2	*83.72*	*84.52*	5.6	2.6	*46.43*	5.7	6.6	*86.36*	3.9
322501	14.3	*88.1*	*55.9*	10.9	9.9	10.8	67.5	59.0	3.4	3.45	4.1	4.0	*82.9*	*86.2*	5.7	2.55	*44.74*	6.1	6.9	*88.4*	3.85
Specimens	(5)	(3)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(3)
Totals	70.5	-------	-------	51.7	45.9	53.7	348.5	283.5	17.95	18.1	20.65	20.25	-------	-------	28.05	11.35	-----	28.4	33.8	-------	12.05
Averages	14.10	*93.0*	*57.7*	10.34	9.18	10.74	69.7	56.7	3.59	3.62	4.13	4.05	*86.9*	*89.4*	5.61	2.27	*40.5*	5.68	6.76	*84.0*	4.01
Minima	13.3	*88.1*	*55.4*	9.7	8.6	10.5	66.0	54.0	3.4	3.45	3.9	3.9	*82.9*	*84.5*	5.4	1.9	*33.0*	5.2	6.5	*76.4*	3.85
Maxima	14.8	*99.3*	*61.6*	10.9	9.9	11.3	72.5	59.0	3.8	3.8	4.3	4.2	*90.2*	*92.5*	5.75	2.6	*46.4*	6.1	7.2	*90.8*	4.3

[1] Allowance made for wear of teeth.
[2] Near.

CAPE DARBY AND CAPE NOME: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth wear	Mento-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
	(*H. B. Collins*)														
346239	U.S.N.M.	Cape Darby	25		18.4	13.2	13.2	*71.74*	*83.54*		14.93				7.5
346235	do	do	60		18.3	13.2	14.0	*72.13*	*88.89*		15.17			13.2	7.7
346249	do	do	35		17.9	13.0	13.0	*72.63*	*84.14*		14.63				
346233	do	do	50		17.8	13.6	13.0	*76.40*	*82.80*		14.80			13.1	7.8
	(*A. H.*)														
332521	U.S.N.M.	Cape Nome	50		17.6	12.7	13.1	*72.2*	*86.2*		14.47	1.195			7.3
332518	do	do	60		17.8	13.8	12.9	*77.5*	*81.6*		14.65	1.290			
Specimens			(6)		(6)	(6)	(6)	(6)	(6)		(6)				(4)
Totals			280		107.8	79.5	79.2				88.83				30.3
Averages			46.7		17.97	13.25	13.20	*73.8*	*84.6*		14.80				7.58
Minima			25		17.6	12.7	12.9	*71.7*	*81.6*		14.47				7.3
Maxima			60		18.4	13.8	14	*77.5*	*88.9*		15.17				7.8

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
346239	13.1	-------	*57.25*	10.2	9.0	9.8	65.0	53.0	3.85	3.8	3.85	3.9	*100*	*97.44*	5.3	2.3	*43.40*	5.4	6.8	*79.41*	------
346235	13.7	*96.35*	*56.20*	9.9	8.6	10.0	67.5	51.5	3.65	3.7	4.2	4.1	*86.90*	*90.24*	5.25	2.1	*40.0*	5.5	7.2	*76.39*	3.8
346249	------	------	------	------	------	9.7	------	------	------	------	------	------	------	------	------	------	------	------	------	------	3.7
346233	12.8	*102.3*	*60.94*	10.3	9.1	10.4	68.5	53.5	3.7	3.6	3.8	3.8	*97.57*	*94.74*	5.4	2.2	*40.74*	5.4	6.4	*84.38*	3.9
332521	13.1	-------	*55.7*	10.3	9.1	10.1	67.0	54.0	3.45	3.35	3.9	3.9	*88.5*	*85.9*	4.9	2.5	*51.0*	5.5	6.4	*85.9*	3.7
332518	13.2	-------	-------	-------	8.6	10.0	-------	-------	3.6	3.7	3.95	3.95	*91.2*	*93.7*	5.15	2.5	*48.6*	-----	-----	-------	-----
Specimens	(5)	-------	(4)	(4)	(5)	(6)	(4)	(4)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(4)	(4)	(4)	(4)
Totals	65.9	-------	-------	40.7	44.4	60.0	268.0	212.0	18.25	18.15	19.7	19.65	-----	-------	26.0	11.6	---	21.8	26.8	-------	15.1
Averages	13.18	-------	*57.5*	10.18	8.88	10.0	67.0	53.0	3.65	3.63	3.94	3.93	*92.6*	*92.4*	5.20	2.32	*44.6*	5.45	6.70	*81.3*	3.78
Minima	12.8	-------	*55.7*	9.9	8.6	9.7	65.0	51.5	3.45	3.35	3.8	3.8	*86.9*	*85.9*	4.9	2.1	*40.0*	5.4	6.4	*76.4*	3.7
Maxima	13.7	-------	*60.9*	10.3	9.1	10.4	68.5	54.0	3.85	3.8	4.2	4.1	*100.0*	*97.4*	5.4	2.5	*51.0*	5.5	7.2	*85.9*	3.9

[1] Allowance made for wear of teeth.

KOVIERUK: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
346298	(*H. B. Collins*) U.S.N.M	Kovieruk, St. Marys River.	65		18.6	13.2	13.9	*70.97*	*87.42*		15.23				
346252	do	do	35		18.8	13.4	14.0	*71.28*	*86.96*		15.40				
346246	do	do	50		18.1	13.4	14.1	*74.03*	*89.52*		15.20			13.4	7.7
346268	do	do	35		18.0	13.8	13.6	*76.67*	*85.53*		15.13			12.6	[2]7.5
346199	do	do	60		18.5	14.2	13.7	*76.76*	*83.79*		15.47				
346221	do	do	65		19.5	15.0	13.7	*76.92*	*79.42*		16.07				
346274	do	do	65		18.0	14.2	13.2	*78.89*	*81.99*		15.13				7.2
Specimens			(7)		(7)	(7)	(7)	(7)	(7)		(7)				(3)
Totals			375		129.5	97.2	96.2				107.6				22.4
Averages			53.6		18.50	13.89	13.74	*75.1*	*84.9*		15.38				7.47
Minima			35		18.0	13.2	13.2	*71.0*	*79.4*		15.13				
Maxima			65		19.5	15.0	14.1	*78.9*	*89.5*		16.07				

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
346198	14.4	------	------	------	10.0	11.0	------	------	3.8	4.0	4.1	4.0	*92.68*	*100.0*	5.4	2.4	*44.44*	------	------	------	3.6
346252	14.2	------	------	------	------	10.7	------	------	------	------	------	------	------	------	5.4	2.5	*46.30*	5.9	7.2	*81.94*	3.4
346246	13.9	*96.40*	*55.40*	10.6	9.2	10.6	68.5	51.0	3.6	3.55	3.8	3.8	*94.74*	*93.42*	5.2	2.2	*42.31*	5.6	6.9	*81.16*	3.85
346268	14.4	*87.50*	*52.08*	------	8.8	10.4	------	------	3.7	3.6	4.0	4.1	*92.50*	*87.80*	5.35	2.4	*44.86*	------	------	------	3.55
346199	14.5	------	------	------	9.5	10.6	------	------	3.4	3.5	4.1	4.0	*82.92*	*87.50*	5.2	2.6	*50.0*	------	------	------	3.8
346221	14.4	------	------	------	9.6	10.9	------	------	3.65	------	4.2	------	*86.90*	------	5.2	2.5	*48.08*	------	------	------	------
346274	14.9	------	*48.32*	10.7	9.6	10.6	69.5	54.0	3.5	------	4.3	------	*81.40*	------	5.15	2.35	*45.63*	5.8	6.5	*89.23*	------
Specimens	(7)	------	(3)	------	(6)	(7)	------	------	(6)	(4)	(6)	(4)	(6)	(4)	(7)	(7)	(7)	(3)	(3)	(3)	(5)
Totals	100.7	------	------	------	56.7	74.8	------	------	21.65	14.65	24.5	15.9	------	------	36.9	16.95	------	17.3	20.6	------	18.2
Averages	14.39	------	*51.9*	------	9.45	10.69	------	------	3.61	3.66	4.08	3.98	*88.4*	*92.1*	5.27	2.42	*45.9*	5.77	6.87	*84.0*	3.64
Minima	13.9	------	------	------	8.8	10.4	------	------	3.4	3.5	3.8	3.8	*81.4*	*87.5*	5.15	2.2	*42.3*	------	------	------	3.4
Maxima	14.9	------	------	------	10.0	11.0	------	------	3.8	4.0	4.3	4.1	*94.7*	*100.0*	5.4	2.6	*50.0*	------	------	------	3.85

[1] Allowance made for wear of teeth, where needed.
[2] Near.

KOVIERUK: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Mento-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
346269	(*H. B. Collins*) U.S.N.M.	Kovieruk, St. Marys River.	40		17.8	13.0	12.9	*73.03*	*83.77*		14.57			12.4	7.6
346253	do	do	55		18.0	13.2	12.8	*73.33*	*82.05*		14.67				
346259	do	do	30		17.7	13.0	13.2	*73.45*	*85.99*		14.63			11.8	7.1
346260	do	do	25		17.7	13.1	12.9	*74.01*	*83.77*		14.57				6.6
346262	do	do	25		18.0	13.4	12.8	*74.44*	*81.53*		14.73			11.8	7.2
346267	do	do	60		17.6	13.2	13.2	*75.0*	*85.71*		14.67			12.2	7.2
346255	do	do	35		17.8	13.4	13.4	*75.28*	*85.90*		14.87			12.8	7.6
346153	do	do	75		17.7	13.4	12.4	*75.71*	*79.74*		14.50				
346251	do	do	30		17.9	13.6	13.8	*75.98*	*87.62*		15.10			12.8	7.5
346154	do	do	75		17.8	13.6	12.6	*76.40*	*80.25*		14.67				
346256	do	do	25		17.8	13.6	14.0	*76.40*	*89.17*		15.13				7.1
346270	do	do	35		17.6	13.5	13.8	*76.70*	*88.75*		14.97			12.1	7.3
346159	do	do	23		17.1	13.6	13.8	*79.53*	*89.90*		14.83			11.8	7.1
346279	do	do	60		16.8	13.6	12.7	*80.95*	*83.55*		14.37			11.0	6.4
346222	do	Cape Denbigh	55		16.7	12.8	12.3	*76.65*	*83.39*		13.93			11.4	6.4
346155	do	Near Teller	35		18.0	13.1	13.7	*72.78*	*88.10*		14.93				7.0
Specimens			(16)		(16)	(16)	(16)	(16)	(16)		(16)			(10)	(13)
Totals			683		282.0	213.1	210.3				235.1			120.1	92.1
Averages			42.7		17.63	13.32	13.14	*75.6*	*84.9*		14.70			12.01	7.08
Minima			23		16.8	12.8	12.4	*72.8*	*79.7*		13.93			11.0	6.4
Maxima			75		18.0	13.6	14.0	*80.9*	*89.9*		15.13			12.8	7.6

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left
346269	12.9	*96.12*	*58.91*	10.6	9.2	10.2	65.5	50.0	3.35	3.4
346253	14.1	-----	-----	-----	8.9	10.4	-----	-----	3.8	3.8
346259	12.8	*92.19*	*55.47*	10.0	9.0	10.4	72.0	55.0	3.55	3.55
346260	12.9	-----	*51.16*	10.5	9.3	10.2	68.5	50.5	3.15	3.2
346262	12.8	*92.19*	*56.25*	9.7	8.6	9.9	70.0	53.5	3.5	3.45
346267	13.2	*92.42*	*54.55*	9.7	8.8	9.9	69.5	57.5	3.8	3.8
346255	12.8	*100.0*	*59.38*	10.0	8.6	10.2	69.0	51.0	3.5	3.6
346153	13.7	-----	-----	-----	8.6	10.2	-----	-----	3.45	3.45
346251	14.0	*91.43*	*53.57*	10.2	9.4	10.5	70.5	62.5	3.45	3.4
346154	13.5	-----	-----	-----	8.6	9.7	-----	-----	3.65	3.7
346256	13.9	-----	*51.08*	10.2	9.0	10.3	70.0	50.0	3.4	3.45
346270	13.7	*88.32*	*53.28*	9.9	9.0	10.5	73.0	59.5	3.55	3.5
346159	12.8	*89.23*	*53.08*	10.0	9.0	10.4	72.0	55.0	3.55	3.55
346279	13.1	*83.97*	*48.85*	9.4	8.2	9.2	68.0	46.0	3.5	3.7
346222	12.9	*88.37*	*49.61*	-----	8.8	9.8	-----	-----	3.4	3.4
346155	12.9	-----	*54.26*	9.4	8.6	10.0	73.0	62.0	3.6	3.5
Specimens	(16)	*(10)*	*(13)*	(12)	(16)	(16)	(12)	(12)	(16)	(16)
Totals	212.0	-----	-----	119.6	141.6	161.8	841.0	652.5	56.2	56.45
Averages	13.25	*91.7*	*54.0*	9.97	8.85	10.11	70.1	54.4	3.51	3.53
Minima	12.8	*84.0*	*48.9*	9.4	8.2	9.2	65.5	46.0	3.15	3.2
Maxima	14.1	*100.0*	*59.4*	10.6	9.4	10.5	73.0	62.5	3.8	3.8

Catalog No.	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
346269	3.7	3.7	*90.54*	*91.89*	5.1	2.3	*45.10*	5.8	6.1	*95.08*	3.9
346253	4.2	4.2	*90.48*	*90.48*	5.4	2.4	*44.44*	-----	-----	-----	-----
346259	3.8	3.8	*93.42*	*93.42*	5.0	2.2	*44.0*	5.5	6.4	*85.94*	3.6
346260	4.0	3.8	*78.75*	*84.21*	4.6	2.3	*50.0*	5.6	6.1	*91.80*	-----
346262	4.0	4.0	*87.50*	*86.25*	5.1	2.3	*45.10*	5.4	6.4	*84.38*	3.5
346267	4.0	3.9	*95.0*	*97.44*	5.3	2.45	*46.23*	5.1	6.2	*82.26*	3.5
346255	4.1	4.0	*85.37*	*90.0*	5.15	2.2	*42.72*	5.5	6.3	*87.30*	3.6
346153	3.9	3.8	*88.46*	*90.79*	5.05	2.2	*43.56*	-----	-----	-----	-----
346251	3.9	3.8	*88.46*	*89.47*	5.25	2.4	*45.71*	5.2	6.4	*81.25*	-----
346154	4.0	4.1	*91.25*	*90.24*	-----	-----	-----	-----	-----	-----	-----
346256	3.75	3.9	*90.67*	*88.46*	5.05	2.4	*47.52*	5.5	6.3	*87.30*	-----
346270	3.9	3.7	*91.03*	*94.59*	5.05	2.1	*41.58*	5.4	6.4	*84.36*	3.4
346159	3.8	3.8	*91.03*	*93.42*	5.0	2.2	*48.51*	5.5	6.4	*91.94*	3.3
346279	3.8	3.7	*92.11*	*100.0*	4.7	2.5	*53.19*	5.0	6.0	*83.33*	2.9
346222	3.7	3.7	*91.89*	*91.89*	4.5	2.2	*48.89*	5.0	6.3	*79.37*	-----
346155	3.9	3.95	*92.31*	*88.61*	4.75	2.2	*46.32*	4.9	6.1	*80.33*	-----
Specimens	(16)	(16)	(16)	(16)	(15)	(15)	(15)	(13)	(13)	(13)	(8)
Totals	62.45	61.85	-----	-----	75.0	34.35	-----	69.4	81.4	-----	27.7
Averages	3.90	3.93	*90.0*	*91.3*	5.0	2.29	*45.8*	5.34	6.26	*85.3*	3.46
Minima	3.7	3.7	*78.8*	*84.2*	4.5	2.1	*41.6*	4.9	6.1	*79.4*	2.9
Maxima	4.2	4.2	*95.0*	*100.0*	5.4	2.5	*53.2*	5.6	6.4	*95.1*	3.9

[1] Allowance made for wear of teeth where needed.

SLEDGE ISLAND: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a) [1]	Alveol. Pt.-Nasion Height (b)
	(*H. B. Collins*)													(1)	
342401	U.S.N.M.	Sledge Island	35		19.4	13.0	13.7	*67.01*	*84.57*		15.37				8.0
342407	do	do	40		19.4	13.6	13.7	*70.10*	*83.03*		15.57			12.6	7.8
342416	do	do	23		18.8	13.5	14.2	*71.81*	*87.93*		15.50			12.0	7.3
342405	do	do	30		18.5	13.7	14.1	*74.05*	*87.58*		15.43			12.8	7.8
342406	do	do	55		19.5	14.7	14.7	*75.38*	*85.96*		16.30			13.1	8.0
Specimens			(5)		(5)	(5)	(5)	(5)	(5)		(5)			(4)	(5)
Totals			18.3		95.6	68.5	70.4				78.17			50.5	38.9
Averages			36.6		19.12	13.70	14.08	*71.7*	*85.8*		15.63			12.62	7.78
Minima			23		18.5	13.0	13.7	*67.0*	*83.0*		15.37			12.0	7.3
Maxima			55		19.5	14.7	14.7	*75.4*	*87.9*		16.30			13.1	8.0

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
342401	13.9	------	57.55	11.2	10.0	11.2	69.5	54.0	3.5	3.5	4.15	4.1	84.34	85.37	5.7	2.55	44.74	6.0	6.9	86.96	------
342407	13.9	90.65	56.12	10.6	9.8	10.6	68.5	61.5	3.65	3.8	4.05	4.0	90.12	95.0	5.7	2.2	38.60	5.6	6.7	83.58	3.3
342416	13.7	87.59	53.28	10.5	9.8	11.0	74.0	63.0	3.65	3.55	3.85	3.9	94.81	91.03	5.4	2.2	40.74	5.3	6.4	82.81	3.4
342405	14.3	89.51	54.55	9.7	8.8	10.7	75.0	61.5	3.65	3.5	4.1	4.1	89.02	85.37	5.5	2.4	43.64	5.4	6.7	80.60	3.7
342406	14.7	89.12	54.42	10.8	9.8	11.1	70.5	60.5	3.75	3.65	4.05	4.15	92.59	87.95	5.5	2.4	43.64	5.7	6.9	82.61	3.9
Specimens	(5)	(4)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(4)
Totals	70.5	------	------	52.8	48.2	54.6	355.5	300.5	18.2	18.0	20.2	20.25	------	------	27.8	11.75	------	28.0	33.6	------	14.3
Averages	14.10	89.2	55.2	10.56	9.64	10.92	71.1	60.1	3.64	3.60	4.04	4.05	90.1	88.9	5.56	2.35	42.3	5.60	6.72	83.3	3.57
Minima	13.7	87.6	53.3	9.7	8.8	10.6	68.5	54	3.5	3.5	3.85	3.9	84.3	85.4	5.4	2.2	38.6	5.3	6.4	80.6	3.3
Maxima	14.7	90.7	57.6	11.2	10.0	11.2	75	63	3.75	3.8	4.15	4.15	94.8	95.0	5.7	2.55	44.7	6.0	6.9	87.0	3.9

[1] Allowance made for wear of teeth, where needed.

SLEDGE ISLAND: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*H. B. Collins*)														
342411	U.S.N.M.	Sledge Island	50		17.7	12.6	13.0	*71.19*	*85.81*		14.43	1,120		[1]	
342408	do	do	60		18.7	13.4	13.4	*71.66*	*83.49*		15.17	1,375			7.0
342414	do	do	25		18.2	13.4	12.8	*73.63*	*81.01*		14.80	1,350		11.8	7.3
342403	do	do	65		18.6	13.9	13.5	*74.73*	*83.08*		15.33	1,415			7.7
342409	do	do	30		18.6	13.9	13.0	*74.73*	*80.0*		15.17	1,390			6.9
342402	do	do	22		18.2	13.6	13.4	*74.73*	*84.28*		15.07	1,445			7.4
342417	do	do	60		18.2	13.6	13.1	*74.73*	*82.39*		14.97	1,360		12.0	7.5
342413	do	do	30		17.4	13.1	13.4	*75.29*	*87.87*		14.63	1,310		12.0	7.3
342412	do	do	25		17.6	14.0	13.4	*79.55*	*84.81*		15.0	1,350			
Specimens			(9)		(9)	(9)	(9)	(9)	(9)		(9)	(9)		(3)	(7)
Totals			367		163.2	121.5	119.0				134.6			35.8	51.1
Averages			40.8		18.13	13.50	13.22	*74.45*	*83.60*		14.95	1,346		11.93	7.30
Minima			22		17.4	12.6	12.8	*71.19*	*80.0*		14.43	1,120			6.9
Maxima			65		18.7	14.0	13.5	*79.55*	*87.87*		15.33	1,445			7.7

Catalog No.	Diam. Bizygomatic maxim.	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
342411	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
342408	13.5	-----	*51.85*	-----	10.0	10.8	-----	-----	3.75	3.75	4.2	4.1	*89.29*	*91.46*	5.0	2.3	*46.0*	5.7	6.5	*87.69*	-----
342414	12.9	*91.47*	*56.59*	9.9	8.6	9.9	69.5	51.0	3.45	3.55	3.85	3.8	*89.61*	*93.42*	4.95	2.25	*45.45*	5.4	6.5	*83.08*	2.9
342403	13.7	-----	*56.20*	10.4	9.0	10.4	68.0	48.0	3.7	3.75	4.1	4.1	*90.24*	*91.46*	5.6	2.5	*44.64*	-----	-----	-----	3.9
342409	13.2	-----	*52.27*	9.7	8.6	10.0	71.5	52.5	3.4	3.4	4.0	4.0	*85.0*	*85.0*	4.95	2.2	*44.44*	5.5	6.5	*84.62*	-----
342402	13.0	-----	*56.92*	10.5	9.4	10.5	69.0	55.0	3.75	3.65	3.75	3.75	*100.0*	*97.33*	5.2	2.3	*44.23*	5.7	6.7	*85.07*	-----
342417	13.5	*88.89*	*55.56*	10.1	8.8	10.0	67.5	54.0	3.6	3.65	4.3	4.1	*83.72*	*89.02*	4.9	2.25	*45.92*	5.8	6.5	*89.23*	3.95
342413	13.0	*92.31*	*56.15*	10.9	9.7	10.4	66.0	52.0	3.35	3.4	3.9	3.9	*85.90*	*87.18*	5.1	2.0	*39.22*	5.6	6.1	*91.80*	3.65
342412	-----	-----	-----	-----	-----	10.3	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Specimens	(7)	(3)	(7)	(6)	(7)	(8)	(6)	(6)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(6)	(6)	(6)	(4)
Totals	92.8	-----	-----	61.5	64.1	82.3	411.5	312.5	25.0	25.15	28.1	27.75	-----	-----	35.7	15.8	-----	33.7	38.8	-----	144
Averages	13.26	*90.86*	*55.06*	10.25	9.16	10.29	68.6	52.1	3.57	3.59	4.01	3.96	*88.97*	*90.63*	5.10	2.26	*44.26*	5.62	6.47	*86.86*	3.80
Minima	12.9	-----	*51.85*	9.7	8.6	9.9	66.0	48.0	3.35	3.4	3.75	3.75	*83.72*	*85.0*	4.9	2.0	*39.22*	5.4	6.1	*83.08*	2.9
Maxima	13.7	-----	*56.92*	10.9	10.0	10.8	71.5	55.0	3.75	3.75	4.3	4.1	*100.0*	*97.33*	5.6	2.5	*46.0*	5.8	6.7	*91.80*	3.95

[1] Allowance made for wear of teeth, where needed.

PORT CLARENCE: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
346201	(*H. B. Collins*) U.S.N.M.	Port Clarence	50		18.6	13.6	13.6	*73.12*	*84.47*		15.27			(1) 13.7	8.0
346275	do	do	60		18.8	13.8	14.2	*73.40*	*87.12*		15.60			13.9	8.4
346273	do	do	60		19.0	14.2	14.2	*74.74*	*85.54*		15.80				7.3
346242	do	do	35		18.1	13.6	13.6	*75.14*	*85.80*		15.10				6.7
346276	do	do	65		18.4	13.9	14.0	*75.54*	*86.69*		15.43				
346202	do	do	50		18.2	13.8	13.5	*75.82*	*84.38*		15.17			13.1	7.9
346254	do	do	50		19.1	14.5	14.3	*75.93*	*85.12*		15.97			12.2	6.9
346258	do	do	60		17.8	14.1	13.6	*79.21*	*85.27*		15.17				7.6
XIV-F-7	(*D. Jenness*) Nat. Mus. Can.	do	65		19.2	13.0		*67.70*							
XIV-F-3	do	do	65		18.8	13.6	14.1	*72.34*	*87.0*		15.50				8.0
XIV-F-2	do	do	50		18.7	14.2	13.6	*75.94*	*82.7*		15.50				7.5
XIV-F-1	do	do	50		18.8	14.3	14.0	*76.06*	*84.6*		15.70			13.0	7.7
Specimens			(12)		(12)	(12)	(11)	(12)	(11)		(11)			(5)	(10)
Totals			660		223.5	166.6	152.7				170.2			65.9	76.0
Averages			55		18.63	13.88	13.88	*74.5*	*85.5*		15.47			13.18	7.60
Minima			35		18.1	13.0	13.5	*67.7*	*82.7*		15.10			12.2	6.7
Maximina			65		19.2	14.5	14.3	*79.2*	*87.1*		15.97			13.9	8.4

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
346201	14.8	*92.57*	*54.05*	10.3	9.4	10.8	71.0	63.5	3.7	3.65	4.1	4.2	*90.24*	*86.90*	5.4	2.4	*44.44*	5.6	6.9	*81.16*	4.1
346275	14.6	*95.21*	*57.53*	11.2	9.8	11.2	68.5	52.5	3.8	3.75	4.1	4.2	*92.68*	*89.29*	5.75	2.4	*41.74*	6.1	7.4	*82.43*	4.0
346273	13.6	------	*53.68*	9.9	8.8	10.3	71.5	54.0	3.8	3.8	4.2	4.2	*90.48*	*90.48*	5.25	2.25	*42.86*	------	------	------	------
346242	13.9	------	*48.20*	10.0	9.2	10.6	71.0	58.5	3.4	3.5	4.05	4.05	*83.95*	*86.42*	4.85	2.2	*45.36*	5.2	6.4	*81.25*	------
346276	13.8	------	------	------	9.2	10.9	------	------	------	------	------	------	------	------	5.4	2.3	*42.60*	------	------	------	------
346202	13.6	*96.32*	*58.09*	10.2	9.0	10.3	67.5	56.0	3.55	3.6	3.9	3.9	*91.03*	*92.31*	5.3	2.1	*39.62*	5.6	6.2	*90.32*	4.0
346254	14.2	*85.92*	*48.59*	10.3	9.2	10.2	69.0	54.5	3.35	3.45	4.0	4.0	*83.75*	*86.25*	4.8	2.3	*47.92*	5.2	6.5	*80.0*	3.3
356258	14.4	------	*52.78*	10.4	9.3	10.4	68.5	54.5	3.7	3.65	4.4	4.3	*84.09*	*84.88*	5.4	2.5	*46.30*	5.7	7.1	*80.28*	------
XIV-F-7	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
XIV-F-3	14.0	------	*57.1*	10.6	9.2	10.5	67.0	50.0	3.8	3.75	4.05	3.95	*93.8*	*94.9*	5.6	2.2	*39.3*	5.9	6.7	*88.1*	------
XIV-F-2	14.0	------	*53.6*	11.0	9.9	10.9	69.0	58.0	3.45	3.55	4.1	3.9	*84.2*	*91.0*	5.0	2.4	*48.0*	5.9	6.6	*89.4*	------
XIV-F-1	14.5	*89.7*	*53.1*	11.0	9.8	10.9	68.5	53.5	2.65	3.55	4.1	4.1	*89.0*	*86.6*	5.5	2.45	*44.5*	5.9	7.1	*83.1*	4.2
Specimens	(11)	*(5)*	*(10)*	(10)	(11)	(11)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(11)	(11)	(11)	(9)	(9)	(9)	(5)
Totals	155.4	------	------	104.9	102.8	117.0	691.5	555.0	36.2	36.25	41.0	40.8	------	------	58.25	25.50	------	51.1	60.9	------	19.6
Averages	14.13	*91.9*	*53.7*	10.49	9.35	10.64	69.2	55.5	3.62	3.63	4.10	4.08	*88.3*	*88.9*	5.30	2.32	*43.8*	5.68	6.77	*83.9*	3.92
Minima	13.6	*85.9*	*48.2*	9.9	8.8	10.2	67.0	50.0	3.35	3.45	3.9	3.9	*83.9*	*84.9*	4.8	2.1	*39.3*	5.2	6.2	*80.0*	3.3
Maxima	14.8	*96.3*	*58.1*	11.2	9.9	11.2	71.5	63.5	3.8	3.8	4.4	4.3	*93.8*	*94.9*	5.75	2.5	*48.0*	6.1	7.4	*90.3*	4.2

[1] Allowance made for wear of teeth.

PORT CLARENCE: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, Wear	Menton-Nasion Height (a) 1	Alveol. Pt.-Nasion Height (b)
	(*H. B .Collins*)														
346231	U. S. N. M.	Port Clarence	40		17.5	12.6	13.0	*72.0*	*86.38*		14.37				6.9
346272	do	do	65		18.7	13.5	13.2	*72.19*	*81.99*		15.13				
346215	do	do	50		17.7	13.0	13.2	*73.45*	*85.99*		14.63			11.2	6.8
346241	do	do	40		17.5	13.0	14.2	*74.29*	*93.11*		14.90				7.3
346230	do	do	35		17.7	13.2	13.5	*74.58*	*87.38*		14.80				6.8
346225	do	do	40		18.0	13.6	13.4	*75.56*	*84.81*		15.0				6.9
346261	do	do	80		18.0	13.8	13.6	*76.67*	*85.53*		15.13				
346244	do	do	47		16.3	12.6	12.7	*77.30*	*87.89*		13.87				
346216	do	do	50		17.3	13.4	13.0	*77.46*	*84.69*		14.57			12.0	6.9
346229	do	do	75		17.5	13.6	13.2	*77.71*	*84.89*		14.77				
242883	do	do	25		17.2	13.8	12.7	*80.2*	*81.9*		14.57	1,285			6.7
	(*D. Jenness*)														
XIV-F-6	Nat. Mus. Can.	do	40		17.9	13.3	13.2	*74.3*	*84.6*		14.80				
XIV-F-5	do	do	60		17.8	13.4	12.8	*75.3*	*82.0*		14.67				
Specimens			(13)		(13)	(13)	(13)	(13)	(13)		(13)				(7)
Totals			670		229.1	72.8	171.7				191.2				48.3
Averages			51.5		17.62	13.29	13.21	*75.4*	*85.4*		14.71				6.90
Minima			25		16.3	12.6	12.7	*72.0*	*81.9*		13.87				6.7
Maxima			80		18.7	13.8	14.2	*80.2*	*93.1*		15.13				7.3

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
346231	12.8	------	53.9	9.9	9.0	10.1	71.0	58.0	3.35	3.4	3.9	3.85	85.90	88.31	4.95	2.25	45.45	5.2	6.3	82.54	------
346272	13.3	------	------	------	9.2	10.4	------	------	3.45	------	4.1	------	84.15	------	5.05	2.7	53.47	------	------	------	------
346215	13.9	80.58	48.92	9.9	9.0	10.2	72.0	56.5	3.65	3.7	4.1	4.0	89.02	92.50	5.0	2.25	45.0	5.5	6.9	79.71	3.0
346241	13.2	------	55.30	9.9	9.0	10.3	71.5	60.0	3.9	3.95	3.9	4.0	100.0	98.75	5.2	2.4	46.15	5.2	5.9	88.14	------
346230	12.8	------	53.13	10.1	9.0	10.0	69.0	56.5	3.35	3.4	3.7	3.7	90.54	91.89	4.6	2.4	52.17	5.2	6.2	83.87	------
346225	13.3	------	51.88	9.5	8.5	10.0	73.0	53.5	------	3.35	------	3.8	------	88.16	5.1	2.25	44.12	------	------	------	------
346261	13.4	------	------	------	9.2	10.2	------	------	3.35	3.3	4.1	4.1	81.71	80.49	4.6	2.15	46.74	------	------	------	------
346244	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
346216	13.0	92.31	53.08	------	9.5	10.0	------	------	------	3.4	------	3.8	------	89.47	4.6	2.3	50.0	5.4	6.3	85.71	3.6
346229	13.3	------	------	------	------	9.8	------	------	------	3.35	------	4.0	------	83.75	------	------	------	------	------	------	------
242883	13.1	------	51.1	9.8	8.4	9.4	66.0	41.5	3.4	3.45	3.85	3.8	88.3	90.8	4.9	2.3	46.9	5.3	6.6	80.3	------
XIV-F-6	------	------	------	------	9.2	10.6	------	------	------	3.8	------	4.2	------	90.5	------	------	------	------	------	------	------
XIV-F-5	------	------	------	------	------	9.8	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Specimens	(10)	------	(7)	(6)	(10)	(12)	(6)	(6)	(7)	(10)	(7)	(10)	(7)	(10)	(9)	(9)	(9)	(6)	(6)	(6)	(2)
Totals	132.1	------	------	59.1	90.0	120.8	422.5	326.0	24.45	35.1	27.65	39.25	------	------	44.0	21.0	------	31.8	38.2	------	6.6
Average	13.21	------	52.4	9.85	9.0	10.07	70.4	54.3	3.49	3.51	3.95	3.93	88.4	89.4	4.89	2.33	47.7	5.30	6.37	83.3	(3.3)
Maxima	12.8	------	48.9	9.5	8.4	9.8	66.0	41.5	3.35	3.3	3.7	3.7	81.7	80.5	4.6	2.15	44.1	5.2	6.2	79.7	------
Maxima	13.9	------	55.3	10.1	9.5	10.6	73.0	60.0	3.9	3.95	4.1	4.2	100.0	98.8	5.2	2.7	53.5	5.5	6.9	88.1	------

1 Allowance made for wear of teeth.

WALES: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
333493	U.S.N.M.	Wales	Adult		19.0	13.4	14.4	*67.5*	*80.9*		15.60	1,420			7.7
333500	do	do	do		19.2	13.1	13.8	*68.2*	*85.2*		15.37	1,365	Medium	12.6	
333495	do	do	do		19.1	13.3	13.6	*69.6*	*84.0*		15.33	1,455	Moderate	13.3	7.8
333499	do	do	do		19.7	13.8	14.2	*70.0*	*84.5*		15.90	1,675	Considerable	12.1	7.3
333467	do	do	do		19.0	13.4	14.4	*70.5*	*88.9*		15.60	1,420			7.8
342461	do	do	45		19.2	13.6	14.2	*70.8*	*86.6*		15.67	1,555	Medium	12.2	7.4
333494	do	do	Adult		18.6	13.2	14.6	*71.0*	*91.8*		15.47	1,425			[2] 7.9
333481	do	do	do		18.8	13.4	13.1	*71.3*	*81.4*		15.10	1,360	N.+	13.4	8.1
333484	do	do	do		19.2	13.7	14.4	*71.4*	*87.8*		15.77	1,505			
333468	do	do	do		18.6	13.4	13.4	*72.0*	*83.8*		15.13	1,405	Considerable[2]	13.0	8.3
333487	do	do	do		19.1	13.8	14.2	*72.2*	*86.6*		15.70	1,610			8.0
333488	do	do	do		18.3	13.4	14.2	*73.2*	*89.9*		15.30	1,500	Slight	12.5	7.6
333496	do	do	do		18.9	13.9	14.0	*73.5*	*85.4*		15.60	1,495			
333489	do	do	do		18.4	13.7	14.1	*74.5*	*88.1*		15.40	1,420			7.3
333477	do	do	do		18.5	13.9	14.3	*75.1*	*88.3*		15.57	1,555	Slight	13.3	8.6
333479	do	do	do		17.9	13.5	13.6	*75.4*	*86.6*		15.00	1,370	Medium	12.3	7.5
333482	do	do	do		18.8	14.3	14.1	*76.1*	*84.9*		15.73	1,550	Moderate	12.8	7.9
333476	do	do	do		18.6	14.2	14.4	*76.3*	*87.8*		15.73	1,555	Medium	13.0	8.0
333478	do	do	do		18.4	14.1	13.2	*76.6*	*81.5*		15.23	1,445	+	12.2	7.6
XIV-F-35	Nat. Mus. Can.	do	50		17.8	14.0	13.8	*78.6*	*86.8*		15.20		Slight to medium.	12.4	7.5
Specimens					(20)	(20)	(20)	(20)	*(20)*		(20)	(19)		(13)	(17)
Totals					375.1	273.1	280.0				309.4	28,085		165.1	132.3
Average					18.76	13.66	14.0	*72.81*	*86.39*		15.47	1,478		12.70	7.78
Minima					17.8	13.1	13.1	*67.5*	*80.9*		15.0	1,360		12.1	7.3
Maxima					19.7	14.3	14.6	*78.6*	*91.8*		15.90	1,675		13.4	8.6

Catalog No.	Diam. Bizygomatic maxim. (c)	Facial Index, total $\left(\frac{a \times 100}{c}\right)$	Facial Index, upper $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	Orbital Index, right	Orbital Index, left	Nose—Height	Nose—Breadth maxim.	Nasal Index	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	Upper Alveolar Arch—Index	Lower Jaw—Height at Symphysis
333493	13.9	------	55.4	11.3	10.1	10.8	66.0	55.0	3.85	3.95	4.15	4.05	92.8	97.5	5.3	2.3	43.4	5.7	7.1	80.3	------
333500	14.3	88.1	------	------	10.0	10.9	------	------	3.75	3.65	4.15	4.15	90.7	88.0	5.45	2.8	51.4	------	------	------	4.0
333495	14.0	95.0	55.7	10.4	9.3	10.6	69.5	57.0	3.65	3.75	4.1	4.0	89.0	93.8	5.5	2.4	43.6	5.7	6.7	85.1	3.9
333499	14.0	86.4	52.1	10.1	9.1	10.2	69.5	56.0	3.75	3.65	4.1	3.9	91.5	93.6	5.2	2.4	46.2	5.5	6.5	84.6	3.6
333467	14.3	------	54.5	10.6	9.4	10.7	69.0	57.5	3.55	3.55	4.1	4.2	86.6	84.5	5.05	2.35	46.5	5.7	6.9	82.6	------
342461	14.2	85.9	52.1	10.7	9.5	10.9	72.0	52.0	3.65	3.6	4.25	4.2	85.9	85.7	5.3	2.2	41.5	5.3	6.9	76.8	3.7
333494	14.4	------	54.9	[2] 11.0	10.0	11.0	69.0	61.5	3.8	3.7	4.2	4.0	90.5	92.5	5.3	2.45	46.2	[2] 5.8	6.7	86.6	4.3
333481	13.9	96.4	58.3	10.8	9.6	10.9	69.0	55.5	3.6	3.7	[2] 4.1	[2] 4.0	87.8	92.5	5.65	2.75	48.7	5.5	6.5	84.2	4.15
333484	14.4	------	------	------	------	11.1	------	------	3.6	3.6	4.4	4.3	81.8	83.7	5.65	2.4	42.5	------	------	------	4.0
333468	14.2	91.6	58.4	10.3	9.1	10.5	68.0	55.0	3.7	3.65	3.95	3.9	93.7	93.6	5.9	2.2	37.3	5.4	6.5	83.1	3.6
333487	14.0	------	57.1	11.1	9.5	10.8	66.5	49.0	3.6	3.5	4.05	4.1	88.9	85.4	5.4	2.6	48.2	6.2	[2] 6.9	89.9	[2] 4.3
333488	13.9	89.9	54.7	10.0	9.0	10.5	72.0	60.0	3.7	3.65	4.3	4.1	86.0	89.0	5.15	2.35	45.6	5.7	6.7	85.1	3.8
333496	------	------	------	[2] 10.8	9.5	10.9	------	------	3.85	3.8	4.15	4.1	92.8	92.7	5.6	2.55	45.5	[2] 5.9	7.0	84.3	------
333489	[2] 13.9	------	52.5	9.6	8.8	10.3	73.5	62.0	3.55	3.5	4.1	4.1	86.6	85.4	5.2	2.25	43.3	5.4	7.0	77.1	3.85
333477	14.5	91.7	59.3	10.4	9.4	11.0	70.0	62.0	3.6	3.65	4.0	3.95	90.0	92.4	5.7	2.4	42.1	5.7	7.4	77.0	4.0
333479	14.4	85.4	52.1	11.0	9.7	10.5	66.0	55.0	3.5	3.65	4.05	4.05	86.4	90.1	4.9	2.3	46.9	5.7	6.3	90.5	3.6
333482	14.6	87.7	54.1	10.8	9.4	10.7	68.0	52.0	3.7	3.65	4.0	4.0	92.5	91.2	5.4	2.35	43.5	5.9	7.2	81.9	4.1
333476	13.8	94.2	58.0	10.6	9.4	10.3	65.5	58.5	3.75	3.8	4.3	4.2	87.2	90.5	5.1	2.35	46.1	6.0	6.5	92.3	3.9
333478	13.8	88.4	55.1	9.9	9.0	9.9	67.5	59.5	3.7	3.7	4.1	3.9	90.2	94.9	5.5	2.35	42.7	5.5	6.6	83.3	3.7
XIV-F-35	14.5	85.5	51.7	10.7	9.4	10.6	68.5	49.0	3.6	3.65	4.0	4.05	90.0	90.1	5.5	2.3	41.8	5.5	6.4	85.9	3.8
Specimens	(19)	(13)	(17)	(18)	(19)	(20)	(17)	(17)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(18)	(18)	(18)	(17)
Totals	269.0	------	------	190.1	179.2	213.1	1169.5	956.5	73.45	73.35	82.55	81.25	------	------	107.75	48.05	------	102.1	121.8	------	66.3
Average	14.16	89.68	55.06	10.56	9.43	10.66	68.79	56.26	3.67	3.67	4.13	4.06	88.98	90.28	5.39	2.40	44.59	5.67	6.77	83.83	3.90
Minima	13.8	85.4	51.7	9.6	8.8	9.9	65.5	49.0	3.55	3.5	3.95	3.9	81.8	83.7	4.9	2.2	37.3	5.3	6.3	76.8	3.6
Maxima	14.6	96.4	59.3	11.3	10.1	11.1	73.50	62.0	3.85	3.95	4.4	4.3	93.7	97.5	5.9	2.8	51.4	6.2	7.2	92.3.	4.3

[1] Allowance made for wear of teeth, where needed.
[2] Near.

WALES: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[2]	Alveol. Pt.-Nasion Height (b)
378797	U.S.N.M.	Wales	30		19.1	12.8	13.3	67.02	83.39		15.07			12.0	7.2
378796	do	do	25		18.7	12.8	13.2	68.45	83.81		14.90	1,395		12.0	7.0
333486	do	do	Adult		18.9	13.0	13.2	68.8	82.5		15.03	1,320	Moderate	11.5	7.4
333470	do	do	do	Premature occlusion or coronal suture.	(18.3)	(12.7)	(13.2)	(69.4)	(85.2)		14.73	1,320	do	11.5	7.6
333485	do	do	do		18.7	13.0	13.8	69.5	87.3		15.17	1,475	+	11.7	6.9
378794	do	do	30–35		18.4	13.0	13.5	70.65	85.99		14.97	1,360		11.8	7.2
333483	do	do	Adult		17.8	12.7	13.6	71.4	89.5		14.70	1,315			[1] 7.5
333475	do	do	do		18.6	13.3	12.9	71.5	80.6		14.93	1,370	+	11.7	7.2
XIV-F-36	Nat. Mus. Can	do	55		18.1	13.0	13.3	71.8	(85.5)		14.80		Considerable lateral.	11.7	7.2
333471	U.S.N.M.	do	Adult		17.7	12.9	13.1	72.9	85.6		14.57	1,345	Moderate	12.2	7.6
333497	do	do	do		18.2	13.3	13.0	73.1	82.3		14.83	1,340			7.7
333469	do	do	Adult		17.7	13.0	12.8	73.4	83.1		14.50	1,260	Moderate	11.4	7.4
333472	do	do	do		18.2	13.4	13.1	73.6	82.9		14.90	1,350			[1] 7.0
378795	do	do	35		17.9	13.1	13.2	73.18	85.16		14.73	1,300		11.6	6.9
378793	do	do	35		18.7	13.8	14.0	73.80	86.15		15.50	1,420		11.4	6.8
333501	do	do	Adult		18.5	13.9	14.2	75.1	87.6		15.53	1,460	Medium	13.1	8.0
333490	do	do	do		17.8	13.4	12.4	75.3	79.5		14.53	1,345	+	11.4	7.1
333492	do	do	do		18.0	13.8	13.5	76.7	84.9		15.10	1,370			[1] 7.3
342462	do	do	Eld		18.2	14.0	14.2	76.9	88.2		15.47				7.7
333491	do	do	Adult		17.1	13.2	12.8	77.2	84.2		14.37	1,305			7.0
333498	do	do	do		18.0	14.2	12.8	78.9	79.5		15.00	1,415	Considerable	12.5	[1] 7.9
333502	do	do	do		17.5	14.1	13.6	80.6	86.1		15.07	1,395	Moderate	11.7	7.4
Specimens					(21)	(21)	(21)	(21)	(21)		(22)	(19)		(16)	(22)
Totals					381.8	279.7	279.5				328.4	25,860		189.2	161.0
Averages					18.18	13.32	13.31	73.26	84.50		14.93	1,361		11.82	7.32
Minima					17.1	12.7	12.4	67.02	79.5		14.37	1,260		11.4	6.8
Maxima					19.1	14.2	14.2	80.6	89.5		15.53	1,475		13.1	8.0

[1] Near.

[2] Allowance made for wear of teeth.

Catalog No.	Diam. Bizygomatic maxim. (c)	Facial Index, total $\left(\frac{a\times100}{c}\right)$	Facial Index, upper $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Sugnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	Orbital Index, right	Orbital Index, left	Nose—Height	Nose—Breadth maxim	Nasal Index	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	Upper Alveolar Arch—Index	Lower Jaw—Height at Symphysis
378797	13.0	92.31	55.38	10.6	9.2	10.3	68.0	47.0	-----	3.6	-----	4.05	-----	88.89	5.1	2.4	47.06	-----	-----	-----	3.6
378796	13.1	91.60	53.44	10.5	9.1	10.3	69.0	48.0	3.45	3.45	3.9	3.8	88.46	90.79	4.9	2.1	42.86	5.5	6.4	85.94	3.5
333486	13.2	87.1	56.1	10.6	9.3	10.2	66.0	53.5	3.55	3.45	3.9	4.0	91.0	86.2	4.9	2.45	50.0	5.9	6.8	86.8	3.55
333470	[1] 13.1	87.8	58.0	10.0	9.2	10.3	70.0	65.0	3.35	3.3	4.1	4.0	81.7	82.5	5.1	2.1	41.2	5.3	6.4	82.8	3.3
333485	12.3	95.1	56.1	10.0	8.8	9.6	66.5	52.0	3.15	3.15	3.85	3.75	81.8	84.0	4.75	2.15	45.3	5.4	6.7	80.6	3.7
378794	13.3	88.72	54.14	10.1	9.0	10.1	69.0	53.5	3.7	3.75	4.2	4.1	88.10	91.46	5.2	2.6	50.0	5.2	[1] 6.2	83.87	-----
333483	13.0	-----	57.7	10.8	9.6	10.4	66.5	52.0	3.55	3.45	4.05	4.05	87.6	85.2	5.4	2.25	41.7	[1] 5.8	6.4	90.6	[1] 3.6
333475	13.2	88.6	54.6	10.7	9.4	10.0	64.5	51.0	3.3	3.3	3.8	3.8	86.8	86.8	5.0	2.4	48.0	5.8	6.9	84.1	3.55
XIV-F-36	13.0	90.0	55.4	9.7	8.7	9.9	70.0	58.0	3.55	3.55	3.8	3.75	93.4	94.7	4.9	2.15	43.9	5.3	6.5	81.5	3.5
333471	13.4	91.0	56.7	10.2	9.3	10.3	69.0	61.5	3.4	3.35	3.85	3.8	88.3	88.2	5.3	2.25	42.5	5.6	6.45	86.8	3.3
333497	13.7	-----	56.2	10.9	9.4	10.0	62.5	51.5	3.55	3.6	4.2	4.1	84.5	87.8	4.9	2.45	50.0	6.0	6.6	90.9	-----
333469	13.2	86.4	56.1	10.2	8.8	9.8	65.5	49.0	3.55	3.65	4.0	3.9	88.8	93.6	5.1	2.25	44.1	5.7	6.3	90.5	3.5
333472	13.4		52.2	-----	8.2	9.6	-----	-----	3.7	3.7	4.0	3.95	92.5	93.7	5.1	2.25	44.1	-----	-----	-----	3.25
378795	13.0	89.23	53.08	9.3	8.5	9.8	72.5	59.5	3.4	3.45	3.7	3.6	91.89	95.83	5.0	2.3	46.0	4.7	6.3	74.60	3.2
378793	13.8	82.61	49.28	10.4	9.2	10.4	70.5	48.5	3.35	3.30	4.1	4.1	81.71	80.49	5.0	2.8	56.0	5.5	6.6	83.33	3.1
333501	13.7	95.6	58.4	10.6	9.6	10.5	67.0	62.0	3.9	3.7	4.0	3.8	97.5	97.4	5.2	2.5	48.1	5.9	6.8	86.8	4.2
333490	12.8	89.1	55.5	10.1	9.0	10.0	68.5	53.0	3.55	3.65	3.8	3.8	93.4	96.1	5.1	2.4	47.1	5.4	6.6	81.8	3.5
333492	14.0	-----	52.1	10.3	9.2	10.2	68.0	56.5	3.65	3.65	4.3	4.1	84.9	89.0	5.0	2.4	48.0	5.4	6.4	84.4	[1] 3.3
342462	-----	-----	-----	10.8	9.6	10.8	69.0	53.0	-----	3.7	-----	3.95	-----	93.7	5.5	2.05	37.3	6.0	6.5	92.3	-----
333491	13.1	-----	53.4	9.3	8.4	9.5	69.5	57.0	[1] 3.5	[1] 3.5	3.8	3.8	92.1	92.1	5.05	2.3	45.6	5.3	6.4	82.8	-----
333498	14.0	89.3	56.4	[1] 10.4	9.0	10.0	64.5	51.0	3.65	3.75	4.2	4.1	86.9	91.5	5.4	2.6	48.2	[1] 5.9	6.9	85.5	3.9
333502	13.6	86.0	54.4	9.8	8.8	9.8	68.0	59.0	3.5	3.5	3.9	3.9	89.7	89.7	5.0	2.2	44.0	5.4	6.4	84.4	3.7
Specimens	(21)	(16)	(21)	(21)	(22)	(22)	(21)	(21)	(20)	(22)	(20)	(22)	(20)	(22)	(22)	(22)	(22)	(20)	(20)	(20)	(18)
Totals	278.9	-----	-----	215.3	199.3	221.8	1,424.0	1,141.5	70.3	77.5	79.45	86.20	-----	-----	111.9	51.35	-----	111.0	130.55	-----	63.25
Averages	13.28	89.37	54.93	10.25	9.06	10.08	67.81	54.36	3.52	3.52	3.97	3.92	88.48	89.91	5.09	2.33	45.89	5.55	6.53	85.02	3.51
Minima	12.3	82.61	49.28	9.3	8.2	9.5	62.50	47.0	3.15	3.15	3.7	3.6	81.7	80.49	4.75	2.05	37.3	4.7	6.2	74.60	3.1
Maxima	14.0	95.6	58.4	10.9	9.6	10.8	72.50	65.0	3.9	3.75	4.3	4.1	97.5	97.4	5.5	2.8	56.0	6.0	6.9	92.3	4.2

METLATAVIK: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height, Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*H. B. Collins*)														
342465	U.S.N.M.	Metlatavik	28		19.0	13.2	14.0	*69.5*	*87.0*		15.40	1,490	+		7.8
342467	do	do	60		18.8	13.3	14.4	*70.7*	*89.7*		15.50	1,585	Considerable		[1] 7.7
342474	do	do	60		18.7	13.3	14.0	*71.1*	*87.5*		15.33	1,500	do		8.3
342471	do	do	40		18.5	13.2	14.2	*71.4*	*89.6*		15.30	1,450	Slight to medium.		7.8
342482	do	do	60		20.1	14.4	14.7	*71.6*	*85.2*		16.40	1,685	Considerable		[1] 8.2
342479	do	do	[2] 30		19.4	14.1	[1] 14.3	*72.7*	*85.4*		15.93	1,545			
342468	do	do	40		18.2	13.3	14.1	*73.1*	*89.5*		15.20	1,435	Slight		7.3
342466	do	do	70		18.4	13.5	14.3	*73.4*	*89.7*		15.40	1,500	Considerable		8.1
342465	do	do	55		18.8	13.9	13.7	*73.9*	*83.8*		15.47	1,460	do	12.6	7.8
342477	do	do	[2] 30		18.9	14.0	[1] 14.0	*74.1*	*85.1*		15.63	1,445			
342464	do	do	25		18.9	14.1	14.0	*74.6*	*84.9*		15.67	1,605	Slight		8.15
342470	do	do	35		18.3	13.8	14.0	*75.4*	*87.2*		15.37	1,440	do		7.8
342481	do	do	24		18.6	14.2	13.9	*76.3*	*84.8*		15.57	1,605	do		7.3
342473	do	do	60		18.2	14.0	14.0	*76.9*	*87.0*		15.40	1,445	(?)		
342469	do	do	30		18.0	14.1	14.0	*78.3*	*87.2*		15.37	1,490	N.+		[1] 7.7
Specimens			(15)		(15)	(15)	(15)	(15)	(15)		(15)	(15)			(12)
Totals			647		280.8	206.4	211.6				232.9	22,680			93.95
Averages			43.1		18.72	13.76	14.11	*73.5*	*86.9*		15.53	1,512			7.83
Minima			25		18.0	13.2	13.7	*69.5*	*83.8*		15.20	1,435			7.3
Maxima			70		20.1	14.4	14.7	*78.3*	*89.7*		16.40	1,685			8.3

[1] Near.
[2] About.

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
342465	13.9	------	*56.1*	11.1	9.7	10.8	67.0	49.0	3.8	3.85	4.1	4.2	*92.7*	*91.7*	5.6	2.4	*42.9*	6.0	6.9	*87.0*	------
342467	[1] 14.2	------	*54.2*	10.9	9.6	10.8	69.0	49.0	3.75	3.7	4.2	4.0	*89.3*	*92.5*	5.7	2.3	*40.4*	5.8	6.6	*87.9*	------
342474	14.8	------	*56.1*	10.7	9.6	10.8	68.0	59.0	3.8	3.8	4.2	4.15	*90.5*	*91.6*	5.6	2.0	*35.7*	5.7	[1] 6.6	*86.4*	------
342471	14.3	------	*54.5*	10.9	9.8	10.9	69.0	56.0	3.95	3.95	4.2	4.2	*94.1*	*94.1*	5.6	2.3	*41.1*	5.8	7.4	*78.4*	------
342482	14.6	------	*56.2*	------	9.5	11.1	------	------	4.05	3.95	4.15	4.2	*97.6*	*94.1*	6.0	2.55	*42.5*	[1] 5.8	7.0	*82.9*	3.6
342479	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
342468	13.6	------	*53.7*	10.5	9.4	10.6	70.0	52.0	3.6	3.6	4.2	4.15	*85.7*	*86.8*	5.35	2.6	*48.6*	5.7	6.6	*86.4*	------
342466	13.5	------	*60.0*	10.4	9.2	10.8	71.0	58.0	3.8	3.85	4.1	4.0	*92.7*	*96.3*	5.35	2.4	*44.9*	[1] 5.9	6.6	*89.4*	------
342465	14.6	*86.3*	*53.4*	10.8	9.7	10.8	69.0	57.0	3.75	3.65	4.0	4.0	*93.8*	*91.3*	5.4	2.4	*44.4*	5.7	6.8	*83.8*	3.75
342477	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
342464	14.4	------	*56.6*	10.4	9.1	10.4	67.0	54.0	3.5	3.45	3.9	3.7	*89.7*	*93.2*	5.55	2.5	*45.0*	5.8	7.8	*74.4*	------
342470	[1] 14.5	------	*53.8*	10.5	9.4	10.6	70.0	56.0	3.6	------	4.0	------	*90.0*	------	5.6	2.4	*42.9*	5.8	7.1	*81.7*	------
342481	13.4	------	*54.5*	10.4	9.3	10.4	69.0	------	------	------	------	------	------	------	------	------	------	------	------	------	------
342473	14.3	------	------	------	9.4	10.8	------	------	3.8	3.85	4.2	4.05	*90.5*	*95.1*	5.3	2.4	*45.3*	------	------	------	------
342469	14.2	------	*54.2*	10.8	9.6	10.6	68.0	54.0	3.9	3.85	4.1	4.0	*95.1*	*96.3*	5.35	2.4	*44.9*	5.9	6.8	*86.8*	------
Specimens	(13)	------	*(12)*	(11)	(13)	(13)	(11)	(10)	(12)	(11)	(12)	(11)	(12)	(11)	(12)	(12)	(12)	(11)	(11)	(11)	(2)
Totals	184.3	------	------	117.4	123.3	139.4	757	544	45.3	41.5	49.35	44.65	------	------	66.4	28.65	------	63.9	76.2	------	7.35
Averages	14.18	------	*55.3*	10.67	9.48	10.72	68.8	54.4	3.78	3.77	4.11	4.06	*91.8*	*92.9*	5.53	2.39	*43.2*	5.81	6.93	*83.9*	(3.68)
Minima	13.4	------	*53.4*	10.4	9.1	10.4	67	49	3.5	3.45	3.9	3.7	*85.7*	*86.8*	5.3	2.0	*35.7*	5.7	6.6	*74.4*	------
Maxima	14.8	------	*60.0*	11.1	9.8	11.1	71	59	4.05	3.95	4.2	4.2	*97.6*	*96.3*	6.0	2.6	*48.6*	6.0	7.4	*89.4*	------

METLATAVIK: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*H. B. Collins*)														
342480	U.S.N.M.	Metlatavik	50		19.2	13.0	13.7	67.7	85.1	105.4	15.30	1,390	Considerable		8.1
342478	do	do	40		19.2	13.3	13.3	68.9	81.8	100.0	15.27	1,435	Medium		7.4
342476	do	do	40		18.5	12.8	13.0	69.2	83.1	101.6	14.77	1,310			7.6
342502	do	do	45		18.2	12.6	12.0	69.2	77.9	95.2	14.27	1,250			7.3
342183	do	do	35		18.5	13.0	13.0	70.3	82.5	100.0	14.83	1,355			
342501	do	do	30		18.4	13.0	13.0	70.7	82.8	100.0	14.80	1,360	Slight	12.2	7.8
342493	do	do	35		18.7	13.3	13.2	71.1	82.5	99.2	15.07	1,480	do		7.4
342485	do	do	30		17.8	12.8	13.8	71.9	89.6	107.8	14.80	1,315	Slight to medium.	12.1	7.5
342506	do	do	50		17.4	12.6		72.4							
342488	do	do	40		17.9	13.0	13.0	72.6	84.1	100.0	14.63	1,220			7.2
342494	do	do	26		17.6	12.8	12.8	72.7	84.2	100.0	14.40				
342496	do	do	35		18.8	13.7		72.9							7.6
342484	do	do	25		18.1	13.2	12.6	72.9	80.6	95.5	14.63	1,330			7.4
342497	do	do	25		18.3	13.4	13.8	73.2	87.1	103.0	15.17	1,445	+		7.1
342498	do	do	30		18.4	13.6	13.0	73.9	81.2	95.6	15.00	1,440	Slight		7.4
342495	do	do	40		17.6	13.1	13.0	74.4	84.7	99.2	14.57	1,285	Slight to medium.		7.6
342499	do	do	30		17.7	13.2	13.6	74.6	88.0	103.0	14.83	1,355	Slight		7.3
342489	do	do	28		17.2	12.9	12.4	75.0	82.4	96.1	14.17	1,185	do		7.1
342505	do	do	24		17.6	13.2	12.6	75.0	81.8	95.5	14.47	[1] (1,305)			
342491	do	do	45		17.6	13.3	[1] 12.9	75.6	83.5	97.0	14.60				
342503	do	do	35		17.6	13.3	13.4	75.6	86.7	100.7	14.77	1,385	Slight to medium.		7.5
342504	do	do	30		17.5	13.3	13.1	76.0	85.1	98.5	14.63	1,320	Slight	11.6	6.8
342486	do	do	45		17.6	13.4	12.9	76.1	83.2	96.3	14.63	1,310	Medium		7.6
342492	do	do	45		17.6	13.4	13.4	76.1	86.5	100.0	14.80	1,370	do		7.4
342490	do	do	55		16.8	12.8	12.2	76.2	82.4	95.3	13.93	(1,035)			
342487	do	do	35		17.5	13.4	12.4	76.6	80.3	92.5	14.43	1,290	Slight		6.9
Specimens					(26)	(26)	(24)	(26)	(24)	(24)	(24)	(20)		(3)	(20)
Totals					467.3	341.4	312.1				352.77	26,830		35.9	148.4
Averages					17.97	13.13	13.00	73.06	83.65	99.05	14.70	1,342		11.97	7.0
Minima					16.8	12.6	12.0	67.7	77.9	92.5	13.93	1,185		11.6	6.8
Maxima					19.2	13.7	13.8	76.6	89.6	107.8	15.30	1,480		12.2	8.1

[1] Near.

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
342480	13.4		*60.5*	11.5	10.4	11.2	73	57	3.95	3.95	4.0	4.0	*93.7*	*98.7*	5.9	2.1	*35.6*	5.9	6.5	*90.8*	
342478	13.2		*56.1*	10.6	9.4	10.3	68	57	3.7	3.7	4.0	3.95	*92.5*	*93.7*	4.9	2.2	*44.9*				
342476	13.8		*55.1*	10.9	9.4	10.4	65	50	3.8	3.9	4.2	4.2	*90.5*	*92.9*	5.05	2.4	*47.5*				
342502	13.0		*56.1*	10.4	8.9	9.9	69	56	3.7	3.6	3.9	3.9	*94.9*	*92.3*	4.9	2.35	*48.0*				3.7
342483	13.6				9.0	10.5			3.7	3.8	4.0	4.0	*92.5*	*95.0*	5.35	2.4	*42.9*				
342501	13.4	*91.0*	*58.2*	10.5	9.2	10.0	65	55	3.6	3.6	3.95	4.0	*91.2*	*90.0*	5.0	2.35	*47.0*	5.9	6.5	*90.8*	3.5
342493	13.7		*54.0*	10.7	9.3	10.4	68	51	3.85	3.9	4.2	4.0	*91.7*	*97.5*	5.1	2.4	*47.1*	6.0	7.0	*85.7*	
342485	12.8	*94.5*	*58.6*	11.0	9.6	10.3	66	53	3.5	3.5	4.0	4.0	*87.5*	*87.5*	5.0	2.3	*46.0*	5.9	6.7	*88.1*	3.7
342506	12.7									3.6		3.85		*95.0*	4.85	2.4	*49.5*				
342488	[1] 13.0		*55.4*	10.0	9.0	10.2	71	57	3.6	3.6	3.95	3.95	*91.2*	*91.2*	5.1	2.3	*45.1*				
342494						9.7															
342496	14.0		*54.3*						3.45	3.45	3.8	3.85	*90.8*	*89.6*	5.5	2.45	*44.5*				
342184	12.1		*61.2*			10.0			3.85		[1] 3.9		*98.7*		5.35	2.0	*33.9*	5.2	5.4	*96.3*	
342497	13.8		*51.5*	10.7	9.6	10.4	69	57	3.5	3.5	4.0	3.85	*87.5*	*90.9*	4.85	2.4	*49.5*	5.9	6.9	*85.5*	
342498	13.1		*56.5*	10.1	8.8	10.0	68	54	3.7	3.8	3.95	3.95	*93.7*	*96.2*	4.95	2.3	*46.5*	5.4	6.3	*85.7*	
342495	[1] 12.4		*61.3*	10.4	9.0	10.1	66	52	3.25	3.2	3.4	3.35	*95.6*	*95.5*	5.2	2.1	*40.4*				
342499	12.4		*58.9*	10.0	9.0	10.2	71	60	3.5	3.5	3.9	3.9	*89.7*	*89.7*	5.0	2.1	*42.0*	5.3	6.0	*88.3*	
342489	12.7		*55.9*	10.2	9.0	9.8	67	54	3.5	3.5	3.85	3.85	*90.9*	*90.9*	5.1	2.0	*39.2*	5.6	6.6	*84.8*	
342505						9.7															
342491																					
342503	13.1		*57.3*	10.0	8.7	10.1	69	53	3.6	3.65	3.8	3.85	*94.7*	*94.8*	5.2	1.95	*37.5*	5.5	6.3	*87.3*	
342504	[1] 12.3	*94.3*	*55.3*	9.8	8.8	9.7	70	62	3.45		3.7		*93.2*		4.25	2.05	*48.2*	5.3	5.5	*96.4*	3.4
342486	12.9		*58.9*	9.5	8.4	10.0	71	57	3.75	3.75	3.9	3.8	*96.2*	*98.7*	5.35	2.25	*42.1*				
342492	13.5		*54.8*	9.9	8.9	10.0	70	58	3.7	3.7	4.1	4.15	*90.2*	*91.4*	5.05	2.5	*49.5*				
342490						9.9															
342487	12.6		*54.8*	9.3	8.2	9.6	71	53	3.5	3.5	3.7	3.7	*94.6*	*94.6*	5.0	2.05	*41.0*	5.2	6.4	*81.3*	
Specimens	(22)	*(3)*	*(20)*	(18)	(19)	(23)	(18)	(18)	(21)	(20)	(21)	(20)	*(19)*	*(19)*	(22)	(22)	*(22)*	(12)	(12)	*(12)*	(4)
Total	287.5			185.5	172.6	232.4	1,215.00		76.15	72.7	82.2	78.1			111.95	49.35		67.1	76.1		14.30
Average	13.07	*93.2*	*56.7*	10.31	9.08	10.10	67.5	54	3.63	3.64	3.92	3.91	*92.7*	*93.1*	5.09	2.24	*44.1*	5.59	6.34	*88.2*	3.58
Minima	12.1	*91.0*	*51.5*	9.3	8.2	9.6	65	50	3.25	3.2	3.4	3.35	*87.5*	*87.5*	4.25	1.95	*33.9*	5.2	5.4	*81.3*	3.4
Maxima	14.0	*94.5*	*61.3*	11.5	10.4	11.2	73	62	3.95	3.95	4.2	4.2	*98.7*	*98.7*	5.90	2.5	*49.5*	6.0	7.0	*96.4*	3.7

SHISHMAREV : MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
332611	U.S.N.M.	Shishmarev, Seward Peninsula.	*Young girl* Adult		19.5	13.2	13.3	*67.7*	*81.1*		15.33			[1]12.4	7.8
332620	do	do	Adult		19.5	13.4	13.7	*68.7*	*83.5*		15.53	1,450			7.4
332618	do	do	do		18.5	13.0	14.0	*70.3*	*88.6*		15.17				7.7
339689	do	do	45		18.6	13.2	12.9	*70.97*	*81.13*		14.90			12.7	7.7
346164	do	do	25		18.6	13.5	13.3	*72.58*	*82.87*		15.13				7.8
346168	do	do	55		18.4	13.4	14.4	*72.83*	*90.57*		15.40				8.0
339691	do	do	40		18.5	13.6	12.4	*73.51*	*77.26*		14.83			11.8	7.4
332626	do	do	Adult		18.8	13.9		*73.9*							
339688	do	do	50		18.0	13.4	13.1	*74.44*	*83.44*		14.83			11.8	7.3
339693	do	do	55		18.5	13.9	13.4	*75.14*	*82.72*		15.27			12.4	7.8
346163	do	do	70		18.6	14.0	13.5	*75.27*	*82.82*		15.37				
332621	do	do	Adult		18.2	13.8	13.7	*75.8*	*85.6*		15.23	1,390			7.1
332627	do	do	do		18.6	14.0	14.0	*75.8*	*85.4*		15.57	1,485			8.0
339687	do	do	55		17.8	13.6	13.4	*76.40*	*85.35*		14.93			12.7	7.8
339690	do	do	70		18.0	14.0	13.6	*77.78*	*85.0*		15.20				
346160	do	do	23		18.5	14.4	14.1	*77.84*	*85.71*		15.67			13.1	7.8
332619	do	do	Adult		17.9	14.4	14.2	*80.4*	*87.6*		15.50	1,500			
Specimens			(10)		(17)	(17)	(16)	(17)	(16)		(16)	(4)		(7)	(13)
Totals			488		314.5	232.7	217.0				243.8	5,825		86.9	99.6
Averages			48.8		18.5	13.69	13.56	*74.0*	*84.4*		15.24	1,456		12.41	7.66
Minima			23		17.8	13.0	12.4	*67.7*	*77.3*		14.83	1,390		11.8	7.1
Maxima			70		19.5	14.4	14.2	*80.4*	*90.6*		15.67	1,500		13.1	8.0

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
332611	14.0	*88.6*	*55.7*	10.8	9.5	10.4	65.5	55.0	3.5	3.45	3.9	3.9	*89.7*	*88.5*	5.1	2.15	*42.2*	6.1	7.0	*87.1*	3.6
332620	14.2	----	*52.1*	10.2	9.4	10.8	74.0	61.5	3.85	3.7	4.1	4.1	*93.9*	*90.2*	5.45	2.55	*46.8*	5.2	6.4	*81.2*	----
332618	13.9	----	*55.4*	10.4	9.4	10.6	70.0	49.0	3.75	3.85	4.1	4.1	*91.5*	*93.9*	5.35	2.35	*43.9*	5.9	6.4	*92.2*	----
339689	14.4	*88.19*	*53.47*	11.1	9.8	10.8	67.0	52.0	3.65	3.55	4.0	4.0	*91.25*	*88.75*	5.4	2.25	*41.67*	5.8	7.3	*79.45*	4.2
346164	13.6	----	*57.35*	10.6	9.4	10.6	68.0	55.0	3.95	3.9	4.1	4.1	*96.34*	*95.12*	5.3	2.1	*39.62*	5.9	6.7	*88.06*	----
346168	14.6	----	*54.79*	11.3	10.0	10.8	65.5	53.0	3.55	3.9	4.0	3.9	*88.75*	*91.03*	5.6	2.4	*42.86*	5.7	6.6	*86.36*	----
339691	14.3	*82.52*	*51.75*	10.8	9.8	10.4	66.5	55.5	3.6	3.55	4.0	3.9	*90.0*	*91.03*	5.4	2.2	*40.74*	5.7	6.9	*82.61*	3.3
332626	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
339688	14.1	*83.69*	*51.77*	10.7	9.5	10.5	68.0	50.0	3.75	3.6	3.9	3.8	*96.15*	*94.74*	5.4	2.2	*40.74*	5.7	6.4	*87.06*	3.4
339693	14.4	*86.11*	*54.17*	10.3	9.1	10.4	68.5	52.0	3.6	3.65	4.05	4.0	*88.89*	*91.25*	5.7	2.55	*44.74*	5.5	7.1	*77.46*	3.45
346163	14.2	----	----	----	9.1	10.2	----	----	3.8	3.7	4.05	3.95	*93.83*	*93.67*	5.4	2.3	*42.59*	----	----	----	3.2
332621	14.8	----	*48.0*	10.8	9.6	10.3	66.5	50.0	3.55	3.75	4.2	4.1	*84.5*	*91.5*	5.1	2.4	*47.1*	5.7	6.8	*83.8*	----
332627	14.4	----	*56.0*	9.7	8.7	10.2	69.5	59.0	3.65	3.65	4.1	4.1	*89.0*	*89.0*	5.7	2.6	*45.6*	----	----	----	----
339687	13.4	*94.77*	*58.21*	11.2	9.9	10.6	65.0	55.5	3.3	3.4	3.75	3.6	*88.0*	*94.44*	5.05	2.4	*47.52*	6.1	6.8	*89.71*	4.4
339690	14.3	----	----	----	9.2	10.4	----	----	3.35	3.35	3.9	3.9	*85.90*	*85.90*	5.2	2.6	*50.0*	----	----	----	4.1
346160	13.7	*95.62*	*56.93*	11.3	10.2	11.2	69.0	57.0	----	3.8	----	3.8	----	*100.0*	5.6	2.65	*47.32*	6.1	7.3	*83.56*	4.1
332619	----	----	----	----	----	10.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Specimens	(15)	(7)	(13)	(13)	(15)	(16)	(13)	(13)	(14)	(15)	(14)	(15)	(14)	(15)	(15)	(15)	(15)	(12)	(12)	(12)	(9)
Totals	212.3	----	----	139.2	142.6	168.8	883.0	704.5	50.85	54.8	56.15	59.25	----	----	80.75	35.7	----	69.4	81.7	----	33.75
Averages	14.15	*88.4*	*54.2*	10.71	9.51	10.55	67.9	54.2	3.63	3.65	4.01	3.95	*90.6*	*92.5*	5.38	2.38	*44.2*	57.8	6.81	*84.9*	3.75
Minima	13.4	*82.5*	*48.0*	9.7	8.7	10.2	65.0	49.0	3.3	3.35	3.75	3.6	*85.9*	*85.9*	5.05	2.1	*39.6*	5.2	6.4	*77.5*	3.2
Maxima	14.8	*95.6*	*58.2*	11.3	10.2	10.8	74.0	61.5	3.95	3.9	4.2	4.1	*96.3*	*100.0*	5.7	2.65	*50.0*	6.1	7.3	*92.2*	4.4

[1]Allowance made for wear of teeth.

SHISHMAREV: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Naison Height (b)
332615	U.S.N.M.	Shishmarev, Seward Peninsula	Adult		18.1	12.9	13.6	*71.3*	*87.7*		14.87				7.2
346166	do	do	30		18.3	13.1	13.8	*71.58*	*87.90*		15.07				7.6
332629	do	do	Adult		18.2	13.2	12.9	*72.5*	*82.2*		14.47	1,230			7.4
332628	do	do	do		18.0	13.2		*73.3*							7.0
332622	do	do	do		18.1	13.3	13.5	*73.5*	*86.0*		14.97				7.2
339686	do	do	50		17.6	13.1	12.9	*74.4*	*84.0*		14.53	1,215		12.0	7.3
346165	do	do	55		18.2	13.6	12.5	*74.73*	*78.62*		14.77				7.0
332623	do	do	Adult		18.3	13.7	13.8	*74.9*	*86.2*		15.27				7.8
332625	do	do	Near adult		17.3	13.0	13.0	*75.1*	*85.5*		14.43	1,285			7.1
346162	do	do	18		17.4	13.1	13.0	*75.29*	*85.25*		14.50				6.8
346161	do	do	30		18.0	13.6	13.2	*75.56*	*83.54*		14.93			12.4	7.4
346169	do	do	50		18.1	13.7	13.4	*75.69*	*84.28*		15.07				7.4
332617	do	do	Adult		17.5	13.3	13.0	*76.0*	*84.4*		14.60	1,305			
332616	do	do	Near adult		17.2	13.4	13.0	*77.9*	*85.0*		14.53	1,170			6.5
332614	do	do	Adult		17.0	13.8	12.7	*81.2*	*82.5*		14.50	1,230			7.3
Specimens			(6)		(15)	(15)	(14)	(15)	(14)		(14)	(6)		(2)	(14)
Totals			233		267.3	200.0	184.3				206.8	7,435		24.4	101.0
Averages			38.8		17.82	13.33	13.6	*74.8*	*84.5*		14.77	1,239		12.20	7.21
Minima			18		17.0	12.9	12.5	*71.3*	*78.6*		14.43	1,170			6.5
Maxima			55		18.3	13.8	13.8	*81.2*	*87.9*		15.27	1,305			7.8

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
332615	13.2		*54.6*	10.6	9.5	10.3	68.0	56.0	3.65	3.65	4.2	4.0	*86.9*	*91.2*	5.0	2.4	*48.0*	5.7	7.5	*76.0*	
346166	12.5		*60.80*	10.6	9.4	10.6	69.0	55.0	3.6	3.7	4.05	4.1	*88.1*	*90.2*	5.15	2.4	*46.60*	5.5	6.3	*87.80*	
332629	12.5		*59.2*	10.0	9.0	10.3	71.0	58.0	3.65	3.65	3.8	3.8	*96.0*	*96.0*	5.2	2.4	*46.2*				
332628									3.1	3.2	3.8	3.7	*81.6*	*86.5*	5.0	2.35	*47.0*				
332622	13.6		*52.9*	10.3	9.1	10.2	69.0	56.5	3.6		4.3		*83.7*		4.6	2.4	*52.2*				
339686	13.1	*91.6*	*55.7*	10.6	9.2	10.0	65.0	51.5	3.75	3.75	4.1	4.1	*91.5*	*91.5*	4.8	2.25	*46.9*	5.8	6.5	*89.2*	3.8
346165	13.3		*52.63*	9.9	9.0	10.0	70.0	59.0	3.6	3.6	3.9	3.9	*92.3*	*92.3*	4.9	2.2	*44.90*	4.8	5.9	*81.36*	
332623	13.6		*57.4*	10.1	8.8	9.9	65.5	54.5	3.4	3.4	3.9	3.9	*87.2*	*87.2*	5.1	2.6	*51.0*	5.8	6.5	*89.2*	
332625	12.9		*55.0*	10.5	9.7	10.3	68.5	64.5	3.4	3.4	4.0	4.0	*85.0*	*85.0*	4.7	2.3	*48.9*	5.7	7.0	*81.4*	
346162				9.5	8.5	9.8	72.5	54.0	3.8	3.75	3.85	3.85	*98.7*	*97.4*	4.95	2.0	*40.40*	4.9	6.3	*77.77*	
346161	13.8	*89.86*	*53.62*	10.8	9.8	10.6	68.0	60.0	3.35	3.5	3.95	3.8	*84.8*	*92.1*	5.0	2.3	*46.0*	5.7	6.9	*82.61*	3.65
346169	14.1		*52.48*	10.6	9.4	10.6	69.0	54.0	3.45	3.45	4.0	4.0	*86.2*	*86.2*	5.1	2.3	*45.10*	5.6	6.8	*82.35*	
332617						10.0			3.4	3.4	3.7	3.7	*91.9*	*91.9*	5.1	2.15	*42.2*				
332616	13.3		*48.9*	10.7	9.8	10.6	71.5	55.0	3.0	3.05	3.6	3.6	*83.3*	*84.7*	4.8	2.25	*46.9*	5.5	6.1	*90.2*	
332614	13.5		*54.1*	10.2	8.9	9.8	66.0	51.5	3.35	3.4	3.9	3.9	*85.9*	*87.2*	5.0	2.2	*44.0*	5.5	6.4	*85.9*	
Specimens	(12)		(12)	(13)	(13)	(14)	(13)	(13)	(15)	(14)	(15)	(14)	(15)	(14)	(15)	(15)	(15)	(11)	(11)	(11)	(2)
Totals	159.4			134.4	120.1	143.0	893.0	729.5	52.1	48.9	59.05	54.35			74.4	34.5		60.5	72.2		7.45
Averages	13.28		*54.7*	10.31	9.24	10.21	68.7	56.1	3.47	3.49	3.94	3.88	*88.2*	*90.0*	4.96	2.30	*46.4*	5.50	6.56	*83.8*	(3.72)
Minima	12.5		*48.9*	9.5	8.5	9.8	65.0	51.5	3.0	3.05	3.6	3.6	*81.6*	*84.7*	4.7	2.0	*40.4*	4.8	5.9	*76.0*	
Maxima	14.1		*60.8*	10.8	9.8	10.6	72.5	64.5	3.8	3.75	4.3	4.1	*98.7*	*97.4*	5.2	2.6	*52.2*	5.8	7.5	*90.2*	

[1] Allowance made for tooth wear, where needed.

SEWARD PENINSULA ESKIMO

(Abstract)

MALES

Locality	Approximate age of subject	Diam. anteroposterior maxim. (giabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
Golovin Bay	(14) 50.5	(16) 18.89	(16) 13.68	(16) 13.96	(16) *72.4*	(16) *85.7*	----	(16) 15.51	(3) (1,483)	----	(10) 12.82	(15) 7.89	(16) 14.07
Golovin Bay, Rocky Point	(18) 51.9	(18) 18.64	(18) 13.89	(18) 13.73	(18) *74.3*	(18) *84.3*	----	(18) 15.44	----	----	(5) 13.60	(14) 7.88	(16) 14.10
Cape Darby and Cape Nome	(5) 44	(5) 18.62	(5) 13.66	(5) 13.88	(5) *73.4*	(5) *86.0*	----	(5) 15.39	----	----	(3) (13.37)	(5) 8.14	(5) 14.10
Kovieruk (St. Marys River)	(7) 53.6	(7) 18.50	(7) 13.89	(7) 13.74	(7) *75.1*	(7) *84.9*	----	(7) 15.38	----	----	----	(3) (7.47)	(7) 14.39
Port Clarence	(12) 55	(12) 18.63	(12) 13.88	(11) 13.88	(12) *74.5*	(11) *85.5*	----	(11) 15.47	----	----	(5) 13.18	(10) 7.60	(11) 14.13
Wales	(20) Adults	(20) 18.76	(20) 13.66	(20) 14.0	(20) *72.8*	(20) *86.4*	----	(20) 15.47	(19) 1,472	----	(13) 12.70	(17) 7.78	(19) 14.16
Sledge Island	(5) 36.6	(5) 19.12	(5) 13.70	(5) 14.08	(5) *71.7*	(5) *85.8*	----	(5) 15.63	----	----	(4) 12.62	(5) 7.78	(5) 14.10
Metlatavik	(15) 43.1	(15) 18.72	(15) 13.76	(15) 14.11	(15) *73.5*	(15) *86.9*	----	(15) 15.53	(15) 1,512	----	----	(12) 7.83	(13) 14.18
Shishmarev	(10) 48.8	(17) 18.50	(17) 13.69	(16) 13.56	(17) *74.0*	(16) *84.4*	----	(16) 15.24	(4) 1,456	----	(7) 12.41	(13) 7.66	(15) 14.15

Locality	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
Golovin Bay	(10) 91.1	(15) 56.3	(12) 10.55	(16) 9.41	(16) 10.67	(12) 68.2	(12) 56.3	(16) 3.65	(16) 3.63	(16) 4.10	(16) 4.03	(16) 88.9	(16) 90.3	(16) 5.43	(16) 2.33	(16) 42.8	(15) 5.54	(15) 6.51	(15) 85.1	(11) 3.94
Golovin Bay, Rocky Point	(5) 95.5	(13) 56.0	(14) 10.34	(17) 9.19	(17) 10.44	(13) 68.1	(13) 55.9	(17) 3.61	(15) 3.63	(17) 4.10	(15) 4.02	(17) 88.0	(15) 90.3	(17) 5.44	(17) 2.34	(17) 43.0	(10) 5.66	(10) 6.73	(10) 84.1	(7) 3.91
Cape Darby and Cape Nome	(3) (93.0)	(5) 57.7	(5) 10.34	(5) 9.18	(5) 10.74	(5) 69.7	(5) 56.7	(5) 3.59	(5) 3.62	(5) 4.13	(5) 4.05	(5) 86.9	(5) 89.4	(5) 5.61	(5) 2.27	(5) 40.5	(5) 5.68	(5) 6.76	(5) 84.0	(3) (4.01)
Kovicruk (St. Marys River)	-------	(3) (51.9)	-------	(6) 9.45	(7) 10.69	-------	-------	(6) 3.61	(4) 3.66	(6) 4.08	(4) 3.98	(6) 88.4	(4) 92.1	(7) 5.27	(7) 2.42	(7) 45.9	(3) 5.77	(3) 6.87	(3) 84.0	(5) 3.64
Port Clarence	(5) 91.9	(10) 53.7	(10) 10.49	(11) 9.35	(11) 10.64	(10) 69.2	(10) 55.5	(10) 3.62	(10) 3.63	(10) 4.10	(10) 4.08	(10) 88.3	(10) 88.9	(11) 5.30	(11) 2.32	(11) 43.8	(9) 5.68	(9) 6.77	(9) 83.9	(5) 3.92
Wales	(13) 89.7	(17) 55.1	(18) 10.56	(19) 9.43	(20) 10.66	(17) 68.8	(17) 56.3	(20) 3.67	(20) 3.67	(20) 4.13	(20) 4.06	(20) 89.0	(20) 90.3	(20) 5.39	(20) 2.40	(20) 44.6	(18) 5.67	(18) 6.77	(18) 83.8	(17) 3.90
Sledge Island	(4) 89.2	(5) 55.2	(5) 10.56	(5) 9.64	(5) 10.92	(5) 71.1	(5) 60.1	(5) 3.64	(5) 3.60	(5) 4.04	(5) 4.05	(5) 90.1	(5) 88.9	(5) 5.56	(5) 2.35	(5) 42.3	(5) 5.60	(5) 6.72	(5) 83.3	(4) 3.57
Metlatavik	-------	(12) 55.3	(11) 10.67	(13) 9.48	(13) 10.72	(11) 68.8	(10) 54.4	(12) 3.78	(11) 3.77	(12) 4.11	(11) 4.06	(12) 91.8	(11) 92.9	(12) 5.53	(12) 2.39	(12) 43.2	(11) 5.81	(11) 6.93	(11) 83.9	(2) (3.68)
Shishmarev	(7) 88.4	(13) 54.2	(13) 10.71	(15) 9.51	(16) 10.55	(13) 67.9	(13) 54.2	(14) 3.63	(15) 3.65	(14) 4.01	(15) 3.95	(14) 90.6	(15) 92.5	(15) 5.38	(15) 2.38	(15) 44.2	(12) 5.78	(12) 6.81	(12) 84.9	(9) 3.75

SEWARD PENINSULA ESKIMO—Continued

(Abstract)

FEMALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. laterial maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
Golovin Bay	(15)	(15)	(15)	(15)	(15)	(15)		(15)			(4)	(11)	(15)
	52	17.99	13.24	13.10	*73.6*	*83.9*		14.77			11.65	7.24	13.15
Golovin Bay, Rocky Point	(27)	(27)	(27)	(27)	(27)	(27)		(27)			(9)	(21)	(25)
	48.4	17.73	13.27	13.11	*74.9*	*84.6*		14.70			11.90	7.33	13.14
Cape Darby and Cape Nome	(6)	(6)	(6)	(6)	(6)	(6)		(6)				(4)	(5)
	46.7	17.97	13.25	13.20	*73.8*	*84.6*		14.80				7.58	13.18
Kovieruk (St. Marys River)	(16)	(16)	(16)	(16)	(16)	(16)		(16)			(10)	(13)	(16)
	42.7	17.63	13.32	13.14	*75.6*	*84.9*		14.70			12.01	7.08	13.25
Port Clarence	(13)	(13)	(13)	(13)	(13)	(13)		(13)				(7)	(10)
	51.5	17.62	13.29	13.21	*75.4*	*85.4*		14.71				6.90	13.21
Wales	(23)	(22)	(22)	(22)	(22)	(22)		(23)	(20)		(17)	(23)	(22)
	Adults	18.19	13.30	13.32	*73.1*	*84.6*		14.93	1,361		11.82	7.31	13.28
Sledge Island	(9)	(9)	(9)	(9)	(9)	(9)		(9)	(9)		(3)	(7)	(7)
	40.8	18.13	13.50	13.22	*74.5*	*83.6*		14.95	1,346		(11.93)	7.30	13.26
Metlatavik	(26)	(26)	(26)	(24)	(26)	(24)		(24)	(20)		(3)	(20)	(22)
	36.5	17.97	13.13	13.0	*73.1*	*83.7*		14.70	1,342		(11.97)	7.4	13.07
Shishmarev	(6)	(15)	(15)	(14)	(15)	(14)		(14)	(6)		(2)	(14)	(12)
	38.8	17.82	13.33	13.16	*74.8*	*84.5*		14.77	1,239		(12.20)	7.21	13.28

Locality	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
Golovin Bay	(4) *86.3*	(11) *54.7*	(10) 10.12	(14) 8.89	(15) 9.99	(10) 67.4	(10) 52.6	(13) 3.56	(14) 3.57	(13) 3.94	(14) 3.91	(13) *90.3*	(14) *91.3*	(13) 5.10	(14) 2.17	(13) *45.8*	(10) 5.61	(10) 6.55	(10) *85.7*	(7) 3.61
Golovin Bay, Rocky Point	(9) *90.8*	(21) *55.5*	(20) 10.12	(26) 8.91	(27) 10.05	(19) 67.6	(19) 54.0	(24) 3.59	(24) 3.61	(24) 3.97	(24) 3.91	(24) *90.4*	(24) *92.1*	(25) 5.08	(25) 2.25	(25) *44.3*	(21) 5.42	(21) 6.34	(21) *85.5*	(11) 3.46
Cape Darby and Cape Nome	-------	(4) *57.5*	(4) 10.18	(5) 8.88	(6) 10.00	(4) 67.0	(4) 53.0	(5) 3.65	(5) 3.63	(5) 3.94	(5) 3.93	(5) *92.6*	(5) *92.4*	(5) 5.20	(5) 2.32	(5) *44.6*	(4) 5.45	(4) 6.70	(4) *81.3*	(4) 3.78
Kovieruk (St. Marys River)	(10) *91.7*	(13) *54.0*	(12) 9.97	(16) 8.85	(16) 10.11	(12) 70.1	(12) 54.4	(16) 3.51	(16) 3.53	(16) 3.90	(16) 3.93	(16) *90.0*	(16) *91.3*	(15) 5.00	(15) 2.29	(15) *45.8*	(13) 5.34	(13) 6.26	(13) *85.3*	(8) 3.46
Port Clarence	-------	(7) *52.4*	(6) 9.85	(10) 9.00	(12) 10.07	(6) 70.4	(6) 54.3	(7) 3.49	(10) 3.51	(7) 3.95	(10) 3.93	(7) *88.4*	(10) *89.4*	(9) 4.89	(9) 2.33	(9) *47.7*	(6) 5.30	(6) 6.37	(6) *83.3*	(2) (3.3)
Wales	(17) *89.3*	(22) *54.9*	(22) 10.25	(23) 9.06	(23) 10.08	(22) 67.9	(22) 54.3	(21) 3.52	(23) 3.53	(21) 3.98	(23) 3.93	(21) *88.5*	(23) *90.0*	(23) 5.09	(23) 2.35	(23) *46.1*	(21) 5.53	(21) 6.52	(21) *84.9*	(18) 3.51
Sledge Island	(3) *(90.9)*	(7) *55.1*	(6) 10.25	(7) 9.16	(8) 10.29	(6) 68.6	(6) 52.1	(7) 3.57	(7) 3.59	(7) 4.01	(7) 3.96	(7) *89.0*	(7) *90.6*	(7) 5.10	(7) 2.26	(7) *44.3*	(6) 5.62	(6) 6.47	(6) *86.9*	(4) 3.80
Metlatavik	(3) *(93.2)*	(20) *56.7*	(18) 10.31	(19) 9.08	(23) 10.10	(18) 67.5	(18) 54.0	(21) 3.63	(20) 3.64	(21) 3.92	(20) 3.91	(21) *92.7*	(20) *93.1*	(22) 5.09	(22) 2.24	(22) *44.1*	(12) 5.59	(12) 6.34	(12) *88.2*	(4) 3.58
Shishmarev	(2) *(90.7)*	(12) *54.7*	(13) 10.31	(13) 9.24	(14) 10.21	(13) 68.7	(13) 56.1	(15) 3.47	(14) 3.49	(15) 3.94	(14) 3.88	(15) *88.2*	(14) *90.0*	(15) 4.96	(15) 2.30	(15) *46.4*	(11) 5.50	(11) 6.56	(11) *83.8*	(2) (3.72)

ST. LAWRENCE ISLAND ESKIMO

GAMBELL: MALES

EARLY

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[3]	Alveol. Pt.-Nasion Height (b)
	(*H. B. Collins*)														
352423 [1]	U.S.N.M.	Near Gambell	50		18.4	12.5	12.8	*67.93*	*82.85*		14.57				7.8
352424	do	do	27		18.8	13.7	13.4	*72.87*	*82.46*		15.30			11.8	7.3
352431 [2]	do	do	55		18.2	13.3	13.2	*73.08*	*83.81*		14.90			11.5	7.0
352429 [2]	do	do	45		18.2	13.6	13.6	*74.73*	*85.53*		15.18				7.5
352422 [2]	do	do	30		18.9	14.2	13.8	*75.13*	*83.38*		15.63			11.8	7.1
Specimens			(5)		(5)	(5)	(5)	(5)	(5)		(5)			(3)	(5)
Totals			207		92.5	67.3	66.8				75.53			35.1	36.7
Averages			41.4		18.50	13.46	13.36	*72.8*	*83.6*		15.11			11.70	7.34
Minima			27		18.2	12.5	12.8	*67.3*	*82.5*		14.57				7.0
Maxima			55		18.9	14.2	13.8	*75.1*	*85.5*		15.63				7.8

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Aleolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
352423 [1]										3.45		3.8		*90.79*	5.45	2.6	*47.71*				
352424	13.7	*86.13*	*53.28*	9.6	9.0	10.1	72.0	66.5	3.65	3.65	3.8	3.8	*96.05*	*96.05*	5.2	2.1	*40.38*	4.9	5.7	*85.96*	3.1
352431 [2]	13.4	*85.82*	*52.24*	9.9	8.7	9.8	68.0	51.5	3.15	3.15	3.75	3.7	*84.0*	*85.14*	4.8	2.55	*53.13*	5.3	6.1	*86.89*	2.9
352429 [2]	14.1		*53.19*	10.4	9.2	10.4	69.0	51.0	3.45	3.5	4.2	4.2	*82.14*	*83.33*	5.4	2.4	*44.44*	5.7	6.2	*91.94*	
352422 [2]	13.7	*86.13*	*51.82*	11.1	9.6	10.1	62.5	45.5	3.4	3.4	4.05	3.9	*83.95*	*87.18*	4.85	2.4	*49.48*	6.2	7.2	*86.11*	3.2
Specimens	(4)	(3)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(5)	(4)	(5)	(4)	(5)	(5)	(4)	(5)	(4)	(4)	(4)	(3)
Totals	54.9			41.0	36.5	40.4	271.5	214.5	13.65	17.15	15.80	19.40			25.7	12.05		22.1	25.2		9.2
Averages	13.72	*86.0*	*52.6*	10.25	9.12	10.10	67.9	53.6	3.41	3.43	3.95	3.88	*86.4*	*88.4*	5.14	2.41	*46.9*	5.52	6.30	*87.7*	3.07
Minima	13.4		*51.8*	9.6	8.7	9.8	62.5	45.5	3.15	3.15	3.75	3.7	*82.1*	*83.3*	4.8	2.1	*40.4*	4.9	5.7	*86.0*	
Maxima	14.1		*53.3*	11.1	9.6	10.4	72.0	66.5	3.65	3.65	4.2	4.2	*96.1*	*96.1*	5.45	2.6	*53.1*	6.2	7.2	*91.9*	

LATER

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*O. W. Geist*)														
349864	U.S.N.M.	Near Gambell	75		18.7	13.3		*71.12*							
349858	do	do	50		18.6	13.6		*73.12*							8.1
349830	do	do	45		19.1	14.4	14.2	*75.39*	*84.78*		15.90				8.5
349832	do	do	50		18.4	13.9		*75.54*							
349828	do	do	50		19.2	14.6	14	*76.04*	*82.84*		15.93				8.0
349854	do	do	25		18.4	14.0		*76.09*							
349855	do	do	60		17.6	13.4		*76.14*							8
349827	do	do	50		18.1	14.1	13.6	*77.90*	*84.47*		15.27				8.5
349829	do	do	40		18.2	14.2		*78.02*							7.6
349846	do	do	40		18.0	14.1		*78.33*							8.0
349859	do	do	60		17.8	14.0	13.3	*78.65*	*83.65*		15.03				
349853	do	do	50		18.3	14.4		*78.69*							
349833	do	do	60		18.5	14.8	13.3	*80*	*79.88*		15.53				8.1
349863	do	do	65		17.8	14.5		*81.46*							
Specimens			(14)		(14)	(14)	(5)	(14)	(5)		(5)				(8)
Totals			720		256.7	197.3	68.4				77.67				64.8
Averages			51.4		18.31	14.09	13.68	*76.9*	*83.1*		15.53				8.10
Minima			25		17.6	13.3	13.3	*71.1*	*79.9*		15.03				7.6
Maxima			75		19.2	14.8	14.2	*81.5*	*84.8*		15.93				8.5

GAMBELL: MALES—Continued

LATER

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
349861																					
349858	13.7		*59.12*						3.85	3.85	4.1	4.0	*93.90*	*96.25*	5.45	2.4	*44.04*	6.0	6.5	*92.31*	
349830	14.2		*59.86*	11.0	9.9	10.4	62.0	53.5	3.5	3.4	3.85	3.8	*90.91*	*89.47*	6.0	2.5	*41.67*				
349832										3.8		4.0		*95.0*	5.3	2.45	*46.23*				
349828	14.3		*55.94*	10.9	9.6	10.6	66.5	51.0		3.8		4.0		*95.0*	5.75	2.65	*46.09*	5.9	6.9	*85.51*	
349854																					
349855	14.3		*55.94*							3.8		4.1		*92.68*	5.4	2.4	*44.44*				
349827	14.5		*58.62*	10.6	9.0	10.2	63.0	49.5	3.65	3.7	4.3	4.2	*84.88*	*88.10*	5.75	2.7	*46.96*	5.7	7.1	*80.28*	
349829										3.7		4.1		*90.24*	5.6	2.5	*44.64*	5.4	7.2	*75.0*	3.7
349846															5.0	2.5	*50.0*				
349859	13.7				8.3	9.6			3.7	3.7	4.2	4.0	*88.10*	*92.50*	5.1	2.4	*47.06*				
349853																					
349833	14.2		*57.04*	10.1	8.8	10.0	61.0	55.0	3.55	3.5	4.2	4.0	*84.52*	*87.50*	5.1	2.2	*40.74*	5.5	6.6	*83.33*	
349863									3.5	3.5	4.2	3.0	*83.33*	*87.50*	5.5	2.4	*43.64*				
Specimens	(7)		(6)	(4)	(5)	(5)	(4)	(4)	(6)	(10)	(6)	(10)	(6)	(10)	(11)	(11)	(11)	(5)	(5)	(5)	
Totals	98.9			42.6	45.6	50.8	252.5	209.0	21.75	36.75	24.85	40.2			60.25	27.1		23.5	34.3		
Averages	14.13		*57.7*	10.65	9.12	10.16	63.1	52.3	3.63	3.68	4.14	4.02	*87.5*	*91.4*	5.48	2.46	*45.0*	5.60	6.86	*83.1*	
Minima	13.7		*55.9*	10.1	8.3	9.6	61.0	49.5	3.5	3.4	3.85	3.8	*83.3*	*87.5*	5.0	2.2	*40.7*	5.4	6.5	*75.0*	
Maxima	14.5		*59.9*	11.0	9.9	10.6	66.5	55.0	3.85	3.85	4.3	4.2	*93.9*	*96.2*	6.0	2.7	*50.0*	6.0	7.2	*92.31*	

[1] From oldest deposits.
[2] Late pre-white.
[3] Allowance made for wear of teeth.

GAMBELL: FEMALES

EARLY

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a) [1]	Alveol. Pt.-Nasion Height (b)
352426 [1]	(*H. B. Collins*) U.S.N.M.	At or near Gambell.	40		17.8	13.4	13.6	*75.28*	*87.18*		14.93				
PREWHITE															
352420	do	do	35		17.8	13.9	13.5	*78.09*	*85.17*		15.07			12.0	7.6
352119	do	do	30		16.8	13.2	12.6	*78.57*	*84.0*		14.20			11.6	7.2
352128	do	do	25		17.5	13.8	13.4	*78.86*	*85.62*		14.90			11.7	6.8
352121	do	do	55		17.0	13.8	13.2	*81.18*	*85.71*		14.67				7.3
352125	do	do	25		17.3	14.1	13.4	*81.50*	*85.35*		14.93			11.6	7.2

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
352426 [1]																		5.2	6.4	*81.25*	3.2
PREWHITE																					
352420	13.5	*88.89*	*56.30*	10.2	8.8	9.8	64.0	52.0	3.6		3.8		*94.74*		4.9	2.1	*42.86*	5.0	6.1	*81.97*	3.15
352419	12.6	*92.06*	*57.14*	9.5	8.3	9.4	67.0	50.0	3.4	3.4	3.7	3.6	*91.89*	*94.44*	5.1	2.25	*44.12*	4.9	6.3	*77.78*	3.2
352128	13.0	*90.0*	*52.31*	10.1	9.0	10.2	71.0	53.5		3.5		3.65		*95.89*	4.8	2.3	*47.92*	5.8	6.5	*81.54*	3.2
352121	13.4		*54.48*	10.0	9.0	9.8	66.5	57.5	3.5	3.5	4.0	4.0	*87.50*	*87.50*	5.05	2.35	*46.53*	5.0	6.5	*76.92*	
352125	13.7	*84.67*	*52.55*	10.1	9.1	9.8	66.0	56.5	3.4	3.35	4.0	3.9	*85.0*	*85.90*	4.9	2.2	*44.90*	5.7	6.7	*85.07*	3.2

GAMBELL: FEMALES—Continued

LATER

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Mento-Nasion Height (a) [1]	Alveol. Pt.-Nasion Height (b)
349839	(*O. W. Geist*) U.S.N.M	At or near Gambell.	25		17.8	12.7	13.7	*71.35*	*89.84*		14.73				7.7
349848	do	do	40		18.7	13.5	13.5	*72.19*	*83.85*		15.23				7.4
349834	do	do	50		18 5	13.5	13.4	*72.97*	*83.75*		15.13				8.1
349842	do	do	70		17.6	13.0		*73.86*							
349850	do	do	45		18.4	13.6	13.1	*73.91*	*81.88*		15.03				7.0
349849	do	do	50		18.1	13.6		*75.14*							
349866	do	do	25		17.5	13.2	13.3	*75.43*	*86.64*		14.67				6.8
349857 (prob. ♀)	do	do	25		18.4	14.1	13.7	*76.63*	*84.31*		15.40				7.9
349844	do	do	50		17.6	13.5	12.9	*76.70*	*82.96*		14.67				7.2
349836	do	do	55		17.8	13.7	13.7	*76.97*	*86.98*		15.07				
349826	do	do	28		17.7	13.7	12.8	*77.40*	*81.53*		14.73				7.4
349843 (prob. ♀)	do	do	50		18.6	14.4		*77.42*							
349845	do	do	45		17.5	13.6		*77.71*							
349861	do	do	50		18.2	14.2		*78.02*							7.3
349860	do	do	30		17.8	14.0		*78.65*						11.4	6.9
349847	do	do	75		17.5	13.8		*78.86*							
349840	do	do	27		17.3	13.7		*79.19*							
349851	do	do	35		17.4	13.8	12.8	*79.31*	*82.05*		14.67				7.0
349831	do	do	60		17.9	14.4	13.4	*80.45*	*82.97*		15.23				7.4
349835	do	do	65		17.6	14.2	12.3	*80.68*	*77.36*		14.70				7.6
349865	do	do	50		17.8	14.5		*81.46*							
Specimens			(26)		(27)	(27)	(18)	*(27)*	*(18)*		(18)			(5)	(18)
Totals			1.120		479.9	370.9	238.3				268.0			58.3	131.8
Averages			43.1		17.77	13.74	13.24	*77.3*	*84.3*		14.89			11.66	7.32
Minima			25		16.8	12.7	12.3	*71.4*	*77.4*		14.20			11.4	6.8
Maxima			75		18.7	14.5	13.7	*81.5*	*89.8*		15.40			12.0	8.1

Catalog No.	Diam. Bizygomatic maxim. (c)	Facial Index, total $\left(\frac{a \times 100}{c}\right)$	Facial Index, upper $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	Orbital Index, right	Orbital Index, left	Nose—Height	Nose—Breadth maxim.	Nasal Index	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	Upper Alveolar Arch—Index	Lower Jaw—Height at Symphysis
349839				10.6	9.4	10.4	66.5	55.0	3.2		3.95		81.01		5.2	2.4	46.15	5.8	6.8	85.29	
349848	13.0		56.92	9.8	8.8	10.2	65.0	47.5	3.75	3.75	4.2	4.2	89.29	89.29	5.1	2.25	44.12	5.1	6.0	85.0	
349834	13.8		58.70	10.7	9.1	9.9	61.0	46.0	3.6	3.65	4.25	4.2	84.71	86.90	5.5	2.55	46.36	5.8	6.9	84.06	
349842																					
349850	13.0		53.85	9.9	9.2	10.3	72.5	62.5	3.3	3.4	3.9	3.8	84.62	89.47	5.1	2.4	47.06	5.0	6.3	79.37	
349849																					
349866	12.5		54.40	9.7	9.1	10.2	74.0	65.0	3.35	3.3	3.7	3.7	90.54	89.19	4.9	2.3	46.94	5.0	6.5	76.92	
349857 (prob. ♀)	13.2		59.85	10.3	8.8	10.1	61.0	49.0	3.65	3.6	4.0	4.0	91.25	90.0	5.25	2.35	44.76	5.9	6.6	89.39	
349844	13.0		54.96	9.6	8.7	9.6															
349836						10.0															
349826	12.9		57.36	9.7	8.5	9.6	66.0	51.0	3.7	3.7	3.95	4.05	93.67	91.36	5.3	2.15	40.57	5.3	6.4	81.25	
349843 (prob. ♀)																					
349845																					
349861	13.5		54.07						3.6	3.55	3.8	3.8	94.74	93.42	5.0	2.15	43.0				
349860	13.0	87.69	53.08						3.65	3.65	3.9	3.9	93.59	93.59	5.1	2.2	43.14	4.8	5.8	82.76	3.1
349847																					
349840																					
349851	12.7		55.12	9.0	7.8	9.3	69.0	51.5	3.8	3.75	3.95	3.95	96.20	94.94	4.8	2.35	48.96	5.3	6.0	88.33	
349831	14.1		52.48	9.4	8.4	9.7	69.0	55.0	3.55	3.6	4.05	3.9	87.65	92.31	5.4	2.6	48.15	5.3	6.7	79.10	
349835	13.2		57.58			9.6			3.7	3.65	4.0	4.05	92.50	90.12	5.5	2.5	45.45	5.4	6.6	81.82	
349865																					
Specimens	(17)	(5)	(17)	(15)	(15)	(17)	(14)	(14)	(16)	(15)	(16)	(15)	(16)	(15)	(17)	(17)	(17)	(16)	(16)	(16)	(5)
Totals	224.1			148.6	132.0	167.9	938.5	752.0	56.75	53.35	63.15	58.7			86.9	39.4		85.1	102.7		15.95
Average	13.18	88.6	55.4	9.91	8.80	9.87	67.0	53.7	3.55	3.56	3.95	3.91	89.9	90.9	5.11	2.32	45.4	5.32	6.42	82.9	3.19
Minima	12.5	84.7	52.3	9.0	7.8	9.3	61.0	46.0	3.2	3.3	3.7	3.7	81.0	85.9	4.8	2.1	40.6	4.8	5.8	76.9	3.15
Maxima	14.1	92.1	59.9	10.7	9.4	10.4	74.0	65.0	3.8	3.75	4.25	4.2	96.2	95.9	5.5	2.6	49.0	5.9	6.9	89.4	3.2

[1] Oldest deposits: Indian- and Aurignacian-like; partly fossilized.
[2] Allowance made for wear of teeth.

ST. LAWRENCE ISLAND, NORTHWEST END AND NORTH COAST: MALES

Catalog No.	Collection [2]	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
279453	U.S.N.M.	St. Lawrence Island.	35		19.8	14.0	13.3	*70.7*	*78.7*		15.70	1,580	N. +		7.6
279456	do	do	45		19.1	13.6	13.3	*71.2*	*81.4*		15.33	1,310	Medium		7.9
279550	do	do	55		19.5	13.9	13.4	*71.3*	*80.2*		15.60	1,480	do		8.1
279385	do	do	30		19.2	13.9	13.3	*72.4*	*80.4*		15.47	1,450	+		8.1
279396	do	do	30		19.5	14.2	14.3	*72.8*	*84.9*		16.00	[1] 1,580	+		7.9
279559	do	do	35		18.8	13.7		*72.9*				[1] 1,420			
279439	do	do	50		19.6	14.3	13.3	*73.0*	*78.5*		15.73	1,440	Slight		8.1
279473	do	do	35		18.9	13.8	14.0	*73.0*	*85.6*		15.57	1,415	+		8.1
279487	do	do	50		18.6	13.6	13.8	*73.1*	*85.7*		15.33	[1] 1,485			[1] 7.4
228281	do	do	55		19.2	14.1	14.0	*73.4*	*84.1*		15.77	1,550	Medium	12.6	7.7
279425	do	do	35		18.4	13.5	14.2	*73.4*	*89.0*		15.37	1,500	+		7.8
99-3719	A.M.N.H	do	35		18.9	13.9	13.8	*73.5*	*84.2*		15.53		N.+		8.5
242889	U.S.N.M	do	55		18.4	13.6	13.1	*73.9*	*81.9*		15.03	1,305			7.5
242750	do	do	60		18.5	13.7	14.3	*74.1*	*88.8*		15.50	1,480			8.0
279377	do	do	45		18.6	13.8	[1] 13.2	*74.2*	*81.5*		15.20	(1,370)	+		8.0
279508	do	do	70		18.6	13.8	13.4	*74.2*	*82.7*		15.27	1,405	Considerable		7.9
279488	do	do	45		18.7	13.9	13.6	*74.3*	*83.4*		15.40	1,470			7.8
279665	do	do	55		18.7	13.9	13.7	*74.3*	*84.0*		15.43	1,520	Medium		7.5
279492	do	do	50		20.0	14.9	14.2	*74.5*	*81.4*		16.33	1,720	Moderate		7.9
243992	do	do	50		19.2	14.3	14.0	*74.5*	*83.6*		15.83	1,510	Slight		8.3
279510	do	do	45		18.8	14.0	13.7	*74.5*	*83.5*		15.50	1,570	Moderate		7.9
242805	do	do	50		18.5	13.8	14.3	*74.6*	*88.5*		15.53	1,485	do	12.3	7.8
279446	do	do	35		18.6	13.9	14.1	*74.7*	*86.8*		15.53	1,625	+		9.0
279474	do	do	30		18.6	13.9	13.7	*74.7*	*84.3*		15.40	1,475	N.+		[1] 7.8
279501	do	do	45		18.6	13.9	13.4	*74.7*	*82.5*		15.30	1,490	Moderate		7.6
279541	do	do	60		18.2	13.6	[1] 13.6	*74.7*	*85.5*		15.13	1,495			7.8
279987	do	do	25		18.3	13.7	13.7	*74.9*	*85.6*		15.23	1,400	N+		7.4
279565	do	do	45		17.9	13.4	13.4	*74.9*	*85.6*		14.90	1,275	Slight		7.6
279581	do	do	60		19.5	14.6	13.5	*74.9*	*79.2*		15.87	1,580	Medium	12.8	8.3
279505	do	do	55		18.4	13.8	13.8	*75.0*	*85.7*		15.33	1,370	Moderate		8.2
279560	do	do	45		18.0	13.5	13.2	*75.0*	*83.8*		14.90	1,320	do		7.9
279572	do	do	65		19.2	14.4	13.8	*75.0*	*82.1*		15.80	1,575	Considerable		8.1
279451	do	do	50		19.0	14.3	14.2	*75.3*	*85.3*		15.83	1,555			8.1
242772	do	do	35		18.6	14.0	13.4	*75.3*	*82.2*		15.33	1,450	+	13.3	7.9
279394	do	do	65		19.1	14.4		*75.4*				[1] 1,500	Considerable		8.0

279416	do	do	65		18.3	13.8	13.6	75.4	84.7		15.23	1,485	Medium		8.0
279490	do	do	65		18.7	14.1	13.4	75.4	81.7		15.40	1,450			8.3
279450	do	do	50		18.4	13.9	13.7	75.5	84.8		15.33	1,370	Moderate		8.0
279517	do	do	60		18.4	13.9	13.4	75.5	83.0		15.23	[1] 1,390			8.2
279529	do	do	70		18.4	13.9	13.8	75.5	85.4		15.37	1,410	Considerable		
242807	do	do	40		17.7	13.4	13.6	75.7	87.5		14.90	1,260	Slight	13.0	8.1
279582	do	do	25		18.5	14.0	12.7	75.7	78.2		15.07	1,495	+		7.7
279406	do	do	60		18.6	14.1		75.8							
279491	do	do	60		18.2	13.8		75.8					Moderate		7.6
279493	do	do	50		18.2	13.8		75.8					Slight		7.8
279546	do	do	55		19.0	14.4	14.4	75.8	86.2		15.93	1,490	Medium		7.5
280091	do	do	60		18.7	14.2	14.3	75.9	86.9		15.73	1,500	do		7.8
279577	do	do	55		17.4	13.2	13.0	75.9	85.0		14.53	1,180	Moderate		7.4
279533	do	do	60		18.3	13.9	13.8	76.0	85.7		15.33	1,460	Considerable		7.4
227484	do	do	60		18.4	14.0	13.4	76.1	92.7		15.27	1,390	Medium	12.5	8.4
242770	do	do	50		18.4	14.0	14.1	76.1	87.0		15.50	1,395	Moderate	13.4	8.3
242916	do	do	60		18.4	14.0	14.2	76.1	87.6		15.53	1,410	Considerable		7.6
279500	do	do	55		18.4	14.0	13.4	76.1	82.7		15.27	1,355			7.7
279539	do	do	65		18.8	14.3	13.8	76.1	83.4		15.63	1,520	Considerable		7.7
279547	do	do	30		18.4	14.0	13.8	76.1	85.2		15.40	1,360	+		7.5
241883	do	do	55		18.5	14.1	14.0	76.2	85.9		15.53	1,570		[1] 12.7	7.7
279524	do	do	65		18.1	13.8	14.0	76.2	87.8		15.30	1,420	Considerable		8.0
279580	do	do	45		18.1	13.8	13.7	76.2	85.9		15.20	1,490	N. +		7.7
241891	do	do	35		18.6	14.2	14.0	76.3	85.4		15.60	1,390	Slight		7.9
279455	do	do	45		18.6	14.2	13.6	76.3	82.9		15.47	1,435	Moderate		7.6
279409	do	do	65		19.1	14.6	14.3	76.4	84.9		16.00	1,740			8.0
279423	do	do	55		18.3	14.0	13.8	76.5	85.4		15.37	1,495	Moderate		7.4
279388	do	do	35		18.8	14.4	13.8	76.6	83.1		15.67	1,580	N.+		7.9
279485	do	do	60		18.8	14.4	13.2	76.6	79.5		15.47	1,550	Considerable		7.9
279496	do	do	50		18.4	14.1	12.9	76.6	79.4		15.13	1,420	Slight		7.6
279519	do	do	70		18.4	14.1	13.6	76.6	83.7		15.37				
279527	do	do	55		18.4	14.1	14.1	76.6	86.8		15.53	1,470	Moderate		8.0
280093	do	do	65		18.0	13.8	13.3	76.7	83.6		15.03	1,400	Considerable		7.9
279432	do	do	35		18.9	14.5	13.4	76.7	80.2		15.60	1,410	+		7.7
242776	do	do	50		18.5	14.2	14.1	76.8	86.2		15.60	1,530	Moderate	12.8	8.0
242756	do	do	70		18.2	14.0	13.0	76.9	80.8		15.07	1,335	All lost		
279464	do	do	40		18.2	14.0	13.4	76.9	83.2		15.20	1,450	N.+		7.8
279489	do	do	60		19.5	15.0	13.9	76.9	80.6		16.13	1,665			8.5
279575	do	do	50		18.6	14.3	14.4	76.9	87.5		15.77	1,545	Uppers moderate. Lowers medium.	12.3	7.4
279548	do	do	50		19.1	[1] 14.7		77.0				1,340			7.6
242802	do	do	25		17.9	13.8	14.0	77.1	88.3		15.23	1,460	+		7.7
279470	do	do	70		18.0	13.9	13.3	77.2	83.4		15.07	1,310	Considerable		7.4
279551	do	do	50		18.4	14.2	13.6	77.2	83.4		15.40	1,440			7.8
279661	do	do	55		18.4	14.2	13.7	77.2	84.0		15.43	1,420	Medium		7.7
99-3717	A.M.N.H	do	45		17.6	13.6	13.8	77.3	88.5		15.00		do		7.5
242803	U.S.N.M	do	35		18.5	14.3	14.5	77.3	88.4		15.77	1,555	+	13.7	7.6
243991	do	do	55		18.5	14.3	13.8	77.3	84.2		15.53	1,405	Slight to medium.	13.2	8.5

See footnotes at end of table.

ST. LAWRENCE ISLAND, NORTHWEST END AND NORTH COAST: MALES—Continued

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Mento-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
228278	U.S.N.M.	St. Lawrence Island.	35		18.6	14.4	14.2	*77.4*	*86.1*		15.73	1,575	+		7.7
279659	do	do	35		18.6	14.4	13.8	*77.4*	*83.6*		15.60	1,555	+		7.7
279655	do	do	65		19.0	14.7	13.8	*77.4*	*81.9*		15.83	1,470	All		
279443	do	do	55	Small asymmetry.	18.2	14.1		*77.5*					Medium		8.2
279475	do	do	55		18.2	14.1	13.5	*77.5*	*83.6*		15.27	1,460			7.9
279545	do	do	40		18.3	14.2	13.6	*77.6*	*83.7*		15.37	1,430	+		7.7
242809	do	do	45		18.8	14.6	14.6	*77.7*	*87.4*		16.00	1,525	Slight	13.6	8.4
279436	do	do	60		19.3	15.0		*77.7*							
279534	do	do	75		18.8	14.6	13.3	*77.7*	*79.6*		15.57	1,490			
242946	do	do	60		18.0	14.0	14.3	*77.8*	*89.4*		15.43	1,485	All		
242808	do	do	55	Slight asymmetry.	18.0	14.0	13.2	*77.8*	*82.5*		15.07	1,355	Irregular		7.9
279536	do	do	65		18.5	14.4	13.5	*77.8*	*82.1*		15.47	1,430			[1]8.7
279395	do	do	65		18.1	14.1	13.6	*77.9*	*84.5*		15.27	1,480			
279583	do	do	65		18.1	14.1	13.8	*77.9*	*85.7*		15.33	1,470	Considerable	11.2	7.3
279666	do	do	60		17.2	13.4	[1]13.5	*77.9*	*88.2*		14.70	[1]1,300	do		7.6
279530	do	do	24		18.6	14.5	14.0	*78.0*	*84.6*		15.70	1,535	+		7.6
279408	do	do	50		17.7	13.8	13.0	*78.0*	*82.5*		14.83	1,295	Moderate		7.5
279404	do	do	35		17.7	13.8	12.8	*78.0*	*81.3*		14.77	1,340	Slight		7.4
279481	do	do	40		18.2	14.2	13.1	*78.0*	*80.9*		15.17	1,380	N. +		8.1
279509	do	do	55		18.2	14.2	14.0	*78.0*	*86.4*		15.47	1,505			7.6
279584	do	do	60		18.2	14.2	13.7	*78.0*	*84.6*		15.37	1,280	{Uppers moderate. Lowers considerable.}		7.5
228282	do	do	60		18.7	14.6	13.0	*78.1*	*78.1*		15.43	1,490	Medium		7.7
279478	do	do	65		18.3	14.3	13.6	*78.1*	*83.4*		15.40	1,550	do		
242796	do	do	45		18.0	14.1	14.6	*78.3*	*91.0*		15.57	1,500	Moderate	13.0	7.6
279497	do	do	45		18.0	14.1	12.8	*78.3*	*79.8*		14.97	1,430	do		7.9
279579	do	do	55		18.4	14.4	13.8	*78.3*	*84.2*		15.53	1,420	do	12.6	8.0
279523	do	do	45		18.1	14.2	13.7	*78.4*	*84.8*		15.33	1,450	Slight		8.7
242897	do	do	55		18.6	14.6	13.4	*78.5*	*80.7*		15.53	1,505	Medium		7.5
280094	do	do	60		18.2	14.3	12.8	*78.6*	*78.8*		15.10	1,425	Medium		8.1
242824	do	do	60		18.8	14.8	15.1	*78.7*	*89.9*		16.23	1,625	Considerable		[1]8.5

279467	do	do	65		18.8	14.8	12.9	*78.7*	*76.8*		15.50	1,490	do		7.9
279514	do	do	55		17.9	14.1	[1] 13.4	*78.8*	*83.8*		15.13	1,300			
279480	do	do	60		18.0	14.2	13.3	*78.9*	*82.6*		15.17	1,410			[1] 7.4
279502	do	do	65		18.0	14.2	13.6	*78.9*	*84.5*		15.27	1,450			[1] 8.0
242788	do	do	35		17.2	13.6	13.8	*79.1*	*89.6*		14.87	1,330	N.+	12.4	7.7
242790	do	do	45		18.2	14.4	13.6	*79.1*	*83.4*		15.40	1,500	Slight	12.8	7.8
279657	do	do	45		17.4	13.8	13.6	*79.3*	*87.2*		14.93	1,260			7.6
241886	do	do	50		18.4	14.6	13.4	*79.4*	*81.2*		15.47	1,365	Moderate	[1] 11.8	[1] 7.5
242797	do	do	30		18.4	14.6	13.8	*79.4*	*83.6*		15.60	1,570	N.+		7.9
279516	do	do	35		18.4	14.6	13.0	*79.4*	*78.8*		15.33	1,600	N.+		7.7
242825	do	do	45		18.9	15.0	13.4	*79.4*	*79.0*		15.77	1,610	+		7.6
99-3715	A.M.N.H	do	70		18.5	14.7	13.7	*79.5*	*82.5*		15.63				
241893	U.S.N.M	do	50		19.0	15.1	13.6	*79.5*	*79.8*		15.90	1,620	Slight to medium.	13.0	8.3
242488	do	do	45		17.6	14.0	14.0	*79.6*	*88.6*		15.20	1,420	Moderate	12.8	8.0
242800	do	do	50		18.1	14.4	14.3	*79.6*	*88.0*		15.60	1,585	do	12.2	7.5
279503	do	do	30		18.2	14.5	13.9	*79.7*	*85.0*		15.53	1,525	+		7.7
279477	do	do	35		18.3	14.6	13.6	*79.8*	*82.7*		15.50	1,500	+		7.5
242789	do	do	40		18.4	14.7	14.1	*79.9*	*85.2*		15.73	1,520	Moderate		7.6
279405	do	do	60		17.4	13.9	13.6	*79.9*	*86.9*		14.97	1,280	do		7.9
279433	do	do	45		18.0	14.4	13.2	*80.0*	*81.5*		15.20	1,470	N.+		7.8
242778	do	do	40		18.6	14.9	13.6	*80.1*	*81.2*		15.70	1,515	N.+		8.0
279518	do	do	25		17.6	14.1	13.4	*80.1*	*84.5*		15.03	1,360	+		7.7
99-3714	A.M.N.H	do	35		17.7	14.2	13.7	*80.2*	*85.9*		15.00				7.6
243990	U.S.N.M	do	35		18.2	14.6	14.5	*80.2*	*88.4*		15.77	1,550	+		8.2
279466	do	do	65		18.7	15.0	14.8	*80.2*	*87.8*		16.17	1,610	All		
279398	do	do	45		17.3	13.9	13.6	*80.4*	*87.2*		14.93	1,470	Moderate		[1] 7.7
243989	do	do	50		17.4	14.0	13.9	*80.5*	*88.5*		15.10	1,340	Medium	12.3	7.5
279483	do	do	65		17.4	14.0	13.4	*80.5*	*85.4*		14.93	1,355			[1] 7.7
279438	do	do	35		18.0	14.5	13.0	*80.6*	*80.0*		15.17	1,345	Slight	12.4	7.8
279525	do	do	50		18.6	15.0	13.8	*80.6*	*82.1*		15.80	1,485[2]	do		[1] 7.7
279663	do	do	50		18.6	15.0	13.5	*80.6*	*80.4*		15.70	1,555	Medium		8.0
279389	do	do	60		17.6	14.2	13.5	*80.7*	*84.9*		15.10	1,400			7.2
279513	do	do	35		17.7	14.3	12.8	*80.8*	*80.0*		14.93	1,335	+		7.8
242777	do	do	30		18.0	14.6	14.4	*81.1*	*88.3*		15.67	1,540	N.+		7.5
279411	do	do	50		18.2	14.8	13.7	*81.3*	*83.0*		15.57	1,450	Moderate		7.8
242771	do	do	50		17.7	14.4	14.6	*81.4*	*91.0*		15.57	1,535	Uppers slight; Lowers scurvy		7.5
279452	do	do	20		17.8	14.5	13.3	*81.5*	*82.4*		15.20	1,570	+		7.3
279554	do	do	40		18.5	15.1	13.8	*81.6*	*82.1*		15.80	1,670	N.+		8.1
279435	do	do	24		17.9	14.7	12.9	*82.1*	*79.1*		15.17	1,360	+		7.6
279400	do	do	50		18.0	14.8	13.7	*82.2*	*83.5*		15.50	1,485			7.8
279454	do	do	60	Small asymmetry.	18.3	15.2	14.0	*83.1*	*83.6*		15.83	1,545	Considerable		7.2
Specimens			(153)		(153)	(153)	(145)	*(153)*	*(145)*		(145)	(142)		(24)	(139)
Totals			7,573		2,815.8	2171.1	1,983.4					207,575		304.7	1,087.2
Averages			49.5		18.40	14.19	13.68	*77.1*	*84.0*		15.42	1,462		12.70	7.82
Minima			20		17.2	13.2	12.7	*70.7*	*76.8*		14.53	1,180		11.2	7.2
Maxima			70		20.0	15.2	15.1	*83.1*	*91.0*		16.33	1,740		13.7	9.0

[1] Near.

[2] U.S.N.M. Nos. 279376-280096 collected by Dr. Riley D. Moore; others by Dr. E. W. Nelson et al.

ST. LAWRENCE ISLAND, NORTHWEST END AND NORTH COAST: MALES—Continued

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
279453	14.2		*53.5*	10.2	9.0	10.6	71.5	50.0	3.7	3.65	4.2	4.1	*88.1*	*89.0*	5.7	2.7	*47.4*	5.2	6.9	*75.4*	
279456	14.5		*54.5*	10.7	9.3	10.8	69.5	53.0	3.8	3.65	4.1	4.15	*92.7*	*88.0*	5.3	2.6	*49.1*	5.8	6.9	*84.1*	
279550	13.9		*58.3*	11.3	9.8	10.8	65.0	51.0	3.5	3.45	3.9	4.1	*89.7*	*84.1*	5.45	2.75	*50.5*	5.8	6.6	*87.9*	
279385	14.0		*57.9*	10.5	9.2	10.2	65.0	56.0	4.0		4.3		*93.0*		5.2	2.4	*46.2*	5.8	6.7	*86.6*	
279396	14.3		*55.2*	10.4	9.4	10.8	71.0	60.0	4.05	4.1	4.5	4.4	*90.0*	*93.2*	5.5	2.6	*47.3*	5.8	6.8	*85.3*	
279559																					
279439	14.8		*54.7*	10.9	9.6	10.8	67.5	54.5	3.8	3.55	4.3	4.1	*88.4*	*86.6*	5.55	2.6	*46.8*	5.8	[1] 7.3	*79.4*	
279473	13.9		*58.3*	10.3	9.2	10.6	69.0	59.0	3.8	3.85	4.4	4.2	*86.4*	*91.7*	5.5	2.35	*42.7*	5.6	6.7	*83.6*	
279487	13.6		*54.4*	[1] 9.6	8.6	10.1	72.0	58.5	3.8		4.1		*92.7*		5.15	2.5	*48.6*				
228281	14.7	*85.7*	*52.4*	10.5	9.6	11.0	73.0	59.5	3.85	3.9	4.1	4.2	*93.9*	*92.9*	5.65	2.5	*44.2*	5.5	[1] 7.2	*76.4*	3.6
279425	13.3		*58.6*	10.1	8.8	10.0	66.5	51.0	3.9	3.9	4.1	4.0	*95.1*	*97.5*	5.5	2.4	*43.6*	5.8	6.3	*92.1*	
99-3719	14.5		*58.6*	10.1	8.9	10.0	64.5	55.5	3.85	3.85	4.0	3.9	*96.2*	*98.7*	6.0	2.4	*40.0*	5.7	6.9	*82.6*	
242889	14.3		*52.4*	10.1	9.2	10.2	69.0	58.0	3.55	3.6	3.8	3.75	*93.4*	*96.0*	5.6	2.35	*42.0*	5.3	6.8	*77.9*	3.3
242750	13.4		*59.7*	10.4	9.4	10.8	70.5	62.0	3.8	3.8	4.1	4.05	*92.7*	*93.8*	5.25	2.35	*44.8*	5.5	6.1	*90.2*	
279377	13.8		*58.0*						3.85	3.85	3.95	4.05	*97.5*	*95.1*	5.3	2.65	*50.0*	5.6	6.5	*86.2*	
279508	13.6		*58.1*	9.9	8.8	10.0	67.5	57.0	3.55	3.6	4.15	3.95	*85.5*	*91.1*	5.5	2.55	*46.4*	5.6	6.4	*87.5*	
279488	13.4		*58.2*	9.7	8.7	10.0	69.0	60.0	3.55	3.5	3.8	3.9	*93.4*	*89.7*	5.3	2.2	*41.5*	5.2	6.0	*86.7*	
279665	14.8		*50.7*	10.5	9.4	10.6	70.0	51.0	3.75	3.75	4.25	4.25	*88.2*	*88.2*	5.75	2.75	*47.8*	5.7	7.0	*81.4*	
279492	15.5		*51.0*	10.6	9.6	10.8	70.0	57.0	3.7	3.75	4.5	4.4	*82.2*	*85.2*	5.75	2.4	*41.7*	5.6	6.9	*81.2*	
243992	14.0		*59.3*	10.8	9.7	10.6	66.0	58.5	3.8	3.8	3.95	3.9	*96.2*	*97.4*	5.7	2.3	*40.4*	5.9	7.0	*84.3*	
279510	13.2		*59.8*	9.4	8.6	10.2	72.0	64.5	4.1	4.0	4.0	4.0	*102.5*	*100.0*	5.35	2.35	*43.9*	5.1	6.3	*81.0*	
242805	14.3	*86.0*	*54.5*	11.0	9.6	10.6	66.0	51.0	3.35	3.3	3.9	3.9	*85.9*	*84.6*	5.4	2.1	*38.9*	5.9	6.9	*85.5*	3.6
279446	14.3		*62.9*	11.1	9.8	11.0	65.0	57.0	4.05	4.05	4.2	4.2	*96.4*	*96.4*	6.0	2.3	*38.3*	5.8	7.1	*81.7*	
279474	13.3		*58.6*		9.0	10.4			3.6	3.7	4.1	3.9	*87.8*	*94.9*	5.9	2.6	*44.1*				
279501	14.2		*53.5*	10.0	8.8	10.0	68.0	54.0	3.7	3.7	4.05	4.05	*91.4*	*91.4*	5.3	2.3	*43.4*	5.7	6.4	*89.1*	
279541	13.7		*56.9*	10.1	8.8	9.7	64.5	53.0	3.95	3.85	3.95	3.95	*100.0*	*97.5*	5.4	2.6	*48.2*	5.6	7.0	*80.0*	
279987	14.0		*52.9*	9.8	8.9	10.0	69.5	58.0	3.65	3.65	3.9	3.9	*93.6*	*93.6*	5.4	2.3	*42.6*	5.4	7.0	*77.1*	
279565	13.8		*55.1*	10.4	9.2	10.2	67.0	53.0	3.65	3.7	4.0	4.0	*91.2*	*92.5*	5.4	2.4	*44.4*	5.7	6.8	*83.8*	
279581	14.9	*85.9*	*55.7*	11.4	9.9	11.3	68.0	50.0	3.5	3.7	4.05	4.0	*86.4*	*92.5*	5.85	2.7	*46.2*	5.8	6.8	*85.3*	3.9
279505	13.8		*59.4*	10.5	9.4	10.8	69.5	58.5	3.65	3.75	4.0	3.8	*91.2*	*98.7*	5.75	2.65	*46.1*	5.8	6.0	*96.7*	
279560	13.6		*58.1*	9.7	8.8	9.9	67.5	62.5	3.5	3.5	4.0	3.95	*87.5*	*88.6*	5.4	2.8	*51.8*	5.4	6.4	*84.4*	
279572	14.2		*57.0*	10.3	9.2	10.5	68.5	59.5	3.55	3.55	3.8	3.9	*93.4*	*91.0*	5.35	2.35	*43.9*	5.4	6.4	*84.4*	
279451	14.4		*56.2*	10.7	9.[illegible]	10.6	67.0	58.5	3.4	3.5	4.1	4.1	*82.9*	*85.4*	4.9	2.4	*49.0*				
242772	13.6	*97.8*	*58.1*	10.8	9.8	10.6	67.0	61.5	3.85	3.95	3.85	3.8	*100.0*	*104.0*	5.3	2.0	*37.7*	5.9	6.9	*85.5*	3.8
279394	14.7		*54.4*						3.95	4.0	4.4	4.5	*89.8*	*88.9*	5.45	2.65	*48.6*	6.0	[1] 7.5	*80.0*	

279416	14.5		55.2	10.4	9.2	10.3	67.0	56.0	3.9	3.8	4.3	4.25	90.7	89.4	5.45	2.55	46.8				
279490	14.7		56.5	11.0	9.7	10.4	64.0	55.5	3.7	3.65	4.2	4.2	88.1	86.9	5.5	2.6	47.3				
279450	14.1		56.7	10.9	9.7	10.8	68.0	57.5	3.4	3.45	3.8	3.8	89.5	90.8	5.3	2.6	49.1	5.6	6.5	86.2	
279517	14.5		56.6	11.0	9.6	10.4	64.0	52.5	3.6	3.7	4.4	4.2	81.8	88.1	5.6	2.6	46.4				
279529	13.4				9.3	10.2			3.7	3.75	3.9	4.0	94.9	93.7	4.9	2.4	49.0				
242807	14.0	92.9	57.9	9.8	8.8	10.2	69.0	59.5	3.65	3.75	3.9	3.8	93.6	98.7	5.7	2.5	43.9	5.5	6.7	82.1	3.7
279582	14.0		55.0	10.1	9.0	10.1	67.5	58.5	3.7	3.75	3.85	3.9	96.1	96.1	5.1	2.4	47.1	5.4	6.3	85.7	
279406																					
279191	[1] 13.5		56.3						3.9	3.8	4.2	4.1	92.9	92.7	5.45	2.6	47.7				
279493	14.2		54.9	9.8	8.6	10.2	70.0	54.0	3.55	3.5	4.1	4.0	86.6	87.5	5.5	2.5	45.4				
279546	15.0		50.0	11.3	10.2	11.1	69.0	51.5	3.7	3.65	4.35	4.35	85.1	83.9	5.65	2.8	49.6	6.2	6.9	89.9	
280091	14.2		54.9	10.3	9.1	10.6	70.0	55.5	3.8	3.9	4.2	4.1	90.5	95.1	5.4	2.6	48.2	5.4	6.9	78.3	
279577	13.9		53.2	10.2	9.2	10.4	70.5	53.5	3.6	3.7	4.0	3.9	90.0	94.9	5.6	2.55	45.5	5.6	7.0	80.0	
279533	13.8		53.6	10.2	9.3	10.2	69.0	58.5	3.65	3.65	4.0	4.00	91.2	91.2	5.45	2.2	40.4	5.5	6.6	83.3	
227484	13.6	91.9	61.8	11.2	9.6	10.6	63.5	50.0	3.65	3.7	4.0	4.0	91.2	92.5	5.65	2.8	49.6	5.9	6.8	86.8	3.6
242770	14.7	91.2	56.5	11.1	10.0	10.9	66.5	58.5	3.35	3.3	3.7	3.6	90.5	91.7	5.75	2.7	47.0	6.1	7.3	83.6	3.7
242916	14.7		52.4	10.9	9.8	10.6	67.0	55.0	3.45	3.5	3.95	4.0	87.3	87.5	5.4	2.5	46.3	5.8	6.7	86.6	
279500	14.0		55.0	10.6	9.4	10.1	65.0	54.5	4.0	3.95	4.2	4.2	95.2	94.1	5.3	2.75	51.9	5.5	6.8	80.9	
279539	14.7		52.4	9.8	8.8	10.0	68.5	58.5	3.75	3.85	4.2	4.2	89.3	91.7	5.4	2.35	43.5				
279547	14.0		53.6	10.5	9.4	10.8	71.5	57.5	3.35	3.4	4.0	3.9	83.7	87.2	5.05	2.35	46.5	5.4	6.7	80.6	
241883	14.5	87.6	53.1	10.4	9.0	10.5	69.0	47.0	3.8	3.8	4.3	4.1	88.4	92.7	5.6	2.5	44.6	5.6	[1] 6.9	81.2	3.7
279524	14.4		55.6	10.2	9.0	10.4	68.5	55.0	4.1	4.1	4.3	4.1	95.4	100.0	5.6	2.25	40.2				
279580	13.6		56.6	10.0	9.0	10.2	69.0	58.0	3.9	3.85	4.0	3.9	97.5	98.7	5.45	2.2	40.4	5.5	6.6	83.3	
241891	14.3		55.2	11.0	9.9	10.8	67.5	58.5	3.25	3.3	3.95	3.85	82.3	85.7	5.4	2.5	46.3	5.8	6.9	84.1	
279455	14.3		53.1	10.7	9.4	10.7	69.5	51.5	3.8	3.75	4.05	4.05	93.8	92.6	5.35	2.5	46.7	5.7	6.8	83.8	
279409	14.0		57.1	10.2	9.2	11.0	73.5	59.0		4.0		4.2		95.2	5.7	2.6	45.6				
279423	13.8		53.6	10.7	9.5	10.4	67.5	54.0	3.6	3.5	3.75	3.8	96.0	92.1	5.1	2.5	49.0	5.7	6.6	86.4	
279388	13.6		58.1	9.8	8.4	9.6	64.5	49.5	3.6	3.6	3.85	3.75	93.5	96.0	5.5	2.4	43.6	5.5	6.2	88.7	
279485	14.5		54.5	10.6	9.2	10.0	63.5	52.0	3.7	3.7	4.1	4.0	90.2	92.5	5.3	2.3	43.4	5.8	6.9	84.1	
279496	13.7		55.5	9.8	8.8	9.9	68.0	55.5	3.75		3.9		96.1		5.6	2.4	42.9	5.0	6.2	80.6	
279519	13.2					10.5				3.65		4.1		89.0							
279527	14.2		56.3	10.3	9.2	10.4	68.0	58.0	3.9	4.0	4.2	4.2	92.9	95.2	5.5	2.4	43.6	5.7	7.0	81.4	
280093	14.0		56.4	10.5	9.5	10.2	66.0	60.5	3.5	3.4	3.9	3.8	89.7	89.5	5.3	2.3	43.4	5.7	6.3	90.5	
279432	14.4		53.5	10.4	9.4	10.5	69.0	58.0	3.9	3.85	4.0	3.95	97.5	97.5	5.5	2.4	43.6	5.3	6.7	79.1	
242776	14.4	88.9	55.6	9.9	8.8	10.2	68.5	58.0	3.6	3.65	3.9	3.8	92.3	96.0	5.5	2.55	46.4	5.4	6.9	78.3	3.75
242756	14.2				9.2	10.3			3.4	3.4	3.8	3.8	89.5	89.5	4.95	2.4	48.5				
279464				10.7	9.6	10.4	66.5	57.5	3.5	3.5	4.2	4.1	83.3	85.4	5.4	2.55	47.2	5.8	7.3	79.4	
279489	15.1		56.3	11.9	10.6	11.2	64.0	55.5	3.9	3.9	4.2	4.3	92.9	90.7	5.75	2.55	44.3	6.3	6.9	91.3	
279575	[1] 14.4	85.4	51.4	10.6	9.5	10.5	69.0	54.0	3.75	3.7	4.2	4.1	89.3	90.2	5.35	2.4	44.9	5.6	6.8	82.4	3.15
279548	14.3		53.1						3.7	3.7	4.1	4.0	90.2	92.5	5.7	2.4	42.1	5.9	6.8	86.8	
242802	13.1		58.8	10.3	9.3	10.4	69.0	59.0	3.6	3.55	3.9	3.9	92.3	91.0	5.35	2.2	41.1	5.5	6.9	79.7	
279470	14.1		52.5	10.7	9.1	10.2	66.0	45.0	3.55	3.5	4.35	4.3	81.6	81.4	5.2	2.6	50.0				
279551	14.7		53.1	10.6	9.2	10.4	67.0	48.0	3.6	3.6	4.0	4.0	90.0	90.0	5.6	2.6	46.4				
279661	13.8		55.8	10.4	9.4	10.6	70.0	58.0	3.7	3.65	4.15	4.1	89.2	89.0	5.5	2.45	44.5	5.5	6.8	80.9	
99-3717	13.8		54.4	10.5	9.4	9.6	62.0	57.0	3.7	3.7	4.1	4.0	90.2	92.5	5.1	2.4	47.1	5.6	6.5	86.2	
242803	14.5	94.5	52.4	10.1	9.2	10.5	71.0	61.0	3.75	3.65	3.85	3.85	97.4	94.8	5.3	2.5	47.2	5.7	7.1	80.3	3.9
243991	14.4	91.7	59.0	10.8	9.6	10.6	65.5	57.5	3.4	3.45	3.9	3.9	87.2	88.4	5.7	2.15	37.7	5.8	7.3	79.4	
228278	14.2		54.2	10.3	9.4	10.5	70.0	62.5	3.6	3.55	3.95	3.85	91.1	92.2	5.25	2.5	47.6	5.7	7.1	80.3	
279659	14.0		55.0	10.2	9.2	10.5	70.0	60.0	4.0	3.95	3.9	3.85	102.6	102.6	5.25	2.2	41.9	5.7	6.7	85.1	
279655	15.2				9.1	10.4			3.8	3.7	4.3	4.2	88.4	88.1	5.5	2.45	44.5				
279443	14.4		56.9	10.6	9.3	10.4	66.0	58.0	3.45	3.6	3.85	3.7	89.6	97.3	5.15	2.55	49.5	5.7	7.1	80.3	
279475	14.7		53.7	10.8	9.6	10.8	68.5	54.5	3.6	3.6	4.0	4.1	90.0	87.8	5.6	2.6	46.4	5.8	6.7	86.6	
279545	14.1		54.7	10.4	9.2	10.1	66.0	56.0	3.45	3.45	4.0	3.95	86.2	87.3	5.2	2.4	46.2	5.4	6.7	80.6	

See footnote at end of table.

ST. LAWRENCE ISLAND, NORTHWEST END AND NOSTH COAST: MALES—Continued

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
242809	15.3	*88.9*	*54.9*	10.9	9.8	11.0	68.0	56.5	3.8	3.7	4.0	4.0	*95.0*	*92.5*	6.05	2.4	*39.7*	6.0	7.5	*80.0*	3.85
279436																					
279534	14.2				9.4	10.3			3.75	3.65	4.3	4.2	*87.2*	*86.9*	5.45	2.6	*47.7*				
242946	14.2				9.4	10.3			3.4	3.4	3.7	3.7	*91.9*	*91.9*	4.9	2.4	*49.0*				
242808	13.7		*57.7*	9.5	8.6	9.9	69.0	60.0	3.35	3.25	3.85	3.75	*87.0*	*86.7*	5.7	2.5	*43.9*	5.0	6.5	*76.9*	
279536	15.2		*57.2*		9.0	10.4			4.0	4.0	4.3	4.25	*93.0*	*94.1*	5.95	2.55	*42.9*	[1] 5.6	7.0	*80.0*	
279395	14.4				9.4	10.8			3.75	3.75	4.3	4.2	*87.2*	*89.3*	5.45	2.3	*42.2*				
279583	14.0	*80.0*	*52.1*	10.2	9.5	10.4	71.0	65.0	3.65	3.65	3.8	3.8	*96.0*	*96.0*	5.2	2.5	*48.1*				3.1
279666	14.1		*53.9*						3.7	3.75	4.4	4.3	*84.1*	*87.2*	[1] 5.3	2.55	*48.1*				
279530	13.5		*56.3*	10.5	9.3	10.3	67.0	55.0	3.8	3.75	3.9	3.9	*97.4*	*96.1*	5.2	2.4	*46.2*	5.5	6.9	*79.7*	
279408	14.9		*50.3*	11.0	9.7	10.2	64.0	52.0	3.75	3.8	4.15	4.15	*90.4*	*91.6*	5.2	2.45	*47.1*	5.6	6.9	*81.2*	
279404	13.5		*54.8*	9.7	8.8	9.8	68.5	60.0	3.5	3.5	3.85	3.75	*90.9*	*93.4*	5.2	2.45	*47.1*	5.6	6.3	*88.9*	
279181	14.2		*57.0*	10.0	9.1	10.5	70.0	63.5	3.6	3.7	4.2	4.1	*85.7*	*90.2*	5.4	2.3	*42.6*	5.5	6.6	*83.3*	
279509	14.2		*53.5*	10.5	9.3	10.3	67.0	53.0	3.6	3.65	4.15	4.05	*86.8*	*90.1*	5.4	2.35	*43.5*	5.9	6.8	*86.8*	
279584	13.8		*54.4*	10.4	9.2	10.1	66.5	54.5	3.8	3.85	4.1	4.1	*92.7*	*93.9*	5.15	2.5	*48.6*	5.6	[1] 6.5	*86.2*	
228282	14.4		*53.5*	10.5	9.4	10.0	65.0	55.0	3.45	3.5	3.9	3.9	*88.4*	*89.7*	5.6	2.35	*42.0*	5.1	6.4	*79.7*	
279478	14.4				8.6	10.1			4.1	4.0	4.4	4.3	*93.2*	*93.0*	5.4	2.3	*42.6*				
242796	13.6	*95.6*	*55.9*	10.1	8.9	10.2	69.0	54.0	3.7	3.75	4.05	4.05	*91.4*	*92.6*	5.35	2.35	*43.9*	5.6	6.5	*86.2*	3.6
279497	14.9		*53.0*	11.4	10.0	10.6	64.0	51.0	3.75	3.65	4.0	3.95	*93.7*	*92.4*	5.5	2.8	*50.9*	6.0	7.0	*85.7*	
279579	14.8	*85.1*	*54.0*	10.9	9.7	10.7	67.0	55.5	3.55	3.6	3.85	3.85	*92.2*	*93.5*	5.55	2.6	*46.8*	6.1	7.1	*85.9*	3.6
279523	14.1		*61.7*	10.0	8.8	10.4	67.0	58.5	3.6	3.6	3.7	3.8	*97.3*	*94.7*	5.75	2.6	*45.2*	5.7	7.7	*74.0*	
242897	14.1		*53.2*	10.0	9.0	10.0	68.0	57.0	3.25	3.25	3.9	3.8	*83.3*	*85.5*	5.4	2.1	*38.9*	5.7	6.6	*86.4*	
280094	14.6		*55.5*	10.3	9.0	10.2	66.0	53.0	3.8	3.75	4.2	4.1	*90.5*	*91.5*	5.7	2.4	*42.1*	5.4	7.0	*77.1*	
242824	14.4		*59.0*	10.5	9.4	10.6	67.0	57.0	3.75	3.8	4.0	4.0	*93.7*	*95.0*	6.15	2.6	*42.3*	5.9	7.1	*83.1*	3.6
279467	14.7		*53.0*	10.5	9.2	10.0	64.0	54.5	3.7	3.65	4.1	4.2	*90.2*	*86.9*	5.3	2.45	*46.2*	5.7	[1] 6.5	*87.7*	
279514						10.4															
279480	14.3		*51.8*	10.1	8.9	9.8	66.0	52.0	3.8	3.8	4.1	4.1	*92.7*	*92.7*	5.3	2.2	*41.5*	5.6	6.7	*83.6*	
279502	14.7		*54.4*		9.1	10.4			3.9	3.9	4.3	4.3	*90.7*	*90.7*	5.5	2.45	*44.5*				
242788	13.8	*88.9*	*55.8*	10.6	9.2	10.2	65.5	49.5	3.45	3.65	3.9	3.9	*88.4*	*93.6*	5.35	2.6	*48.6*	5.7	6.8	*83.8*	3.75
242790	14.2	*90.1*	*54.9*	10.7	9.6	10.5	67.0	57.0	3.6	3.65	4.1	4.05	*87.8*	*90.1*	5.5	2.4	*43.6*	5.5	6.8	*80.9*	3.7
279657	13.7		*55.5*	10.4	9.2	10.2	67.0	52.5	3.6	3.6	3.8	3.8	*94.7*	*94.7*	5.45	2.3	*42.2*	5.4	7.1	*76.1*	
241886	14.5	*81.4*	*51.7*	9.9	9.0	10.3	71.0	61.5	3.5	3.5	4.0	3.9	*87.5*	*89.7*	5.2	2.5	*48.1*	5.2	6.7	*77.6*	3.55
242797	14.3		*55.2*	10.1	9.0	10.0	66.0	59.0	3.65	3.75	3.9	3.9	*93.6*	*96.1*	5.15	2.05	*39.8*	5.7	7.2	*79.2*	
279516	13.9		*55.4*	9.8	8.8	9.6	65.5	60.0							5.15	2.4	*46.6*	5.4	6.7	*80.6*	
242825	[1] 14.2		*53.5*	10.7	9.6	10.5	67.5	57.0	3.8	3.75	4.1	3.9	*92.7*	*96.1*	5.3	2.35	*44.3*	5.8	6.8	*85.3*	
99-3715	14.5				8.8	9.8			3.9	3.8	4.05	4.0	*96.3*	*95.0*	5.25	2.2	*41.9*				
241893	14.6	*89.0*	*56.8*	10.3	9.2	10.6	68.5	57.5	3.85	3.85	4.1	4.0	*93.9*	*96.2*	5.9	2.75	*46.6*	5.6	6.6	*84.8*	3.7

212488	14.3	89.5	55.9	10.7	9.8	11.0	70.0	63.0	3.75	3.75	4.15	4.1	90.4	91.5	5.45	2.45	45.0	5.5	7.1	77.5	3.7
242800	14.3	85.3	52.4	10.5	9.6	10.6	70.0	61.5	3.9	3.9	4.05	3.95	96.3	98.7	5.2	2.15	41.3	5.4	6.7	80.6	3.45
279503	14.0	----	55.0	10.2	8.8	9.9	65.5	49.0	3.45	3.55	3.7	3.8	93.2	93.4	5.4	2.5	46.3	5.8	7.4	78.4	----
279477	14.6	----	51.4	10.6	9.4	10.1	65.5	50.5	3.65	3.55	4.1	4.0	89.0	88.7	5.5	2.6	47.3	5.4	6.6	81.8	----
212789	13.9	----	54.7	10.6	9.4	10.4	67.5	53.5	3.5	3.55	3.9	3.8	89.7	93.4	5.4	2.55	47.2	5.5	7.0	78.6	----
279405	13.9	----	56.8	10.9	9.6	10.5	65.5	53.5	3.7	3.7	4.1	4.0	90.2	92.5	5.45	2.55	46.8	5.4	6.1	88.5	----
279433	14.0	----	55.7	11.0	9.4	10.3	56.0	46.0	3.75	3.8	4.15	4.15	90.4	91.6	5.35	2.7	50.5	6.1	6.8	89.7	----
242778	14.7	----	54.4	10.9	9.5	10.2	63.0	53.5	3.55	3.6	4.2	4.1	84.5	87.8	5.25	2.3	43.8	6.0	6.8	88.2	----
279518	13.4	----	57.5	10.5	9.4	10.1	65.5	57.5	3.6	3.5	3.8	3.8	94.7	92.1	5.3	2.5	47.2	5.6	6.7	83.6	----
99-3714	13.7	----	55.5	10.5	9.4	10.5	69.0	56.5	3.75	3.8	4.0	4.0	93.7	95.0	5.35	2.35	43.9	5.4	6.8	79.4	----
243990	14.9	----	55.0	10.2	9.0	10.8	71.0	57.5	3.6	3.6	4.0	4.0	90.0	90.0	5.55	2.45	44.2	5.8	7.1	81.7	----
279466	13.9	----	----	----	9.0	10.8	----	----	----	3.7	----	4.2	----	88.1	5.3	2.65	50.0	----	----	----	----
279398	14.1	----	54.7	10.2	8.9	10.0	64.5	53.5	3.35	3.6	4.1	3.9	81.7	92.3	5.15	2.3	44.7	5.3	[1] 6.7	79.1	----
243989	14.6	84.2	51.4	10.8	9.4	10.1	64.0	50.0	3.2	3.3	3.9	3.7	82.0	89.2	5.15	2.5	48.6	5.9	7.2	81.9	3.6
279483	14.3	----	53.8	10.6	9.3	10.2	65.5	53.0	3.5	3.5	4.1	4.0	85.4	87.5	5.3	2.65	50.0	5.7	6.5	87.7	----
279438	15.0	82.7	52.0	10.6	9.4	10.1	64.5	55.5	3.55	3.45	3.95	3.95	89.9	87.3	5.3	2.4	45.3	5.8	7.3	79.4	3.5
279525	14.2	----	54.2	10.3	8.8	10.0	66.0	47.5	3.7	3.7	4.1	4.2	90.2	88.1	5.4	2.55	47.2	5.7	7.1	80.3	----
279663	14.5	----	55.2	10.4	9.2	10.2	66.0	59.0	3.55	3.65	3.95	3.95	89.9	92.4	5.0	2.4	48.9	5.8	7.0	82.9	----
279389	14.2	----	50.7	10.5	9.4	10.4	69.0	54.0	3.5	3.5	4.0	3.9	87.5	89.7	5.15	2.35	45.6	----	----	----	----
279513	14.9	----	52.4	11.1	10.1	10.4	64.5	61.0	3.65	3.65	4.0	4.0	91.2	91.2	5.2	2.6	50.0	5.9	6.6	89.4	----
242777	14.0	----	53.6	9.9	9.2	10.5	73.0	65.0	3.5	3.55	4.0	3.9	87.5	91.0	5.45	2.15	39.4	5.6	7.1	78.9	----
279411	14.7	----	53.1	10.8	9.6	10.6	67.5	54.0	3.75	3.7	4.1	4.1	91.5	90.2	5.5	2.35	42.7	5.6	6.9	81.2	----
242771	14.2	----	52.8	10.0	9.0	10.4	71.0	58.0	3.65	3.7	4.0	4.0	91.2	92.5	5.3	2.4	45.3	5.3	6.6	80.3	----
279452	13.3	----	54.9	9.7	8.4	9.6	67.0	53.0	3.85	3.95	4.0	3.9	96.2	101.3	4.85	2.2	45.4	5.4	6.6	81.8	----
279554	14.0	----	57.9	10.3	9.2	10.5	68.5	56.0	3.7	3.65	4.15	4.1	89.2	89.0	5.8	2.2	37.9	5.3	6.8	77.9	----
279435	14.1	----	53.9	10.1	8.9	10.0	67.5	54.5	3.45	3.5	3.9	3.8	88.4	92.1	5.3	2.2	41.5	5.6	6.3	88.9	----
279400	15.0	----	52.0	10.7	9.3	10.4	66.5	51.0	3.45	3.5	4.1	4.2	83.1	83.3	5.4	2.45	45.4	5.6	6.7	83.6	3.6
279454	14.4	----	50.0	10.3	9.0	9.8	65.5	52.0	3.65	3.6	4.2	4.1	86.9	87.8	4.85	2.2	45.4	----	----	----	----
Specimens	(148)	(24)	(138)	(131)	(143)	(145)	(131)	(131)	(145)	(145)	(145)	(145)	(145)	(145)	(148)	(148)	(148)	(121)	(121)	(121)	(26)
Totals	2100.9	----	----	1,366.7	1,324.6	1,502.9	8,842.5	----	532.65	533.2	587.2	581.1	----	----	802.1	362.55	----	681.1	821.2	----	94.0
Averages	14.20	88.3	55.1	10.43	9.26	10.36	67.5	56.5	3.67	3.68	4.05	4.01	90.7	91.8	5.42	2.45	45.2	5.63	6.79	82.9	3.62
Minima	13.1	80.0	50.0	9.4	8.4	9.6	56.0	45.0	3.2	3.25	3.7	3.6	81.6	81.4	4.85	2.0	37.7	5.0	6.0	74.0	3.1
Maxima	15.5	97.8	62.9	11.9	10.6	11.3	73.5	65.0	4.1	4.1	4.5	4.5	102.6	104.0	6.15	2.8	51.9	6.3	7.7	96.7	3.9

[1] Near.

ST. LAWRENCE ISLAND, NORTHWEST END AND NORTH COAST: FEMALES

Catalogue No.	Collection [2]	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
280092	U.S.N.M	St. Lawrence Island.	60		19.2	13.5	[1] 13.8	*70.3*	*84.4*		15.5	1,485	Medium		7.8
279403	do	do	25		18.1	13.1	12.6	*72.4*	*80.8*		14.60	1,330	+		7.2
279555	do	do	50		18.9	13.7	13.1	*72.5*	*80.4*		15.23	1,395	Moderate		7.1
279515	do	do	55		18.6	13.5	13.8	*72.6*	*86.0*		15.30	1,425	Medium		8.4
243993	do	do	55		18.7	13.6	13.8	*72.7*	*85.4*		15.37	1,490	Considerable		
279548	do	do	50		18.3	13.4	14.0	*73.2*	*88.3*		15.23	1,340			
279465	do	do	40		18.0	13.2	13.2	*73.3*	*84.6*		14.80	1,270	Slight		7.7
279382	do	do	60		18.8	13.8	13.4	*73.4*	*82.2*		15.33	1,365			7.6
279484	do	do	40		18.4	13.5	12.7	*73.4*	*79.6*		14.87	1,355	N.+		7.5
279504	do	do	40		18.2	13.4	13.1	*73.6*	*82.9*		14.90	1,300	Slight		7.1
279528	do	do	30		17.9	13.2	12.6	*73.7*	*81.0*		14.57	1,160	+		7.3
279573	do	do	60		18.4	13.6	13.5	*73.9*	*84.4*		15.17	1,255	Considerable	11.8	7.6
242798	do	do	40		17.8	13.2	13.2	*74.2*	*85.2*		14.73	1,320	N.+	11.7	7.4
279417	do	do	45		18.2	13.5	13.8	*74.2*	*87.1*		15.17	1,280	N.+		7.2
279506	do	do	45		18.2	13.5	13.2	*74.2*	*83.3*		14.97	1,365	N.+		7.3
279586	do	do	60		18.2	13.5	13.2	*74.2*	*83.3*		14.97	1,280	Medium	112	7.4
279441	do	do	45		18.0	13.4	13.3	*74.4*	*84.7*		14.90	1,320	Slight		7.4
279561	do	do	40		17.2	12.8	12.7	*74.4*	*84.7*		14.23	1,150	+		7.0
241884	do	do	24		18.1	13.5	12.8	*74.6*	*81.0*		14.8	1,400	+	10.6	6.8
242819	do	do	65		17.7	13.2	13.6	*74.6*	*88.0*		14.83	1,280			6.9
279419	do	do	40		18.9	14.1	13.4	*74.6*	*81.2*		15.47	1,515			7.8
279576	do	do	50		17.7	13.2	12.6	*74.6*	*81.6*		14.5	1,260	Slight		7.4
279567	do	do	60		17.4	13.C	13.4	*74.7*	*88.2*		14.60	1,210	Medium	11.6	7.3
242810	do	do	65		18.4	13.8	12.8	*75.0*	*79.5*		15.0	1,290	Uppers medium, lower scurvy.		7.8
279482	do	do	55		17.6	13.2	12.6	*75.0*	*81.8*		14.47	1,215			7.0
279532	do	do	35		18.0	13.5	12.9	*75.0*	*81.9*		14.8	1,295			6.9
279558	do	do	35		18.4	13.8	13.0	*75.0*	*80.8*		15.07	1,430	+		7.8
279412	do	do	40		17.7	13.3	13.8	*75.1*	*89.0*		14.93	1,325	All lost, small diseased.		7.6
279430	do	do	40		17.3	13.0	12.4	*75.1*	*81.8*		14.23	1,115	Slight		7.3
99-3711	A.M.N.H	do	40		17.8	13.4	12.8	*75.3*	*82.1*		14.67		Slight		7.4
99-3721	do	do	45		17.8	13.4	[1] 12.8	*75.3*	*82.1*		14.67		+		7.3
279469	U.S.N.M	do	55		17.8	13.4	13.1	*75.3*	*84.0*		14.77	1,280			6.6

279520	do	do	25		17.8	13.4	13.2	*75.3*	*84.6*		14.80	1,210	+		7.5
279552	do	do	45		17.8	13.4	13.4	*75.3*	*85.9*		14.87	1,370	Slight		7.4
279564	do	do	25		17.4	13.1	12.5	*75.3*	*82.0*		14.33	1,285	+		6.5
242762	do	do	50	Slight asymmetry	17.5	13.2	12.6	*75.4*	*72.1*		14.43	1,270	Medium		6.8
241882	do	do	35		18.0	13.6	13.4	*75.6*	*84.8*		15.00	1,375	[1]+		7.2
279378	do	do	45		18.2	13.8	13.2	*75.8*	*82.5*		15.07	1,375	Slight		7.5
279563	do	do	45		18.2	13.8	13.5	*75.8*	*84.4*		15.17	1,280	Moderate	11.8	7.4
279390	do	do	25		17.1	13.0	12.6	*76.0*	*83.7*		14.23	1,080	+		7.3
241888	do	do	50		17.6	13.4	13.4	*76.1*	*86.4*		14.80	1,305	Slight		7.1
279420	do	do	40		17.6	13.4	13.5	*76.1*	*87.1*		14.83	[1] 1,420	do		7.6
279570	do	do	35		17.6	13.4	13.2	*76.1*	*85.2*		14.73	[1] 1,280	[1]+		7.0
279588	do	do	30		17.6	13.4	13.0	*76.1*	*83.9*		14.67	1,245	+		7.3
279544	do	do	20		18.5	14.1	13.8	*76.2*	*84.7*		15.47	1,550	+		7.2
279380	do	do	30		17.8	13.6	13.6	*76.4*	*86.6*		15.00	1,420	+		7.5
279463	do	do	50		17.8	13.6	13.7	*76.4*	*87.3*		15.03	1,210	Slight		7.6
279499	do	do	30		17.4	13.3	13.4	*76.4*	*87.3*		14.70	1,210			
279531	do	do	65		17.8	13.6	13.0	*76.4*	*82.8*		14.80	(1,340)			7.2
279511	do	do	23		18.3	14.0	13.9	*76.5*	*86.1*		15.40	1,665	+		8.0
279542	do	do	55		17.0	13.0	12.8	*76.5*	*85.3*		14.27	[1] 1,200	Slight to medium.		7.8
279656	do	do	22		17.9	13.7	13.3	*76.5*	*84.2*		14.97	1,425	+		7.3
279418	do	do	45		17.5	13.4		*76.6*							7.1
279562	do	do	23		17.6	13.5	12.4	*76.7*	*79.7*		14.50	1,275	+		7.3
242801	do	do	20		18.0	13.8	12.9	*76.7*	*81.1*		14.90	1,340	+	11.1	6.8
279386	do	do	25		17.2	13.2	12.8	*76.7*	*84.2*		14.40	1,185	+		6.9
242827	do	do	25		18.2	14.0	13.0	*76.9*	*80.8*		15.07	1,380	+		7.7
279442	do	do	30		16.9	13.0		*76.9*							
279556	do	do	45		18.2	14.0		*76.9*							7.1
242775	do	do	30		17.4	13.4	13.4	*77.0*	*87.0*	14.73		1,320	[1]+	11.4	6.9
279384	do	do	50		17.8	13.7	12.8	*77.0*	*81.3*	14.77		1,350			7.3
242820	do	do	70		17.9	13.8	13.6	*77.1*	*85.8*	15.10		1,305	Considerable		
279461	do	do	25		17.9	13.8	13.2	*77.1*	*83.3*	14.97		1,335	+		7.2
242751	do	do	35		17.6	13.6	13.6	*77.3*	*87.2*	14.93		1,355			7.4
242811	do	do	21		17.6	13.6	13.6	*77.3*	*87.2*	14.93		1,405	+		7.8
243981	do	do	55		17.2	13.3	13.2	*77.3*	*86.6*	14.57		1,275	Medium		
279562	do	do	23		17.6	13.6	12.4	*77.3*	*79.5*	14.53		1,275	+		7.3
280095	do	do	70		18.1	14.0	14.4	*77.4*	*89.7*	15.50		1,400	Considerable		
279486	do	do	65		18.6	14.4	13.7	*77.4*	*83.0*	15.57		[1] 1,475			8.1
242891	do	do	20		17.8	13.8	14.0	*77.5*	*88.6*	15.20		1,390	+		7.8
99-3718	A.M.N.H	do	50		17.8	13.8	13.2	*77.5*	*83.5*	14.93					[1] 7.1
279664	U.S.N.M	do	23		17.8	13.8	13.0	*77.5*	*82.3*	14.87		1,305	+	12.2	7.4
242836	do	do	60		17.4	13.5	13.0	*77.6*	*84.1*	14.63		1,200			7.3
99-3712	A.M.N.H	do	50		18.0	14.0	13.9	*77.8*	*86.9*	15.30			Medium		7.3
279399	U.S.N.M	do	40		17.6	13.7	13.2	*77.8*	*84.3*	14.83		1,340			7.3
279437	do	do	75		17.6	13.7	13.2	*77.8*	*84.3*	14.83		1,325	All		
279449	do	do	70		17.2	13.4		*77.9*							
279566	do	do	22		17.2	13.4	12.4	*77.9*	*81.0*	14.33		1,295	+	10.9	7.0
279585	do	do	35		18.2	14.2	13.2	*78.0*	*81.5*	15.20		1,675	Slight	11.8	7.5
279376	do	do	35		18.2	14.2	13.7	*78.0*	*84.6*	15.37		1,420	+		7.8
279658	do	do	25		17.7	13.8	13.4	*78.0*	*85.1*	14.97		1,430			7.4

See footnotes at end of table.

ST. LAWRENCE ISLAND, NORTHWEST END AND NORTH COAST: FEMALES—Continued

Catalog No.	Collection[2]	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
279381	do	St. Lawrence Island.	45		17.4	13.6	[1] 13.7	*78.2*	*88.4*	14.90					
279415	do	do	35		17.4	13.6	13.0	*78.2*	*83.9*	14.67		[1] 1,335			7.1
279476	do	do	20		17.4	13.6	13.6	*78.2*	*87.7*	14.87		1,430	+	10.9	6.5
99-3720	A.M.N.H	do	35		18.0	14.1	13.2	*78.3*	*82.2*	15.10			+		7.7
279429	U.S.N.M	do	55		17.6	13.8	13.2	*78.4*	*84.1*	14.87		1,305	Medium		7.3
279444	do	do	30		17.6	13.8	13.6	*78.4*	*86.6*	15.00		1,405	+		7.5
279460	do	do	60		17.2	13.5		*78.5*				[1] 1,240	Medium		7.4
228277	do	do	25		16.8	13.2	12.2	*78.6*	*81.3*		14.07	1,155	+	10.4	6.6
279392	do	do	50		16.8	13.2	13.0	*78.6*	*86.7*		14.33				
279414	do	do	23		17.3	13.6	14.0	*78.6*	*90.6*		14.97	1,370	+		7.2
279512	do	do	55		17.4	13.7	12.6	*78.7*	*81.0*		14.57	1,255	Medium		7.6
279457	do	do	30		18.5	14.6	13.4	*78.9*	*81.0*		15.50	1,525			7.3
279537	do	do	40		17.5	13.8	12.8	*78.9*	*81.8*		14.70	1,370	N.+		7.3
279660	do	do	70		17.6	13.9	13.2	*79.0*	*83.8*		14.90	1,265	All		
280096	do	do	65		18.2	14.4	12.8	*79.1*	*78.5*		15.13	[1] 1,330			
228283	do	do	40		18.2	14.4	13.6	*79.1*	*83.4*		15.40	1,400	Medium		7.1
279402	do	do	65		18.2	14.4	13.4	*79.1*	*82.2*		15.33	1,460	Considerable		7.7
279574	do	do	25		17.2	13.6	12.8	*79.1*	*83.1*		14.53	1,250	+		6.8
242766	do	do	55		17.8	14.1	13.5	*79.2*	*84.6*		15.13	1,310	Moderate	11.0	7.0
279428	do	do	30		17.3	13.7	13.8	*79.2*	*89.0*		14.93	1,350	+		7.3
242753	do	do	60		17.9	14.2	13.2	*79.3*	*72.2*		15.10	1,385			7.1
242945	do	do	24		16.9	13.4	13.2	*79.3*	*87.1*		14.50	1,295	+		7.0
279422	do	do	55		17.4	13.8	12.5	*79.3*	*80.1*		14.57	1,230			7.8
279391	do	do	45		17.5	13.9	13.0	*79.4*	*82.8*		14.80	1,300	Moderate		8.0
279427	do	do	40		16.6	13.2	13.0	*79.5*	*87.2*		14.27	1,275	N.+		7.3
242792	do	do	60		17.6	14.0	13.8	*79.6*	*87.3*		15.13	1,515	Medium		
279401	do	do	40		17.6	14.0	13.4	*79.6*	*84.8*		15.00	1,450	N.+		7.1
279413	do	do	30		17.6	14.0	13.0	*79.6*	*82.3*		14.87	1,410	N.+		7.3
279426	do	do	60		17.6	14.0	12.8	*79.6*	*81.0*		14.80	1,350	All		
279526	do	do	55		18.1	14.4	13.8	*79.6*	*74.9*		15.43	1,340	Medium		7.1
242774	do	do	40		17.2	13.7	13.6	*79.6*	*88.0*		14.83	1,290		12.5	7.5
993716	A.M.N.H	do	23		17.7	14.1	13.2	*79.7*	*83.0*		15.00		+		7.3
279540	U.S.N.M	do	45		17.8	14.2	13.8	*79.8*	*86.2*		15.27	1,400	Slight	11.4	7.3
279397	do	do	65		16.9	13.5		*79.9*							
279424	do	do	25		17.0	13.6	12.2	*80.0*	*79.7*		14.27	1,275	+		7.2

99-3710	A.M.N.H.	do	50		16.6	13.3	13.6	*80.1*	*91.0*		14.50				7.0
242804	do	do	50		18.1	14.5	13.7	*80.1*	*84.0*		15.43	1,400	Moderate		7.5
279393	do	do	40		17.1	13.7	13.6	*80.1*	*88.3*		14.80	1,310	+	11.7	7.1
279431	do	do	45		17.6	14.1		*80.1*				[1] 1,430			
279407	do	do	60		17.2	13.8		*80.2*							
279440	do	do	65		18.2	14.6		*80.2*				1,420			6.8
279472	do	do	35		17.7	14.2	13.4	*80.2*	*84.0*		15.10	1,375	N.+		7.5
279667	do	do	40		16.2	13.0	13.1	*80.2*	*89.7*		14.10	1,180	N.+		6.4
279553	do	do	45		17.8	14.3	13.4	*80.3*	*83.5*		15.17	1,390	Slight	12.5	7.8
279538	do	do	60		16.9	13.6	13.2	*80.5*	*86.6*		14.57	1,235			
241875	do	do	40		17.6	14.2	14.2	*80.7*	*89.3*		15.33	1,390	Slight	12.0	7.5
242818	do	do	50		17.3	14.0	13.5	*80.9*	*86.3*		14.93	1,310	do	11.5	6.7
241892	do	do	30		16.9	13.7	13.2	*81.1*	*86.3*		14.60	1,300	+		7.3
241889	do	do	40		17.0	13.8	13.8	*81.2*	*89.6*		14.87	1,360	Slight		[1] 7.3
241887	do	do	20		16.5	13.4	13.0	*81.2*	*87.0*		14.30	1,285	+	10.7	6.6
279445	do	do	30		17.6	14.3		*81.2*							
241894	do	do	25		17.1	13.9	12.5	*81.3*	*80.6*		14.50	1,330	+	11.9	7.3
279379	do	do	45		17.8	14.5		*81.5*					Slight		7.4
279589	do	do	23		17.4	14.2	12.6	*81.6*	*79.8*		14.73	1,340	+		6.9
279410	do	do	55		17.6	14.4	12.4	*81.8*	*77.5*		14.80	1,365	Medium		7.4
279468	do	do	65		17.6	14.4		*81.8*							6.9
279557	do	do	30		18.2	14.9	12.6	*81.9*	*76.1*		15.23	1,440	+		7.0
279662	do	do	60		17.0	14.1	12.8	*82.9*	*82.3*		14.63				
228284	do	do	30		16.7	14.0	13.2	*83.8*	*86.0*		14.63	1,330	N.+	11.6	7.1
279383	do	do	30										+		6.8
			(140)		(140)	(140)	(128)	*(140)*	*(128)*		(128)	(120)		(23)	(120)
Totals			5,979		2,476.9	1917.9	1690.9					160,190		26.42	874.6
Averages			42.7		17.69	13.60	13.21	*77.4*	*84.2*		14.87	1,335		11.49	7.29
Minima			20		16.2	12.8	12.2	*70.3*	*72.1*		14.07	1,080		10.4	6.4
Maxima			75		19.2	14.9	14.4	*83.8*	*91.0*		15.57	1,675		12.5	8.4

[1] Near.
[2] U.S.N.M. 279376-280096 collected by Dr. Riley D. Moore; others by Dr. E. W. Nelson et al.

ST. LAWRENCE ISLAND, NORTHWEST END AND NORTH COAST: FEMALES—Continued

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alevolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth max-im.	*Nasal Index*	Upper Alveolar Arch—length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
280092	13.0	-------	*60.0*	10.2	9.0	10.3	68.5	53.0	3.7	3.7	4.1	4.15	*90.2*	*89.2*	5.65	2.3	*40.7*	5.3	6.2	*85.5*	------
279403	12.6	-------	*57.1*	10.3	9.0	10.0	67.5	47.5	3.85	3.95	4.15	4.05	*92.8*	*97.5*	5.25	2.3	*43.8*	5.5	6.3	*87.3*	------
279555	13.7	-------	*51.8*	10.5	9.0	10.0	66.5	47.0	3.5	3.55	4.2	4.1	*83.3*	*86.6*	4.90	2.7	*55.1*	5.9	7.5	*78.7*	------
279515	13.7	-------	*61.3*	11.0	9.8	10.6	64.5	59.0	3.6	3.7	4.15	4.0	*86.7*	*92.5*	5.35	2.25	*42.0*	5.9	6.8	*86.8*	------
243993	13.6	-------	-------	-------	8.4	10.0	-------	-------	3.4	3.4	3.9	3.8	*87.2*	*89.5*	5.3	2.3	*43.4*	-------	-------	-------	------
279548	-------	-------	-------	-------	-------	10.1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	------
279465	13.1	-------	*58.8*	10.6	9.4	10.1	65.0	55.5	3.8	3.75	3.7	3.7	*102.7*	*91.4*	5.25	2.5	*47.6*	5.8	6.7	*86.6*	------
279382	14.3	-------	*53.1*	10.7	9.6	10.8	70.0	53.0	3.6	3.7	4.1	4.1	*87.8*	*90.2*	5.65	3.0	*53.1*	-------	-------	-------	------
279484	13.5	-------	*55.6*	10.1	8.8	10.0	67.5	51.5	3.85	3.85	4.1	4.1	*93.9*	*93.9*	5.25	2.35	*44.8*	-------	-------	-------	------
279504	13.2	-------	*53.8*	9.8	8.8	10.0	71.0	57.5	3.65	3.6	4.0	4.0	*91.2*	*90.0*	5.0	2.3	*46.0*	5.2	6.5	*80.0*	------
279528	13.5	-------	*54.1*	9.4	8.4	9.5	68.0	56.0	3.7	-------	3.9	-------	*94.9*	-------	5.2	2.1	*40.4*	5.3	6.4	*82.8*	------
279573	13.6	*86.8*	*55.9*	10.1	9.2	10.4	70.5	62.0	3.7	3.6	3.8	3.8	*97.4*	*94.7*	5.2	2.4	*46.2*	5.0	6.9	*72.5*	------
242798	13.5	*86.7*	*54.8*	10.8	9.4	10.2	65.0	50.0	3.45	3.55	3.9	3.85	*88.5*	*92.2*	5.1	2.6	*51.0*	5.8	[1] 6.4	*90.6*	3.3
279417	13.1	-------	*55.0*	10.7	9.4	10.6	70.0	51.5	3.45	3.4	3.95	3.9	*87.3*	*87.2*	5.0	2.5	*50.0*	5.5	6.9	*79.7*	3.3
279506	13.6	-------	*53.7*	[1] 10.3	9.0	10.2	68.5	51.5	3.55	3.45	3.95	4.0	*89.9*	*86.2*	5.1	2.4	*47.1*	5.7	6.5	*87.7*	------
279586	13.1	*85.5*	*56.5*	10.2	8.9	9.8	65.5	49.5	3.6	3.6	3.9	3.7	*92.3*	*97.3*	5.3	2.5	*47.2*	5.5	6.4	*85.9*	------
279441	13.3	-------	*55.6*	9.8	8.8	10.1	70.5	56.5	3.6	3.75	4.0	3.9	*90.0*	*96.2*	5.35	2.4	*44.8*	-------	-------	-------	3.0
279561	12.7	-------	*55.1*	9.7	8.4	9.4	66.5	48.0	3.75	3.75	3.75	3.8	*100.0*	*98.7*	5.0	2.25	*45.0*	5.5	6.2	*88.7*	------
241884	12.7	*83.5*	*53.5*	10.2	9.1	9.8	67.0	54.0	3.4	3.5	3.8	3.8	*89.5*	*92.1*	4.75	2.4	*50.5*	5.5	6.2	*88.7*	------
242819	13.1	-------	*52.7*	10.5	9.4	10.4	70.0	54.0	3.4	3.4	3.9	3.9	*87.2*	*87.2*	4.85	2.5	*51.5*	5.3	6.3	*84.1*	2.9
279419	12.9	-------	*60.5*	10.6	9.2	10.0	64.0	50.5	3.7	3.6	3.75	3.8	*98.7*	*94.7*	5.4	2.5	*46.3*	5.6	6.5	*86.2*	------
279576	13.1	-------	*56.5*	10.1	9.0	10.0	67.5	52.0	3.3	3.4	3.85	3.75	*85.7*	*90.7*	5.45	2.5	*45.9*	5.6	6.3	*88.9*	------
279567	13.1	*88.6*	*55.7*	9.9	8.9	10.0	69.5	57.5	3.75	3.75	3.9	3.9	*96.2*	*96.2*	5.2	2.3	*44.2*	5.0	6.2	*80.6*	------
242810	13.8	-------	*56.5*	10.3	9.2	10.0	65.5	56.0	3.4	3.45	3.9	3.8	*87.2*	*90.8*	5.55	2.4	*43.2*	5.4	6.7	*80.6*	3.45
279482	12.7	-------	*55.1*	9.6	8.4	9.4	67.0	51.0	3.7	3.7	4.0	4.0	*92.5*	*92.5*	4.95	2.35	*47.5*	-------	-------	-------	------
279532	13.4	-------	*51.5*	9.7	8.7	10.0	72.0	56.0	3.35	3.4	4.1	3.95	*81.7*	*86.1*	4.9	2.25	*45.9*	-------	-------	-------	------
279558	13.4	-------	*58.2*	9.9	8.8	10.0	67.5	57.0	3.45	3.45	3.9	3.9	*88.5*	*88.5*	5.45	2.3	*42.2*	5.0	6.1	*82.0*	------
279412	13.8	-------	*55.1*	-------	9.0	10.0	-------	-------	3.65	3.7	3.95	3.95	*92.4*	*93.7*	5.4	2.45	*45.4*	5.2	6.4	*81.2*	------
279430	13.3	-------	*54.9*	10.2	8.9	9.6	64.0	49.0	3.7	3.7	3.95	3.95	*93.7*	*93.7*	5.2	2.5	*48.1*	5.5	6.5	*84.6*	------

99-3711	[1]13.2		*56.1*	9.9	8.5	9.6	65.5	49.0	3.4	3.4	3.95	4.05	*86.1*	*84.0*	5.1	2.45	*48.0*	5.6	6.4	*87.5*	
99-3721	13.2		*55.3*	9.9	8.4	9.6	66.0	42.5	3.4	3.4	3.9	3.85	*87.2*	*78.3*	5.3	2.5	*47.2*	[1]5.5	6.4	*85.9*	
279469				10.0	9.0	10.2	72.5	55.0		3.7		4.1		*90.2*	4.75	2.6	*54.7*	[1]5.5	[1]6.4	*85.9*	
279520	13.9		*54.0*	10.6	9.5	10.3	67.0	57.0	3.65	3.7	4.15	3.95	*88.0*	*93.7*	5.25	2.55	*48.6*	5.9	6.9	*85.5*	
279552	13.1		*56.5*	9.8	8.8	10.0	69.5	58.5		3.7		3.8		*97.4*	5.1	2.55	*50.0*	5.6	5.8	*96.6*	
279564	12.7		*51.2*	9.2	8.3	9.4	71.0	52.5	3.5	3.55	3.8	3.7	*92.1*	*95.9*	4.95	2.45	*49.5*	4.6	6.0	*76.7*	
242762	13.1		*51.9*	9.5	8.4	9.7	71.0	51.0	3.6	3.7	3.85	3.8	*93.5*	*97.4*	5.0	2.4	*48.0*	4.8	6.1	*78.7*	
241882	13.7		*52.6*	10.2	9.2	10.4	71.5	57.0	3.5	3.6	3.9	3.9	*89.7*	*92.3*	5.2	2.5	*48.1*	5.7	6.9	*82.6*	
279378	13.9		*54.0*	10.4	9.1	10.0	65.5	52.5	3.5	3.6	4.2	4.2	*83.3*	*85.7*	5.1	2.45	*48.0*	6.0	7.1	*84.5*	
279563	14.2	*83.1*	*52.1*	10.7	9.6	10.4	67.5	53.5	3.65	3.65	4.1	4.0	*89.0*	*91.2*	5.4	2.3	*42.6*	5.5	6.5	*84.6*	3.35
279390	13.2		*55.3*	10.1	8.8	9.6	64.5	51.0	3.45	3.4	3.9	4.0	*88.5*	*85.0*	5.05	2.55	*50.5*	5.5	6.5	*84.6*	
241888	13.5		*52.6*	9.8	8.7	9.9	69.5	56.0	[1]3.8	3.8	3.8	3.9	*100.0*	*97.4*	4.8	2.2	*45.8*	5.3	6.4	*82.8*	
279420	[1]13.2		*57.6*	10.3	9.0	10.3	68.5	49.5	3.75		4.2		*89.3*		5.5	2.4	*43.6*	5.3	6.6	*80.3*	
279570	13.3		*52.6*	11.4	10.3	10.9	68.0	53.0	3.45		3.8		*90.8*		5.05	2.45	*48.5*	5.8	6.5	*89.2*	
279588	12.9		*56.6*	10.2	8.8	9.7	65.0	47.0	3.3	3.3	3.7	3.7	*89.2*	*89.2*	5.1	2.35	*46.1*	5.5	6.7	*82.1*	
279544	12.6		*57.1*	10.1	8.8	9.6	65.0	49.5	3.6	3.6	3.8	3.6	*94.7*	*100.0*	5.0	2.1	*42.0*	5.6	6.6	*84.8*	
279380	13.4		*56.0*	9.5	8.6	9.8	69.0	61.0	3.85	3.95	3.8	3.7	*101.3*	*106.8*	5.15	2.3	*44.7*	5.2	6.1	*85.2*	
279163	13.4		*56.7*	10.4	9.2	10.4	68.5	55.5	3.7	3.65	3.9	3.9	*94.9*	*93.6*	5.15	2.6	*50.5*	5.5	6.7	*82.1*	
279499						10.0															
279531	13.0		*55.4*	10.5	9.2	10.1	66.5	52.0	3.6	3.45	3.85	3.85	*93.5*	*89.6*	4.9	2.5	*51.0*				
279511	13.2		*60.6*	9.9	8.8	10.4	70.0	59.5	3.95	3.95	4.25	4.25	*92.9*	*92.9*	5.25	2.5	*47.6*	5.5	7.0	*78.6*	
279542	13.2		*59.1*	10.4	9.0	10.2	66.0	50.5		3.85		4.0		*96.2*	5.4	2.55	*37.2*	5.6	6.4	*87.5*	
279656	13.0		*56.2*	10.2	8.8	10.0	67.0	43.0	3.85	3.9	3.95	4.0	*97.5*	*97.5*	5.5	2.55	*36.4*	5.8	6.6	*87.9*	
279118	[1]13.5		*52.6*						3.6	3.6	3.9	4.0	*92.3*	*90.0*	5.2	2.65	*51.0*	5.2	6.5	*80.0*	
279562	12.9		*56.6*	10.4	9.5	10.0	66.0	58.0	3.4	3.3	3.8	3.7	*89.5*	*89.2*	5.4	2.3	*42.6*	5.3	6.9	*76.8*	
242801	13.2	*84.1*	*51.5*	9.7	8.8	9.8	70.5	57.5	3.6	3.5	3.7	3.6	*97.3*	*97.2*	4.9	2.35	*48.0*				3.4
279386	12.7		*54.3*	9.2	8.4	9.4	70.0	60.5	3.8	3.8	3.7	3.7	*102.7*	*102.7*	4.9	2.35	*48.0*	4.8	6.2	*77.4*	
242827	13.3		*57.9*	10.3	9.2	10.0	65.5	55.5	3.6	3.55	3.75	3.85	*96.0*	*92.2*	5.4	2.15	*39.8*	5.5	6.6	*83.3*	
279442																					
279556	13.3		*53.4*						3.75	3.85	4.0	4.05	*93.8*	*95.1*	5.0	2.2	*44.0*				
242775	13.1	*87.0*	*52.7*	9.2	8.1	9.4	69.5	53.5	3.45	3.4	3.85	3.7	*89.6*	*91.9*	4.75	1.9	*40.0*	4.9	6.0	*81.7*	[1]3.0
279384	13.5		*54.1*	10.1	8.8	10.0	68.0	48.0	3.6	3.5	4.0	4.1	*90.0*	*85.4*	5.35	2.55	*47.7*	5.3	6.4		
242820	13.5				9.0	10.4			3.3	3.4	3.9	3.8	*84.6*	*89.5*	4.9	2.3	*46.9*				
279461	13.3		*54.1*	10.1	8.8	9.8	66.5	50.0	3.6	3.65	4.0	4.05	*90.0*	*90.1*	5.1	2.5	*49.0*	5.5	6.9	*82.8*	
242751	12.7		*58.3*	[1]9.7	8.9	9.8	68.5	62.5	3.75	3.75	3.8	3.8	*98.7*	*98.7*	5.1	2.3	*45.1*	5.3	6.3	*84.1*	
242811	13.1		*59.5*	10.2	9.0	9.8	61.5	55.5	3.6	3.55	3.8	3.8	*94.7*	*83.4*	5.3	2.2	*41.5*	5.5	6.8	*80.9*	
243981	[1]12.4					9.9															
279562	12.9		*56.6*	10.5	9.5	10.0	65.5	55.0	3.45	3.3	3.75	3.75	*92.0*	*88.0*	5.35	2.3	*43.0*	5.4	7.0	*77.1*	
280095	13.8				9.0	10.3			[1]3.7	3.7	4.1	4.0	*90.2*	*92.5*	5.5	2.4	*43.6*				
279486	13.9		*58.3*	10.0	8.9	10.4	69.0	59.0	3.9	3.8	4.1	4.2	*95.1*	*90.5*	5.4	2.25	41.7	5.6	6.5	*86.2*	
242891	13.7		*56.9*	10.2	9.2	10.6	71.0	57.5		3.6		3.6		*100.0*	5.75	2.25	*39.1*	5.4	6.5	*83.1*	
99-3718	13.1		*54.2*	9.9	8.8	10.2	72.0	55.0	3.6	3.6	3.9	3.95	*92.3*	*91.1*	5.0	2.5	*50.0*				
279664	13.2	*92.4*	*56.1*	[1]10.0	[1]9.1	[1]9.9	67.5	61.0	3.55	3.6	3.9	3.9	*91.0*	*92.3*	5.15	2.4	*46.6*	5.2	6.8	*76.5*	3.5
242836	13.9		*52.5*	9.8	8.8	10.0	70.0	56.0	3.7	3.65	3.9	3.85	*94.9*	*94.8*	5.3	2.55	*48.1*	4.9	6.6	*74.2*	
99-3712	13.7		*53.3*	10.1	9.4	10.3	70.5	67.0	3.5	3.45	3.8	3.8	*92.1*	*90.8*	4.9	2.6	*53.1*	5.5	6.9	*79.7*	
279399	13.7		*53.3*	10.7	9.3	10.0	64.5	51.0	3.7	3.6	4.1	4.0	*90.2*	*90.0*	4.8	2.4	*50.0*	5.7	6.9	*82.6*	
279437	12.8				8.4	9.4			3.65	3.6	3.8	3.8	*96.0*	*94.7*	4.9	2.35	*48.0*				
279149																					
279566	12.6	*86.5*	*55.6*	9.2	8.2	9.6	71.0	50.0	3.65	3.7	3.7	3.7	*98.6*	*100.0*	5.4	2.15	*39.8*	4.8	6.2	*77.4*	2.8
279585	13.1	*90.1*	*57.2*	9.7	8.5	9.8	68.0	51.0	3.75	3.85	4.0	3.95	*93.8*	*87.5*	5.5	2.3	*41.8*	4.9	6.1	*80.3*	2.95
279376	13.9		*56.1*	10.8	9.4	10.2	64.0	52.0	3.65	3.65	3.8	3.8	*96.0*	*96.0*	5.25	2.5	*47.6*	5.6	6.6	*84.8*	

[1] Near.

ST. LAWRENCE ISLAND NORTHWEST END AND NORTH COAST: FEMALES—Continued

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
279658	13.2	------	*56.1*	10.1	9.2	10.2	69.5	60.0	3.5	3.55	3.9	3.9	*89.7*	*91.0*	5.3	2.4	*45.3*	5.4	6.8	*79.4*	------
279381	------	------	------	------	------	[1] 9.6	------	------	3.5	------	3.9	------	*89.7*	------	------	------	------	------	------	------	------
279415	13.4	------	*53.0*	9.2	8.4	9.6	71.0	61.5	3.4	------	3.9	------	*87.2*	------	5.0	2.4	*48.0*	4.9	[1] 5.7	*86.0*	------
279476	11.9	*91.6*	*54.6*	8.8	8.0	9.5	75.0	57.0	3.5	3.55	3.7	3.6	*94.6*	*98.6*	4.9	2.3	*46.9*	[1] 5.0	6.3	*79.4*	2.9
99-3720	13.6	------	*56.6*	10.0	9.0	10.2	69.0	58.0	3.55	3.6	3.85	3.85	*92.2*	*93.5*	5.4	2.4	*44.4*	5.5	6.9	*79.7*	------
279429	12.9	------	*56.6*	9.9	8.8	9.8	68.0	57.0	3.3	3.35	3.85	3.85	*85.7*	*77.0*	4.85	2.3	*47.4*	5.3	6.1	*86.9*	------
279444	14.4	------	*52.1*	10.2	9.2	10.4	70.0	56.5	3.65	3.6	3.85	3.9	*94.8*	*92.3*	5.45	2.45	*45.0*	5.7	6.9	*82.6*	------
279460	13.0	------	*56.9*	------	------	------	------	------	3.6	3.7	4.1	3.9	*87.8*	*94.9*	5.0	2.25	*46.2*	5.3	6.4	*82.8*	------
228277	12.4	*83.9*	*53.2*	8.9	8.1	9.0	69.5	57.0	3.55	3.5	3.35	3.35	*106.0*	*104.5*	4.9	2.3	*46.9*	4.9	6.0	*81.7*	2.8
279392	------	------	------	------	------	9.7	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
279414	12.9	------	*55.8*	10.3	9.4	9.2	60.5	60.0	3.5	3.55	3.8	3.8	*92.1*	*93.4*	5.05	2.45	*48.5*	5.7	6.7	*85.1*	------
279512	13.1	------	*58.0*	10.4	8.8	9.4	61.0	47.0	3.65	3.6	4.05	4.0	*90.1*	*90.0*	5.1	2.3	*45.1*	5.6	6.3	*88.9*	------
279457	14.0	------	*52.1*	9.9	8.7	10.0	69.5	54.0	3.95	3.8	3.95	3.95	*100.0*	*96.2*	5.0	2.4	*48.0*	5.2	6.3	*82.5*	------
279537	13.3	------	*54.9*	10.4	9.2	10.0	66.5	54.5	3.6	3.5	4.1	4.05	*87.8*	*86.4*	5.0	2.2	*44.0*	5.7	6.1	*93.4*	------
279660	13.5	------	------	------	8.0	9.6	------	------	3.5	3.6	3.95	3.95	*88.6*	*91.1*	5.05	2.1	*41.6*	------	------	------	------
280096	------	------	------	------	------	9.9	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
228283	13.6	------	*52.3*	10.4	9.2	10.2	68.5	54.5	3.8	3.85	3.9	4.0	*97.4*	*96.2*	4.8	2.45	*51.0*	5.2	6.4	*81.2*	3.15
279402	13.7	------	*56.2*	10.0	8.7	10.0	67.5	53.0	3.6	3.6	4.0	3.95	*90.0*	*91.1*	5.3	2.35	*44.3*	------	------	------	------
279574	12.8	------	*53.1*	------	------	9.5	------	------	------	3.55	------	3.9	------	*91.0*	5.1	2.3	*45.1*	5.0	6.3	*79.4*	------
242766	13.1	*84.0*	*53.4*	10.3	9.2	10.0	67.5	56.5	3.5	3.55	3.95	3.95	*88.6*	*89.9*	4.7	2.5	*53.2*	5.4	6.3	*85.7*	3.0
279428	12.9	------	*56.6*	10.0	9.2	10.2	70.5	63.5	3.6	3.55	3.9	3.75	*92.3*	*94.7*	4.9	2.1	*42.9*	5.4	6.4	*84.4*	------
242753	13.5	------	*52.6*	9.7	8.4	9.6	68.0	51.0	3.4	3.35	4.1	4.0	*82.9*	*83.8*	4.95	2.55	*51.5*	5.3	6.3	*84.1*	------
242945	12.9	------	*54.3*	10.4	9.1	10.3	69.5	47.5	3.35	3.4	3.7	3.6	*90.5*	*94.4*	5.1	2.4	*47.1*	5.3	6.3	*84.1*	------
279422	13.8	------	*56.5*	9.7	8.5	9.8	67.0	56.0	3.7	3.7	4.2	4.2	*88.1*	*88.1*	5.2	2.4	*46.2*	5.5	6.5	*84.6*	------
279391	13.5	------	*59.3*	10.6	8.8	9.6	60.0	47.0	3.75	3.7	4.15	4.15	*90.4*	*89.2*	5.1	2.4	*47.1*	5.6	6.8	*82.4*	------
279427	13.5	------	*54.1*	10.3	9.0	10.2	68.5	47.0	------	------	------	------	------	------	5.4	2.6	*48.2*	5.5	6.4	*85.9*	------
242792	14.0	------	------	------	9.0	10.2	------	------	4.0	4.0	4.0	3.95	*100.0*	*101.3*	5.4	2.3	*42.6*	5.0	6.1	*82.0*	3.15
279401	13.1	------	*54.2*	9.8	8.8	9.9	70.0	57.0	3.4	3.55	3.85	3.85	*88.3*	*82.2*	5.0	2.4	*48.0*	5.4	6.0	*90.0*	------
279413	13.3	------	*54.9*	9.9	8.7	9.6	65.5	52.5	3.65	3.6	3.95	3.95	*92.4*	*91.1*	5.1	2.25	*44.1*	5.6	6.3	*88.9*	------
279426	13.0	------	------	------	8.7	9.6	------	------	3.5	3.5	3.9	3.9	*89.7*	*89.7*	4.9	2.45	*50.0*	------	------	------	------
279526	[1] 13.6	------	*52.3*	10.8	9.5	10.4	67.5	47.0	------	3.65	------	4.2	------	*86.9*	5.2	2.7	*51.9*	5.4	6.4	*84.4*	------
242774	13.3	*94.0*	*56.4*	9.8	8.8	10.2	71.0	56.0	3.65	3.7	3.85	3.8	*94.8*	*97.4*	5.5	2.35	*42.7*	5.3	6.7	*79.1*	3.4
993716	13.3	------	*54.9*	10.0	9.0	10.1	69.0	58.0	3.7	3.75	3.8	3.75	*97.4*	*100.0*	5.0	1.9	*38.0*	5.2	6.4	*81.2*	------
279540	13.5	*84.4*	*54.1*	10.3	8.9	9.9	66.0	46.0	3.65	3.6	4.2	4.2	*86.9*	*85.7*	5.2	2.35	*45.2*	5.5	6.9	*79.7*	3.1

279397																					
279424	13.0		55.4	9.6	8.2	9.4	66.0	43.0	3.4	3.5	3.9	3.9	87.2	87.2	5.35	2.5	46.7	5.4	6.7	80.6	
99-3710	12.5		56.0	9.1	8.3	9.6	72.0	58.0	3.7	3.7	3.75	3.65	98.7	101.4	5.3	2.7	50.9	4.9	6.1	80.3	
242804	13.2		56.8	10.2	8.8	9.8	65.0	52.0	3.7	3.7	4.2	4.2	88.1	88.1	4.9	2.55	52.0	5.5	6.6	83.3	
279393	13.3	88.0	53.4	10.2	8.9	9.7	65.5	47.5	3.6	3.65	3.8	3.8	94.7	96.0	5.1	2.4	47.1	5.4	6.4	84.4	3.3
279431																					
279407																					
279440	13.8		49.3						3.6	3.5	4.0	4.0	90.0	87.5	5.05	2.6	51.5				
279472	13.8		54.4	10.2	9.0	9.6	63.5	55.5	3.55	3.6	4.1	4.1	86.6	87.8	5.0	2.45	49.0	5.4	6.6	81.8	
279667	13.3		48.1	9.6	8.6	9.7	71.5	54.0	3.6	3.6	3.9	4.0	92.3	90.0	4.6	2.4	52.2	5.0	6.5	76.9	
279553	14.1	88.6	55.3	10.0	8.9	9.9	66.0	56.0	3.8	3.7	4.15	4.0	81.6	92.5	5.55	2.5	45.0	5.4	6.6	81.8	3.4
279538	13.0					9.6			3.7		4.0		92.5								
241875	13.3	90.2	56.4	9.5	8.0	9.5	67.0	47.5	3.5	3.5	3.9	3.9	89.7	89.7	5.2	2.6	50.0	5.2	6.4	81.2	3.4
242818	13.5	85.2	49.6	9.4	8.5	9.8	73.0	59.0	3.6	3.7	3.9	3.8	92.3	97.4	4.7	2.5	53.2	5.1	[1] 6.0	85.0	3.4
241892	12.9		56.6	10.0	8.8	10.0	69.0	53.0	3.75	3.6	3.85	3.95	97.4	81.1	5.1	2.3	45.1	5.6	6.4	87.5	
241889	13.6		53.7	9.5	8.8	10.2	73.0	65.0	3.45	3.35	3.7	3.75	93.2	89.3	5.0	2.2	44.0	5.0	6.2	80.6	
241887	12.7	84.2	52.0	10.3	9.6	10.1	69.5	62.5	3.35	3.3	3.7	3.6	90.5	91.7	4.8	2.3	47.9	5.0	6.8	73.5	3.0
279445																					
241894	13.8	86.2	52.9	9.9	8.6	9.8	67.5	50.0	3.55	3.6	3.9	3.9	91.0	92.3	5.1	2.25	44.1	5.4	6.4	84.4	3.35
279379	14.1		52.5						3.65	3.65	4.0	4.0	91.2	91.2	5.2	2.5	48.1	5.4	6.2	87.1	
279589	13.3		51.9	9.7	8.5	9.4	67.0	50.5	3.25	3.25	3.55	3.45	91.5	94.2	4.85	2.25	46.4	5.4	6.7	80.6	
279410	13.1		56.5	10.2	8.7	9.4	62.0	48.5	3.7	3.65	4.0	4.0	92.5	91.2	4.95	2.35	47.5	5.4	6.3	85.7	
279468	13.5		51.1												4.95	2.45	49.5				
279557	[1] 14.1		49.6	9.3	8.1	9.1	66.0	50.0	3.5	3.55	4.1	4.0	85.4	88.8	5.0	2.5	50.0	[1] 5.5	6.8	80.9	
279662						10.0															
228284	13.7	84.7	51.8	9.4	8.6	9.8	71.5	61.0	3.5	3.65	3.8	3.6	92.1	101.4	5.0	1.9	38.0	4.8	5.8	82.8	3.1
279383	14.0		48.6						3.7	3.7	4.0	3.95	92.5	93.7	4.9	2.2	44.9	4.9	5.7	86.0	
Totals	(128) 1703.7	(23)	(119)	(111) 1,114.2	(119) 1,056.9	(128) 1,270.6	(111) 7,548	(111) 5,994	(121) 435.05	(121) 436.1	(121) 474.3	(121) 471.1	(121)	(121)	(127) 651.9	(127) 303.5	(127)	(109) 585.1	(109) 704.4	(109)	(25) 79.4
Averages	13.31	86.9	54.8	10.04	8.88	9.93	68.0	54.0	3.62	3.60	3.92	3.89	91.7	92.6	5.13	2.39	46.6	5.37	6.46	83.1	3.18
Minima	11.9	83.1	48.1	8.8	8.0	9.0	60.5	42.5	3.25	3.25	3.35	3.35	81.6	81.1	4.6	1.9	36.4	4.6	5.7	72.5	2.8
Maxima	14.4	94.0	61.3	11.4	10.3	10.9	75.0	67.0	4.0	4.0	4.25	4.25	106.0	106.8	5.75	2.7	55.1	6.0	7.5	96.6	3.5

[1] Near.

KUKULIK: MALES

OLD BURIALS

Catalog No.	Collection	Locality	Approximate age	Deformation	Diam. antero-posterior maxim. (glabella, ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(O. W. Geist)														
377414	U.S.N.M.	Kukulik	20		18.5	13.7	13.6	*74.05*	*84.47*		15.27				7.2
377415	do	do	25		18.6	14.4	14.3	*77.42*	*86.67*		15.77				8.1
377392	do	do	28		18.5	14.6	14	*78.92*	*84.59*		15.70			12.5	7.6
Specimens			(3)		(3)	(3)	(3)	(3)	(3)		(3)				(3)
Total			73		55.6	42.7	41.9				46.7				22.9
Averages			24.3		18.53	14.23	13.97	*76.8*	*85.3*		15.58				7.63

LATER BURIALS

Catalog No.	Collection	Locality	Approximate age	Deformation	Diam. antero-posterior maxim. (glabella, ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
364797	U.S.N.M.	Kukulik	23		18.1	13.4	13.6	*74.03*	*86.35*		15.03			12.7	7.8
364776	do	do	25		18.3	13.7	13.2	*74.86*	*82.50*		15.07				8
364798	do	do	45		18.6	14	14	*75.27*	*85.89*		15.53			13	7.9
364781	do	do	25		18.7	14.2	14.6	*75.94*	*88.75*		15.83			11.9	7.6
364777	do	do	26		18.3	14	13.9	*76.50*	*86.07*		15.40			12.8	7.7
364778	do	do	28		17.9	14.4	14	*80.45*	*86.69*		15.43			12.4	7.8
364792	do	do	40		17.5	14.1	13.9	*80.57*	*87.97*		15.17			12.3	7.5
364791	do	do	35		17.8	14.4	14.4	*80.90*	*89.44*		15.53			13.2	8.1
364811	do	do	55												7.6
Specimens			(9)		(8)	(8)	(8)	(8)	(8)		(8)			(7)	(9)
Totals			30.2		145.2	112.2	111.6				123			88.3	70
Averages			33.6		18.15	14.03	13.95	*77.3*	*86.7*		15.38			12.61	7.78
Minima			23		17.5	13.4	13.2	*74*	*82.5*		15.03			11.9	7.5
Maxima			55		18.7	14.4	14.6	*80.9*	*89.4*		15.83			13.2	8.1

OLD BURIALS

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
377414	-----	-----	-----	-----	-----	-----	-----	-----	3.6	3.65	3.9	3.8	*92.31*	*96.05*	5.1	2.4	*47.06*	5.4	6.6	*81.82*	3.3
377415	14.2	-----	*57.04*	10.8	9.6	10.4	65	56	3.6	3.6	4.1	4	*87.80*	*90*	5.5	2.3	*41.82*	5.8	6.6	*87.88*	-----
377392	13.8	*90.58*	*55.07*	10.3	9.4	10.6	70.5	59	3.9	3.95	4.3	4.15	*90.70*	*95.18*	5.5	2.65	*48.18*	5.4	6.4	*84.38*	3.4
Specimens	(2)	-----	(2)	(2)	(2)	(2)	(2)	(2)	(3	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(2)
Totals	28	-----	-----	21.1	19	21	135.5	11.5	11.1	11.?	12.3	11.95	-----	-----	16.1	7.35	-----	16.6	19.6	-----	6.75
Average	14	-----	*56.1*	10.55	9.5	10.5	67.8	57.5	3.70	3.73	4.1	3.98	*90.2*	*93.7*	5.37	2.45	*45.6*	5.53	6.53	*84.7*	3.3

LATER BURIALS

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total*	*Facial Index, upper*	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
364797	13.2	*96.21*	*59.09*	11.1	9.8	10.8	67	50.5	3.6	3.6	4.05	3.9	*88.89*	*92.31*	5.6	2.5	*44.64*	5.6	6.7	*83.58*	3.6
364776	13.1	-----	*61.07*	10.4	9.2	10.4	67	55.5	3.5	3.6	4	4	*87.50*	*90*	5.5	2.5	*45.45*	5.6	6.3	*88.89*	-----
364798	13.6	*95.59*	*58.09*	10.3	9.2	10.8	71.5	58	3.7	-----	4	-----	*92.50*	-----	5.4	2.5	*46.30*	5.4	6.4	*84.38*	3.4
364781	14.4	*82.64*	*52.78*	10.4	9.4	10.4	69	59	3.05	3.2	3.9	3.8	*78.21*	*84.21*	5.2	2.5	*48.08*	5.7	6.9	*82.61*	3.45
364777	13.9	*92.09*	*55.40*	10.4	9.4	10.6	70	60	3.5	3.6	4.3	4	*81.40*	*90*	5.2	2.2	*42.31*	5.6	6.9	*81.16*	3.75
364778	13.9	*89.21*	*56.12*	10.1	9.2	10.2	68	62	3.7	3.75	4	3.9	*92.50*	*96.15*	5.35	2.05	*38.32*	5.2	6.2	*83.87*	3.5
364792	13.8	*89.13*	*54.35*	10.1	8.8	10.4	70.5	47.5	3.8	3.8	4.1	4	*92.68*	*95*	5.6	2.55	*45.54*	5.4	6.7	*80.60*	3.3
364791	13.7	*96.35*	*59.12*	10.6	9.1	10.5	67	49.5	3.6	3.75	4.3	4.1	*83.72*	*91.46*	5.6	2.35	*41.96*	5.7	6.8	*83.82*	3.6
364811	-----	-----	-----	-----	-----	-----	-----	-----	3.3	3.35	4.15	4.05	*79.52*	*82.72*	5.3	2.7	*50.94*	5.2	7.05	*73.76*	-----
Specimens	(8)	(7)	(8)	(8)	(8)	(8)	(8)	(8)	(9)	(8)	(9)	(8)	(9)	(8)	(9)	(9)	(9)	(9)	(9)	(9)	(7)
Totals	109.6	-----	-----	83.4	74.1	84.1	550	442	31.75	28.65	36.8	31.75	-----	-----	48.75	21.85	-----	49.4	59.95	-----	24.6
Average	13.70	*91.5*	*56.9*	10.43	9.26	10.51	68.7	55.3	3.53	3.58	4.09	3.97	*86.3*	*90.2*	5.42	2.43	*44.8*	5.49	6.66	*82.4*	3.51
Minima	13.1	*82.6*	*52.8*	10.1	8.8	10.2	67	47.5	3.05	3.2	3.9	3.8	*78.2*	*82 7*	5.2	2.05	*38.3*	5.2	6.2	*73.8*	3.3
Maxima	14.4	*96.4*	*61.1*	11.1	9.8	10.8	71.5	62	3.8	3.8	4.3	4.1	*92.7*	*96.2*	5.6	2.7	*50.9*	5.7	7.05	*88.9*	3.75

KUKULIK: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam.[1] antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	Cranial Index	Mean Height Index	Height-Breadth Index	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
	(O. W. Geist)														
368281	U.S.N.M.	Kukulik (burials)	50		17.6	12.6	13.1	71.59	86.75		14.43				
377418	do	do	40		18.4	13.2	13.7	71.74	86.71		15.10				7.6
377413	do	do	19		17.8	13.1	13.4	73.60	86.73		14.77			11.3	6.9
377423	do	do	30		18.1	13.4	13.8	74.03	87.62		15.10			11.3	6.9
364782	do	do	40		17.7	13.2	13.4	74.58	86.73		14.77			11.3	7.0
364794	do	do	40		18.3	13.8	12.8	75.41	79.75		14.97			11.4	6.8
377395	do	do	30		17.5	13.2		75.43							7.6
377394	do	do	35		18.0	13.6	12.8	75.56	81.01		14.80			11.8	7.2
363184	do	do	22		17.0	13.0	12.0	76.47	70.59		14.00				6.6
364805	do	do	26		17.7	13.6	13.0	76.84	83.07		14.77				7.3
377391	do	do	45		17.8	13.8	13.9	77.53	87.97		14.17			12.0	7.6
377390	do	do	40		17.5	13.6	13.4	77.71	86.17		14.83			12.5	7.6
364779	do	do	35		18.0	14.0	13.1	77.78	81.88		15.03			12.1	7.9
363183	do	do	45		17.2	13.4	12.8	77.91	83.66		14.47			11.3	7.1
364796	do	do	30		17.4	13.6	13.2	78.16	85.16		14.73			11.2	7.2
364806	do	do	26		16.6	13.0	12.8	78.31	86.49		14.13				7.4
364804	do	do	30		17.1	13.4	13.5	78.36	88.52		14.67				6.5
363190	do	do	25		16.8	13.2	13.0	78.57	86.67		14.33				7.1
363188	do	do	23		17.8	14.0	13.4	78.65	84.28		15.07				7.0
377393	do	do	30		16.9	13.4	13.2	79.29	87.13		14.50			11.5	7.1
377419	do	do	22		16.9	13.4	13.1	79.29	86.47		14.47			11.3	6.8
364793	do	do	55		17.3	13.8	13.2	79.77	84.89		14.77			10.9	6.9
364795	do	do	28		17.0	13.7	13.1	80.59	85.34		14.60			11.2	7.0
364780	do	do	27		16.6	13.4	13.3	80.72	88.67		14.43			12.1	7.3
364783	do	do	35		16.5	13.6	13.0	82.42	86.38		14.37			11.2	6.8
364812	do	do	40												7.6
Specimens			(26)		(25)	(25)	(24)	(25)	(24)		(24)			(16)	(25)
Totals			868		435.5	336.0	316.0				352.3			184.4	178.8
Averages			334		17.42	13.44	13.17	77.2	85.3		14.68			11.53	7.15
Minima			19		16.5	12.6	12.0	71.6	70.6		14.13			10.9	6.5
Maxima			55		18.4	14.0	13.9	82.4	88.7		15.17			12.5	7.9

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
368281	-	-	-	-	-	10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.8
377418	13.2	-	*57.58*	10.9	10.2	10.8	69.0	66.0	3.45	-	4.1	-	*84.15*	-	5.3	2.7	*50.94*	5.3	6.4	*82.81*	-
377413	12.3	*91.87*	*56.10*	9.9	9.0	9.9	69.5	57.5	3.6	3.6	3.7	3.7	*97.30*	*97.30*	5.0	2.45	*49.00*	-	-	-	3.0
377423	-	-	-	10.8	10.1	11.0	73.0	62.5	-	-	-	-	-	-	5.1	2.45	*48.04*	5.2	6.1	*85.25*	3.15
364782	12.4	*91.13*	*56.45*	9.9	9.0	9.6	66.5	65.5	-	-	-	-	-	-	-	-	-	-	-	-	3.05
364794	13.8	*82.61*	*49.28*	10.2	9.1	10.0	68.5	47.0	3.3	3.4	3.8	3.7	*86.84*	*91.89*	4.9	2.5	*51.02*	5.4	6.4	*84.38*	3.1
377395	13.4	-	*56.72*	-	-	11.0	-	-	3.75	3.7	3.95	3.95	*94.94*	*93.67*	5.4	2.3	*42.59*	-	-	-	-
377394	12.8	*92.19*	*56.25*	10.1	[1] 8.8	9.9	67.5	48.5	3.65	3.65	4.0	3.9	*91.25*	*93.59*	5.15	2.6	*50.49*	5.3	6.3	*84.13*	3.1
363184	12.4	-	*53.23*	9.5	8.6	9.5	70.0	57.0	3.1	3.2	3.7	3.6	*83.78*	*88.89*	4.7	2.2	*46.81*	4.8	5.7	*84.21*	-
364805	12.7	-	*57.48*	10.3	9.4	9.8	65.0	61.0	3.4	3.4	3.9	3.8	*90.67*	*90.67*	5.0	2.35	*47.0*	5.1	6.5	*78.46*	-
377391	(14.7)	*81.63*	*51.70*	10.1	9.1	10.4	70.0	60.0	3.8	3.85	4.2	3.95	*90.48*	*97.47*	5.2	2.7	*51.92*	5.3	6.6	*80.30*	3.0
377390	13.4	*93.28*	*56.72*	9.8	8.8	9.7	66.0	59.5	3.6	3.6	3.95	3.95	*91.14*	*91.14*	5.1	2.3	*45.10*	5.0	5.9	*84.75*	3.3
364779	13.5	*89.63*	*53.52*	10.4	9.2	10.0	65.0	56.0	3.45	3.55	4.0	3.8	*86.25*	*93.42*	5.35	2.3	*42.99*	5.5	6.5	*84.62*	3.4
363183	12.7	*88.98*	*55.91*	9.3	8.4	9.5	66.0	53.0	3.4	3.35	3.8	3.75	*89.47*	*89.33*	5.05	2.25	*44.55*	5.1	6.1	*83.61*	2.9
364796	13.1	*85.50*	*54.96*	10.0	9.1	10.0	69.0	58.5	3.25	3.4	3.75	3.65	*86.67*	*93.15*	5.15	2.4	*46.60*	5.3	6.4	*82.81*	3.0
364806	12.7	-	*58.27*	9.9	8.8	9.6	65.5	54.0	3.5	3.5	3.75	3.7	*93.33*	*94.59*	5.5	2.25	*40.91*	5.3	6.1	*86.89*	-
364804	12.9	-	*50.39*	9.5	8.9	10.2	76.5	60.5	3.6	3.6	3.8	3.7	*94.74*	*97.30*	5.2	2.3	*44.23*	4.7	6.1	*77.05*	-
363190	13.4	-	*52.99*	10.0	9.1	9.9	70.0	58.5	3.4	3.45	3.7	3.55	*91.89*	*97.18*	5.3	2.1	*39.62*	5.0	6.6	*75.76*	-
363188	-	-	-	10.2	9.4	10.5	68.0	54.5	3.5	3.45	3.85	3.8	*90.91*	*90.79*	4.9	2.1	*42.86*	5.2	6.8	*76.47*	-
377393	13.0	*88.46*	*54.62*	9.4	8.4	9.6	70.0	56.0	3.4	3.45	3.8	3.7	*89.47*	*93.24*	5.0	2.4	*48.0*	4.7	6.3	*74.60*	3.35
377419	13.4	*84.33*	*50.75*	9.7	8.6	9.6	68.5	49.5	3.85	3.85	3.9	3.8	*98.72*	*101.3*	5.05	2.5	*49.50*	5.1	6.3	*80.95*	3.1
364793	13.3	*81.95*	*51.88*	9.7	8.8	9.8	69.0	57.0	3.55	3.6	3.9	3.8	*91.03*	*94.74*	5.15	2.1	*40.78*	4.8	6.0	*80.0*	2.5
364795	13.4	*83.58*	*52.24*	9.6	8.8	9.8	70.5	55.0	3.4	3.4	3.75	3.75	*90.67*	*90.67*	5.0	2.35	*47.0*	5.1	6.5	*78.46*	2.8
364780	12.8	*94.53*	*57.03*	9.8	8.6	9.6	65.5	54.5	3.4	3.45	3.8	3.7	*89.47*	*93.24*	4.8	2.3	*47.92*	5.3	6.3	*84.13*	3.5
364783	12.8	*87.50*	*53.13*	9.5	8.6	9.6	70.0	57.5	3.4	3.45	3.7	3.6	*91.89*	*95.83*	4.8	2.1	*43.75*	5.2	6.0	*86.67*	3.1
364812	14.2	-	*53.52*	-	-	-	-	-	3.45	-	4.05	-	*85.19*	-	5.3	2.35	*44.34*	5.8	6.8	*85.29*	-
Specimens	(23)	(15)	(23)	(23)	(23)	(25)	(23)	(23)	(23)	(21)	(23)	(21)	(23)	(21)	(24)	(24)	(24)	(22)	(22)	(22)	(17)
Totals	302.3	-	-	228.5	206.8	249.9	1,578.5	1,300.0	80.2	73.9	88.85	78.85	-	-	122.4	56.35	-	113.5	138.7	-	52.15
Averages	13.14	*87.7*	*54.5*	9.93	8.99	10.0	68.6	56.5	3.49	3.52	3.86	3.75	*90.3*	*93.7*	5.10	2.35	*46.0*	5.16	6.30	*81.8*	3.07
Minima	12.3	*81.6*	*49.3*	9.3	8.4	9.5	65.0	47.0	3.1	3.2	3.7	3.55	*83.8*	*88.9*	4.7	2.1	*39.6*	4.7	5.7	*74.6*	2.5
Maxima	(14.7)	*94.5*	*58.5*	10.9	10.2	11.0	76.5	66.0	3.85	3.85	4.2	3.95	*98.7*	*101.3*	5.5	2.7	*51.9*	5.5	6.8	*86.9*	3.5

[1] Allowance made for wear of teeth, where needed.

LATE KUKULIK ESKIMO: MALES

(Tundra and Rocks near Kukulik)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
368260	(*O. W. Geist*) U.S.N.M	WNW. parts of the island.	70		20.0	14.1		*70.50*							
368251	do	do	65		18.6	13.2	13.3	*70.97*	*83.65*		15.04				7.6
368269	do	do	50		18.3	13.2	13.5	*72.13*	*85.71*		15.0				8.5
368255	do	do	50		18.9	13.7		*72.49*							
377378	do	do	40		19.0	13.8	13.6	*72.63*	*82.93*		15.47				8.0
368262	do	do	65		19.0	13.8	14.2	*72.63*	*86.59*		15.67				8.1
368268	do	do	70		19.1	14.0	15.0	*73.30*	*90.63*		16.03				8.4
368263	do	do	50		18.9	13.9		*73.54*							7.6
368256	do	do	35		18.0	13.4	14.0	*74.44*	*89.17*		15.13				7.9
377377	do	do	70		18.7	14.0		*74.87*							
368257	do	do	35		18.4	13.8		*75.0*							7.1
377379	do	do	35		18.4	13.8	14.2	*75.0*	*88.20*		15.47				7.4
368267	do	do	40		18.0	13.5	13.8	*75.0*	*87.62*		15.10				8.0
377376	do	do	35		18.4	13.9	14.2	*75.54*	*89.93*		15.50				7.6
368270	do	do	25		18.0	13.6	14.4	*75.56*	*91.14*		15.33				7.4
368266	do	do	30		17.3	13.2	13.2	*76.30*	*86.56*		14.57				7.9
368253	do	do	25		18.3	14.0		*76.50*							
368261	do	do	55		18.8	14.5	14.0	*77.13*	*84.08*		15.77				7.8
365762	do	do	35		18.5	14.4	14.0	*77.84*	*85.11*		15.63				7.6
368254	do	do	40		19.0	14.8	13.9	*77.89*	*82.25*		15.90				8.1
368264	do	do	40		18.7	14.6	14.0	*78.07*	*84.08*		15.77				7.7
368265	do	do	55		17.8	14.0	13.9	*78.65*	*87.42*		15.23				8.1
Specimens			(22)		(22)	(22)	(16)	(22)	(16)		(16)				(18)
Totals			1,015		408.1	305.2	223.2				246.6				140.8
Averages			46.1		18.55	13.87	13.95	*74.8*	*86.4*		15.41				7.82
Minima			25		17.3	13.2	13.2	*70.5*	*82.3*		14.57				7.1
Maxima			70		20.0	14.8	15.0	*78.7*	*91.1*		16.03				8.5

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
368260																					
368251	13.7		*55.47*	9.8	9.0	10.4	72.0	60.0	3.6	3.65	3.9	3.65	*92.31*	*100.0*	5.6	2.4	*42.86*	5.5	6.4	*85.94*	
368269	13.5		*62.96*	10.4	9.0	10.2	64.0	51.5	3.5	3.65	4.0	3.9	*87.50*	*93.59*	5.8	2.3	*39.66*				
368255										3.7		3.7		*100.0*	5.5	2.4	*43.64*				
377378	13.8		*57.97*	11.2	11.2	10.7	65.5	60.0		3.65		4.1		*89.02*	5.55	2.45	*44.14*	5.7	6.6	*86.36*	
368262	14.8		*54.73*		9.5	10.7			3.7	3.55	4.2	3.8	*88.10*	*93.42*	5.85	2.5	*42.74*	5.8	7.0	*82.86*	
368268	13.6		*61.76*	10.8	10.0	11.0	68.5	65.0	4.0	3.8	3.95	3.8	*101.3*	*100.0*	5.8	2.45	*42.24*				
368263	14.2		*53.52*						3.5		4.0		*87.50*		5.3	2.45	*46.23*	5.2	6.3	*82.54*	
368256	13.3		*59.40*	10.2	9.4	10.3	67.5	61.5		3.7		3.85		*96.10*	5.7	2.7	*47.37*				
377377																					
368257	13.3		*53.38*						3.4	3.5	4.0	3.9	*85*	*89.74*	5.2	2.35	*45.19*				
377379	14.1		*52.48*	10.5	9.3	10.2	67.0	51.0	3.85	4.0	4.2	3.8	*91.67*	*105.3*	5.3	2.6	*49.06*	5.8	6.6	*87.88*	
368267	13.8		*57.97*	10.8	9.6	10.6	66.5	56.5	3.6	3.6	4.0	3.9	*90.0*	*92.31*	5.4	2.15	*39.81*	5.5	7.2	*76.39*	
377376	13.8		*55.07*		9.2	10.9			3.7	3.6	4.0	3.9	*92.50*	*92.31*	5.3	2.6	*49.06*	5.1	6.2	*82.26*	
368270	13.6		*54.41*	10.5	9.3	10.8	72.0	51.0	3.6	3.6	3.8	3.6	*94.74*	*100.0*	5.35	2.7	*50.47*	5.1	6.8	*75.0*	
368266	13.6		*58.09*	9.6	9.0	10.2	70.5	68.0	3.6	3.55	4.2	4.1	*85.71*	*86.59*	5.4	2.5	*46.30*	5.1	6.2	*82.26*	
368253																					
368261	14.2		*54.93*	11.0	9.8	10.7	67.0	53.0	3.65	3.65	4.2	4.1	*86.90*	*89.02*	5.55	2.4	*43.24*	5.6	6.6	*84.85*	
365762	13.6		*55.88*	10.5	9.5	10.7	70.0	57.5	3.6	3.55	4.05	4.0	*88.89*	*88.75*	5.4	2.35	*43.52*	5.6	6.8	*82.35*	
368254	14.4		*56.25*	10.9	10.4	11.6	73.5	71.0	4.1	4.0	4.2	4.2	*97.62*	*95.24*	5.85	2.3	*39.32*				
368264	14.3		*53.85*	9.7	8.8	10.3	71.5	60.5	3.5	3.65	4.2	4.1	*83.33*	*89.02*	5.45	2.6	*47.71*	5.1	6.7	*76.12*	
368265	14		*57.86*	10.1	8.8	9.6	62.5	51.5	3.75	3.7	4.0	3.9	*93.75*	*94.87*	5.7	2.65	*46.49*	5.4	6.5	*83.08*	
Specimens	(18)		(18)	(14)	(16)	(16)	(14)	(14)	(16)	(18)	(16)	(18)	(16)	(18)	(19)	(19)	(19)	(13)	(13)	(13)	
Totals	249.6			146.0	150.8	168.9	958.0	818.0	58.65	65.7	64.9	70.3			105.0	46.85		70.5	85.9		
Averages	13.87		*56.4*	10.43	9.43	10.56	68.4	58.4	3.67	3.67	4.06	3.91	*90.4*	*93.5*	5.53	2.47	*44.6*	5.42	6.61	*82.1*	
Minima	13.3		*52.5*	9.6	8.8	9.6	62.5	51.0	3.4	3.5	3.8	3.6	*83.3*	*86.6*	5.2	2.15	*39.3*	5.1	6.2	*75.0*	
Maxima	14.8		*63.0*	11.2	10.4	11.6	73.5	71.0	4.1	4.0	4.2	4.2	*101.3*	*105.3*	5.85	2.7	*50.5*	5.8	7.2	*87.9*	

LATE KUKULIK ESKIMO: FEMALES

(Tundra and Rocks near Kukulik)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
377380	(*O. W. Geist*) U.S.N.M.	Surface, near Kukulik.	65		17.5	12.4		*70.86*							
368273	do	do	70		18.3	13.3		*72.68*							
368252	do	do	25		18.0	13.2	13.2	*73.33*	*84.62*		14.80				6.6
377382	do	do	70		18.4	13.6		*73.91*							
368259	do	do	50		18.1	13.6		*75.14*							
377383	do	do	30		17.6	13.3	12.6	*75.57*	*81.55*		14.50				6.7
377384	do	do	35		18.2	13.8	14.0	*75.82*	*87.50*		15.33				6.9
368271	do	do	28		17.7	13.5	13.8	*76.27*	*88.46*		15.0				6.8
368276	do	do	50		17.6	13.5		*76.70*							
368277	do	do	40		17.2	13.2		*76.74*							
377381	do	do	65		17.1	13.6	12.8	*79.53*	*83.39*		14.50				
377385	do	do	50		17.8	14.2		*79.78*							7.1
368272	do	do	25		17.2	13.8	13	*80.23*	*83.87*		14.67				7.3
368275	do	do	35		16.4	13.4	12.8	*81.71*	*85.91*		14.20				7.0
368274	do	do	25		17.7	14.6		*82.49*							8.1
368279	do	do	21		16.8	14.1		*83.93*							
Specimens			(16)		(16)	(16)	(7)	*(16)*	(7)		(7)				(8)
Totals			684		281.6	217.1	92.2				103.0				56.5
Averages			42.8		17.60	13.57	13.17	*77.1*	*85.1*		14.71				7.06
Minima			21		16.4	12.4	12.6	*70.9*	*81.6*		14.20				6.6
Maxima			70		18.4	14.6	13.8	*83.9*	*88.5*		15.33				8.1

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
377380																					
368273																					
368252	13.4		*49.25*	10.4	9.4	10.0	67.5	54.0	3.8	3.8	4.1	3.95	*92.68*	*96,20*	4.8	2.65	*55.21*	5.4	6.5	*83.08*	
377382	13.6																				
368259																					
377383	13.2		*50.76*	9.9	8.9	9.9	70.0	51.0	3.4	3.6	4.1	3.9	*82.93*	*92.31*	5.05	2.7	*53.47*	5	6.3	*79.37*	
377384	13.0		*53.08*	9.7	8.8	10.0	72.0	57.5	3.6	3.45	3.8	3.8	*94.74*	*90.79*	5	2.6	*52*	4.9	6.7	*73.13*	
368271	12.9		*52.71*	9.6	8.7	9.8	71.0	58.5	3.5	3.5	3.8	3.9	*92.11*	*89.74*	4.7	2.25	*47.87*	5	6	*83.33*	
368276																					
368277																					
377381	13.1				8.4	9.6			3.65	3.8	3.9	3.9	*93.59*	*97.44*	5.2	2.6	*50*				
377385	13.2		*53.79*						3.6	3.5	4.2	4.2	*85.71*	*83.33*	5.2	2.4	*46.15*				
368272	13.5		*54.07*	10.2	9.0	9.9	66.0	47.5	3.6	3.7	4	3.8	*90*	*97.37*	5.45	2.6	*47.71*	5.2	6.4	*81.25*	
368275	12.5		*56.0*	8.8	8.0	9.3	71.0	59	3.6	3.6	3.9	3.8	*92.31*	*94.74*	5.1	2	*39.22*				
368274	13.9		*58.27*						3.75	3.8	3.85	3.7	*97.40*	*102.7*	5.5	2.15	*39.09*	5.1	6.2	*82.26*	
368279																					
Specimens	(10)		(8)	(6)	(7)	(7)	(6)	(6)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(6)	(6)	(6)	
Totals	132.3			58.6	61.2	68.5	417.5	327.5	32.5	32.75	35.65	34.95			46	21.95		30.6	38.1		
Averages	13.23		*53.5*	9.77	8.74	9.79	69.6	54.6	3.61	3.64	3.96	3.88	*91.2*	*93.7*	5.11	2.44	*47.7*	5.10	6.35	*80.3*	
Minima	12.5		*49.3*	9.6	8.0	9.3	66.0	47.5	3.4	3.5	3.8	3.7	*82.9*	*83.3*	4.7	2	*39.1*	4.9	6	*73.1*	
Maxima	13.9		*58.3*	10.4	9.4	10	72.0	59.0	3.8	3.8	4.2	4.2	*97.4*	*102.7*	5.5	2.7	*55.2*	5.4	6.7	*83.3*	

KIALEGAK: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a) 1	Alveol. Pt.-Nasion Height (b)
346043	(*H. B. Collins*) U.S.N.M.	Kialegak, SE. end of the island.	20		18.2	13.6	13.9	*74.7*	*87.4*		15.23			12.5	7.8
346093 (prob. ♂)	do	do	50		17.7	13.3	14.2	*75.1*	*91.6*		15.07			12.5	7.9
346046	do	do	70		19.6	14.8	13.8	*75.5*	*80.2*		16.07				7.8
346099	do	do	50		18.8	14.2	14.4	*75.5*	*87.3*		15.80	1,645		12.7	7.6
346071	do	do	40		18.7	14.2	14.4	*75.9*	*87.5*		15.77				8.0
346095	do	do	65		17.6	13.5	13.8	*76.7*	*88.7*		14.97				7.6
346068	do	do	35		18.6	14.3	13.9	*76.9*	*84.5*		15.60			12.9	8.0
346044	do	do	40		18.4	14.2	14.2	*77.2*	*87.1*		15.60			12.7	7.9
346066	do	do	70		17.9	13.9	13.2	*77.7*	*83.0*		15.0				
346106	do	do	40		18.2	14.2	14.4	*78.0*	*88.9*		15.60				8.6
346091	do	do	50		17.9	14.0	14.1	*78.2*	*88.4*		15.33	1,540			7.9
346069	do	do	25		18.4	14.4	14.0	*78.3*	*85.4*		15.60			13.6	8.4
346063	do	do	65		19.4	15.2	13.4	*78.4*	*77.5*		16.0				8.2
346060	do	do	35		17.6	13.8	13.1	*78.4*	*83.4*		14.83				7.6
346083	do	do	50		18.0	14.2	13.5	*78.9*	*83.9*		15.23	1,480			7.6
346094	do	do	50		17.8	14.1	13.8	*79.2*	*86.5*		15.23	1,560			7.4
346097	do	do	60		17.9	14.2	14.1	*79.3*	*87.9*		15.40	1,520		12.5	7.5
346103	do	do	28		18.1	14.4	14.2	*79.6*	*87.4*		15.57	1,500		12.2	7.7
346074	do	do	24		17.6	14.0	13.7	*79.6*	*86.7*		15.10				7.3
346104 (small ♂)	do	do	30		17.3	13.8	13.5	*79.8*	*86.8*		14.87	1,355		12.3	7.7
346039	do	do	30		17.8	14.3	13.3	*80.3*	*82.9*		15.13			13.0	8.1
346096	do	do	50		17.5	14.1	12.8	*80.6*	*81.0*		14.80	1,370			7.5
346059 (small ♂)	do	do	28		17.2	14.0	13.4	*81.4*	*85.9*		14.87				7.5
346062	do	do	40		18.3	15.0	13.4	*82.0*	*80.5*		15.57				8.3
Specimens			(24)		(24)	(24)	(24)	(24)	(24)		(24)	(8)		(10)	(23)
Totals			1,045		434.5	339.7	330.5				368.2	11,970		126.9	179.9
Averages			43.5		18.10	14.15	13.77	*78.2*	*85.4*		15.34	1,496		12.69	7.82
Minima			20		17.2	13.3	12.8	*74.7*	*77.5*		14.80	1,355		12.2	7.3
Maxima			70		19.6	15.0	14.4	*82.0*	*91.6*		16.07	1,645		13.6	8.6

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion-Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
346043	12.8	*97.7*	*60.9*	10.7	9.5	10.6	68.0	55.0	3.6	3.6	3.8	3.8	*94.7*	*94.7*	5.4	2.3	*42.6*	5.8	6.8	*85.3*	3.7
346093 (prob. ♂)	14.0	*89.3*	*56.4*	10.6	9.6	10.7	69.0	59.0	3.6	3.6	3.95	3.9	*91.1*	*92.3*	5.6	2.8	*50.0*	5.8	7.0	*82.9*	3.65
346046	14.2	-----	*54.9*	-----	8.8	10.4	-----	-----	3.65	3.85	4.25	4.3	*85.9*	*89.5*	5.6	2.6	*46.4*	-----	-----	-----	-----
346099	14.5	*87.6*	*52.4*	10.3	9.2	10.6	71.0	56.0	3.7	3.65	4.0	3.9	*92.5*	*93.6*	5.5	2.7	*49.1*	5.8	6.8	*85.3*	3.6
346071	14.7	-----	*54.4*	10.5	9.6	10.9	71.0	61.0	3.6	3.55	3.95	3.95	*91.1*	*89.9*	5.65	2.8	*49.6*	5.5	7.0	*78.6*	-----
346095	14.3	-----	*53.1*	10.0	9.0	10.4	71.0	56.0	-----	3.6	-----	4.0	-----	*90.0*	5.7	2.7	*47.4*	-----	-----	-----	-----
346068	14.0	*92.1*	*57.1*	10.6	9.4	10.8	69.0	56.0	3.7	3.8	4.1	4.15	*90.2*	*91.6*	5.45	2.8	*51.4*	6.0	6.5	*92.3*	3.5
346044	14.9	*85.2*	*53.0*	10.7	9.6	10.8	69.0	59.0	3.8	3.8	4.2	4.2	*90.5*	*90.5*	5.3	2.45	*46.2*	5.9	6.5	*90.8*	4.0
346066	13.8	-----	-----	-----	9.2	10.2	-----	-----	3.3	3.3	3.9	3.8	*84.6*	*86.8*	4.8	2.25	*46.9*	-----	-----	-----	-----
346106	14.4	-----	*59.7*	10.3	9.2	10.6	68.0	59.0	4.05	-----	4.2	-----	*96.4*	-----	5.9	2.65	*44.9*	-----	-----	-----	-----
346091	13.8	-----	*57.3*	9.8	8.8	10.3	70.0	60.0	3.7	3.65	4.0	3.9	*92.5*	*93.6*	5.15	2.15	*41.7*	5.6	6.2	*90.3*	-----
346069	14.0	*97.1*	*60.0*	11.1	9.8	10.6	64.0	55.0	3.5	3.55	3.9	3.9	*89.7*	*91.0*	5.6	2.55	*45.5*	5.8	6.7	*86.6*	4.3
346063	14.7	-----	*55.8*	10.6	9.6	10.7	68.0	58.0	3.8	3.85	4.0	3.9	*95.0*	*98.7*	6.0	2.6	*43.3*	-----	-----	-----	-----
346060	14.0	-----	*54.3*	10.1	9.0	10.0	67.0	56.0	3.5	3.55	4.0	3.9	*87.5*	*91.0*	5.4	2.5	*46.3*	5.6	6.9	*81.2*	-----
346083	13.7	-----	*55.5*	10.2	9.2	10.6	71.0	60.0	3.9	3.7	4.0	4.0	*97.5*	*92.5*	5.3	2.55	*48.1*	5.3	6.7	*79.1*	-----
346094	14.3	-----	*51.8*	9.9	9.0	9.7	67.0	60.0	3.9	3.9	4.0	4.0	*97.5*	*97.5*	5.3	2.3	*43.4*	5.3	6.4	*82.8*	-----
346097	14.2	*88.0*	*52.8*	10.0	9.0	10.0	68.0	56.0	3.85	3.8	3.9	3.9	*98.7*	*97.4*	5.55	2.65	*47.8*	5.5	6.6	*83.3*	3.6
346103	14.5	*84.1*	*53.1*	11.1	9.8	10.6	65.0	52.0	3.4	3.45	3.8	3.7	*89.5*	*93.2*	5.2	2.35	*45.2*	5.9	6.8	*86.8*	3.7
346074	-----	-----	-----	9.7	8.7	10.2	72.0	54.0	3.7	-----	3.8	-----	*96.1*	-----	5.45	2.3	*42.2*	5.0	6.2	*80.7*	-----
346104 (small ♂)	13.3	*92.5*	*57.9*	10.5	9.4	10.3	67.0	57.0	3.5	3.4	3.9	3.8	*89.7*	*89.5*	5.3	2.5	*47.2*	5.6	7.0	*80.0*	3.7
346039	14.6	*89.0*	*55.5*	10.7	9.3	10.6	67.0	49.0	3.9	3.9	4.15	4.2	*94.0*	*92.9*	5.8	2.7	*46.6*	5.7	6.7	*85.1*	3.5
346096	13.7	-----	*54.7*	-----	-----	9.3	-----	-----	-----	3.55	-----	3.9	-----	*91.0*	5.35	2.65	*49.5*	5.4	6.1	*88.5*	-----
346059 (small ♂)	13.6	-----	*55.2*	10.0	9.1	10.1	69.0	61.0	3.55	3.55	3.8	3.75	*93.4*	*94.7*	5.2	2.5	*48.1*	5.3	6.5	*81.5*	-----
346062	14.4	-----	*57.6*	11.0	10.0	10.8	66.0	62.0	3.9	3.8	4.2	4.1	*92.9*	*92.7*	5.65	2.55	*45.1*	5.9	7.2	*81.9*	-----
Specimens	(23)	(10)	(22)	(21)	(23)	(24)	(21)	(21)	(22)	(22)	(22)	(22)	(22)	(22)	(24)	(24)	(24)	(19)	(19)	(19)	(10)
Totals	324.4	-----	-----	218.4	213.8	249.8	1,437.0	1,201.0	81.1	80.4	87.8	86.95	-----	-----	131.15	60.9	-----	106.7	126.6	-----	37.25
Averages	14.10	*90.1*	*55.6*	10.40	9.30	10.41	68.4	57.2	3.69	3.65	3.99	3.95	*92.4*	*92.5*	5.46	2.54	*46.4*	5.61	6.66	*84.3*	3.73
Minima	12.8	*84.1*	*51.8*	9.7	8.7	9.3	64.0	49.0	3.3	3.3	3.8	3.7	*84.6*	*86.8*	4.8	2.15	*41.7*	5.3	6.1	*78.6*	3.5
Maxima	14.9	*97.7*	*60.9*	11.1	10.0	10.9	72.0	62.0	3.9	3.9	4.25	4.3	*98.7*	*98.7*	6.0	2.8	*51.4*	5.9	7.2	*92.3*	4.3

[1] Allowance made for wear of teeth, where needed.

KIALEGAK: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol, Pt.-Nasion Height (b)
346055	(*H. B. Collins*) U.S.N.M.	SE. end of lisand.	35		18.1	13.1	13.4	*72.4*	*85.9*		14.87				6.9
346078 (old)	do	do	22		17.6	12.9	13.0	*73.3*	*85.2*		14.50				7.2
346061	do	do	20		18.0	13.4	13.6	*74.4*	*86.6*		15.0				6.9
346051 (appar. ♀)	do	do	30		18.4	13.8	13.8	*75.0*	*85.7*		15.33			11.9	7.3
346073	do	do	25		17.4	13.1	13.0	*75.3*	*85.2*		14.50				7.0
346087 (appar. ♀)	do	do	55		18.5	14.1	13.4	*76.2*	*82.2*		15.33	1,430		11.7	7.5
346064	do	do	55		17.4	13.3	13.4	*76.4*	*87.3*		14.70			11.5	7.8
346101	do	do	65		18.0	13.8	14.2	*76.7*	*89.3*		15.33	[2] 1,400			7.1
342450	do	do	30		17.6	13.5	13.4	*76.7*	*86.2*		14.83	1,355		11.4	7.5
346065	do	do	50		18.1	13.9	13.3	*76.8*	*83.1*		15.10				7.7
346100	do	do	40		18.0	13.9	13.2	*77.2*	*82.8*		15.03	1,470			7.4
342452	do	do	30		17.7	13.7	13.2	*77.4*	*84.1*		14.87	1,340			7.5
346047	do	do	45		18.1	14.0	13.4	*77.4*	*83.5*		15.17				8.1
346057	do	do	55		16.8	13.0	13.1	*77.4*	*87.9*		14.30				
346085	do	do	20		17.4	13.5	12.9	*77.6*	*83.5*		14.60	[2] 1,345			6.9
346072	do	do	50		17.0	13.2	13.0	*77.7*	*86.1*		14.40	1,205			7.8
346045	do	do	23		18.5	14.4	11.6	*77.8*	*70.5*		14.83				6.8
346070 (appar. ♀)	do	do	50		18.1	14.1	13.9	*77.9*	*86.3*		15.37			12.1	7.5
346098 (♀?)	do	do	70		17.8	13.9	13.7	*78.1*	*86.4*		15.13	1,475			
346040	do	do	27		17.9	14.0	12.5	*78.2*	*78.4*		14.80			12.5	7.9
346054	do	do	70		17.6	13.8	13.3	*78.4*	*84.7*		14.90				
346088	do	do	55		16.8	13.2	13.9	*78.6*	*92.7*		14.63				7.3
342457	do	do	22		16.4	12.9	12.6	*78.7*	*86.0*		13.97	1,195		11.7	7.0
346082	do	do	30		17.8	14.0	13.8	*78.7*	*86.8*		15.20				
346084	do	do	50		17.0	13.4	12.8	*78.8*	*84.2*		14.40	1,235			7.3
346086	do	do	50		18.0	14.2	13.3	*78.9*	*82.6*		15.17	1,440		12.4	7.7
346067	do	do	28		17.0	13.6	13.2	*80.0*	*86.3*		14.60			12.4	7.5
346041	do	do	24		16.6	13.4	13.3	*80.7*	*88.7*		14.43			10.6	6.6
346058	do	do	70		17.1	13.8	13.0	*80.7*	*84.1*		14.63				
346052	do	do	28		17.4	14.1	13.4	*81.0*	*85.1*		14.97			12.1	7.5
342449	do	do	25		16.6	13.5	13.4	*81.3*	*89.0*		14.50	1,280			7.0
342454	do	do	35		16.4	13.4	12.6	*81.7*	*84.6*		14.13	1,185			6.4
346076	do	do	30		16.6	13.6	13.2	*81.9*	*87.4*		14.47				6.7
346105	do	do	35		16.8	13.8	13.0	*82.1*	*85.0*		14.53	1,250		12.1	7.2
Specimens			(34)		(34)	(34)	(34)	(34)	(34)		(34)	(14)		(12)	(29)
Totals			1,341		594.5	463.3	449.8				502.5	18,605		142.4	211.0
Averages			39.4		17.49	13.63	13.23	*77.9*	*85.0*		14.78	1,329		11.87	7.28
Minima			20		16.4	12.9	11.6	*72.4*	*70.5*		13.97	1,185		10.6	6.4
Maxima			70		18.5	14 4	14.2	*82.1*	*92.7*		15.37	1,475		12.5	10.1

Catalog No.	Diam. Bizygomatic maxim. (c)	Facial Index, total $\left(\frac{a \times 100}{c}\right)$	Facial Index, upper $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
346055	13.6		*50.7*	10.6	9.6	10.6	71.0	54.0	3.6	3.5	3.95	3.95	*91.1*	*88.6*	5.1	2.75	*53.9*	5.3	6.5	*81.5*	
346078 (old)	12.8		*56.3*	10.7	9.4	10.4	68.0	49.0	3.3	3.4	3.9	3.85	*84.6*	*88.3*	5.2	2.3	*44.2*	5.6	6.6	*84.9*	
346061	12.1		*57.0*	10.0	9.2	10.0	70.0	64.0	3.65	3.65	3.65	3.65	*100.0*	*100.0*	4.55	2.0	*44.0*	5.3	6.4	*82.8*	
346051 (appar. ♀)	13.1	*90.8*	*55.7*	10.8	9.2	10.0	64.0	45.0	3.5	3.6	3.85	3.85	*90.9*	*93.5*	4.95	2.7	*54.6*	6.0	6.4	*93.8*	3.45
346073	13.4		*52.2*	10.3	9.4	10.1	68.0	57.0	3.45	3.3	3.95	3.9	*87.3*	*84.6*	5.15	2.4	*46.6*	5.2	6.3	*82.5*	
346087 (appar. ♀)	13.8	*84.8*	*54.4*	9.9	8.7	9.9	68.0	55.0	3.75	3.75	4.2	4.15	*89.3*	*90.4*	5.05	2.4	*47.5*	5.4	6.6	*81.8*	3.2
346064	13.1	*87.8*	*59.5*	10.5	9.2	10.2	66.0	52.0	4.0		4.1		*97.6*		5.45	2.25	*41.3*	5.6	5.8	*96.6*	3.4
346101	12.7		*55.9*	10.4	9.3	10.5	71.0	52.0	3.75	3.75	4.15	4.0	*90.4*	*93.8*	5.25	2.8	*53.3*				
342150	13.0	*87.7*	*57.7*	10.2	8.8	9.8	65.0	51.0	3.6	3.6	4.0	3.9	*90.0*	*92.3*	5.0	2.5	*50.0*	5.9	6.1	*96.7*	3.2
346065	13.8		*55.8*	10.1	9.0	10.0	69.0	55.0	3.6	3.6	4.2	4.1	*85.7*	*87.8*	5.5	2.7	*49.1*	5.6	6.6	*84.9*	
346100	13.2		*56.1*	9.0	8.4	9.9	74.0	67.0	3.8	3.8	3.95	3.85	*96.2*	*98.7*	5.3	2.35	*44.3*	4.8	6.4	*75.0*	
342452	13.4		*56.0*	10.7	9.4	10.0	64.0	53.0	3.25	3.3	3.9	3.8	*83.3*	*86.8*	5.1	2.5	*49.0*	5.7	6.6	*86.4*	
346047	14.1		*57.5*	10.5	9.3	10.7	69.0	58.0	3.7	3.65	4.0	4.0	*92.5*	*91.3*	5.3	2.65	*49.1*	5.5	6.8	*80.9*	
346057	12.7					10.3															
346085	13.2		*52.3*	9.4	8.8	9.7	71.0	64.0	3.3	3.45	3.9	3.9	*84.6*	*88.5*	5.3	2.45	*46.2*	4.8	6.4	*75.0*	
346072	13.4		*58.2*	11.0	9.8	10.3	64.0	54.0	3.5	3.4	4.1	4.0	*85.4*	*85.0*	5.5	2.55	*46.4*	5.6	6.6	*84.9*	
346045	12.3		*55.3*	9.7	8.6	9.0	63.0	52.0	3.45		4.1		*84.2*		4.9	2.7	*55.1*	5.2	6.3	*82.5*	
346070 (appar. ♀)	13.7	*88.3*	*54.7*		8.9	10.4			3.55	3.65	4.15	4.0	*85.5*	*86.9*	5.55	2.1	*37.8*				3.1
346098 (♀?)	13.4				8.4	10.0			3.85	3.75	4.1	4.1	*93.9*	*91.5*	5.3	2.5	*47.2*				
346040	13.8	*90.6*	*57.3*						3.8	3.7	3.8	3.7	*100.0*	*100.0*	5.9	2.5	*42.4*	5.0	6.5	*76.9*	3.4
346054					9.2	9.9			3.45	3.4	4.05	4.1	*85.2*	*82.9*	5.1	2.7	*52.9*				
346088	13.2		*55.3*	9.9	9.0	10.1	70.0	62.0		3.6		3.7		*97.3*	4.9	2.4	*49.0*				
342457	12.9	*90.7*	*54.3*	9.9	8.8	10.0	70.0	53.0	3.5	3.4	3.65	3.65	*95.9*	*93.2*	5.1	2.2	*43.1*	5.1	6.6	*77.3*	3.5
346082															5.3	2.3	*43.4*				2.9
346084	13.1		*55.7*		7.8	9.3			3.5	3.6	4.0	3.9	*87.5*	*92.3*	5.4	2.55	*47.2*				
346086	13.4	*92.5*	*57.5*	10.5	9.4	10.4	68.0	58.0	3.85	3.85	4.0	3.95	*96.3*	*97.5*	5.3	2.64	*49.1*	5.6	6.8	*82.4*	3.8
346067	12.9	*96.1*	*58.1*	10.5	9.2	10.8	63.0	52.0	3.3	3.4	3.85	3.8	*85.7*	*89.5*	5.2	2.4	*46.2*	5.9	6.7	*88.1*	3.6
346041	12.8	*82.8*	*51.6*	9.3	8.4	9.5	71.0	54.0	3.45	3.45	3.55	3.6	*97.2*	*95.8*	5.0	2.55	*51.0*	5.0	6.4	*78.1*	2.9
346058	13.6				8.8	9.8			3.55	3.5	3.8	3.8	*93.4*	*92.1*	5.35	2.35	*43.9*				
346052	13.8	*87.7*	*54.4*	10.7	9.3	10.1	65.0	47.0	3.75	3.75	3.9	3.9	*96.2*	*96.2*	5.4	2.35	*43.5*	5.8	6.5	*89.2*	3.6
342449	13.2		*53.0*	10.1	9.2	10.0	69.0	58.0	3.3	3.35	3.7	3.6	*89.2*	*93.1*	5.0	2.3	*46.0*	5.3	6.1	*86.9*	
342454	13.1		*48.9*	9.9	9.1	9.6	68.0	57.0	3.3	3.2	3.8	3.9	*86.8*	*82.1*	4.8	2.4	*50.0*	4.8	6.0	*80.0*[1]	
346076	13.0		*51.5*	9.9	8.8	10.0	71.0	50.0	4.0	3.9	4.05	4.05	*98.8*	*96.3*	5.0	2.3	*46.0*	5.1	5.9	*86.4*	
346105	13.4	*90.3*	*53.7*	10.0	8.6	9.7	66.0	51.0	3.7	3.7	4.0	4.0	*92.5*	*92.5*	4.75	2.75	*57.9*	5.1	6.5	*78.5*	3.6
Specimens	(32)	(12)	(29)	(26)	(31)	(32)	(26)	(26)	(31)	(30)	(31)	(30)	(31)	(30)	(33)	(33)	(33)	(25)	(25)	(25)	(13)
Totals	423.0			264.5	279.0	321.0	1,766.0	1,421.0	111.05	106.95	122.3	116.65			170.95	81.3		131.2	160.4		43.65
Averages	13.22	*89.2*	*55.0*	10.17	9.0	10.03	67.9	54.8	3.58	3.57	3.95	3.89	*90.8*	*91.7*	5.18	2.47	*47.6*	5.37	6.42	*83.7*	3.36
Minima	12.1	*82.8*	*48.9*	9.0	7.8	9.0	63.0	45.0	3.25	3.2	3.55	3.6	*83.3*	*82.1*	4.55	2.0	*37.8*	4.8	5.8	*75.0*	2.9
Maxima	14.1	*96.1*	*59.5*	11.0	9.8	10.7	74.0	64.0	3.7	3.9	4.2	4.15	*100.0*	*100.0*	5.55	2.8	*57.9*	6.0	6.8	*96.6*	3.8

[1] Allowance made for wear of teeth.

[2] Near.

PUNUK ISLAND: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
342442	U.S.N.M.	Punuk Island, Bering Sea.	50		19.2	[1]13.9	13.3	72.4	80.4		15.47	1,555	Medium	13.4	8.5
342436	do	do	45		18.7	13.9	13.8	74.3	84.7		15.47	1,520	do		8.6
342426	do	do	27		18.8	14.3	14.2	76.1	85.8		15.77	1,660			7.6
342441	do	do	70		18.4	14.1	14.0	76.6	86.2		15.50	1,490	Considerable		
342434	do	do	60		18.7	14.8	13.8	79.1	82.4		15.77	1,535	do		8.3
363179	do	do	50		18.9										7.9
Specimens			(6)		(6)	(5)	(5)	(5)	(5)		(5)	(5)			(5)
Totals			302		112.7	71.0	69.1				77.97	7,560			40.9
Averages			50.3		18.78	14.20	13.82	75.8	83.9		15.59	1,512			8.18
Minima			27		18.4	13.9	13.3	72.4	80.4		15.47	1,490			7.6
Maxima			70		19.2	14.8	14.2	79.1	86.2		15.77	1,660			8.6

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
342442	15.0	89.3	56.7	11.3	9.9	10.7	63.0	52.0	3.7	3.7	4.0	4.0	92.5	92.5	5.85	2.5	42.7	5.9	7.0	84.3	4
342136	[1]14.6		58.9	10.3	9.3	10.8	69.0	61.0	3.95	3.95	3.9	3.9	101.3	101.3	5.9	2.7	45.8	5.7	6.7	85.1	
342426	13.8		55.1	10.8	9.4	10.3	66.0	51.0	3.55	3.6	3.8	3.8	93.4	94.7	5.25	2.2	51.4	5.7	6.9	82.6	
342441	14.7				9.4	10.4			3.45	3.55	3.9	3.9	88.5	91.0	5.25	2.2	41.9				3.8
342434	15.3		54.3	11.3	10.1	10.8	65.0	56.0	3.6	3.6	4.1	4.1	87.8	87.8	5.7	2.75	48.3				3.6
363179															5.7	2.8	49.12				
Specimens	(5)		(4)	(4)	(5)	(5)	(4)	(4)	(5)	(5)	(5)	(5)	(5)	(5)	(6)	(6)	(6)	(3)	(3)	(3)	(3)
Totals	73.4			43.7	48.1	53.0	263.0	222.0	18.25	18.4	19.7	19.7			33.65	15.15		17.3	20.6		11.4
Averages	14.68		56.2	10.92	9.62	10.60	65.7	55.5	3.65	3.68	3.94	3.94	92.6	93.4	5.61	2.52	45.0	5.77	6.87	84.0	3.8
Minima	13.8		54.3	10.3	9.3	10.3	63.0	51.0	3.45	3.55	3.8	3.8	87.8	87.8	5.25	2.2	41.9				
Maxima	15.3		58.9	11.3	10.1	10.8	69.0	61.0	3.95	3.95	4.1	4.1	101.3	101.3	5.9	2.8	51.4				

[1] Near.

PUNUK ISLAND: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	Cranial Index	Mean Height Index	Height-Breadth Index	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
342422	U.S.N.M.	Punuk Island, Bering Sea.	55		18.0	13.2		73.30				1,335			
342439	do	do	25		17.8	13.4	13.8	75.30	88.50		15.00	1,430			7.9
363180	do	do	50		17.8	13.6	13.0	76.40	82.80		14.80				7.9
342435	do	do	25		17.4	13.7		78.70							
349427	do	do	24		17.0	13.4	12.4	78.82	81.58		14.27				
349418	do	do	25		16.7	13.2	13.3	79.04	88.96		14.40			12.4	7.6
363181	do	do	35		17.9	11.5	13.8	81.01	85.19		15.40				7.4
Specimens			(7)		(7)	(7)	(5)	(7)	(5)		(5)				(4)
Totals			239		122.6	95.0	66.3				73.87				30.8
Averages			34.1		17.51	13.57	13.26	77.5	85.4		14.77				7.70
Minima			25		16.7	13.2	12.4	73.3	81.6		14.27				7.4
Maxima			55		18.0	14.5	13.8	81.0	89.0		15.40				7.9

Catalog No.	Diam. Bizygomatic maxim. (c)	Facial Index, total $\left(\frac{a \times 100}{c}\right)$	Facial Index, upper $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	Orbital Index, right	Orbital Index, left	Nose—Height	Nose—Breadth maxim	Nasal Index	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	Upper Alveolar Arch—Index	Lower Jaw—Height at Symphysis
342422																					
342439	[1]13.7		57.7	10.7	9.5	10.6	68.0	55.0	3.65		4.15		88.00		5.5	2.4	43.6	5.6	7.1	78.9	
363180	13.1		60.31	10.4	9.4	10.3	67.0	58.5	3.6	3.65	4.1	4.0	87.80	88.75	5.5	2.7	49.1	5.3	6.7	79.1	
342435																					
349427																					
349418	13.0	95.38	58.46	10.1	9.0	9.9	66.0	51.5	3.55	3.55	3.85	3.85	92.21	92.21	5.1	2.25	44.1	5.7	7.0	81.4	3.85
363181	13.8		53.62	10.1	9.0	10.2	69.0	58.0	3.4	3.35	3.9	3.9	87.18	85.90	5.0	2.2	44.0	5.4	6.7	80.6	
Specimens	(4)		(4)	(4)	(4)	(4)	(4)	(4)	(4)	(3)	(4)	(3)	(4)	(3)	(4)	(4)	(4)	(4)	(4)	(4)	
Totals	53.6			41.3	36.9	41.0	270.0	223.0	14.2	10.55	16.0	11.75			21.1	9.55		22.0	27.5		
Averages	13.40		57.4	10.32	9.22	10.25	67.5	55.7	3.55	3.52	4.0	3.92	88.8	89.8	5.27	2.39	45.8	5.50	6.87	80.0	
Minima	13.0		53.6	10.1	9.0	9.9	66.0	51.5	3.4		3.85		87.2		5.0	2.2	43.6	5.3	6.7	78.9	
Maxima	13.8		60.3	10.7	9.5	10.6	69.0	58.5	3.65		4.15		92.2		5.5	2.7	49.1	5.7	7.1	81.4	

[1] Near.

ST. LAWRENCE ISLAND ESKIMO

(Abstract)

MALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
Gambell: Early	(5) 41.4	(5) 18.50	(5) 13.46	(5) 13.36	(5) *72.8*	(5) *83.6*		(5) 15.11			(3) (11.70)	(5) 7.34	(4) 13.72
Gambell: Later	(14) 51.4	(14) 18.34	(14) 14.09	(5) 13.68	(14) *76.9*	(5) *83.1*		(5) 15.53				(8) 8.10	(7) 14.13
Near Gambell and Northwest End.	(153) 49.5	(153) 18.40	(153) 14.19	(145) 13.68	(153) *77.1*	(145) *84.0*		(145) 15.42	(142) 1,462		(24) 12.70	(139) 7.82	(145) 14.20
Kukulik: Early	(3) (24.3)	(3) 18.53	(3) 14.23	(3) 13.97	(3) *76.8*	(3) *85.3*		(3) 15.58				(3) 7.63	(2) (14)
Kukulik: Later	(9) 33.6	(8) 18.15	(8) 14.03	(8) 13.95	(8) *77.3*	(8) *86.7*		(8) 15.38			(7) 12.61	(9) 7.78	(8) 13.70
Kukulik: Tundra	(22) 46.1	(22) 18.55	(22) 13.87	(16) 13.95	(22) *74.8*	(16) *86.4*		(16) 15.41				(18) 7.82	(18) 13.87
Kialegak	(24) 43.5	(24) 18.10	(24) 14.15	(24) 13.77	(24) *78.2*	(24) *85.4*		(24) 15.34	(8) 1,496		(10) 12.69	(23) 7.82	(23) 14.10
Punuk Island	(6) 50.3	(6) 18.78	(5) 14.20	(5) 13.82	(5) *75.8*	(5) *83.9*		(5) 15.59	(5) 1,512			(5) 8.18	(5) 14.68

Locality	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
Gambell: Early	(3) *(86.0)*	(4) *52.6*	(4) 10.25	(4) 9.12	(4) 10.10	(4) 67.9	(4) 53.6	(4) 3.41	(5) 3.43	(4) 3.95	(5) 3.88	(4) *86.4*	(5) *88.4*	(5) 5.14	(5) 2.41	(5) *46.9*	(4) 5.52	(4) 6.30	(4) *87.7*	(3) *(3.07)*
Gambell: Later	------	(6) *57.7*	(4) 10.65	(5) 9.12	(5) 10.16	(4) 63.1	(4) 52.3	(6) 3.63	(10) 3.68	(6) 4.14	(10) 4.02	(6) *87.5*	(10) *91.4*	(11) 5.48	(11) 2.46	(11) *45.0*	(5) 5.60	(5) 6.86	(5) *83.1*	------
Near Gambell and Northwest End.	(24) *88.3*	(138) *55.1*	(131) 10.43	(143) 9.26	(145) 10.36	(131) 67.5	(131) 56.5	(145) 3.67	(145) 3.68	(145) 4.05	(145) 4.01	(145) *90.7*	(145) *91.8*	(148) 5.42	(148) 2.45	(148) *45.2*	(121) 5.63	(121) 6.79	(121) *82.9*	(26) 3.62
Kukulik: Early	------	(2) *(56.1)*	(2) (10.55)	(2) (9.5)	(2) (10.5)	(2) (67.8)	(2) (57.5)	(3) 3.70	(3) 3.73	(3) 4.10	(3) 3.98	(3) *90.2*	(3) *93.7*	(3) 5.37	(3) 2.45	(3) *45.6*	(3) 5.53	(3) 6.53	(3) *84.7*	(2) (3.35)
Kukulik: Later	(7) *91.5*	(8) *56.9*	(8) 10.43	(8) 9.26	(8) 10.51	(8) 68.7	(8) 55.3	(9) 3.53	(8) 3.58	(9) 4.09	(8) 3.97	(9) *86.3*	(8) *90.2*	(9) 5.42	(9) 2.43	(9) *44.8*	(9) 5.49	(9) 6.66	(9) *82.4*	(7) 3.51
Kukulik: Tundra	------	(18) *56.4*	(14) 10.43	(16) 9.43	(16) 10.56	(14) 68.4	(14) 58.4	(16) 3.67	(18) 3.67	(16) 4.06	(18) 3.91	(16) *90.4*	(18) *93.5*	(19) 5.53	(19) 2.47	(19) 44.6	(13) 5.42	(13) 6.61	(13) *82.1*	------
Kialegak	(10) *90.1*	(22) *55.6*	(21) 10.40	(23) 9.30	(24) 10.41	(21) 68.4	(21) 57.2	(22) 3.69	(22) 3.65	(22) 3.99	(22) 3.95	(22) *92.4*	(22) *92.5*	(24) 5.46	(24) 2.54	(24) *46.4*	(19) 5.61	(19) 6.66	(19) *84.3*	(10) 3.73
Punuk Island	------	(4) *56.2*	(4) 10.92	(5) 9.62	(5) 10.60	(4) 65.7	(4) 55.5	(5) 3.65	(5) 3.68	(5) 3.94	(5) 3.94	(5) *92.6*	(5) *93.4*	(6) 5.61	(6) 2.52	(6) *45.0*	(3) 5.77	(3) 6.87	(3) *84.0*	(3) 3.80

ST. LAWRENCE ISLAND ESKIMO—Continued

(Abstract)

FEMALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. laterial maxim.	Basion-Bregma height	*Cranial Index*	*Mean Heibht Index*	*Heibht-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
Gambell: Early	(1) 40	(1) (17.8)	(1) (13.4)	(1) (13.6)	(1) *(75.3*	(1) *(87.2)*	-------	(1) (14.93)	-------	-------	-------	-------	-------
Gambell: Later	(26) 43.1	(27) 17.77	(27) 13.74	(18) 13.24	(27) *77.3*	(18) *84.3*	-------	(18) 14.89	-------	-------	(5) 11.66	(18) 7.32	(17) 13.18
Near Gambell and Northwest End.	(140) 42.7	(140) 17.69	(140) 13.60	(128) 13.21	(140) *77.4*	(128) *84.2*	-------	(128) 14.87	(120) 1,335	-------	(23) 11.49	(120) 7.29	(128) 13.31
Kukulik	(26) 33.4	(25) 17.42	(25) 13.44	(24) 13.17	(25) *77.2*	(24) *85.3*	-------	(24) 14.68	-------	-------	(16) 11.53	(25) 7.15	(23) 13.14
Kukulik: Tundra	(16) 42.8	(16) 17.60	(16) 13.57	(7) 13.17	(16) *77.1*	(7) *85.1*	-------	(7) 14.71	-------	-------	-------	(8) 7.06	(10) 13.23
Kialegak	(34) 39.4	(34) 17.49	(34) 13.63	(34) 13.23	(34) *77.9*	(34) *85.0*	-------	(34) 14.78	(14) 1,329	-------	(12) 11.87	(29) 7.28	(32) 13.22
Punuk Island	(7) 34.1	(7) 17.51	(7) 13.57	(5) 13.26	(7) *77.5*	(5) *85.4*	-------	(5) 14.77	-------	-------	-------	(4) 7.70	(4) 13.40

Locality	*Facial Index, total* $\left(\frac{a-100}{c}\right)$	*Facial Index, upper* $\left(\frac{b-100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—length maxim.	Upper Alveolar Arch—breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
Gambell: Early	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	(1) (5.20)	(1) (6.40)	(1) *(81.3)*	(1) (3.2)
Gambell: Later	(5) *88.6*	(17) *55.4*	(15) 9.91	(15) 8.80	(17) 9.87	(14) 67	(14) 53.7	(16) 3.55	(15) 3.56	(16) 3.95	(15) 3.91	(16) *89.9*	(15) *90.9*	(17) 5.11	(17) 2.32	(17) *45.4*	(16) 5.32	(16) 6.42	(16) *82.9*	(5) 3.19
Near Gambell and Northwest End.	(23) *86.9*	(119) *54.8*	(111) 10.04	(119) 8.88	(128) 9.93	(111) 68	(111) 54	(121) 3.62	(121) 3.60	(121) 3.92	(121) 3.89	(121) *91.7*	(121) *92.6*	(127) 5.13	(127) 2.39	(127) *46.6*	(109) 5.37	(109) 6.46	(109) *83.1*	(25) 3.18
Kukulik	(15) *87.7*	(23) *54.5*	(23) 9.93	(23) 8.99	(25) 10.0	(23) 68.6	(23) 56.5	(23) 3.49	(21) 3.52	(23) 3.86	(21) 3.75	(23) *90.3*	(21) *93.7*	(24) 5.10	(24) 2.35	(24) *46.0*	(22) 5.16	(22) 6.30	(22) *81.8*	(17) 3.07
Kukulik: Tundra	------	(8) *53.5*	(6) 9.77	(7) 8.74	(7) 9.79	(6) 69.6	(6) 54.6	(9) 3.61	(9) 3.64	(9) 3.96	(9) 3.88	(9) *91.2*	(9) *93.7*	(9) 5.11	(9) 2.44	(9) *47.7*	(6) 5.10	(6) 6.35	(6) *80.3*	------
Kialegak	(12) *89.2*	(29) *55*	(26) 10.17	(31) 9.0	(32) 10.03	(26) 67.9	(26) 54.8	(31) 3.58	(30) 3.57	(31) 3.95	(30) 3.89	(31) *90.8*	(30) *91.7*	(33) 5.18	(33) 2.47	(33) *47.6*	(25) 5.37	(25) 6.42	(25) *83.7*	(13) 3.36
Punuk Island	------	(4) *57.4*	(4) 10.32	(4) 9.22	(4) 10.25	(4) 67.5	(4) 55.7	(4) 3.55	(3) 3.52	(4) 4.00	(3) 3.92	(4) *88.8*	(3) *89.8*	(4) 5.27	(4) 2.39	(4) *45.3*	(4) 5.50	(4) 6.87	(4) *80.0*	------

DIOMEDE ISLANDS AND SIBERIAN ESKIMO

LITTLE DIOMEDE ISLAND: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
332571	(*A. H.*) U.S.N.M	Little Diomede Island.	Adult		18.5	13.9	14.2	*75.1*	*87.6*		15.53	1,550			7.8
332568	do	do	do		18.2	14.3	13.3	*78.6*	*82.1*		15.27	1,415			7.2
332569	do	do	do		18.2	14.5	13.7	*79.7*	*83.5*		15.47	1,565			7.6
332576	do	do	do		18.1	14.5	13.6	*80.1*	*83.4*		15.40	1,400			7.7
332577	do	do	do		17.6	14.2	[1] 13.2	*80.7*	*83.0*		15.00	[1] 1,420			7.6
Specimens					(5)	(5)	(5)	(5)	(5)		(5)	(5)			(5)
Totals					90.6	71.4	68.0				76.65	7,350			37.9
Average					18.12	14.28	13.60	*78.8*	*83.9*		15.33	1,470			7.58
Minima					17.6	13.9	13.2	*75.1*	*82.1*		15.00	1,400			7.2
Maxima					18.5	14.5	14.2	*80.7*	*87.6*		15.53	1,565			7.8

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
332571	13.9		*56.1*	10.8	9.8	10.9	69.5	57.5	3.6	3.6	4.0	3.9	*90.0*	*92.3*	5.7	2.4	*42.1*	5.4	[1] 6.4	*84.4*	
332568	13.8		*52.2*	10.2	9.0	9.8	66.0	52.0	3.2	3.2	4.0	3.9	*80.0*	*82.0*	5.1	2.4	*47.1*	5.4	6.9	*78.3*	
332569	13.9		*54.7*	10.0	8.9	10.1	68.5	57.0	[1] 3.4	[1] 3.55	3.8	3.7	*89.5*	*95.9*	5.2	2.3	*44.2*	5.4	6.6	*81.8*	
332576	13.3		*57.9*	10.0	8.8	9.9	67.0	56.0	3.7	3.7	4.0	4.0	*92.5*	*92.5*	5.2	2.3	*44.2*	5.3	6.2	*85.5*	
332577	12.7		*59.8*						[1] 3.3	3.3	3.8	3.7	*86.8*	*89.2*	5.3	2.4	*45.3*	[1] 5.4	6.2	*87.1*	
Specimens	(5)		(5)	(4)	(4)	(4)	(4)	(4)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	
Totals	67.6			41.0	36.5	40.7			17.2	17.35	19.6	19.2			26.5	11.8		26.9	32.3		
Average	13.52		*56.1*	10.25	9.12	10.18	68.0	55.5	3.44	3.47	3.92	3.84	*87.7*	*90.4*	5.30	2.36	*44.6*	5.38	6.46	*83.3*	
Minima	12.7		*52.2*	10.0	8.8	9.8	66.0	52.0	3.2	3.2	3.8	3.7	*80.0*	*82.0*	5.1	2.3	*42.1*	5.3	6.2	*78.3*	
Maxima	13.9		*59.8*	10.8	9.8	10.9	69.5	57.5	3.7	3.7	4.0	4.0	*92.5*	*95.9*	5.7	2.4	*47.1*	5.4	6.9	*87.1*	

LITTLE DIOMEDE ISLAND: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, Wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
332573	U.S.N.M.	Little Diomede Island.	Adult.		18.2	13.4	13.5	*73.6*	*85.4*		15.03	1,425			
332570	do	do	do		18.2	13.6	13.6	*74.7*	*85.5*		15.13	1,235			7.4
332579	do	do	do		18.2	13.7	[1] 13.1	*75.3*	*81.9*		15.00	1,360			7.3
332578	do	do	do		18.1	[1] 14.3	13.5	*79.0*	*83.3*		15.30				7.5
332574	do	do	do		17.5	13.9	13.5	*79.4*	*86.0*		14.97	1,440			7.8
332575	do	do	do		17.5	14.0	13.5	*80.0*	*85.4*		15.00	1,285			7.1
Specimens					(6)	(6)	(6)	(6)	(6)		(6)	(5)			(5)
Totals					107.7	82.9	80.7				90.4	6,745			37.1
Averages					17.95	13.82	13.45	*77.0*	*84.7*		15.07	1,349			7.42
Minima					17.5	13.4	13.1	*73.6*	*81.9*		14.97				7.1
Maxima					18.2	14.3	13.6	*80.0*	*86.0*		15.30				7.8

Catalog No.	Diam. Bizygomatic Maxim. (C)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
332573	12.5					10.1															
332570	13.1		*56.5*	9.8	8.8	10.0	70.0	59.0	3.9	3.85	4.1	4.1	*95.1*	*93.9*	5.1	2.45	*48.0*				
332579	13.5		*54.1*	10.1	9.0	10.2	70.0	54.5	3.4	3.5	3.8	4.0	*89.5*	*87.5*	5.2	2.5	*48.1*				
332578	[1] 13.3		*56.4*	10.7	9.6	10.2	65.5	58.0	3.35	3.45	4.2	4.0	*79.8*	*86.2*	5.0	2.2	*44.0*	5.5	6.6	*83.3*	
332574	13.1		*59.5*	9.3	8.3	9.5	67.0	60.0	3.7	3.7	4.0	[1] 4.0	*92.5*	*92.5*	5.3	2.1	*39.6*	5.4	6.7	*80.6*	
332575	12.8		*55.5*	8.9	8.5	9.6	73.0	72.0	3.65	3.7	3.9	3.9	*93.6*	*94.9*	5.3	2.15	*40.6*	[1] 4.9	6.5	*75.4*	
Specimens	(6)		(5)	(5)	(5)	(6)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(3)	(3)	(3)	
Totals	78.1			48.8	44.2	59.6	345.5	303.5	18.0	18.2	20.0	20.0			25.9	11.4		15.8	19.8		
Averages	13.02		*56.5*	9.76	8.84	9.93	69.1	60.7	3.60	3.64	4.0	4.0	*90.0*	*91.0*	5.18	2.28	*44.0*	5.27	6.60	*79.8*	
Minima	12.5		*54.1*	8.9	8.3	9.5	65.5	54.5	3.35	3.45	3.8	3.9	*79.8*	*86.2*	5.0	2.1	*39.6*				
Maxima	13.5		*59.5*	10.7	9.6	10.2	73.0	72.0	3.9	3.85	4.2	4.1	*95.1*	*94.9*	5.3	2.5	*48.1*				

[1] Near.

SIBERIAN ESKIMO: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c.³ c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
10102	State Mus. Seattle	Puoten	40		19.2	13.7	13.2	*71.4*	*80.2*		15.37	1,555	Slight	12.5	7.8
10045	do	do	26		18.4	13.3	14.3	*72.3*	*90.2*		15.33	1,525	do	13.2	7.85
XIV-J-2a	Nat. Mus. Can.	do	60		19.4	14.4	14.2	*74.2*	*84.0*		16.0		Medium		7.9
XIV-J-12	do	do	40		18.5	14.5	14.4	*78.4*	*87.3*		15.80		Slight	13.5	8.2
99-3786	(*W. Bogoraz*) A.M.N.H.	Indian Point	60		18.8	13.5	13.6	*71.8*	*84.2*		15.30				7.6
99-3789	do	do	50		18.7	13.7		*73.3*							7.5
99-3765	do	do	30		18.9	14.0	13.2	*74.1*	*80.2*		15.37				8.4
99-3766	do	do	45		18.9	14.2	13.6	*75.1*	*82.2*		15.57				
99-3793	do	do	70		19.	14.4	13.8	*75.8*	*82.6*		15.73				
99-3772	do	do	45		18.2	13.9	13.3	*76.4*	*82.9*		15.13				7.7
99-3784	do	do	70		19.	14.6	14.0	*76.8*	*83.3*		15.87				
99-3792	do	do	65		19.2	14.8	14.8	*77.1*	*87.1*		16.27				
99-3776	do	do	25		18.2	13.9	13.4	*77.2*	*83.5*		15.17				8.1
99-3787	do	do	50		18.4	14.3	14.2	*77.7*	*86.9*		15.63				7.8
99-3777	do	do	40		18.3	14.4	13.9	*78.7*	*85.0*		15.53				7.7
99-3790	do	do	55		18.8	15.1	13.4	*80.3*	*79.1*		15.77				8.2
99-3783	do	do	45		17.9	14.8	13.8	*82.7*	*84.4*		15.50				8.0
99-3795	do	do	50		18.	14.9	12.8	*82.8*	*77.8*		15.23				8.1
Specimens			(18)		(18)	(18)	(17)	(18)	(17)		(17)			(3)	(14)5
Totals			86.6		335.8	256.4	233.9				264.57			39.2	110.8
Averages			48.1		18.66	14.24	13.76	*76.4*	*83.6*		15.56			13.07	7.92
Minima			25		17.9	13.3	12.8	*71.4*	*77.8*		15.13				7.5
Maxima			70		19.4	15.1	14.8	*82.8*	*90.2*		16.27				8.2

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Aleolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
10102	13.5	92.6	57.8	10.5	8.9	10.2	66	46	3.5	3.45	3.95	3.9	88.6	88.5	5.4	2.45	45.4	5.7	6.4	89.1	3.45
10045	14.1	93.6	55.7	10.2	8.8	10	66	50	3.4	3.3	4.15	4	81.9	82.5	5.45	2.45	45	5.95	6.8	87.5	4.1
XIV-J-2a	14.8		53.4	11.2	10.2	11.2	69	60	3.8	3.85	4.5	4.3	84.4	89.6	5.5	2.5	45.5	5.8	6.8	87.5	3.7
XIV-J-12	14.5	93.1	56.6	10.7	9.4	10.6	66.5	55	3.4	3.35	4.1	4.1	82.9	81.7	5.45	2.5	45.9	5.8	6.8	85.3	4.1
99-3786	13.6		55.9		9.6	10.9			3.6	3.65	3.9	4.	92.3	91.2	5.45	2.7	49.5	5.7	6.5	86.4	
99-3789	13.6		55.2							3.7		4.1		90.2	5.3	2.7	50.9				
99-3765	14.5		57.9	10.4	9.2	10.6	67.5	56	4.05	4	4.2	4.2	96.4	95.2	5.95	2.35	39.5	5.2	6.8	76.5	
99-3766	14.5				9.1	10.2			4.1	4	4.35	4.35	94.3	92.0	5.5	2.7	49.1				
99-3793	14.6				9.8	10.9			3.6	3.7	4	4.05	90.0	91.4	5.8	2.55	44.0				
99-3772	13.7		56.2	9.6	8.6	10.0	69.5	57.5	3.75	3.8	4	3.9	93.8	97.4	5.5	2.5	45.4	5.3	6.6	80.3	
99-3784	15.7				9.5	11.1			4.15	4.2	4.5	4.5	92.2	93.3	6	2.75	45.8				
99-3792	14.4				9.2	10.4			3.8	3.8	4.15	4.1	91.6	92.7	5.5	2.6	47.3				
99-3776	14.2		57.0	10.4	9.2	10.4	67.0	56.5	3.8	3.85	4.05	4.0	93.8	96.2	5.5	2.4	43.6	5.7	7.0	81.4	
99-3787	13.8		56.5	10.4	9.3	10.4	68.0	59.0	3.9	3.95	4	4.1	97.5	96.3	5.25	2.5	47.6	5.4	6.3	85.7	
99-3777	14.8		52.0	10.6	9.5	10.5	68.0	56.5	3.75	3.75	4.2	4.2	89.3	89.3	5.4	2.4	44.4	5.9	6.8	86.8	
99-3790	14.9		55.0	10.6	9.5	10.7	67.5	57	3.85	3.6	4.05	4.05	95.1	88.9	5.8	2.9	50.0	5.7	6.4	89.1	
99-3783	14.4		55.6	10.7	9.7	10.2	64	60.5	3.65	3.7	3.9	3.7	93.6	100.0	5.45	2.45	45.0	5.7	6.9	82.6	
99-3795	14.5		55.9	10.5	9.3	10	63.5	56	3.45	3.45	4.05	4.05	85.2	85.2	5.55	2.15	38.7				
Specimens	(18)	(3)	(14)	(12)	(17)	(17)	(12)	(12)	(17)	(18)	(17)	(18)	(17)	(18)	(18)	(18)	(18)	(12)	(12)	(12)	(4)
Totals	258.1			125.8	158.8	179.6	802.5	670	63.55	67.1	70.05	73.6			99.75	45.55		67.85	80.1		15.35
Averages	14.34	93.1	55.7	10.48	9.34	10.56	66.9	55.8	3.74	3.73	4.12	4.09	90.7	91.2	5.54	2.53	45.7	5.65	6.68	84.7	3.84
Minima	13.5		52.0	9.6	8.6	10.0	63.5	46	3.4	3.3	3.9	3.9	81.9	82.5	5.25	2.15	38.7	5.2	6.3	76.5	3.45
Maxima	15.7		57.9	11.2	10.2	11.2	69.5	60.5	4.15	4.2	4.5	4.5	97.5	100.0	6	2.9	50.9	5.95	7	89.1	4.1

[1] Allowance made for wear of teeth, where needed.

SIBERIAN ESKIMO: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
10097	State Mus. Seattle	Tuoten	50		18.2	13.2	13.1	*72.5*	*83.4*		14.83	1,290	Medium	12.3	7.6
9903	do	do	45		16.9	13.0	13.5	*76.9*	*90.3*		14.47	1,295	do	12.1	7.3
9918	do	do	50										do	11.5	7.0
	(*W. Bogoraz*)														
99-3775	A. M. N. H.	Indian Point	30		18.4	13.5	13.4	*73.4*	*84.0*		15.10				7.6
99-3774	do	do	45		18.6	13.9	13.4	*74.7*	*82.5*		15.30				
99-3788	do	do	30		17.9	13.4	12.9	*74.9*	*82.4*		14.73				6.5
99-3791	do	do	45		17.6	13.2	12.9	*75.0*	*83.8*		14.57				7.4
99-3767	do	do	65		17.7	13.4	12.7	*75.7*	*81.7*		14.60				
99-3764	do	do	70		18.2	13.9	13.8	*76.4*	*86.0*		15.30				
99-3779	do	do	50		17.9	13.8	13.0	*77.1*	*82.0*		14.90				7.2
99-3771	do	do	50		17.6	13.7	14.0	*77.8*	*89.5*		15.10				7.9
99-3782	do	do	24		18.0	14.0	13.2	*77.8*	*82.5*		15.07				7.9
99-3778	do	do	25		17.6	13.8	13.0	*78.4*	*82.8*		14.80				7.1
99-3768	do	do	50		17.7	14.0	13.5	*79.1*	*85.2*		15.07				7.1
99-3773	do	do	40		16.8	13.3	13.1	*79.2*	*87.0*		14.40				7.8
99-3781	do	do	40		17.4	13.9	12.5	*79.9*	*79.9*		14.60				7.5
99-3780	do	do	50		16.8	13.8	13.4	*82.1*	*87.6*		14.67				7.1
99-3794	do	do	25		17.2	14.2	13.3	*82.6*	*84.7*		14.90				7.5
99-3785	do	do	55	Small asymmetry.	16.8	14.1	13.9	*83.9*	*90.0*		14.93				7.7
Specimens			(19)		(18)	(18)	(18)	(18)	(18)		(18)	(2)		(3)	(16)
Totals			839		317.3	246.1	238.6				267.3	2,585		35.9	118.2
Averages			44.2		17.63	13.67	13.26	*77.6*	*84.7*		14.85	(1,293)		11.97	7.39
Minima			24		16.8	13.0	12.5	*72.5*	*79.9*		14.40				6.5
Maxima			70		18.6	14.2	14.0	*83.9*	*90.3*		15.30				7.9

Catalog No.	Diam. Bizygomatic maxim. (c)	Facial Index, total $\left(\frac{a\times100}{c}\right)$	Facial Index, upper $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	Orbital Index, right	Orbital Index, left	Nose—Height	Nose—Breadth maxim.	Nasal Index	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	Upper Alveolar Arch—Index	Lower Jaw—Height at Symphysis
10097	13.8	89.1	55.1	11.1	9.3	10.1	62.0	43.0	3.3	3.4	4.05	3.95	81.5	86.1	5.15	2.8	54.4	5.9	7.0	84.3	3.9
9903	13.6	89.0	53.7	9.7	8.4	9.4	65.0	50.0	3.2	3.15	3.7	3.75	86.5	84.0	5.1	2.6	51.0	5.4	6.5	83.1	4.0
9918	12.1	95.0	57.9						3.4	3.4	3.95	3.7	86.1	91.9	5.05	2.4	47.5	5.4	6.5	83.1	3.5
99-3775	13.1		58.0	10.3	9.0	10.2	68.0	55.0	3.25	3.35	3.85	3.9	84.4	85.9	5.0	2.3	46.0	5.7	6.3	90.5	
99-3774						10.4			3.7		4.0		92.5								
99-3788	13.0		50.0	10.4	9.3	10.0	68.5	48.0	3.7	3.6	4.0	3.95	92.5	91.2	4.9	2.8	57.1	5.2	6.3	82.5	
99-3791	13.8		53.6	10.1	9.0	9.6	65.0	55.0	3.55	3.65	3.95	4.0	89.9	91.2	5.25	2.7	51.4	5.4	6.0	90.0	
99-3767	13.0				8.7	9.6			3.65	3.6	3.6	3.7	101.4	97.3	4.7	2.0	42.6				
99-3764	12.9				8.5	9.9			3.45	3.6	3.95	3.8	87.3	94.7	4.8	2.6	54.2				
99-3779	13.1		55.0	9 .6	8.2	9.0	63.0	49.0	3.3	3.3	3.85	3.85	85.7	85.7	4.9	2.25	45.9	5.6	6.4	87.5	
99-3771	13.4		59.0	10.3	9.2	10.0	65.0	57.0	3.7	3.6	3.95	3.9	93.7	92.3	5.5	2.45	44.5	5.5	6.5	84.6	
99-3782	13.9		56.8	10.1	9.2	10.4	69.5	61.0	3.75	3.8	4.0	3.9	93.8	97.4	5.7	2.5	43.9	5.5	6.9	79.7	
99-3778	13.2		53.8	10.2	9.4	10.5	72.0	62.0	3.55		3.8		93.4		5.1	2.3	45.1	5.2	6.4	81.2	
99-3768	13.7		51.8	11.0	9.8	10.8	69.5	54.0	3.55	3.55	3.95	4.0	89.9	88.8	4.85	2.5	51.6	5.7	6.6	86.4	
99-3773				10.0	8.8	9.6	64.5	55.0		3.5		3.9		89.7	5.4	2.6	48.2	5.1	6.0	85.0	
99-3781	14.0		53.6	10.1	9.2	10.0	67.5	60.0	3.55	3.5	4.0	4.0	88.8	87.5	5.4	2.4	44.4	5.5	6.6	83.3	
99-3780	13.2		53.8	9.8	8.4	9.8	69.0	46.5	3.5	3.65	3.9	3.8	89.7	96.1	5.1	2.7	52.9				
99-3794	13.1		57.2	10.2	9.0	9.8	65.5	54.0	3.7	3.7	3.95	3.95	93.7	93.7	5.15	2.4	46.6	5.6	6.5	86.2	
99-3785	13.3		57.9	9.7	8.5	9.9	38.5	52.0	3.8	3.8	3.85	3.85	98.7	98.7	5.6	2.2	39.3	5.3	6.3	84.1	
Specimens	(17)	(3)	(15)	(15)	(17)	(18)	(15)	(15)	(18)	(17)	(18)	(17)	(18)	(17)	(18)	(18)	(18)	(15)	(15)	(15)	(3)
Totals	226.2			152.6	151.9	179.0	1,002.5	801.5	63.6	60.15	70.3	65.9			92.65	44.5		82.0	96.8		11.4
Averages	13.31	91.0	55.1	10.17	8.94	9.94	66.8	53.4	3.53	3.54	3.91	3.88	90.5	91.3	5.15	2.47	48.0	5.47	6.45	84.7	3.80
Minima	12.1		50.0	9.6	8.2	9.0	62.0	43.0	3.2	3.15	3.6	3.7	81.5	84.0	4.8	2.0	39.3	5.1	6.0	79.7	
Maxima	14.0		59.0	11.1	9.8	10.8	72.0	62.0	3.8	3.8	4.05	4.0	101.4	98.7	5.7	2.8	57.1	5.9	7.0	90.5	

[1] Allowance made for wear of teeth.

DIOMEDE ISLANDS AND SIBERIAN ESKIMO

(Abstract)

MALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
Little Diomede Island	(5)	(5)	(5)	(5)	(5)	(5)		(5)	(5)			(5)	(5)
		90.6	71.4	68.0				76.65	7,350			37.9	67.6
	Adults	18 12	14.28	13.60	*78.8*	*83.9*		15.33	1,470			7.58	13.52
Northeast Siberia	(18)	(18)	(18)	(17)	(18)	(17)		(17)			(3)	(14)	(18)
	866	335.8	256.4	233.9				264.57			39.2	110.85	258.1
	48.1	18.66	14.24	13.76	*76.4*	*83.6*		15.56			13.07	7.92	14.34
Specimens	(18)	(23)	(23)	(22)	(23)	(22)		(22)	(5)		(3)	(19)	(23)
Totals	866	426.4	327.8	301.9				341.22	7,350		39.2	148.75	325.7
Averages	48.1	18.54	14.25	13.72	*76.9.*	*83.7*		15.51	1,470		(13.07)	7.83	14.16

Locality	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
Little Diomede Island		(5)	(4)	(4)	(4)	(4)	(4)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	
		280.5	41.0	36.5	40.7	272.0	222.0	17.2	17.35	19.6	19.2			26.5	11.8		26.9	32.3		
		56.1	10.25	9.12	10.18	68.0	55.5	3.44	3.47	3.92	3.84	*87.7*	*90.4*	5.30	2.36	*44.6*	5.38	6.46	*83.3*	
Northeast Siberia	(3)	(14)	(12)	(17)	(17)	(12)	(12)	(17)	(18)	(17)	(18)	(17)	(18)	(18)	(18)	(18)	(12)	(12)	(12)	(4)
	279.3	779.8	125.8	158.8	179.6	802.5	670.0	63.55	67.1	70.05	73.6			99.75	45.55		67.85	80.1		15.35
	93.1	*55.7*	10.48	9.34	10.56	66.9	55.8	3.74	3.73	4.12	4.09	*90.7*	*91.2*	5.54	2.53	*45.7*	5.65	6.68	*84.7*	3.84
Specimens	(3)	(19)	(16)	(21)	(21)	(16)	(16)	(22)	(23)	(22)	(23)	(22)	(23)	(23)	(23)	(23)	(17)	(17)	(17)	(4)
Totals	279.3	1,060.3	166.8	195.3	220.3	1,074.5	892.0	80.75	84.45	89.65	92.8			126.25	57.35		94.75	112.4		15.35
Averages	*(93.1)*	*55.8*	10.43	9.30	10.49	67.2	55.7	3.67	3.67	4.03	4.03	*90.1*	*91.0*	5.49	2.49	*45.4*	5.57	6.61	*84.3*	3.84

FEMALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabellajad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
	(6)	(6)	(6)	(6)	(6)	(6)	------	(6)	(5)	------	------	(5)	(6)
Little Diomede Island		107.7	82.9	80.7	------	------	------	90.4	6,745	------	------	37.1	78.1
	Adult	17.95	13.82	13.45	*77.0*	*84.7*	------	15.07	1,349	------	------	7.42	13.02
	(19)	(18)	(18)	(18)	(18)	(18)	------	(18)	(2)	------	(3)	(16)	(17)
Northeast Siberia	839	317.3	246.1	238.6	------	------	------	267.3	2,585	------	35.9	118.2	226.2
	44.2	17.63	13.67	13.26	*77.6*	*84.7*	------	14.85	(1,293)	------	11.97	7.39	13.31
Specimens	(19)	(24)	(24)	(24)	(24)	(24)	------	(24)	(7)	------	(3)	(21)	(23)
Totals	839	425.0	329.0	319.3	------	------	------	357.7	9,330	------	35.9	155.3	304.3
Averages	44.2	17.71	13.71	13.30	*77.4*	*84.7*	------	14.90	1,333	------	(11.97)	7.40	13.23

Locality	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
	------	(5)	(5)	(5)	(6)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(3)	(3)	(3)	------
Little Diomede Island	------	282.5	48.8	44.2	59.6	345.5	303.5	18.0	18.2	20.0	20.0	------	------	25.9	11.4	------	15.8	19.8	------	------
	------	*56.5*	9.76	8.84	9.93	69.1	60.7	3.60	3.64	4.0	4.0	*90.0*	*91.0*	5.18	2.28	*44.0*	5.27	6.60	*79.8*	------
	(3)	(15)	(15)	(17)	(18)	(15)	(15)	(18)	(17)	(18)	(17)	(18)	(17)	(18)	(18)	(18)	(15)	(15)	(15)	(3)
Northeast Siberia	273.0	826.5	152.6	151.9	179.0	1,002.5	801.5	63.6	60.15	70.3	65.9	------	------	92.65	44.5	------	82.0	96.8	------	11.4
	91.0	*55.1*	10.17	8.94	9.94	66.8	53.4	3.53	3.54	3.91	3.88	*90.5*	*91.3*	5.15	2.47	*48.0*	5.47	6.45	*84.7*	3.80
Specimens	(3)	(20)	(20)	(22)	(24)	(20)	(20)	(23)	(22)	(23)	(22)	(23)	(22)	(23)	(23)	(23)	(18)	(18)	(18)	(3)
Totals	273.0	1,109.0	201.4	196.1	238.6	1,348.0	1,105.0	81.6	78.35	90.3	85.9	------	------	118.55	55.9	------	97.8	116.6	------	11.4
Averages	*(91.0)*	*55.5*	10.07	8.91	9.94	67.4	55.3	3.55	3.56	3.93	3.90	*90.4*	*91.2*	5.15	2.43	*47.1*	5.43	6.48	*83.9*	(3.80)

KOTZEBUE SOUND ESKIMO

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, Wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
MALES															
332610	U.S.N.M.	Kotzebue Sound	45		19.0	13.5	13.2	*71.0*	*81.5*		15.23	1.455		11.8	7.3
242786 ♂	do	do	65		17.5	13.5	13.6	*77.1*	*87.7*		14.87	1,340			
FEMALES															
345689	U.S.N.M.	Kotzebue Sound	50		18.5	13.5	13.4	*83.0*	*83.8*		15.13				

Catalog No.	Diam. Bizygomatic	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
MALES																					
332610	13.4	*88.1*	*54.5*	10.7	9.4	10.5	68.5	54.0	3.3	3.4	4.1	4.1	*80.5*	*82.9*	4.8	2.05	*42.7*	5.5	5.8	*94.8*	3.8
242786 ♂	14.3				9.0	10.4			3.6	3.6	4.0	4.0	*90.0*	*90.0*	5.1	2.4	*47.1*				
FEMALES																					
345689	13.0					10.5				3.9		3.9		*100.0*							

POINT HOPE: MALES
(Older Burials)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*H. B. Collins*)														
346171	U. S. N. M	Point Hope	55		20.5	13.8	14.7	*67.32*	*85.71*		16.33			13.7	8.0
346143	do	do	60		19.0	13.9	14.3	*73.16*	*86.93*		15.73				
346177	do	do	40		19.0	13.9	15.0	*73.16*	*91.19*		15.97			13.1	7.8
346282	do	do	45		18.8	13.8	14.4	*73.40*	*88.34*		15.67			13.0	8.0
346144	do	do	50		18.8	14.0	14.5	*74.47*	*88.41*		15.77			13.4	7.9
346157	do	do	35		18.9	14.1	13.3	*74.60*	*80.61*		15.43			12.9	7.9
346149	do	do	55		17.6	13.2	13.8	*75.00*	*89.61*		14.87			13.4	7.9
346281	do	do	35		18.4	13.8	13.8	*75.00*	*85.71*		15.33			12.0	7.5
346191	do	do	55		18.9	14.2	14.2	*75.13*	*85.80*		15.77			13.3	8.1
346287	do	do	65		18.9	14.2	14.1	*75.13*	*85.20*		15.73				
346289	do	do	60		18.3	13.8	14.3	*75.41*	*89.10*		15.47			13.3	7.9
346187	do	do	35		18.9	14.3	13.7	*75.66*	*82.53*		15.63			12.0	7.1
346152	do	do	75		18.8	14.3	14.6	*76.06*	*88.22*		15.90				
346184	do	do	32		18.7	14.3	13.9	*76.47*	*84.24*		15.63			12.3	7.4
346285	do	do	65		18.8	14.4	13.4	*76.60*	*80.72*		15.53			12.3	7.2
346178	do	do	35		17.9	13.8	14.3	*77.09*	*90.22*		15.33			12.8	7.7
346281	do	do	65		18.4	14.2	13.6	*77.17*	*83.44*		15.40			12.7	7.5
546182	do	do	55		18.6	14.4	14.3	*77.42*	*86.67*		15.77				
346188	do	do	65		18.5	14.4	14.0	*77.84*	*85.11*		15.63			13.7	8.0
346210	do	do	70		17.7	13.8	13.9	*77.97*	*88.25*		15.13				
346185	do	do	60	Small asym.	18.2	14.2	14.2	*78.02*	*87.65*		15.53			12.9	7.5
346145	do	do	60		17.9	14.0	14.6	*78.21*	*91.54*		15.50			12.4	7.4
346280	do	do	25		17.6	13.8	14.1	*78.41*	*89.81*		15.17			12.7	7.8
346290	do	do	60		18.2	14.6	14.0	*80.22*	*85.37*		15.60			12.9	7.6
346206	do	do	55		17.7	14.3	13.9	*80.79*	*86.88*		15.30				
346170	do	do	65		17.5	14.6	13.6	*83.43*	*84.74*		15.23				
346295	do	do	60		19.3	14.3	14.2	*74.09*	*84.52*		15.93			13.5	8.5
346299	do	do	55		17.7	13.2	13.9	*74.58*	*89.97*		14.93			12.7	7.6
346297	do	do	80		18.9	14.6	14.3	*77.25*	*85.37*		15.93				
346301	do	do	60		18.1	14.0	14.0	*77.35*	*87.23*		15.37			12.5	7.1
346292	do	do	35		18.7	15.0	14.7	*80.21*	*87.24*		16.13			12.6	7.6
316150	do	do	40		16.9	13.8	13.8	*81.66*	*89.90*		14.83				8.0
Specimens			(32)		(32)	(32)	(32)	(32)	(32)		(32)			(23)	(24)
Totals			1,758		590.1	451	451.4				497.5			296.1	185
Averages			54.9		18.44	14.09	14.11	*76.4*	*86.7*		15.55			12.87	7.71
Minima			23		16.9	13.2	13.2	*67.8*	*80.6*		14.8			12	7.1
Maxima			85		20.5	15	15	*83.4*	*91.5*		16.3			13.7	8.5

POINT HOPE: MALES—Continued
(Older Burials)

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
346171	14.2	*96.48*	*56.34*	10.9	9.6	11.1	69.5	55.0	3.75	3.8	4.1	4.0	*91.46*	*95.00*	5.4	2.6	*48.15*	5.8	6.3	*92.06*	4.1
346143	14.8	-------	-------	-------	10.0	10.8	-------	-------	3.6	3.65	4.3	4.2	*83.72*	*86.90*	5.7	2.6	*45.61*	6.3	7.3	*86.30*	3.8
346177	14.6	*89.73*	*53.42*	10.9	9.6	11.0	69.0	50.6	3.45	3.55	4.0	4.0	*86.25*	*88.75*	5.65	2.7	*47.79*	5.9	7.2	*81.94*	3.8
346282	14.3	*90.91*	*55.94*	10.9	9.8	11.1	70.0	57.5	3.5	3.4	4.0	3.9	*87.50*	*87.18*	5.55	2.4	*43.24*	6.0	7.4	*81.08*	3.75
346144	14.9	*89.93*	*53.02*	11.1	9.8	11.0	68.0	52.0	3.6	3.65	4.2	4.2	*85.71*	*86.90*	5.6	2.85	*50.89*	6.1	7.2	*84.72*	4.1
346157	14.3	*90.21*	*55.24*	10.2	9.2	10.4	69.0	60.0	3.7	3.7	3.95	3.85	*93.67*	*96.10*	5.35	2.5	*46.73*	5.5	6.6	*83.33*	3.45
346149	13.9	*96.40*	*56.83*	10.5	9.2	10.5	67.5	53.0	3.7	3.75	4.0	3.9	*92.50*	*96.15*	5.4	2.35	*43.52*	5.6	6.8	*82.35*	4.1
346284	14.2	*84.51*	*52.82*	9.8	9.0	10.6	74.0	61.0	3.75	3.85	4.1	4.2	*91.46*	*91.67*	5.4	2.5	*46.30*	5.2	6.5	*80.00*	3.35
346191	14.7	*90.48*	*55.10*	11.1	9.7	10.8	66.0	51.0	3.6	3.6	4.1	4.15	*87.80*	*86.75*	5.6	2.55	*45.54*	-------	-------	-------	3.9
346287	14.5	-------	-------	-------	9.2	10.4	-------	-------	3.55	3.6	4.1	4.1	*86.59*	*87.80*	5.2	2.2	*42.31*	-------	-------	-------	4.1
346289	14.9	*89.26*	*53.02*	10.5	9.2	10.9	70.5	52.5	3.7	3.8	4.2	4.0	*88.10*	*95.00*	5.55	2.5	*45.05*	5.8	6.6	*87.88*	3.8
346187	14.1	*85.11*	*50.35*	10.9	9.8	10.8	70.0	52.0	-------	-------	-------	-------	-------	-------	5.15	2.35	*45.63*	5.8	7.2	*80.56*	3.7
346152	14.5	-------	-------	-------	9.4	10.9	-------	-------	3.4	3.3	3.9	3.9	*87.18*	*84.62*	5.4	2.5	*46.30*	-------	-------	-------	3.8
346184	13.5	*91.11*	*54.81*	10.7	9.8	10.9	71.0	60.0	3.25	3.3	3.9	3.9	*83.33*	*84.62*	5.2	2.2	*42.31*	5.5	6.4	*85.94*	3.5
346285	13.8	*89.13*	*52.17*	10.1	8.8	10.0	63.0	46.5	3.85	3.7	4.1	4.0	*93.90*	*92.50*	5.3	2.25	*42.45*	5.5	6.7	*82.09*	3.45
346178	14.5	*88.28*	*53.10*	10.2	9.2	10.8	72.5	60.0	3.3	3.25	3.9	3.9	*84.62*	*83.33*	5.3	2.5	*47.17*	5.8	6.8	*85.29*	3.95
346281	14.5	*87.59*	*51.72*	10.5	9.2	10.4	68.0	51.0	3.3	3.4	4.0	3.9	*82.50*	*87.18*	5.3	2.3	*43.40*	5.5	6.5	*84.62*	3.75
346182	14.8	-------	-------	-------	9.8	10.6	-------	-------	3.55	3.55	4.0	4.0	*88.75*	*88.75*	5.6	2.45	*43.75*	-------	-------	-------	-------
346188	14.4	*95.14*	*55.56*	-------	8.7	10.3	-------	-------	3.6	3.7	3.9	3.8	*92.31*	*97.37*	5.6	2.5	*44.64*	5.4	6.4	*84.38*	4.0
346210	13.8	-------	-------	-------	9.0	10.2	-------	-------	3.45	3.65	4.2	4.1	*82.14*	*89.02*	5.65	2.3	*40.71*	-------	-------	-------	3.6
346185	14.7	*87.76*	*51.02*	10.8	9.7	10.7	69.0	58.0	3.4	3.5	4.1	4.0	*82.93*	*87.50*	5.0	2.4	*48.00*	5.8	7.1	*81.69*	4.1
346145	14.3	*86.71*	*51.75*	10.1	9.0	11.0	76.5	53.5	3.7	3.7	4.2	4.2	*88.10*	*88.10*	5.45	2.5	*45.87*	5.3	6.3	*84.13*	3.1
346280	14.1	*90.07*	*55.32*	9.8	8.8	10.6	73.0	58.0	3.6	3.55	4.0	4.0	*90.00*	*88.75*	5.5	2.2	*40.00*	5.4	6.5	*83.08*	3.4
346290	14.3	*90.23*	*53.15*	10.4	9.1	10.3	67.5	49.5	3.5	3.5	4.0	4.0	*87.50*	*87.50*	5.5	2.2	*40.00*	5.5	6.4	*85.94*	3.85
346206	14.6	-------	-------	-------	9.0	10.6	-------	-------	3.5	3.5	4.1	4.1	*85.37*	*85.37*	5.45	2.6	*47.71*	-------	-------	-------	3.7
346170	15.1	-------	-------	-------	8.8	9.9	-------	-------	3.7	3.65	4.4	4.3	*84.09*	*84.88*	5.15	2.6	*50.49*	-------	-------	-------	3.55
346295	14.7	*91.84*	*57.82*	11.2	9.8	11.0	66.5	54.5	3.5	3.45	4.1	4.0	*85.37*	*86.25*	5.7	2.55	*44.74*	6.0	6.9	*86.96*	4.1
346299	14.2	*89.44*	*53.52*	10.3	9.2	10.4	69.0	58.5	3.4	3.45	4.0	4.0	*85.00*	*86.25*	5.0	2.2	*44.00*	5.8	6.4	*90.63*	3.7
346297	14.9	-------	-------	-------	9.6	11.0	-------	-------	3.75	3.8	4.4	4.4	*85.23*	*86.36*	5.7	2.5	*43.86*	-------	-------	-------	-------
346301	13.7	*91.24*	*51.82*	10.3	9.0	10.2	69.0	47.0	3.5	3.45	4.0	4.0	*87.50*	*86.25*	5.15	2.5	*48.54*	5.6	6.7	*83.58*	4.0
346292	14.6	*86.30*	*52.05*	10.6	9.4	10.6	69.0	52.5	3.4	3.4	3.95	3.95	*86.08*	*86.08*	5.5	2.3	*41.82*	5.6	6.6	*84.85*	3.45
346150	13.9	-------	*57.55*	10.2	8.9	10.6	70.0	51.5	3.65	3.6	3.9	3.8	*93.59*	*94.74*	5.7	2.3	*40.35*	5.3	7.2	*73.61*	-------
Specimens	(32)	(23)	(24)	(23)	(32)	(32)	(23)	(23)	(31)	(31)	(31)	(31)	(31)	(31)	(32)	(32)	(32)	(25)	(25)	(25)	(29)
Totals	460.3	-------	-------	242	297.3	340.4	1,597.5	1,262	110.2	110.75	126.1	124.75	-------	-------	173.7	77.95	-------	136	162	-------	108.95
Average	14.38	*89.9*	*53.9*	10.52	9.29	10.64	69.5	54.9	3.55	3.57	4.07	4.02	*87.4*	*88.8*	5.43	2.44	*44.9*	5.40	6.48	*84.0*	3.76
Minima	13.5	*84.5*	*50.4*	9.8	8.7	9.9	63	46.5	3.25	3.25	3.9	3.8	*82.1*	*83.3*	5	2.2	*40.0*	5.2	6.3	*73.6*	3.1
Maxima	15.1	*96.5*	*57.8*	11.2	10	11.1	76.5	61	3.85	3.85	4.4	4.4	*93.9*	*96.2*	5.7	2.85	*50.9*	6.3	7.4	*92.1*	4.1

POINT HOPE: FEMALES
(Older Burials)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Naison Height (b)
	(H. B. Collins)														
346288	U.S.N.M	Point Hope	40		19.1	13.2	13.2	*69.11*	*81.73*		15.17			13.0	7.5
346183	do	do	65		18.8	13.0	13.2	*69.15*	*83.02*		15.00				
346181	do	do	24		18.7	13.0	13.6	*69.52*	*85.80*		15.10			11.3	6.9
346147	do	do	50		18.3	12.8	13.3	*69.95*	*85.53*		14.80			12.0	7.3
346243	do	do	35		17.3	12.6	12.6	*72.83*	*84.28*		14.17				
346294	do	do	55		17.8	13.0	13.3	*73.03*	*86.36*		14.70			12.2	7.2
346194	do	do	35		17.9	13.2	13.0	*73.74*	*83.60*		14.70			11.5	6.9
346197	do	do	25		18.4	13.6	14.0	*73.91*	*87.50*		15.33			12.6	7.6
346209	do	do	24		18.4	13.6	13.0	*73.91*	*81.25*		15.00			12.3	7.8
346296	do	do	35		18.5	13.7	13.9	*74.05*	*86.34*		15.37			11.8	6.6
346207	do	do	25		17.9	13.4	13.7	*74.86*	*87.54*		15.00			11.5	7.2
346300	do	do	40		18.3	13.7	13.7	*74.86*	*85.63*		15.23			12.8	7.9
346151	do	do	45		17.3	13.0	13.0	*75.14*	*85.81*		14.43			11.6	6.8
346211	do	do	65		17.8	13.4	13.6	*75.28*	*87.18*		14.93			12.1	7.1
346190	do	do	25		17.7	13.4	12.9	*75.71*	*82.96*		14.67			12.2	7.1
346286	do	do	70		18.1	13.8	13.8	*76.24*	*86.52*		15.23				
346172	do	do	70		18.6	14.2	13.6	*76.34*	*82.93*		15.47				
346196	do	do	28		17.8	13.6	13.0	*76.40*	*82.80*		14.80			12.0	7.3
346156	do	do	75		18.0	13.8	13.5	*76.67*	*84.91*		15.10				
346192	do	do	60		18.1	14.0	14.0	*77.35*	*87.23*		15.37			13.6	8.2
346146	do	do	24		17.0	13.2	12.8	*77.65*	*84.77*		14.33			11.0	6.5
346158	do	do	27		17.9	13.9	13.9	*77.65*	*87.42*		15.23			11.5	6.8
346283	do	do	30		17.5	13.6	13.4	*77.71*	*86.17*		14.83			12.2	7.2
346298	do	do	18		16.9	13.2	13.8	*78.11*	*91.69*		14.63			11.5	6.7
346208	do	do	75		17.4	13.6	13.4	*78.16*	*86.45*		14.80				7.4
346189	do	do	40		18.0	14.3	13.4	*79.44*	*82.97*		15.23			12.4	7.4
Specimens			(26)		(26)	(26)	(26)	(26)	(26)		(26)			(20)	(21)
Totals			1,105		467.5	349.8	348.6				388.6			241.1	151.4
Averages			42.5		17.98	13.45	13.41	*74.8*	*85.3*		14.95			12.06	7.21
Minima			18		16.9	12.6	12.6	*69.1*	*81.7*		14.17			11.0	6.5
Maxima			75		19.1	14.3	14.0	*79.4*	*91.7*		15.47			13.6	8.2

POINT HOPE: FEMALES—Continued

(Older Burials)

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
346288	13.9	93.53	53.96	10.9	9.6	10.6	67.0	50.5	3.5	3.5	4.2	4.2	83.33	83.33	5.2	2.4	46.15	5.5	6.5	84.62	3.9
346183	13.6	-----	-----	-----	8.9	10.6	-----	-----	3.95	4.0	4.1	4.1	96.34	97.56	5.1	2.3	45.10	-----	-----	-----	3.6
346181	12.9	87.60	53.49	10.4	9.5	10.5	72.0	60.0	3.75	3.75	3.9	4.0	96.15	93.75	4.9	2.1	42.86	5.6	6.2	90.32	3.2
346147	12.9	93.02	56.59	9.8	8.6	10.2	71.5	53.5	-----	3.6	-----	4.0	-----	90.0	5.0	2.3	46.00	5.3	6.0	88.33	3.25
346243	-----	-----	-----	-----	-----	10.0	-----	-----	3.6	-----	4.0	-----	90.0	-----	-----	-----	-----	-----	-----	-----	-----
346294	13.0	93.85	55.38	10.6	9.3	10.0	65.5	50.0	3.5	3.4	3.75	3.7	93.33	91.89	5.0	2.6	52.00	5.6	6.6	84.85	3.6
346194	12.6	91.27	54.76	9.6	8.5	9.6	69.0	56.0	3.15	3.15	3.65	3.6	86.30	87.50	4.6	2.3	50.00	5.2	5.9	88.14	3.55
346197	13.6	92.65	55.88	10.3	9.2	10.5	70.0	57.0	3.65	3.65	4.15	4.2	87.95	86.90	5.2	2.3	44.23	5.8	6.4	90.63	3.8
346209	[1] 12.6	97.63	61.90	10.3	9.0	10.0	65.0	52.0	3.5	3.5	3.8	3.7	92.11	94.59	5.5	2.15	39.09	5.6	6.1	91.80	3.6
346296	13.4	88.06	49.25	9.4	8.6	10.2	63.5	53.0	3.4	3.45	3.95	3.95	86.08	87.34	4.9	2.15	43.88	5.0	6.1	81.98	3.2
346207	13.2	87.12	54.55	9.8	8.8	10.6	70.5	56.0	3.7	3.85	4.0	3.9	92.50	98.72	5.2	2.2	42.31	5.2	6.4	81.35	3.1
346300	13.7	93.43	57.66	10.8	9.6	10.4	65.5	54.0	3.45	3.45	3.95	3.95	87.34	87.34	5.6	2.2	39.29	6.0	6.5	92.31	3.7
346151	13.7	84.67	46.64	10.1	8.8	9.8	67.5	51.5	3.75	3.9	4.3	4.2	87.21	92.86	4.65	2.5	53.76	5.4	6.3	85.71	3.4
346211	13.1	92.37	54.20	-----	8.6	9.8	-----	-----	3.4	3.35	3.8	3.7	89.47	90.54	5.25	2.2	41.90	5.4	6.3	85.71	3.5
346190	14.1	86.52	50.35	11.0	9.8	10.2	64.0	50.0	3.55	3.55	4.0	3.9	88.75	91.03	5.0	2.25	45.00	6.4	7.1	90.14	3.7
346286	13.4	-----	-----	-----	8.7	10.4	-----	-----	-----	3.6	-----	4.0	-----	90.0	5.15	2.3	44.66	-----	-----	-----	-----
346172	13.4	-----	-----	-----	9.0	9.8	-----	-----		3.4	-----	3.9		87.18	5.0	2.3	46.00	-----	-----	-----	-----
346196	13.6	88.24	53.68	9.8	8.8	10.1	71.0	56.0	3.6	3.6	4.1	4.1	87.80	87.80	5.3	2.2	41.51	5.6	6.5	86.15	3.55
346156	13.9	-----	-----	-----	8.9	10.2	-----	-----	3.55	3.6	4.2	4.2	84.52	85.71	5.3	2.6	49.06	-----	-----	-----	-----
346192	14.3	95.10	57.34	10.9	9.8	10.7	66.0	59.5	3.6	3.65	4.1	4.1	87.80	89.02	5.4	2.5	46.30	6.2	7.3	84.93	4.0
346146	13.1	83.97	49.62	9.4	8.6	9.8	73.5	55.5	3.55	3.55	4.0	3.9	88.75	91.03	5.0	2.3	46.00	5.0	6.3	79.37	2.95
346158	13.0	88.46	52.31	9.7	8.7	9.8	70.0	56.0	3.05	3.05	3.7	3.7	82.43	82.43	4.8	2.25	46.88	5.2	5.8	89.66	3.2
346283	12.8	95.31	56.25	9.6	8.3	10.0	72.0	52.0	3.5	3.6	3.9	3.8	89.74	94.74	4.9	2.3	46.94	5.2	5.9	88.14	3.65
346298	12.9	89.15	51.94	9.5	8.8	10.4	78.80	64.5	3.55	3.65	3.9	3.9	91.03	93.59	4.7	2.1	44.68	5.0	6.4	78.13	3.4
346208	13.9	-----	53.24	-----	9.1	10.1	-----	-----	3.35	3.35	3.8	3.8	88.16	88.16	5.1	2.2	43.14	-----	-----	-----	-----
346189	12.9	96.12	57.36	10.3	9.0	10.2	68.0	49.5	3.5	3.65	4.0	3.9	87.50	93.59	5.3	2.2	41.51	5.7	6.5	87.69	3.7
Specimens	(25)	(20)	(21)	(19)	(25)	(26)	(19)	(19)	(23)	(25)	(23)	(25)	(23)	(25)	(25)	(25)	(25)	(20)	(20)	(20)	(21)
Totals	333.5	-----	-----	192.2	224.5	264.5	1,309.5	1,018.5	81.1	88.8	91.25	98.4	-----	-----	127.05	57.2	-----	109.9	127.1	-----	73.55
Averages	13.34	90.9	54.2	10.12	8.98	10.17	68.9	53.6	3.53	3.55	3.97	3.94	88.9	90.2	5.08	2.29	45.0	5.50	6.36	86.5	3.50
Minima	12.6	84.0	46.6	9.4	8.3	9.6	63.5	50.0	3.05	3.05	3.65	3.6	82.4	82.4	4.6	2.1	39.1	5.0	5.8	78.1	2.95
Maxima	14.3	97.6	61.9	11.0	9.8	10.7	78.0	64.5	3.95	4.0	4.3	4.2	96.3	98.7	5.6	2.6	53.8	6.4	7.3	92.3	4.0

[1] Near.

POINT HOPE: MALES
(Later Burials)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a) [1]	Alveol. Pt.-Nasion Height (b)
333396	(A. H.) U.S.N.M.	Point Hope	Adult	---	18.8	13.0	14.3	69.2	89.9	---	15.37	1,440	---	---	7.4
332724	do	do	do	---	19.3	13.5	14.2	70.0	86.6	---	15.67	1,490	---	---	7.3
332746	do	do	do	---	18.9	13.4	13.0	70.9	80.2	---	15.10	1,440	---	---	[1] 7.5
333407	do	do	do	---	19.0	13.5	13.0	71.0	80.2	---	15.17	1,420	---	---	7.4
332591	do	do	do	---	18.7	13.3	13.2	71.1	82.5	---	15.07	---	---	---	7.5
332600	do	do	do	---	19.7	14.0	14.3	71.1	85.1	---	16.00	1,540	---	---	8.3
332697	do	do	do	---	18.5	13.2	14.1	71.4	89.2	---	15.27	1,385	---	---	[1] 7.1
332711	do	do	do	---	18.6	13.3	14.5	71.5	90.6	---	15.47	1,550	---	---	7.9
332752	do	do	do	---	19.0	13.6	14.3	71.6	87.7	---	15.63	1,360	---	---	7.9
332798	do	do	do	---	19.0	13.6	13.3	71.6	81.6	---	15.30	1,420	---	---	[1] 7.7
333404	do	do	do	---	18.6	13.4	14.0	72.0	87.5	---	15.33	1,525	---	---	7.8
333444	do	do	60	---	18.6	[1] 13.4	---	72.0	---	---	---	---	---	---	7.9
333421	do	do	Adult	---	19.0	13.7	13.2	72.1	80.5	---	15.30	1,640	---	---	7.3
332679	do	do	do	---	18.7	13.5	13.4	72.2	83.2	---	15.20	1,375	---	---	8.0
333449	do	do	do	---	19.1	13.8	13.8	72.2	84.2	---	15.57	1,550	---	13.2	8.0
332712	do	do	do	---	18.9	13.7	13.6	72.5	83.4	---	15.40	---	---	---	7.9
332772	do	do	do	---	19.0	13.8	14.1	72.6	86.0	---	15.63	1,430	---	---	8.2
332694	do	do	do	---	18.3	13.3	14.2	72.7	89.9	---	15.27	1,410	---	---	---
332700	do	do	do	---	18.3	13.3	13.4	72.7	84.8	---	15.00	1,465	---	---	7.8
332728	do	do	do	---	18.7	13.6	13.9	72.7	85.8	---	15.40	1,365	---	---	7.6
332797	do	do	do	---	18.3	13.3	13.9	72.7	88.0	---	15.17	1,430	---	---	7.1
333405	do	do	do	---	18.7	13.6	14.2	72.7	87.6	---	15.50	1,600	---	---	7.7
332709	do	do	do	---	18.4	13.4	13.7	72.8	86.2	---	15.17	1,335	---	---	7.1
332757	do	do	do	---	19.1	13.9	[1] 14.3	72.8	86.7	---	15.77	1,670	---	---	7.4
332701	do	do	do	---	18.5	13.5	14.4	73.0	90.0	---	15.47	[1] 1,510	---	---	7.4
333434	do	do	do	Small plagiocipital but +.	18.9	13.8	14.1	73.0	86.0	---	15.60	1,570	---	---	7.5
332676	do	do	do	---	18.6	13.6	13.7	73.1	85.1	---	15.30	[1] 1,420	---	---	7.2
332717	do	do	do	---	18.6	13.6	13.3	73.1	82.6	---	15.17	1,435	---	---	7.8
332732	do	do	do	---	18.6	13.6	13.7	73.1	85.1	---	15.30	1,445	---	---	7.7
332684	do	do	Near adult.	---	18.5	13.6	13.2	73.5	82.5	---	15.10	1,440	---	---	6.8

[1] Near.

POINT HOPE: MALES—Continued
(Later Burials)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
332687	(*A.H.*) U.S.N.M.	Point Hope	Adult		18.5	13.6	13.9	*73.5*	*86.9*		15.33	1,405			[1] 8.0
332768	do	do	do		18.5	13.6	14.2	*73.5*	*88.8*		15.43	1,550			7.7
333437	do	do	do		18.1	13.3	13.9	*73.5*	*88.5*		15.10	1,380	Medium	12.1	7.3
332754	do	do	do		18.2	13.4	14.5	*73.6*	*91.8*		15.37	1,450			7.5
332773	do	do	do		19.7	14.5	13.9	*73.6*	*81.3*		16.03	1,520			8.1
332789	do	do	Near adult.		18.2	13.4	14.4	*73.6*	*91.1*		15.33	1,500			[1] 7.4
333393	do	do	Adult		18.2	13.4	14.0	*73.6*	*88.6*		15.20	1,325			7.6
333442	do	do	do		18.2	13.4	[1] 13.7	*73.6*	*86.7*		15.10	1,405			7.8
333391	do	do	do		18.6	13.7	14.1	*73.7*	*87.0*		15.47	1,480			7.4
332705	do	do	do		18.7	13.8	14.6	*73.8*	*90.1*		15.70	1,515			
332722	do	do	do		18.8	13.9	13.2	*73.9*	*80.5*		15.30	1,470			7.2
332765	do	do	do		18.0	13.3	13.8	*73.9*	*88.5*		15.03	1,350			
332753	do	do	do		19.2	14.2	14.0	*74.0*	*83.8*		15.80	1,675			7.7
333384	do	do	do		18.5	13.7	14.0	*74.0*	*87.0*		15.40	1,440			7.6
332593	do	do	do		19.4	14.4	14.5	*74.2*	*85.8*		16.10	1,580			8.3
333388	do	do	do		18.6	13.8	13.5	*74.2*	*83.3*		15.30	1,390			6.8
332604	do	do	do		18.7	13.9	13.0	*74.3*	*79.8*		15.20	1,470			[1] 7.9
332737	do	do	do		18.7	13.9	13.2	*74.3*	*81.0*		15.27	1,465			8.2
333433	do	do	do		17.9	13.3	13.6	*74.3*	*87.2*		14.93	1,470			7.4
332748	do	do	do		18.4	13.7	13.4	*74.5*	*83.8*		15.17	1,395			7.2
332695	do	do	do		18.5	13.8	13.8	*74.6*	*85.2*		15.37	1,500			7.6
332689	do	do	do		18.6	13.9	14.4	*74.7*	*88.9*		15.63	1,500			7.4
332718	do	do	do		17.8	13.3		*74.7*				[1] 1,215			6.9
332742	do	do	do		18.2	13.6	14.0	*74.7*	*88.0*		15.27	1,335			[1] 7.4
332715	do	do	do		18.7	14.0	13.8	*74.9*	*84.2*		15.50	1,530			[1] 7.8
333409	do	do	do		18.7	14.0	13.8	*74.9*	*84.2*		15.50	1,515			7.4
332581	do	do	do		18.0	13.5	14.2	*75.0*	*89.9*		15.23	1,420	Medium	11.5	7.3
332749	do	do	do		18.0	13.5	14.0	*75.0*	*88.6*		15.17	1,485			7.1
332596	do	do	do		18.1	13.6	13.4	*75.1*	*84.8*		15.03	1,460			7.7
332751	do	do	do		18.1	13.6	14.0	*75.1*	*88.6*		15.23	1,400			7.4
333412	do	do	do		18.9	14.2	13.6	*75.1*	*81.9*		15.57	1,520	Moderate	12.8	7.9
333450	do	do	do		18.1	13.6	13.8	*75.1*	*87.3*		15.17				6.8
332702	do	do	do		18.2	13.7	14.0	*75.3*	*87.5*		15.30	1,410			7.2

333385	do	do	do		19.0	14.3	14.3	75.3	86.1		15.87	1,550			7.8
333410	do	do	do		19.0	14.3	14.3	75.3	86.1		15.87	1,520			7.1
332739	do	do	do		18.7	14.1	13.2	75.4	80.5		15.33	1,465			[1] 7.9
332780	do	do	do		19.2	14.5	13.5	75.5	80.4		15.73	1,480			8.1
333249	do	do	do		18.4	13.9	13.7	75.5	84.6		15.33	1,385			7.6
332758	do	do	do		18.0	13.6	14.0	75.6	88.6		15.20	1,510			7.1
332713	do	do	do		18.5	14.0	13.8	75.7	85.2		15.43	1,540			[1] 7.4
332714	do	do	do		18.5	14.0	13.3	75.7	82.1		15.27	1,540			7.4
332760	do	do	do		18.5	14.0	14.2	75.7	87.6		15.57	1,465			7.5
332783	do	do	do		18.1	13.7	14.2	75.7	89.3		15.33	1,370			[1] 7.8
332788	do	do	do		18.5	14.0	13.8	75.7	85.2		15.43	1,490			7.9
242917	do	do	50		17.7	13.4	13.8	75.7	88.7		14.97	1,300	Slight		7.7
332590	do	do	Adult		18.2	13.8	13.8	75.8	86.2		15.27	1,405			7.5
332731	do	do	do		17.8	13.5	14.0	75.8	89.7		15.10				7.3
332767	do	do	do		18.6	14.1	13.8	75.8	84.2		15.50	1,475			
333414	do	do	do		18.2	13.8	14.0	75.8	87.5		15.33	1,515			7.0
242888	do	do	30		18.2	13.8	14.4	75.8	90.0		15.47	1,505	+		8.2
332781	do	do	Adult		18.7	14.2	14.6	75.9	89.0		15.83	1,565			
333386	do	do	do		17.9	13.6	14.1	76.0	89.2		15.20	1,405			7.2
333399	do	do	do		17.9	13.6	14.1	76.0	89.2		15.20	1,425			7.6
332796	do	do	do		18.8	14.3	13.8	76.1	83.1		15.63	1,565			6.7
332682	do	do	do		18.5	14.1	13.7	76.2	84.0		15.43	1,505			
333406	do	do	do		18.5	14.1	14.2	76.2	87.1		15.60	1,485			8.3
332778	do	do	do		18.6	14.2	13.7	76.3	83.5		15.50	1,580			8.1
333390	do	do	do		17.9	13.7	13.8	76.5	87.3		15.13	1,370			7.2
332740	do	do	do		18.4	14.1	13.7	76.6	84.6		15.40	1,535			7.5
333438	do	do	do		18.4	14.1	14.0	76.6	86.4		15.50	1,405			7.6
333415	do	do	do		18.0	13.8	13.6	76.7	85.5		15.13	1,430			7.1
333431	do	do	do		17.6	13.5	13.8	76.7	88.5		14.97	1,420			7.0
332716	do	do	do		18.5	14.2	14.5	76.8	88.4		15.73	1,610			7.6
332721	do	do	do		18.5	14.2	14.3	76.8	87.2		15.67	1,510			7.9
333416	do	do	do		18.1	13.9	14.3	76.8	89.4		15.43	1,550			7.1
333427	do	do	do		17.7	13.6	13.2	76.8	84.6		14.83	1,340			7.0
332678	do	do	do		18.6	14.3	14.3	76.9	87.2		15.73	1,540			7.1
332699	do	do	do		18.2	14.0	14.2	76.9	88.2		15,47	[1] 1,625			7.5
332766	do	do	do		18.6	14.4	14.2	77.4	86.1		15,73	1,560			[1] 8.2
332602	do	do	do		17.8	13.8	13.6	77.5	86.1		15.07	1,425			7.5
332745	do	do	do		18.2	14.1	14.2	77.5	87.6		15,50	1,490			[1] 7.7
242895	do	do	55		17.8	13.8	13.8	77.5	87.3		15.13	1,485			
332791	do	do	Adult		17.8	13.8	13.2	77.5	83.5		14,93	1,380			7.8
332736	do	do	do		18.8	14.6	15.0	77.7	89.8		16.13	1,650			[1] 8.0
332776	do	do	do		18.8	14.6	14.0	77.7	83.8		15.80	[1] 1,550			
332733	do	do	do		17.6	13.7	14.2	77.8	91.0		15,17	1,465			7.2
332719	do	do	do		18.1	14.1	13.6	77.9	84.5		15,27	1,430			7.6
333417	do	do	do		18.1	14.1	14.1	77.9	87.6		15.43	1,570			7.5
332794	do	do	do		18.3	14.3	13.8	78.1	84.7		15.47	1,425			7.5
333413	do	do	do		17.8	13.9	14.3	78.1	90.5		15,33	1,475			7.1
333432	do	do	do		17.8	13.9	13.2	78.1	83.5		14.97	1,415			7.5
332707	do	do	do		17.9	14.0	14.0	78.2	87.5		15.30	1,500			
332774	do	do	do		18.4	14.4	14.6	78.3	89.0		15.80	1,600			
332708	do	do	do		18.5	14.5	13.2	78.4	80.0		15.40	1,520			7.5

POINT HOPE: MALES—Continued
(Later Burials)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
332720	(A. H.) U.S.N.M.	Point Pope	do		17.7	13.9	13.8	*78.5*	*87.3*		15.13	[1] 1,435			[1] 7.2
332762	do	do	do		19.2	15.1	14.7	*78.6*	*85.5*		16.33	1,715			8.0
332763	do	do	do		17.8	14.0	13.8	*78.6*	*86.8*		15.20	1,410			
332787	do	do	do		18.2	14.3	14.2	*78.6*	*87.6*		15.57	1,555			7.2
333401	do	do	do		17.5	13.8	13.6	*78.9*	*87.2*		14.97	1,300			7.5
332445	do	do	do		18.0	14.2	13.8	*78.9*	*85.7*		15.23	1,350			
332446	do	do	do		17.6	13.9	13.8	*79.0*	*87.3*		15.10	[1] 1,380			7.2
332448	do	do	do		18.1	14.3	13.4	*79.0*	*82.7*		15.27	1,490			7.0
332777	do	do	{Near adult}		17.7	14.0	14.0	*79.1*	*88.6*		15.23	1,430			7.8
332585	do	do	Adult		17.8	14.1	14.3	*79.2*	*89.4*		15.40	1,485			[1] 7.5
332770	do	do	do		18.3	14.5	14.5	*79.2*	*88.4*		15.77	1,560			
242942	do	do	45		18.0	14.3	13.9	*79.4*	*86.1*		15.40	1,595	Slight		7.3
332793	do	do	Adult		18.6	14.8	14.5	*79.6*	*86.8*		15.97	1,600			7.3
333403	do	do	do		18.0	14.4		*80.0*				[1] 1,440			7.0
333435	do	do	do		17.6	14.1	14.2	*80.1*	*89.9*		15.30	1,545			7.6
332755	do	do	do		18.6	15.0	13.9	*80.6*	*82.7*		15.83	1,510			8.4
332703	do	do	do		17.2	14.2	13.7	*82.6*	*87.3*		15.03	1,480			6.9
Specimens					(131)	(131)	(128)	*(131)*	*(128)*		(128)	(126)		(4)	(118)
Totals					2,410.0	1,815.5	1,779.6				1,970	185,785		49.6	888.0
Averages					18.40	13.86	13.90	*75.3*	*86.2*		15.39	1,474		12.40	7.52
Minima					17.2	13.0	13.0	*69.2*	*79.8*		14.83	1,215		11.5	6.7
Maxima					19.7	15.1	15.0	*82.6*	*91.8*		16.33	1,715		13.2	8.4

[1] Near.

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	*Upper Alveolar Arch—* Length maxim.	*Upper Alveolar Arch—* Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
333396	13.8	-------	*53.6*	10.4	9.2	10.5	71.0	51.0	3.6	3.6	4.0	3.9	*90.0*	*92.3*	5.5	2.35	*42.7*	5.5	6.4	*85.9*	------
332724	¹ 13.8	-------	*52.9*	10.5	9.5	10.8	73.0	48.0	3.7	3.7	4.1	4.2	*90.2*	*88.1*	5.9	2.4	*40.7*	5.7	6.5	*87.7*	------
332746	13.5	-------	*55.6*	------	9.7	9.8	-------	-------	¹ 3.5	3.5	3.75	3.65	*93.3*	*95.9*	5.1	2.3	*45.1*	-------	-------	-------	------
333407	¹ 14.0	-------	*52.9*	10.0	9.0	10.1	69.0	56.0	3.75	3.6	3.95	3.9	*94.9*	*92.3*	5.45	2.35	*43.1*	-------	-------	-------	------
332591	13.3	-------	*56.4*	¹ 10.6	9.0	10.1	65.0	49.0	3.85	3.75	4.0	4.05	*96.2*	*92.6*	4.9	2.35	*48.0*	-------	-------	-------	------
332600	14.5	-------	*57.2*	11.1	10.1	10.9	66.0	61.0	3.9	3.85	4.2	4.1	*92.9*	*93.9*	5.8	2.3	*39.7*	6.1	7.0	*87.1*	------
332697	¹ 13.5	-------	*52.6*	------	9.4	10.6	-------	-------	3.3	------	3.8	------	*86.8*	------	5.0	2.4	*48.0*	-------	-------	-------	------
332711	¹ 13.8	-------	*57.2*	9.7	8.6	10.1	69.0	59.0	3.8	3.7	4.0	3.95	*95.0*	*93.7*	5.25	2.5	*47.6*	5.4	6.4	*84.4*	------
332752	14.4	-------	*54.9*	10.5	9.6	11.0	72.0	62.0	3.3	3.25	4.1	4.0	*80.5*	*81.2*	5.65	2.5	*44.2*	5.5	7.0	*78.6*	------
332798	14.9	-------	*51.7*	------	9.3	10.4	-------	-------	4.1	------	4.3	------	*95.4*	------	5.5	2.5	*45.4*	-------	-------	-------	------
333404	14.7	-------	*53.1*	10.2	9.2	10.4	69.0	56.0	------	3.5	------	4.1	------	*85.4*	5.8	2.35	*40.5*	-------	-------	-------	------
333444	------	-------	-------	------	------	------	-------	-------	3.65	3.7	4.1	4.1	*89.0*	*90.2*	5.6	2.4	*42.8*	-------	-------	-------	------
333421	¹ 14.4	-------	*50.7*	11.2	9.9	10.8	68.0	47.0	3.4	3.4	4.1	4.2	*82.9*	*81.0*	5.5	2.6	*47.3*	6.1	¹ 7.2	*84.7*	------
332679	¹ 14.5	-------	*55.2*	¹ 10.3	9.2	10.5	69.0	56.0	3.4	------	4.1	------	*82.9*	------	5.8	2.7	*46.6*	5.8	6.6	*87.9*	------
333449	13.5	*97.8*	*59.3*	10.6	9.3	10.5	67.0	55.0	3.8	3.75	4.0	4.0	*95.0*	*93.8*	5.35	2.4	*44.9*	5.9	6.6	*89.4*	4.2
332712	14.1	-------	*56.0*	10.2	9.0	10.4	69.0	56.0	------	3.9	------	4.1	------	*95.1*	5.4	2.4	*44.4*	5.8	6.6	*87.9*	------
332772	14.7	-------	*55.8*	10.4	9.4	10.8	70.0	62.0	3.6	3.65	4.0	4.1	*90.0*	*89.0*	5.4	2.55	*47.2*	5.6	6.6	*84.9*	------
332694	14.4	-------	-------	------	9.3	10.6	-------	-------	3.7	3.8	4.05	4.05	*91.4*	*93.8*	5.8	2.35	*40.5*	-------	-------	-------	------
332700	14.1	-------	*55.3*	10.0	9.0	10.5	72.0	60.0	3.8	------	4.1	------	*92.7*	------	5.4	2.25	*41.7*	5.4	¹ 6.3	*85.7*	------
332728	¹ 14.3	-------	*53.1*	10.6	9.7	11.0	73.0	61.0	3.8	3.7	3.95	3.9	*96.2*	*94.9*	5.5	2.45	*44.5*	¹ 5.7	6.4	*89.1*	------
332797	14.0	-------	*50.7*	10.0	9.2	10.4	73.0	59.0	3.55	3.5	3.95	3.9	*89.9*	*89.7*	5.35	2.3	*43.0*	5.1	6.1	*83.6*	------
333405	14.2	-------	*54.2*	9.9	9.1	10.3	71.0	64.0	------	3.6	------	4.0	------	*90.0*	5.4	2.3	*42.6*	5.3	6.3	*84.1*	------
332709	14.2	-------	*50.0*	10.2	9.3	10.6	73.0	60.0	3.35	3.5	3.95	4.0	*84.8*	*87.5*	5.1	2.4	*47.1*	5.2	6.4	*81.3*	------
332757	14.6	-------	*50.7*	¹ 9.7	¹ 8.6	10.1	71.0	56.0	3.55	3.5	4.0	4.0	*88.8*	*87.5*	5.1	2.3	*45.1*	-------	-------	-------	------
332701	¹ 14.4	-------	*51.4*	10.3	9.3	10.6	72.0	58.0	3.5	3.4	3.85	3.85	*90.9*	*88.3*	5.3	2.6	*49.1*	5.6	6.6	*84.9*	------
333434	14.6	-------	*51.4*	10.4	9.4	10.7	72.0	58.0	3.65	3.75	4.2	4.25	*86.9*	*88.2*	5.4	2.6	*48.2*	5.5	6.4	*85.9*	------
332676	¹ 14.1	-------	*51.1*	10.8	9.8	10.6	69.0	59.0	3.5	3.6	4.0	3.9	*87.5*	*92.3*	4.95	2.5	*50.5*	5.8	6.6	*87.9*	------
332717	¹ 14.3	-------	*54.5*	10.3	9.0	10.3	68.0	54.0	3.85	3.85	4.2	4.2	*91.7*	*91.7*	5.3	2.1	*39.6*	5.8	6.9	*84.1*	------
332732	14.2	-------	*54.2*	10.5	9.5	10.6	70.0	59.0	3.5	3.4	3.95	3.9	*88.6*	*87.2*	5.5	2.35	*42.7*	-------	-------	-------	------
332684	13.5	-------	*50.4*	9.8	8.7	9.9	71.0	49.0	3.35	3.35	3.8	3.8	*88.2*	*88.2*	5.1	2.55	*50.0*	5.6	6.8	*82.4*	------
332687	14.6	-------	*54.8*	------	9.4	10.5	-------	-------	3.6	------	4.05	------	*88.9*	------	5.6	2.6	*46.4*	-------	-------	-------	------
332768	14.6	-------	*52.7*	10.2	9.0	10.4	70.0	56.0	3.75	3.75	4.3	4.3	*87.2*	*87.2*	5.2	2.6	*50.0*	5.4	6.6	*81.8*	------
333437	14.3	*84.6*	*51.0*	9.8	8.8	10.3	73.0	59.0	3.9	3.75	4.3	4.3	*90.7*	*87.2*	5.05	2.45	*48.5*	5.2	6.0	*86.7*	3.8
332754	13.8	-------	*54.4*	¹ 10.6	9.3	10.5	69.0	51.0	3.2	3.2	4.1	4.1	*78.1*	*78.1*	5.3	2.3	*43.4*	¹ 5.7	6.8	*83.8*	------

¹ Near.

POINT HOPE: MALES—Continued
(Later Burials)

Catalog No.	Diam Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
332773	15.2		53.3	10.4	9.2	10.8	70.0	54.0	3.8		4.5		84.4		5.9	2.55	43.2	5.8	6.7	86.6	
332789	13.5		54.8	10.1	9.2	10.7	74.0	60.0	3.6	3.45	3.9	3.9	92.3	88.5	5.25	2.1	40.0	5.5	6.5	84.6	
333393	14.2		53.5		9.2	10.4			3.9	3.7	4.2	4.1	92.9	90.2	5.15	2.0	38.8	5.7	6.6	86.4	
333442	13.5		57.8	10.1	8.8	9.8	65.0	52.0	3.45	3.5	4.0	3.95	86.2	88.6	5.45	2.5	45.9	5.6	6.0	93.3	
333391	13.6		54.4	10.0	9.1	10.5	73.0	60.0	3.8	3.85	4.05	4.05	93.8	95.1	5.25	2.35	44.8	5.3	6.5	81.5	
332705	14.3				9.6	10.8			4.15	4.0	4.2	4.15	98.8	96.4	5.5	2.45	44.5				
332722	14.1		51.1	10.3	9.0	10.2	69.0	49.0	3.7	3.7	4.2	4.1	88.1	90.2	5.2	2.5	48.1	5.8	6.8	85.3	
332765	13.7				9.0	10.5			3.55	3.7	3.95	3.95	89.9	93.7	5.2	2.15	41.3				
332753	14.9		51.7	10.6	9.6	10.5	68.0	56.0	3.55	3.5	4.2	4.25	84.5	82.4	5.6	2.4	42.9	5.6	6.7	83.6	
333384	14.7		51.7	10.9	9.8	11.2	72.0	58.0	3.4	3.4	4.2	4.1	81.0	82.9	5.3	2.6	49.1	5.7	6.5	87.7	
332593	14.5		57.2	11.3	10.0	11.0	66.0	56.0	3.7	3.75	4.15	4.15	89.2	90.4	5.7	2.65	46.5	6.0	6.5	92.3	
333388	14.6		46.6	9.8	8.8	9.9	71.0	50.0	3.4	3.5	4.0	3.9	85.0	89.7	5.25	2.3	43.8				
332604	14.2		55.6		9.5	10.8			3.5	3.65	4.0	4.0	87.5	91.2	5.45	2.6	47.7				
332737	14.3		57.3	10.5	9.2	10.5	67.0	53.0	3.9	3.8	4.2	4.1	92.9	92.7	5.8	2.5	43.1	5.7	6.6	86.4	
333433	13.8		53.6	9.7	8.6	10.1	71.0	53.0	3.6	3.55	3.9	3.9	92.3	91.0	5.5	2.05	37.3	4.9	6.4	76.6	
332748	[1] 14.2		50.7		9.0	10.2				3.3		3.85		85.7	5.2	2.35	45.2				
332695	[1] 13.7		55.5	10.2	9.0	10.4	70.0	56.0	3.5		3.9		89.7		5.2	2.4	46.2	5.6	6.5	86.2	
332689	13.8		53.6	10.5	9.3	10.4	69.0	54.0	3.7	3.7	4.1	4.1	90.2	90.2	5.1	2.4	47.1	5.8	6.1	95.1	
332718	14.3		48.2						3.5	3.4	3.85	3.85	90.9	88.3	5.1	2.3	45.1	5.2	6.3	82.5	
332742	14.3		51.8	10.5	9.7	10.6	70.0	63.0	3.7	3.7	4.0	4.0	92.5	92.5	5.2	2.5	48.1	5.5	6.1	90.2	
332715	[1] 14.5		53.8	[1] 9.6	8.6	10.2	71.0	58.0	4.1	4.05	[1] 4.2	4.2	97.6	96.4	5.55	2.25	40.5				
333409	14.3		51.8	10.6	9.4	10.4	68.0	52.0	3.8	3.9	4.0	4.1	95.0	95.1	5.35	2.45	45.8	[1] 5.7	6.8	83.8	
332581	14.4	79.9	50.7	10.7	9.7	10.7	70.0	56.0	3.4	3.5	3.85	3.95	88.3	88.6	5.3	2.6	49.1	5.8	6.4	90.6	3.7
332749	14.2		50.0	9.7	8.9	10.3	74.0	61.0	3.4	3.45	3.9	3.9	87.2	88.5	5.2	2.35	45.2	5.4	6.2	87.1	
332596	14.2		54.2	10.5	9.5	10.2	66.0	60.6	3.65	3.65	3.9	3.9	93.6	93.6	5.4	2.2	40.7	5.2	6.1	85.3	
332751	14.4		51.4	10.3	9.2	10.2	68.0	55.0	3.8	3.9	3.95	4.0	96.2	97.5	5.3	2.4	45.3	5.5	6.7	82.1	
333412	15.0	85.3	52.7	10.5	9.4	11.0	72.0	56.0	3.7	3.75	4.2	4.15	88.1	90.4	5.7	2.35	41.2	5.2	6.4	81.3	3.6
333450	[1] 14.3		47.6	9.9	9.0	10.1	72.0	58.0	3.55		3.9		91.0		4.95	2.0	40.4	5.2	6.1	85.3	
332702	14.3		50.4	10.1	9.4	10.6	73.0	66.0	3.4	3.4	4.0	3.9	85.0	87.2	4.9	2.45	50.0	5.6	6.3	88.9	
333385	15.0		52.0	10.1	9.4	10.6	71.0	65.0	3.75	3.7	4.0	4.0	93.8	92.5	5.6	2.35	42.0	5.5	6.6	83.3	
333410	14.5		49.0	10.2	9.3	10.7	74.0	58.0	3.6	3.6	4.3	4.1	83.7	87.8	5.2	2.55	49.0	5.3	6.4	82.8	
332739	[1] 15.0		52.7	[1] 10.1	9.0	10.2	68.0	57.0		3.6		3.9		92.3	5.5	2.5	45.4	5.8	6.7	86.6	
332780	14.2		57.0	10.8	9.7	10.6	66.0	59.0	3.8	3.75	4.2	4.3	90.5	87.2	5.5	2.4	43.6	5.7	6.5	87.7	
333429	[1] 14.6		52.1	10.3	9.1	10.5	70.0	57.0	3.55	3.55	4.15	4.1	85.5	86.6	5.0	2.35	47.0	5.6	6.9	81.2	
332758	13.8		51.4	10.4	9.3	10.6	72.0	52.0	3.7	3.75	4.0	4.0	92.5	93.8	5.3	2.1	39.6	5.5	6.1	90.2	

332713	14.6		*50.7*	[1] 10.6	9.5	10.6	70.0	56.0	4.0	3.85	4.1	4.1	*97.6*	*93.9*	5.2	2.35	*45.2*	5.5	6.4	*85.9*	
332714	[1] 13.6		*54.4*	10.0	9.2	10.2	70.0	63.0	3.6	3.65	4.0	3.9	*90.0*	*93.6*	5.2	2.1	*40.4*	5.5	6.6	*83.3*	
332760	[1] 14.8		*50.7*	10.2	9.2	10.4	70.0	58.0	3.8	3.85	4.2	4.1	*90.5*	*93.9*	5.3	2.6	*49.1*	5.5	6.8	*80.9*	
332783	[1] 14.0		*55.7*		10.3	11.4			4.1	4.0	4.2	4.2	*97.6*	*95.2*	5.7	2.35	*41.2*	[1] 5.5	6.4	*85.9*	
332788	15.1		*52.3*	10.3	9.2	11.0	73.0	57.0	3.5	3.55	4.2	4.2	*83.3*	*84.5*	5.6	2.5	*44.6*	5.5	6.5	*84.6*	
242947	13.8		*55.8*	10.4	9.3	10.4	68.0	56.0	3.5	3.6	4.0	3.9	*87.5*	*92.3*	5.45	2.45	*45.0*	5.6	6.8	*82.4*	
332590	14.2		*52.8*	10.5	9.3	10.4	69.0	53.0	3.5	3.7	3.95	3.95	*88.6*	*93.7*	5.35	2.7	*50.5*	5.8	6.7	*86.6*	
332731	14.3		*51.0*	9.7	8.6	10.0	71.0	50.0	3.9	3.75	4.0	4.0	*97.5*	*93.8*	5.6	2.2	*39.3*	5.5	6.4	*85.9*	
332767						11.0			3.6		4.1		*87.8*								
333414	14.1		*49.6*	10.6	9.7	10.4	69.0	61.0	3.2	3.3	3.95	3.9	*81.0*	*84.6*	4.7	2.2	*46.8*	5.2	6.2	*83.9*	
242888	14.1		*58.2*	10.9	9.6	10.8	67.0	54.0	3.75	3.75	4.0	4.0	*93.8*	*93.8*	5.75	2.05	*35.6*	6.0	6.4	*93.8*	
332781	14.0				9.5	10.9			3.7	3.85	4.15	4.1	*89.2*	*93.9*							
333386	[1] 14.3		*50.4*	10.2	9.3	10.4	71.0	60.0	3.55		4.2		*84.5*		5.1	2.6	*51.0*				
333399	14.2		*53.5*			10.6			3.6	3.7	4.0	4.1	*90.0*	*90.2*	5.75	2.1	*36.5*	5.7	6.3	*90.5*	
332796	14.6		*46.0*	10.1	9.0	10.5	74.0	49.0	3.5	3.5	3.9	3.9	*89.7*	*89.7*	5.1	2.35	*46.1*	5.3	6.6	*80.3*	
332682	[1] 13.8					10.1				3.6		4.0		*90.0*							
333406	14.5		*57.2*	10.9	9.6	10.9	67.0	55.0	3.8	3.75	4.0	4.1	*95.0*	*91.5*	5.7	2.4	*42.1*	5.7	6.4	*89.1*	
332778	15.0		*54.0*	10.7	9.5	10.7	68.0	56.0	3.6	3.65	4.2	4.2	*85.7*	*86.9*	5.6	2.4	*42.9*	5.7	7.0	*81.4*	
333390	13.9		*51.8*		9.0	10.1				3.6		3.8		*94.7*	5.3	2.25	*42.4*				
332740	14.2		*52.8*	[1] 10.0	9.2	10.8	75.0	62.0							5.55	2.45	*44.2*	[1] 5.6	7.2	*77.8*	
333438	15.1		*50.8*	10.3	9.6	10.9	73.0	66.0	3.7	3.75	4.2	4.0	*88.1*	*93.8*	5.4	2.35	*43.5*	5.6	6.4	*87.5*	
333415	14.3		*49.6*	10.4	9.3	10.3	69.0	50.0	3.3	3.35	3.85	3.7	*85.7*	*90.5*	5.3	2.65	*50.0*	[1] 5.6	6.7	*83.6*	
333431	[1] 13.7		*51.1*	10.1	9.0	10.2	70.0	55.0	3.6	3.7	3.8	3.7	*94.7*	*100.0*	4.9	2.05	*41.8*	5.4	6.1	*88.5*	
332716	14.1		*53.9*	10.3	9.1	10.4	69.0	53.0	3.65	3.6	4.05	4.0	*90.1*	*90.0*	5.45	2.2	*40.4*	5.3	7.0	*75.7*	
332721	15.1		*52.3*	10.9	9.7	11.0	70.0	54.0	3.25	3.3	3.95	4.0	*82.3*	*82.5*	5.7	2.2	*38.6*	5.9	6.7	*88.1*	
333416	[1] 14.3		*49.6*	9.4	8.6	10.1	74.0	60.0	3.7	3.7	4.1	4.0	*90.2*	*92.5*	5.35	2.2	*41.1*	5.0	6.0	*83.3*	
333427	14.6		*47.9*	9.9	9.0	10.3	73.0	58.0	3.65	3.5	4.05	4.0	*90.1*	*87.5*	5.15	2.3	*44.7*	5.5	6.6	*83.3*	
332678	14.5		*49.0*	11.1	10.0	11.0	71.0	53.0	3.4	3.4	4.1	4.0	*82.9*	*85.0*	5.2	2.4	*46.2*	5.8	6.4	*90.6*	
332699				10.2	9.3	10.6	72.0	59.0		3.55		4.1		*86.6*	5.55	2.4	*43.2*	5.5	6.6	*83.3*	
332766	14.6		*56.2*	[1] 11.0	9.8	10.8	67.0	55.0	3.65	3.65	4.0	4.0	*91.2*	*91.2*	5.8	2.5	*43.1*				
332602	14.0		*53.6*	10.1	9.0	10.1	68.0	53.0	3.35	3.35	3.9	3.9	*85.9*	*85.9*	5.5	2.45	*44.5*	5.5	6.6	*83.3*	
332745	14.6		*52.7*	[1] 10.6	9.5	10.8	70.0	54.0	3.6	3.8	4.2	4.15	*85.7*	*91.6*	5.7	2.45	*43.0*	[1] 5.6	6.8	*82.4*	
242895	14.8				9.6	10.9			3.55	3.65	4.1	4.0	*86.6*	*91.2*	5.45	2.3	*42.2*	5.5	6.5	*84.6*	
332791	14.7		*53.1*	[1] 10.3	9.1	10.8	72.0	52.0	4.0	4.0	4.05	4.0	*98.8*	*100.0*	5.8	2.3	*39.7*	[1] 5.3	6.2	*85.5*	
332736	[1] 15.2		*52.6*	[1] 11.3	10.0	11.3	69.0	55.0	3.4	3.4	3.95	3.95	*86.1*	*86.1*	5.45	2.6	*47.7*	[1] 6.1	6.6	*92.4*	
332776						10.6															
332733	14.0		*51.4*	10.0	8.8	10.0	69.0	52.0	3.7	3.7	4.1	4.1	*90.2*	*90.2*	5.1	2.5	*49.0*	5.3	6.5	*81.5*	
332719	14.9		*51.0*	10.9	9.5	10.2	64.0	52.0	3.5	3.45	4.05	4.1	*86.4*	*84.1*	5.1	2.7	*52.9*	6.0	6.8	*88.2*	
333417	[1] 14.3		*52.4*	10.0	8.7	10.4	71.0	52.0	3.3	3.4	3.8	3.8	*86.8*	*89.5*	5.3	2.7	*50.9*	5.5	6.5	*84.6*	
332794				[1] 9.9	9.1	10.4	72.0	62.0	3.8		4.0		*95.0*		5.4	2.3	*42.6*				
333413	14.4		*49.3*	9.5	8.9	10.2	74.0	67.0	3.75	3.75	4.0	4.0	*93.8*	*93.8*	5.2	2.5	*48.1*	5.0	6.4	*78.1*	
333432	[1] 14.1		*53.2*	10.3	9.0	10.1	67.0	51.0	3.7	3.85	4.2	4.1	*88.1*	*93.9*	5.3	2.55	*48.1*	5.6	6.6	*84.9*	
332707	14.9				9.2	10.4			3.8		4.5		*84.4*		5.25	2.55	*48.6*				
332774						10.5															
332708	[1] 14.8		*50.7*	10.1	9.1	10.0	67.0	56.0		3.8		4.05		*93.8*	5.5	2.5	*45.4*				
332720	14.7		*49.0*	[1] 10.1	9.4	10.2	70.0	64.0	3.7	3.8	4.2	4.2	*88.1*	*90.5*	5.3	2.2	*41.5*	[1] 5.5	6.5	*84.6*	
332762	15.1		*53.0*	11.1	10.2	11.2	70.0	63.0	3.9	3.75	4.4	4.3	*88.6*	*87.2*	5.45	2.4	*44.0*	5.7	6.8	*83.8*	
332763	14.0				9.3	9.9			3.6	3.6	3.95	3.95	*91.1*	*91.1*	5.0	2.5	*50.0*				
332787	14.5		*49.7*	10.2	9.4	10.7	74.0	60.0	3.8	3.8	4.0	3.9	*95.0*	*97.4*	5.4	2.3	*42.6*	5.3	6.4	*82.8*	
333401	14.5		*51.7*	10.7	9.6	10.4	67.0	55.0	3.65	3.6	4.15	4.05	*88.0*	*88.9*	5.35	2.6	*48.6*	5.5	6.5	*84.6*	
332445	14.0				9.0	10.5			3.7	3.7	4.1	4.0	*90.2*	*92.5*	5.3	2.35	*44.3*				

[1] Near.

POINT HOPE: MALES—Continued

(Later Burials)

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
332446	[1] 14.8		*48.6*	9.9	9.0	10.4	73.0	58.0		3.7		4.2		*88.1*	5.3	2.35	*44.3*	5.4	6.7	*80.6*	
332448	13.9		*50.4*	10.0	9.1	10.3	72.0	56.0	3.45	3.35	3.7	3.7	*93.2*	*90.5*	5.25	2.45	*46.7*	5.2	6.2	*83.9*	
332777	13.8		*56.5*	10.3	9.4	10.6	70.0	64.0	3.2	3.25	3.8	3.8	*84.2*	*85.5*	5.1	2.3	*45.1*	5.5	[1] 7.1	*77.5*	
232585	14.2		*52.8*	10.3	9.3	10.5	70.0	57.0	3.6	3.95	4.0	4.1	*90.0*	*96.3*	5.45	2.5	*45.9*	[1] 5.3	6.9	*76.8*	
332770	14.6				9.3	10.7			3.75	3.8	4.1	3.9	*91.5*	*97.4*	5.6	2.45	*43.8*				
332923	15.2		*48.0*	10.1	9.0	10.2	69.0	55.0	3.6	3.55	4.05	4.0	*88.9*	*88.8*	5.2	2.2	*42.3*	5.3	6.8	*77.9*	
342793	14.5		*50.3*	10.6	9.7	10.4	68.0	62.0	3.65	3.75	4.1	4.15	*89.0*	*9.04*	4.9	2.3	*46.9*	5.7	[1] 6.6	*86.4*	
333403	13.7		*51.1*						3.65	3.7	3.8	3.8	*96.0*	*97.4*	5.4	2.45	*45.4*	5.4	6.4	*84.4*	
333435				10.1	9.1	10.4	71.0	60.0	3.65	3.6	4.1	4.0	*89.0*	*90.0*	5.25	2.15	*40.9*	5.9	6.7	*88.1*	
332755	15.3		*54.9*	11.1	9.9	10.7	65.0	58.0	3.65	3.6	4.05	3.9	*90.1*	*92.3*	5.55	2.3	*41.4*	6.0	7.0	*85.7*	
332703	14.2		*48.6*	9.2	8.4	9.7	73.0	61.0	3.6	3.65	4.05	4.0	*88.9*	*91.2*	4.95	2.6	*52.5*				
Specimens	(124)	*(4)*	*(114)*	(105)	(123)	(128)	(105)	(105)	(118)	(116)	(118)	(116)	*(118)*	*(118)*	(126)	(126)	*(126)*	(99)	(99)	*(99)*	(4)
Totals	1,774.8			1,082.9	1,141.3	1,342.5			428.5	421.65	477.95	465.75			675.85	301.4		549.7	647.4		15.3
Averages	14.31	*86.7*	*52.5*	10.31	9.28	10.49	70.0	57.0	3.63	3.64	4.05	4.02	*89.6*	*90.5*	5.36	2.39	*44.6*	5.55	6.54	*84.9*	3.82
Minima	13.3	*79.9*	*46.0*	9.2	8.4	9.7	64.0	47.0	3.20	3.20	3.7	3.65	*78.1*	*78.1*	4.7	2.0	*35.6*	4.9	6.0	*75.7*	3.6
Maxima	15.3	*97.8*	*59.3*	11.3	10.3	11.4	75.0	67.0	4.15	4.05	4.5	4.3	*98.8*	*100.0*	5.9	2.7	*52.9*	6.1	7.2	*95.1*	4.2

[1] Near.

POINT HOPE: FEMALES
(Later Burials)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
332729	(A. H.) U.S.N.M.	Point Hope	Adult		18.0	12.3	13.1	*68.3*	*86.2*		14.47	1,310			6.6
332586	do	do	do		18.6	12.8		*68.8*							
333426	do	do	do		17.4	12.3	12.6	*70.7*	*85.1*		14.10	1,200			6.0
332723	do	do	do		18.6	13.2	13.7	*71.0*	*86.2*		15.17	1,440			7.2
333422	do	do	do		18.4	13.1	13.3	*71.2*	*84.2*		14.93	1,360			7.1
333425	do	do	do		17.7	12.7	13.3	*71.8*	*87.5*		14.57	1,280			7.0
332587	do	do	do		17.1	12.4	12.0	*72.5*	*81.1*		13.83				6.7
332686	do	do	do		17.9	13.0	13.1	*72.6*	*85.1*		14.67	1,200			7.5
332693	do	do	do		18.4	13.4	13.2	*72.8*	*83.0*		15.00	1,280			
332730	do	do	do		18.1	13.2	13.2	*72.9*	*84.6*		14.83	1,220			[1] 7.2
332747	do	do	do		17.7	13.0	13.4	*73.4*	*87.0*		14.70	1,270			7.3
333451	do	do	do		17.8	13.1	12.8	*73.6*	*83.1*		14.57	1,195			7.3
332598	do	do	do		17.9	13.2	13.1	*73.7*	*84.0*		14.73	1,310			
332605	do	do	do		18.4	13.6		*73.9*							
332756	do	do	do		17.8	13.2	13.6	*74.2*	*87.7*		14.87	1,390			6.9
333418	do	do	do		17.5	13.0	13.6	*74.3*	*89.5*		14.70	1,310			7.0
332704	do	do	do		18.0	13.4	13.2	*74.4*	*84.1*		14.87	1,295			7.2
332595	do	do	do		18.1	13.5	13.7	*74.6*	*86.7*		15.10				
332744	do	do	do		17.3	12.9	13.2	*74.6*	*87.4*		14.47	1,235			7.2
332690	do	do	do		17.8	13.3	13.5	*74.7*	*86.5*		14.87	1,275			6.9
332743	do	do	do		17.4	13.0	14.0	*74.7*	*92.1*		14.80	1,395			7.2
333447	do	do	do		17.4	13.0	12.7	*74.7*	*83.6*		14.37	1,260			
332691	do	do	do		18.3	13.7	13.8	*74.9*	*86.2*		15.27	1,370			6.6
333400	do	do	do		17.9	13.4	12.7	*74.9*	*81.4*		14.67	1,195			7.3
332683	do	do	do		17.6	13.2	13.2	*75.0*	*85.7*		14.67	1,255			7.1
333411	do	do	do		18.0	13.5	13.4	*75.0*	*84.8*		14.97	1,365			7.4
242921	do	do	55		17.6	13.2	13.0	*75.0*	*84.4*		14.60	1,250	Medium		[1] 7.1
333443	do	do	Adult		18.1	13.6	12.8	*75.1*	*81.0*		14.83	1,225			
332779	do	do	do		17.4	13.1	13.0	*75.3*	*85.5*		14.50	1,245			6.9
332783	do	do	do		18.2	13.7	13.5	*75.3*	*84.4*		15.13	1,500			7.5
333441	do	do	do		18.2	13.7	13.6	*75.3*	*85.0*		15.17	1,400			7.1
332725	do	do	do		17.9	13.5	13.8	*75.4*	*87.9*		15.07	1,340			6.6
332584	do	do	do		18.4	13.9	13.2	*75.5*	*81.5*		15.17	1,405	Considerable		7.2

[1] Near.

POINT POPE: FEMALES—Continued

(Later Burials)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Mento-Nasion Height (a)	Alveol. Pt.-Nasion Height (h)
	(A. H.)														
333402	U.S.N.M.	do	do		17.2	13.0	12.8	*75.6*	*84.8*		14.33	1,285			7.2
332800	do	do	do		17.3	13.1	13.0	*75.7*	*85.5*		14.47	1,390			6.8
333440	do	do	do		18.1	13.7	13.2	*75.7*	*83.0*		15.00	1,325			7.3
332603	do	do	do		17.8	13.5		*75.8*				1,340			
332692	do	do	do		17.8	13.5	13.2	*75.8*	*84.6*		14.83	1,395			
332592	do	do	do		17.4	13.2	13.2	*75.9*	*86.3*		14.60				
332597	do	do	do		17.1	13.0	13.1	*76.0*	*87.3*		14.40	1,240			
332594	do	do	do		17.6	13.4	13.3	*76.1*	*85.8*		14.77	1,320			[1] 6.7
332599	do	do	do		18.0	13.7	13.0	*76.1*	*82.3*		14.90				7.0
332582	do	do	do		18.1	13.8	12.6	*76.2*	*78.8*		14.83	1,305			
332685	do	do	do		17.2	13.1	12.4	*76.2*	*81.6*		14.23	1,280			6.8
333420	do	do	do		17.4	13.3	12.8	*76.4*	*83.1*		14.50	1,210			7.2
333430	do	do	do		17.8	13.6	13.0	*76.4*	*82.8*		14.80	1,415			7.0
332601	do	do	do		17.9	13.7	14.0	*76.5*	*88.6*		15.20	1,435			7.3
332583	do	do	do		17.5	13.4	13.0	*76.6*	*84.4*		14.63	1,220	Considerable	12.3	[1] 7.8
333389	do	do	Near adult.		17.1	13.1	13.1	*76.6*	*86.8*		14.43	1,350			6.6
333439	do	do	Adult		17.5	13.4	13.3	*76.6*	*86.4*		14.73	1,320			6.9
332792	do	do	do		17.7	13.6	13.6	*76.8*	*87.2*		14.97	1,345			7.9
332710	do	do	do		17.8	13.7	13.4	*77.0*	*84.8*		14.97	1,420			6.9
332759	do	do	50		17.4	13.4	13.0	*77.0*	*84.4*		14.60	1,295			6.8
333419	do	do	Near adult.		17.5	13.5	13.1	*77.1*	*84.5*		14.70	1,430			6.9
332726	do	do	Adult		17.6	13.6	13.4	*77.3*	*85.9*		14.87	1,195			7.0
332761	do	do	do		18.1	14.0	14.1	*77.4*	*88.1*		15.40				7.5
332775	do	do	do		16.8	13.0	13.0	*77.4*	*87.2*		14.27	1,195			6.9
333392	do	do	do		18.1	14.0	13.7	*77.4*	*85.6*		15.27	1,450			7.1
332735	do	do	do		17.3	13.4	13.2	*75.5*	*85.7*		14.63	1,310			6.6
333428	do	do	do		17.3	13.4	13.3	*77.5*	*86.4*		14.67	1,320			6.9
332795	do	do	do		17.5	13.6	13.1	*77.7*	*84.0*		14.73	1,295			7.2
333397	do	do	do		17.5	13.6	13.7	*77.7*	*87.8*		14.93	1,280			7.2
333394	do	do	do		17.5	13.6	12.9	*77.7*	*82.7*		14.67	1,30			7.4
332675	do	do	do		17.6	13.7	13.3	*77.8*	*85.3*		14.87	1,410			7.3

332696	do	do	do		17.6	13.7	13.2	*77.8*	*84.6*		14.83	1,420			6.8
332769	do	do	do		17.6	13.7	14.1	*77.8*	*90.4*		15.13	1,335			6.9
333398	do	do	do		17.7	13.8	12.7	*78.0*	*80.4*		14.73	1,370			7.3
332698	do	do	do		16.9	13.2	12.4	*78.1*	*82.7*		14.17	1,170			7.0
332681	do	do	do		17.9	14.0	13.5	*78.2*	*84.4*		15.13	1,365			7.2
332782	do	do	do		17.0	13.3	13.4	*78.2*	*88.2*		14.57	1,395			7.1
332680	do	do	do		17.6	13.8	13.3	*78.4*	*84.7*		14.90	1,365			7.4
333408	do	do	do		17.1	13.4	13.1	*78.4*	*86.2*		14.53	1,265			6.8
332588	do	do	do		17.3	13.6	12.2	*78.6*	*79.2*		14.37	1,295			6.7
332741	do	do	do		17.8	14.0	13.5	*78.6*	*84.9*		15.10	1,435			7.2
332799	do	do	do		17.8	14.0	13.3	*78.6*	*83.6*		15.03	1,360			7.5
332734	do	do	do		16.5	13.0	13.0	*78.8*	*87.8*		14.17	1,170			6.4
333395	do	do	do		17.0	13.4	13.6	*78.8*	*89.5*		14.67	1,370			6.9
332688	do	do	do		17.7	14.0	13.1	*79.1*	*82.9*		14.93	1,235			7.3
332706	do	do	do		16.8	13.3	13.2	*79.2*	*88.0*		14.43	1,255			7.6
332750	do	do	do		16.7	13.3	12.3	*79.6*	*82.0*		14.10	1,235			6.2
332771	do	do	do		17.6	14.0	13.5	*79.6*	*85.4*		15.03	1,380			[1] 7.0
332790	do	do	do		17.5	14.0	14.1	*80.0*	*89.2*		15.20	1,435			8.1
332764	do	do	do		17.1	13.7	13.5	*80.1*	*87.7*		14.77	1,365			7.1
333424	do	do	do		17.6	14.1	13.3	*80.1*	*84.2*		15.00	1,355			
332784	do	do	do		16.7	13.4	13.6	*80.2*	*90.7*		14.57	1,260			7.4
332677	do	do	Near adult		16.3	13.1	13.1	*80.4*	*89.1*		14.17	1,250			6.8
333387	do	do	Adult		16.8	13.5	13.6	*80.4*	*89.5*		14.63	1,315			7.2
332786	do	do	do		17.1	13.8	13.2	*80.7*	*85.7*		14.70	1,290			
332580	do	do	do		17.0	13.9	13.0	*81.8*	*84.4*		14.63	1,285	+	11.8	7.5
332738	do	do	do		17.0	14.0	12.6	*82.4*	*81.3*		14.53	1,440			6.8
333423	do	do	Near adult		16.7	13.8	12.7	*82.6*	*83.6*		14.40				7.0
333436	do	do	do		16.3	14.0	12.3	*85.9*	*80.9*		14.20	1,280			6.3
Specimens					(92)	(92)	(89)	*(92)*	*(89)*		(89)	(84)		(2)	(78)
Totals					1,616.1	1,235.5	1,174.5				1,310.5	110,545		24.1	550.8
Averages					17.57	13.43	13.20	*76.4*	*85.2*		14.72	1,316		12.5	7.06
Minima					16.3	12.3	12.0	*68.3*	*78.8*		13.83	1,170			6.0
Maxima					18.6	14.1	14.1	*85.9*	*92.1*		15.40	1,500			8.1

[1] Near.

POINT HOPE: FEMALES—Continued

(Later Burials)

Catalog No.	Diam. Bizygomatic maxim. (c)	Facial Index, total $\left(\frac{a\times100}{c}\right)$	Facial Index, upper $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	Orbital Index, right	Orbital Index, left	Nose—Height	Nose—Breadth maxim.	Nasal Index	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	Upper Alveolar Arch—Index	Lower Jaw—Height at Symphysis
332729	12.5	-----	52.8	9.4	8.5	9.6	72.0	55.0	3.35	3.35	3.7	3.6	90.5	93.1	4.9	2.1	42.9	5.2	6.2	83.9	-----
332586	-----	-----	-----	-----	-----	-----	-----	-----	-----	3.6	-----	[1] 3.85	-----	93.5	5.2	2.1	40.4	-----	-----	-----	-----
333426	12.1	-----	49.6	9.4	8.6	9.4	71.0	57.0	3.35	3.3	3.7	3.65	90.5	90.4	4.4	1.95	44.3	4.9	5.5	89.1	-----
332723	13.4	-----	53.7	9.5	8.4	10.0	72.0	54.0	3.8	3.8	[1] 4.0	[1] 4.0	95.0	95.0	5.15	2.3	41.3	5.0	[1] 5.7	87.7	-----
333422	13.6	-----	52.3	10.5	9.6	10.6	71.0	58.0	3.6	3.6	3.7	3.75	97.3	96.0	5.2	2.3	44.2	5.1	6.2	82.3	-----
333425	12.6	-----	55.6	10.4	9.2	10.3	69.0	51.0	3.65	3.65	4.05	3.95	90.1	92.4	5.0	2.4	48.0	5.4	6.4	84.4	-----
332587	11.8	-----	56.8	9.5	8.4	9.3	67.0	53.0	3.3	-----	3.8	-----	86.8	-----	4.7	2.05	43.6	5.2	6.1	85.3	-----
332686	[1] 12.9	-----	58.1	10.4	8.9	10.3	68.0	50.0	3.4	3.35	3.8	3.7	89.5	90.5	5.05	2.3	45.6	5.7	6.2	91.9	-----
332693	[1] 13.6	-----	-----	-----	8.9	9.8	-----	-----	3.7	3.65	4.05	4.1	91.4	89.0	5.35	2.4	44.9	-----	-----	-----	-----
332730	13.5	-----	53.3	[1] 10.0	9.0	10.3	72.0	59.0	3.3	3.35	3.9	3.9	84.6	85.9	4.95	2.2	44.4	[1] 5.3	5.8	91.4	-----
332747	12.5	-----	58.4	10.1	9.0	10.4	72.0	57.0	3.4	3.45	3.9	3.7	87.2	93.2	5.0	2.3	46.0	-----	-----	-----	-----
333451	[1] 13.4	-----	54.5	10.4	9.3	10.1	67.0	57.0	3.65	3.6	4.05	4.05	90.1	88.9	5.0	2.3	46.0	5.5	6.4	85.9	-----
332598	-----	-----	-----	-----	-----	10.4	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
332605	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
332756	13.4	-----	51.5	10.1	8.9	9.8	68.0	49.0	[1] 3.7	[1] 3.7	3.85	4.1	96.1	90.2	5.05	2.35	46.5	5.4	6.3	85.7	-----
333418	13.6	-----	51.2	10.2	9.3	10.4	72.0	56.0	3.6	3.65	3.9	3.95	92.3	92.4	5.25	2.3	43.8	5.3	6.3	84.1	-----
332704	13.4	-----	53.7	9.5	8.8	10.0	72.0	66.0	3.65	3.6	4.0	3.9	91.2	92.3	5.0	2.3	46.0	5.0	6.2	80.7	-----
332595	-----	-----	-----	-----	-----	9.8	-----	-----	3.5	-----	3.95	-----	88.6	-----	5.5	2.4	43.6	-----	-----	-----	-----
332744	13.5	-----	53.3	10.2	8.9	10.2	69.0	52.0	3.65	3.75	4.05	3.8	90.1	98.7	4.9	2.2	44.9	5.3	6.3	84.1	-----
332690	14.3	-----	48.2	9.8	8.9	10.1	72.0	58.0	3.7	3.6	4.15	4.2	89.2	85.7	5.05	2.15	42.6	-----	-----	-----	-----
332743	12.7	-----	56.7	10.4	9.2	10.0	67.0	55.0	3.45	3.4	3.7	3.55	93.2	95.8	4.85	2.2	45.4	5.4	6.6	81.8	-----
333447	-----	-----	-----	-----	-----	9.4	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
332691	13.6	-----	48.5	10.2	9.3	10.2	72.0	56.0	3.4	3.4	3.8	3.8	89.5	89.5	4.9	2.2	44.9	5.3	6.1	86.9	-----
333400	13.6	-----	53.7	10.0	8.9	9.9	68.0	57.0	3.65	3.6	4.1	4.0	89.0	90.0	4.9	2.3	46.9	5.4	[1] 6.1	88.5	-----
332683	13.4	-----	53.0	9.7	9.0	10.2	73.0	64.0	3.55	3.55	3.9	4.0	91.0	88.8	5.2	2.2	42.3	5.2	6.1	85.3	-----
333411	13.5	-----	54.8	9.8	8.8	10.0	70.0	58.0	3.65	3.75	4.0	4.05	91.2	92.6	5.1	2.15	42.2	• 5.3	6.5	81.5	-----
242921	13.4	-----	53.0	9.8	9.0	10.3	73.0	58.0	3.45	3.5	3.95	3.9	87.3	89.7	5.4	2.2	40.7	5.2	6.1	85.3	2.95
333443	13.3	-----	-----	-----	8.8	10.2	-----	-----	3.5	3.5	4.15	4.0	84.3	87.5	5.2	2.15	41.3	-----	-----	-----	-----
332779	12.7	-----	54.3	9.4	8.4	9.7	71.0	55.0	3.3	3.25	3.75	3.8	88.0	85.5	5.0	2.4	48.0	5.0	6.5	76.9	-----
332783	13.5	-----	55.6	10.1	8.8	10.3	70.0	52.0	4.1	4.0	4.15	4.1	98.8	97.6	5.3	2.4	45.3	5.7	6.7	85.1	-----
333441	[1] 14.4	-----	49.3	9.4	8.2	9.8	72.0	-----	-----	3.5	-----	4.1	-----	85.4	-----	-----	-----	-----	-----	-----	-----
332725	13.7	-----	48.2	10.1	9.0	10.2	72.0	48.0	3.6	3.6	4.0	4.0	90.0	90.0	5.0	2.4	48.0	5.3	6.5	81.5	-----
332584	13.4	-----	53.7	[1] 9.6	8.6	9.5	67.0	57.0	3.65	3.65	3.85	3.85	94.8	94.8	5.05	2.1	41.6	[1] 5.4	6.2	87.1	3.7
333402	[1] 12.9	-----	55.8	10.0	9.0	11.0	78.0	59.0	3.6	-----	3.9	-----	92.3	-----	5.0	2.3	46.0	5.2	5.9	88.1	-----
332800	12.8	-----	53.1	9.7	8.5	9.6	68.0	50.0	3.15	3.1	3.7	3.65	85.1	84.9	4.85	2.25	46.4	5.2	6.1	85.3	-----

333440	13.7	---	53.3	9.8	8.7	9.8	68.0	55.0	3.5	3.5	3.9	3.8	89.7	92.1	5.1	2.55	50.0	5.3	6.4	82.8	---
332603	13.2	---	---	---	---	---	---	---	3.4	3.4	3.8	3.8	89.5	89.5	4.6	2.2	47.8	---	---	---	---
332692	---	---	---	---	9.0	10.0	---	---	3.5	---	3.85	---	90.9	---	5.0	2.35	47.0	---	---	---	---
332592	---	---	---	---	---	10.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
332597	13.2	---	---	---	---	10.1	---	---	---	3.7	---	4.0	---	92.5	---	---	---	---	---	---	---
332594	13.4	---	50.0	8.9	8.3	9.7	75.0	67.0	3.55	3.6	4.05	3.95	87.6	91.1	4.65	2.4	51.6	4.7	5.8	81.0	---
332599	14.0	---	50.0	10.7	9.3	9.7	62.0	47.0	3.5	---	4.1	---	85.4	---	4.85	2.8	57.7	5.9	6.8	86.8	---
332582	14.4	---	---	---	8.4	9.8	---	---	3.55	3.55	4.1	4.05	86.6	87.6	4.8	2.6	54.2	---	---	---	---
332685	12.8	---	53.1	9.3	8.4	9.6	72.0	57.0	3.3	3.35	3.85	3.8	85.7	88.2	5.0	2.25	45.0	4.7	5.9	83.1	---
333420	[1]12.8	---	56.2	9.4	8.8	9.7	70.0	68.0	3.5	3.5	3.75	3.65	93.3	95.9	4.95	2.3	46.5	5.1	5.7	89.5	---
333430	13.4	---	52.2	[1]9.3	8.4	10.0	74.0	58.0	3.8	3.7	4.0	4.0	95.0	92.5	5.05	2.4	47.5	[1]4.8	5.9	81.4	---
332601	14.0	---	52.1	10.1	9.4	10.2	70.0	65.0	3.7	3.7	4.1	4.1	90.2	90.2	5.2	2.3	44.2	5.3	6.8	77.9	---
332583	14.0	87.9	55.7	[1]10.5	9.3	10.4	68.0	55.0	3.8	3.8	4.0	4.0	95.0	95.0	5.4	2.3	42.6	[1]5.6	[1]6.3	88.9	4.0
333389	12.3	---	53.7	9.3	8.3	9.1	68.0	56.0	3.5	---	3.8	---	92.1	---	4.55	2.2	48.4	4.9	6.1	80.3	---
333439	13.2	---	52.3	9.6	8.5	9.8	71.0	51.0	3.6	3.6	4.15	4.05	86.8	86.9	5.1	2.45	48.0	5.0	5.8	86.2	---
332792	13.7	---	57.7	10.0	8.7	10.0	67.0	55.0	3.85	3.9	4.1	4.05	93.9	96.3	5.2	2.2	42.3	5.5	6.5	84.6	---
332710	13.6	---	50.7	9.9	8.8	9.8	69.0	55.0	3.6	3.65	4.0	4.05	90.0	90.1	4.8	2.4	50.0	5.4	5.9	91.5	---
332759	13.7	---	49.6	9.9	8.6	9.5	66.0	49.0	3.65	3.5	3.85	3.9	94.8	89.7	4.7	2.25	47.9	5.2	5.9	88.1	---
333419	12.7	---	54.3	9.1	8.2	9.5	71.0	60.0	3.5	3.5	3.75	3.8	93.3	92.1	4.8	2.2	45.8	5.1	7.0	72.9	---
332726	13.0	---	53.8	9.6	8.6	9.8	70.0	57.0	3.4	3.4	3.9	3.9	87.2	87.2	4.85	2.4	49.5	5.2	6.5	80.0	---
332761	14.2	---	52.8	---	---	10.5	---	---	---	---	---	---	---	---	5.6	2.55	45.5	---	---	---	---
332775	13.2	---	52.3	9.0	8.4	9.6	73.0	65.0	3.4	3.35	3.75	3.75	90.7	89.3	5.1	2.2	43.1	4.7	6.2	75.8	---
333392	13.3	---	53.4	9.3	8.4	9.8	72.0	60.0	3.8	3.7	4.1	4.0	92.7	92.5	5.0	2.4	48.0	5.4	[1]6.3	85.7	---
332735	[1]13.5	---	48.9	9.8	8.7	9.8	70.0	49.0	---	3.3	---	3.8	---	86.8	4.95	2.3	46.5	5.0	6.0	83.3	---
333428	13.3	---	51.9	9.2	8.4	9.6	72.0	61.0	3.6	---	3.9	---	92.3	---	4.9	2.35	48.0	5.0	6.2	80.7	---
332795	13.8	---	52.2	[1]9.6	8.6	10.0	71.0	54.0	3.55	3.65	4.15	4.15	85.5	88.0	5.4	2.5	46.3	[1]5.2	6.2	83.9	---
333397	13.8	---	52.2	9.8	9.3	10.7	76.0	70.0	3.45	3.5	3.95	3.85	87.3	90.9	5.35	2.2	41.1	5.2	6.4	81.3	---
333394	13.5	---	54.8	9.9	8.7	10.2	70.0	54.0	3.6	3.6	4.0	3.95	90.0	91.1	5.15	2.45	47.6	5.2	6.0	86.7	---
333675	13.7	---	53.3	9.9	8.8	9.8	67.0	54.0	3.55	3.55	3.9	3.9	91.0	91.0	5.25	2.6	49.5	5.5	6.2	88.7	---
332696	---	---	---	9.7	8.7	9.8	70.0	54.0	3.3	---	3.9	---	84.6	---	5.0	2.2	44.0	5.4	6.3	85.7	---
332769	13.9	---	49.6	9.9	8.9	10.4	74.0	53.0	3.4	3.5	3.9	3.9	87.2	89.7	5.15	2.45	47.6	5.2	5.9	88.1	---
333398	13.6	---	53.7	9.3	8.6	9.9	72.0	64.0	3.9	3.8	4.1	4.1	95.1	92.7	5.3	2.3	43.4	4.6	6.2	74.2	---
332698	12.7	---	55.1	9.8	8.1	8.9	67.0	61.0	3.25	3.25	3.65	3.6	89.0	90.3	4.95	2.15	43.4	4.9	6.4	76.6	---
332681	[1]13.6	---	52.9	10.0	9.0	10.1	70.0	57.0	3.4	3.4	3.9	3.9	87.2	87.2	5.1	2.25	44.1	5.4	6.4	84.4	---
332782	[1]12.8	---	55.5	9.0	8.2	9.7	73.0	60.0	3.6	3.65	3.8	3.8	94.7	96.0	5.25	2.4	45.7	5.2	6.0	86.7	---
332680	[1]13.4	---	55.2	10.0	9.0	10.1	69.0	56.0	3.75	---	4.0	---	93.8	---	5.4	2.35	43.5	5.6	6.3	88.9	---
332408	[1]13.6	---	50.0	[1]9.3	8.5	9.9	74.0	57.0	3.55	---	3.9	---	91.0	---	5.2	2.2	42.3	[1]5.1	5.9	86.4	---
333588	12.9	---	51.9	8.5	7.8	8.7	69.0	61.0	3.45	3.4	3.65	3.5	94.5	97.1	4.9	2.15	43.9	4.8	6.1	78.7	---
332741	13.6	---	52.9	9.7	8.7	9.7	68.0	56.0	3.5	---	3.95	---	88.6	---	5.2	2.3	44.2	5.4	6.1	88.5	---
332799	13.5	---	55.6	10.0	9.0	10.6	73.0	59.0	3.6	3.6	3.9	3.9	92.3	92.3	5.25	2.3	43.8	5.3	6.4	82.8	---
322734	12.9	---	49.6	9.6	8.6	10.0	74.0	54.0	3.4	3.4	4.0	4.0	85.0	85.0	4.65	2.1	45.2	4.9	6.0	81.7	---
333395	13.7	---	50.4	9.4	8.5	10.0	74.0	59.0	3.5	3.5	4.0	3.9	87.5	89.7	4.9	1.95	39.8	4.9	5.8	84.5	---
332688	13.4	---	54.5	10.0	8.7	9.6	65.0	50.0	3.3	3.25	3.9	3.9	84.6	83.3	5.15	2.25	43.7	5.3	6.5	81.5	---
332706	13.2	---	57.6	9.4	8.3	9.6	68.0	57.0	3.8	3.75	4.0	4.0	95.0	93.8	5.2	2.15	41.3	5.0	6.2	80.7	---
332750	13.0	---	47.7	9.0	8.4	9.2	72.0	64.0	3.35	3.35	3.7	3.8	90.5	88.2	4.55	2.1	46.2	4.8	6.0	80.0	---
332771	13.9	---	50.4	---	8.4	9.7	---	---	3.7	3.6	4.1	4.1	90.2	87.2	5.0	2.3	46.0	---	---	---	---
332790	13.5	---	60.0	10.1	8.8	9.8	64.0	55.0	3.4	3.6	3.85	3.85	88.3	93.5	5.4	2.35	43.5	5.9	6.4	92.2	---
332764	13.0	---	54.6	9.4	8.4	9.2	66.0	57.0	3.55	3.45	3.9	3.9	91.0	88.5	5.0	2.5	50.0	5.0	6.0	83.3	---
333424	13.4	---	---	---	9.0	10.0	---	---	3.4	3.4	4.2	4.0	81.0	85.0	4.9	2.15	43.9	---	---	---	---
332784	13.3	---	55.6	9.8	9.0	10.3	72.0	63.0	3.5	3.6	3.8	3.7	92.1	97.3	5.2	2.05	39.4	5.3	5.7	93.0	---
332677	12.4	---	54.8	9.4	8.5	9.4	69.0	59.0	3.25	3.35	3.5	3.4	92.9	98.5	4.8	2.1	43.8	5.1	6.1	83.6	---

[1] Near.

POINT HOPE ESKIMO: FEMALES—Continued

(Later Burials)

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Aleolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—length maxim.	Upper Alveolar Arch—Length maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
333387	13.4		*53.7*	10.1	9.0	10.3	71.0	52.0	3.5	3.6	3.9	3.9	*89.7*	*92.3*	5.3	2.4	*45.3*	5.4	6.3	*85.7*	
332786	13.4				8.5	9.8			3.7	3.65	3.9	3.85	*94.9*	*94.8*	5.2	2.35	*45.2*				
332580	13.3	*88.7*	*56.4*	10.1	8.8	9.9	67.0	51.0	3.8	3.8	4.1	4.0	*92.7*	*95.0*	5.2	2.15	*41.3*	5.5	6.4	*85.9*	3.5
332738	13.2		*51.5*	9.3	8.4	9.4	70.0	59.0	3.6	3.6	4.1	3.9	*87.8*	*92.3*	4.7	2.2	*46.8*	5.1	6.3	*81.0*	
333423	[1]13.0		*53.8*	9.3	8.4	9.6	71.0	57.0	3.55	3.55	3.7	3.6	*95.9*	*98.6*	5.2	2.15	*41.3*	5.2	6.2	*83.9*	
333436	12.7		*49.6*	9.7	8.5	9.2	66.0	46.0	3.4	3.5	3.5	3.5	*97.1*	*100.0*	4.55	2.05	*45.1*	5.2	5.9	*88.1*	
Specimens	(84)	*(2)*	*(77)*	(76)	(83)	(89)	(76)	(75)	(83)	(76)	(83)	(76)	*(83)*	*(76)*	(86)	(86)	*(86)*	(73)	(73)	*(73)*	(4)
Totals	1,118.7			738.4	723.8	880.4			293.9	269.35	325.1	295.3			433.3	196.1		380.5	451.6		14.15
Averages	13.32	*88.3*	*53.1*	9.72	8.72	9.89	70.0	56.5	3.54	3.54	3.92	3.89	*90.4*	*91.2*	5.04	2.28	*45.3*	5.21	6.19	*84.3*	3.54
Minima	11.8		*47.7*	8.5	7.8	8.7	62.0	46.0	3.15	3.1	3.5	3.4	*81.0*	*83.3*	4.4	1.95	*39.4*	4.6	5.5	*72.9*	2.95
Maxima	14.4		*60.0*	10.7	9.6	11.0	78.0	70.0	4.1	4.0	4.2	4.2	*98.8*	*100.0*	5.6	2.8	*57.7*	5.9	7.0	*93.0*	4.0

POINT HOPE ESKIMO

(Abstract)

MALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
Older burials	(32)	(32)	(32)	(32)	(32)	(32)		(32)			(23)	(24)	(32)
	1,758	590.1	451.0	451.4				497.5			296.1	185.0	460.3
	54.9	18.44	14.09	14.11	*76.4*	*86.7*		15.55			12.87	7.71	14.38
Later burials		(131)	(131)	(128)	(131)	(128)		(128)	(126)		(4)	(118)	(124)
		2,410.0	1,815.5	1,779.6				1,970.0	185,785		49.6	888.0	1,774.8
		18.40	13.86	13.90	*75.3*	*86.2*		15.39	1,474		12.40	7.52	14.31
Specimens	(32)	(163)	(163)	(160)	(163)	(160)		(160)	(126)		(27)	(142)	(156)
Totals	1,758	3,000.1	2,266.5	2,231.0				2,467.5	185,785		345.7	1,073.0	2,235.1
Averages	54.9	18.41	13.90	13.91	*75.6*	*86.3*		15.42	1,475		12.80	7.56	14.33

FEMALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
Older burials	(26)	(26)	(26)	(26)	(26)	(26)		(26)			(20)	(21)	(25)
	1,105	467.5	349.8	348.6				388.6			241.1	151.4	333.5
	42.5	17.98	13.45	13.41	*74.8*	*85.3*		14.95			12.06	7.21	13.34
Later burials		(92)	(92)	(89)	(92)	(89)		(89)	(84)		(2)	(78)	(84)
		1,616.1	1,235.5	1,174.5				1,310.5	110,545		24.1	550.8	1,118.7
		17.57	13.43	13.20	*76.4*	*85.2*		14.72	1,316		(12.5)	7.06	13.32
Specimens	(26)	(118)	(118)	(115)	(118)	(115)		(115)	(84)		(22)	(99)	(109)
Totals	1,105	2,083.6	1,585.3	1,523.1				1,699.1	110,545		265.2	702.2	1,454.2
Averages	42.5	17.66	13.43	13.24	*76.1*	*85.2*		14.77	1,316		12.05	7.09	13.34

POINT HOPE ESKIMO—Continued

(Abstract)

MALES

Locality	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
	(23)	(24)	(23)	(32)	(32)	(23)	(23)	(31)	(31)	(31)	(31)	(31)	(31)	(32)	)32)	(32)	(25)	(25)	(25)	(29)
Older burials	2,067.7	1,293.6	242.0	297.3	34.04	1,597.5	1,262.0	110.2	110.75	126.1	124.75	------	------	173.7	77.95	------	136.0	162.0	------	108.95
	89.9	*53.9*	10.52	9.29	10.64	69.5	54.9	3.55	3.57	4.07	4.02	*87.4*	*88.8*	5.43	2.44	*44.9*	5.40	6.48	*84.0*	3.76
	(4)	(114)	(105)	(123)	(128)	(105)	(105)	(118)	(116)	(118)	(116)	(118)	(126)	(126)	(126)	(126)	(99)	(99)	(99)	(4)
Later burials	344.8	5,985.0	1,082.9	1,141.3	1,342.5	7,350.0	5,985.0	428.5	421.65	477.95	465.75	------	------	675.85	301.4	------	549.7	647.4	------	15.3
	86.7	*52.5*	10.31	9.28	10.49	70.0	57.0	3.63	33.64	4.05	4.02	*89.6*	*90.5*	5.36	2.39	*44.6*	5.55	6.54	*84.9*	3.82
Specimens	(27)	(138)	(128)	(155)	(160)	(128)	(128)	(149)	(147)	(149)	(147)	(149)	(147)	(158)	(158)	(158)	(124)	(124)	(124)	(33)
Totals	2,412.5	7,278.6	1,324.9	1,438.6	1,682.9	8,947.5	7,247.0	538.7	532.4	604.05	590.5	------	------	849.55	379.35	------	685.7	809.4	------	124.25
Averages	*89.4*	*52.7*	10.35	9.28	10.52	69.9	56.0	3.62	3.62	4.05	4.02	*89.2*	*90.2*	5.38	2.40	*44.7*	5.53	6.53	*84.7*	3.77

FEMALES

Locality	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
	(20)	(21)	(19)	(25)	(26)	(19)	(19)	(23)	(25)	(23)	(25)	(23)	(25)	(25)	(25)	(25)	(20)	(20)	(20)	(21)
Older burials	1,808.0	1,138.2	192.2	224.5	264.5	1,309.5	1,018.5	81.1	88.8	91.25	98.4	------	------	127.05	57.2	------	109.9	127.1	------	73.55
	90.9	*54.2*	10.12	8.98	10.17	68.9	53.6	3.53	3.55	3.97	3.94	*88.9*	*9.02*	5.08	2.29	*45.0*	5.50	6.36	*86.5*	3.50
	(2)	(77)	(76)	(83)	(89)	(76)	(75)	(83)	(76)	(83)	(76)	(83)	(76)	(86)	(86)	(86)	(73)	(73)	(73)	(4)
Later burial	176.6	4,088.7	738.4	723.8	880.4	5,320.0	4,237.5	293.9	269.35	325.1	295.3	------	------	433.3	196.1	------	380.5	451.6	------	14.15
	(88.3)	*53.1*	9.72	8.72	9.89	70.0	56.5	3.54	3.54	3.92	3.89	*90.4*	*91.2*	5.04	2.28	*45.3*	5.21	6.19	*84.3*	3.54
Specimens	(22)	(98)	(95)	(108)	(115)	(95)	(95)	(106)	(101)	(106)	(101)	(106)	(101)	(111)	(111)	(111)	(93)	(93)	(93)	(25)
Totals	1,984.6	5,226.9	930.6	948.3	1,144.9	6,629.5	5,256.0	375.0	358.15	416.35	393.7	------	------	560.35	253.3	------	490.4	578.7	------	87.7
Averages	*90.2*	*53.3*	9.80	8.78	9.96	69.8	55.3	3.54	3.55	3.93	3.90	*90.1*	*91.0*	5.05	2.28	*45.2*	5.27	6.22	*84.7*	3.51

BARROW ESKIMO: MALES

(Igloo Mounds)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. anteroposterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
4-19	(W. B. Van Valin) Wistar Inst	Near Barrow	55		20.8	12.9	13.7	*62.0*	*81.3*		15.80				8.4
2-1	do	do	50		20.1	12.9	14.2	*64.2*	*86.1*		15.73			13.1	7.9
1-8	do	do	60		20.0	13.1	14.0	*65.5*	*84.6*		15.70				7.8
29-80-144	Univ. Pa. Mus	do	40		19.8	13.0	14.2	*65.7*	*86.6*		15.67			12.6	7.8
2-3	Wistar Inst	do	55		20.3	13.4	14.2	*66.0*	*84.3*		15.97			12.8	7.9
2-6	do	do	50		19.0	12.6	13.8	*66.3*	*81.0*		15.13				7.3
4-10	do	do	55		19.9	13.2	14.4	*66.3*	*86.5*		15.83			12.1	7.7
29-80-149	Univ. Pa. Mus	do	35		20.0	13.3	14.4	*66.5*	*86.5*		15.90			13.0	7.8
1-13	Wistar Inst	do	35		18.8	12.6	13.8	*67.0*	*87.9*		15.07			12.7	7.7
6-8	do	do	75		19.7	13.2	13.5	*67.0*	*82.1*		15.47				
4-16	do	do	50		19.2	12.9	14.7	*67.2*	*91.6*		15.60				7.5
1-5	do	do	60		19.0	12.8	13.7	*67.4*	*86.2*		15.17				7.6
4-5	do	do	50		19.0	12.8	14.4	*67.4*	*90.6*		15.40			12.6	7.6
1-3	do	do	60		20.0	13.5	13.4	*67.5*	*80.0*		15.63				7.9
29-80-142	Univ. Pa. Mus	do	50		19.2	13.0	14.0	*67.7*	*87.0*		15.40			12.1	7.4
2-8	Wistar Inst	do	35		19.0	12.9	13.6	*67.9*	*85.3*		15.17			12.0	7.5
1-4	do	do	60		18.8	12.8	13.9	*68.1*	*88.0*		15.17			12.2	7.5
b	Univ. Pa. Mus	do	35		18.8	12.9	12.8	*68.6*	*80.8*		14.83				7.6
1-3a	Wistar Inst	do	55		19.8	13.7	14.7	*69.2*	*87.8*		16.07			12.8	8.3
m	Univ. Pa. Mus	do	65		19.0	13.2	13.8	*69.5*	*85.7*		15.33				7.7
t	do	do	55		19.0	13.2	13.6	*69.5*	*84.5*		15.27				7.8
2-2	Wistar Inst	do	45		18.9	13.3	13.8	*70.4*	*85.7*		15.33			12.3	7.6
l	Univ. Pa. Mus	do	65		18.5	13.1	14.1	*70.8*	*89.2*		15.23				7.8
3-1	Wistar Inst	do	25		19.2	13.6	13.9	*70.8*	*84.8*		15.57			12.3	7.5
6-3	do	do	45		19.2	13.6	13.8	*70.8*	*84.2*		15.53			12.7	8.0
6-2	do	do	50		18.9	13.4	13.9	*70.9*	*86.1*		15.40				7.7
4-25	do	do	25		19.0	13.5	14.1	*71.0*	*86.8*		15.53			13.4	8.1
4-12	do	do	30		18.0	12.8	14.2	*71.1*	*92.2*		15.00			11.9	7.5
n	Univ. Pa. Mus	do	70		19.8	14.1	14.5	*71.2*	*85.6*		16.13				8.0
q	Univ. Pa. Mus	do	55		18.8	13.4	13.8	*71.3*	*85.7*		15.33				7.7
j	do	do	45		19.3	13.8	14.1	*71.5*	*85.2*		15.73				
3-3	Wistar Inst	do	70		19.3	13.8	14.5	*71.5*	*87.6*		15.87				

BARROW ESKIMO: MALES—Continued

(Igloo Mounds)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. anteroposterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, Wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*W. B. Van Valin*)														
6-7	do	do	35		19.3	13.8	14.6	*71.5*	*88.2*		15.90			12.3	7.4
4-6	do	do	65		19.0	13.6	14.2	*71.6*	*87.1*		15.60				
B-a	Univ. Pa. Mus	do	55		19.7	14.1	13.8	*71.6*	*81.7*		15.87				8.2
p	do	do	55		19.6	14.1	14.1	*71.9*	*83.7*		15.93				7.9
o	do	do	55		18.9	13.6	13.4	*72.0*	*82.5*		15.30			13.2	8.0
1-21	Wistar Inst	do	50		18.4	13.3	13.8	*72.3*	*87.1*		15.17			12.2	7.8
s	Univ. Pa. Mus	do	60		19.3	14.0	13.9	*72.5*	*83.5*		15.73			14.1	8.8
3-5	Wistar Inst	do	25		18.7	13.6	13.4	*72.7*	*83.0*		15.23			12.1	7.3
c	Univ. Pa. Mus	do	60		19.1	13.9	13.9	*72.8*	*84.2*		15.63				7.6
r	do	do	65		18.2	13.3	14.6	*73.1*	*92.7*		15.37				7.4
h	do	do	60		18.8	13.8	14.3	*73.4*	*87.7*		15.63				
u	do	do	70		17.7	13.0	13.0	*73.5*	*84.7*		14.57				
f	do	do	70		18.5	13.6	13.3	*73.5*	*82.9*		15.13				
d	do	do	50		18.6	13.8		*74.2*							7.8
1	Wistar Inst	do	60		18.7	14.0	14.1	*74.9*	*86.2*		15.60				7.4
4-7	do	do	50		18.4	13.8	14.3	*75.0*	*88.8*		15.50				8.1
e	Univ. Pa. Mus	do	60		18.6	14.0	13.7	*75.3*	*84.1*		15.43				7.8
i	do	do	55		18.8	14.2	14.0	*75.5*	*84.9*		15.67				7.7
k	do	do	60		18.5	14.0	13.6	*75.7*	*83.7*		15.37				
g	do	do	65		18.7	14.2	14.3	*75.9*	*86.9*		15.73				8.3
Specimens			(52)		(52)	(52)	(51)	(52)	(51)		(51)			(21)	(44)
Totals			2,735		993.6	698.0	711.8				790.3			264.5	342.1
Averages			52.6		19.11	13.42	14.21	*70.3*	*85.8*		15.50			12.60	7.78
Minima			25		17.7	12.6	12.8	*62.0*	*80.0*		14.57			11.9	7.3
Maxima			75		20.8	14.2	14.7	*75.9*	*92.7*		16.13			14.1	8.8

BARROW ESKIMO: MALES—Continued

(Igloo Mounds)

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
4-19	14.5		57.9	11.1	9.8	11.0	67.0	53.0	3.25	3.2	3.9	3.9	83.3	82.1	6.0	2.6	43.3	6.3	7.6	82.9	4.2
2-1	14.2	92.3	55.6	11.4	10.0	11.5	68.0	56.5	3.8	3.85	4.15	4.1	91.6	93.9	5.8	2.8	48.5	5.9	6.6	89.4	3.8
1-8	14.1		55.3		9.4	10.6			3.7	3.7	3.9	3.8	94.9	97.4	5.6	2.5	44.6	5.6	6.7	83.6	
29-80-141	14.1	89.4	55.3	10.7	9.4	10.8	70.0	51.0	3.55	3.55	4.0	4.0	83.8	88.8	5.6	2.45	43.8	5.6	6.9	81.2	3.5
2-3	15.1	84.8	52.3	11.2	9.7	11.2	69.5	50.0	3.95	3.9	4.0	4.0	98.8	97.5	5.4	2.5	46.3	5.8	6.7	86.6	4.0
2-6	13.6		53.7	10.8	10.0	10.9	71.5	62.0	3.25	3.25	3.7	3.7	87.9	87.8	5.3	2.1	39.6	5.5	6.9	79.7	
4-10	14.7	82.3	52.4		9.8	11.1			3.4	3.4	3.8	3.9	89.5	87.2	5.35	2.65	49.5	5.8	7.0	82.9	3.65
29-80-149	13.6	95.6	57.4	11.1	9.8	11.0	69.0	53.5	3.3	3.35	4.2	4.2	78.6	79.8	5.3	2.7	50.9	5.9	7.0	84.3	3.9
1-13	13.2	96.2	58.3	10.3	9.3	10.4	69.5	60.5	3.45	3.5	3.8	3.65	90.8	95.9	5.2	2.35	45.2	5.6	6.6	84.9	
6-8	14.1				8.9	10.5			3.55	3.5	4.0	4.0	88.8	87.5	5.2	2.25	43.3				
4-16	13.3		56.4	10.4	9.4	10.8	72.0	58.0	3.5	3.45	3.9	3.85	89.7	89.6	5.3	2.4	45.3	5.7	6.8	83.8	3.5
1-5	13.8		55.1		9.4	10.4			3.6	3.6	4.1	4.0	87.8	90.0	5.4	2.3	42.6				4.05
4-5	14.5	86.9	52.4	10.1	9.0	10.8	73.5	55.0	3.9	3.9	4.1	4.0	95.1	97.5	5.5	2.4	43.6	5.5	7.0	78.6	3.8
1-3	14.3		55.2	10.6	9.0	10.2	65.5	44.0	3.7	3.7	4.1	4.0	90.2	92.5	5.7	2.3	40.4	5.6	6.7	83.6	
29-80-142	14.4	84.0	51.4	10.2	9.2	10.7	73.0	56.5	3.5	3.5	4.05	4.05	86.4	86.4	5.3	2.55	48.1	5.3	6.4	82.8	3.4
2-8	14.0	85.7	53.6	10.1	9.0	10.4	70.5	56.0		3.65		4.1		89.0	5.2	2.3	44.2	5.6	6.2	90.3	3.4
1-4	13.9	87.8	54.0	10.8	9.6	10.6	68.5	53.5	3.85	3.85	4.2	4.15	91.7	92.8	5.3	2.25	42.4	5.7	6.8	83.8	3.9
b	13.5		56.3	9.7	8.4	9.8	67.5	51.5	3.6	3.65	3.85	3.85	93.5	94.8	5.3	2.25	42.5	5.4	6.2	87.1	
1-3a	14.9	85.9	55.7	10.8	9.8	11.6	74.0	58.0	3.95	4.0	4.2	4.3	94.1	93.0	6.1	2.3	37.7	5.6	6.6	84.9	3.6
m	14.1		54.6	10.7	9.4	10.4	66.5	50.5	3.5	3.6	4.1	4.0	85.4	90.0	5.4	2.2	40.7	5.9	6.3	93.7	
t	13.4		58.2	10.3	9.5	10.7	72.0	63.5	3.6	3.55	4.0	4.1	90.0	86.6	5.5	2.25	40.9	5.6	6.5	86.2	
2-2	14.9	82.6	51.0	10.4	9.3	10.3	68.0	55.5	3.7	3.7	4.1	4.0	90.2	92.5	5.35	2.3	43.0	5.9	7.0	84.3	3.95
l	14.7		53.1	10.8	9.7	10.9	69.0	58.0	3.6	3.65	4.0	4.0	90.0	91.3	5.3	2.5	47.2	5.8	7.1	81.7	
3-1	13.8	89.1	54.4	10.2	8.8	10.4	70.0	51.0	3.55	3.6	3.9	3.9	91.0	92.3	5.2	2.3	44.2	5.4	6.3	85.7	3.8
6-3	13.9	91.4	57.6		8.7	10.3									5.45	2.4	44.0				3.7
6-2	13.4		57.5	10.2	9.1	10.8	72.5	56.0	3.45	3.45	3.9	3.9	88.5	88.5	5.5	1.95	35.4	5.3	6.2	85.5	3.6
4-25	14.1	95.0	57.5	10.3	9.4	11.1	73.5	61.5	4.1	4.0	4.2	4.0	97.6	100.0	5.75	2.25	39.1	5.3	6.7	79.1	3.9
4-12	14.0	85.0	53.6	9.8	9.0	10.2	71.0	63.5	3.4	3.4	3.8	3.8	89.5	89.5	5.35	2.5	46.7	5.4	6.6	81.8	3.35
n	14.8		54.1	10.6	9.7	11.4	71.0	62.5	3.6	3.65	4.1	3.9	87.8	93.6	5.55	2.55	46.0				
q	14.1		54.6	10.8	9.6	10.6	67.5	54.5	3.5	3.5	4.0	4.0	87.50	87.50	5.3	2.2	41.5				
j				10.8	10.2	11.1			3.4	3.4	4.1	4.0	82.9	85.0	5.35	2.5	46.7	5.5	6.3	87.3	
3-3					10.0	11.1			3.6		4.0		90.0		5.5	2.3	41.8	5.4	7.2	75.0	
6-7	14.5	84.8	51.0	10.8	9.7	11.0	71.5	54.5	3.6	3.6	3.9	3.85	92.3	93.5	5.35	2.3	43.0	5.7	6.8	83.8	3.7

BARROW ESKIMO: MALES—Continued

(Igloo Mounds)

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
4-6	14.4	------	------	------	9.3	10.8	------	------	3.3	3.3	4.1	3.9	*80.5*	*84.6*	4.95	2.15	*43.4*	------	------	------	------
B-a	13.8	------	*59.4*	10.1	9.4	10.7	70.5	66.0	------	4.0	------	4.2	------	*95.2*	5.8	2.3	*39.7*	5.3	6.3	*84.1*	------
p	14.6	------	*54.1*	10.1	9.1	10.5	70.0	57.0	3.3	3.35	4.0	4.0	*82.5*	*83.8*	5.7	2.25	*39.5*	5.6	6.6	*84.9*	------
o	14.1	*93.6*	*56.7*	10.5	9.6	10.9	70.5	61.5	3.95	3.95	4.1	4.1	*96.3*	*96.3*	5.6	2.4	*42.9*	5.7	6.7	*85.1*	3.7
1-21	13.7	*89.1*	*56.9*	10.6	9.4	10.6	68.5	51.0	3.35	3.3	3.6	3.6	*93.1*	*91.7*	5.8	2.2	*37.9*	5.6	6.7	*83.6*	3.6
s	15.2	*92.8*	*57.9*	11.3	9.9	11.1	66.0	53.5	3.7	3.65	4.0	4.0	*92.5*	*91.3*	6.1	2.6	*42.6*	6.1	6.7	*91.0*	4.2
3-5	14.2	*85.2*	*51.4*	10.3	9.4	10.3	69.5	61.0	3.5	3.5	3.8	3.8	*92.1*	*92.1*	5.0	2.45	*49.0*	5.4	6.8	*79.4*	3.5
c	14.4	------	*52.8*	10.3	9.3	10.6	71.0	58.0	3.5	------	3.9	------	*89.7*	------	5.4	2.3	*42.6*	5.4	6.2	*87.1*	------
r	14.0	------	*52.9*	10.1	9.2	10.4	70.5	58.5	3.6	3.6	4.0	4.1	*90.0*	*87.8*	5.4	2.6	*48.2*	------	------	------	------
h	14.5	------	------	------	9.6	10.9	------	------	3.4	3.5	3.9	3.9	*87.2*	*89.7*	4.9	2.3	*46.9*	------	------	------	------
u	14.1	------	------	------	8.7	10.1	------	------	3.7	3.6	4.0	4.0	*92.5*	*90.0*	5.1	2.15	*42.2*	------	------	------	------
f	------	------	------	------	9.7	10.7	------	------	------	3.55	------	3.9	------	*91.0*	5.65	2.4	*42.5*	------	------	------	------
d	14.5	------	*53.8*	------	------	------	------	------	3.45	3.5	4.0	4.05	*86.3*	*86.4*	5.45	2.2	*40.4*	5.3	5.8	*91.4*	------
l	13.9	------	*53.2*	9.5	8.6	10.0	71.5	59.0	3.5	------	4.1	------	*85.4*	------	5.35	2.3	*43.0*	5.0	6.4	*78.1*	3.8
4-7	14.2	------	*57.0*	10.5	9.4	10.8	70.0	56.5	3.7	3.65	3.9	3.9	*94.9*	*93.6*	5.75	2.4	*41.7*	5.5	6.4	*85.9*	3.7
e	14.6	------	*53.4*	10.3	9.2	10.6	70.0	55.0	3.8	3.8	4.2	4.1	*90.5*	*92.7*	5.6	2.4	*42.9*	5.3	6.4	*82.8*	------
i	------	------	------	10.1	8.9	10.4	70.0	53.0	------	3.45	------	4.0	------	*86.3*	5.5	2.5	*45.5*	------	------	------	------
k	14.3	------	------	------	8.9	10.1	------	------	3.45	3.5	3.9	3.85	*88.5*	*90.9*	5.4	2.4	*44.4*	------	------	------	------
g	14.4	------	*57.6*	10.7	9.4	10.7	67.5	52.0	3.65	------	4.2	------	*86.9*	------	5.9	2.35	*39.8*	------	------	------	------
Specimens	(48)	*(21)*	*(43)*	(40)	(51)	(51)	(39)	(39)	(47)	(47)	(47)	(47)	(47)	(47)	(52)	(52)	(52)	(39)	(39)	(39)	(26)
Totals	680.4	------	------	419.4	478.1	544.8	2.730	2.192	168.25	168.8	187.65	186.4	------	------	284.05	123.2	------	217.8	258.5	------	97.2
Averages	14.18	*88.5*	*54.9*	10.49	9.37	10.68	70.0	56.2	3.58	3.59	3.99	3.97	*89.7*	*90.6*	5.46	2.37	*43.4*	5.58	6.63	*84.3*	3.74
Minima	13.2	*82.3*	*51.0*	9.5	8.4	9.8	65.5	44.0	3.25	3.2	3.6	3.6	*78.6*	*79.8*	4.9	1.95	*35.4*	5.0	5.8	*75.0*	3.35
Maxima	15.2	*96.2*	*59.4*	11.4	10.2	11.6	74.0	66.0	4.1	4.0	4.2	4.3	*98.8*	*100.0*	6.1	2.8	*50.9*	6.3	7.6	*93.7*	4.2

[1] Allowance made for wear of teeth, where needed.

BARROW ESKIMO: FEMALES

(Igloo Mounds)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
1-2a	(*W. B. Van Valin*) Wistar Inst.	Near Barrow	55		18.4	12.2	13.3	66.3	86.9		14.63				
1-7	do	do	40		18.8	12.6	14.0	67.0	89.2		15.13				7.5
1-16	do	do	30		17.2	11.6	12.0	67.4	83.3		13.60			10.2	6.2
3-9	do	do	40		18.6	12.6	13.6	67.7	87.2		14.93			11.6	7.4
1-X	do	do	55		18.8	12.8	13.9	68.1	88.0		15.17			11.2	7.1
4-1	do	do	23		17.8	12.2	13.7	68.5	91.3		14.57			11.4	6.9
5-2	do	do	55		17.5	13.0	13.0	68.6	88.1		14.17				
4-17	do	do	55		18.6	12.8	13.4	68.8	85.4		14.93				7.3
1-14	do	do	55		18.9	13.0	13.2	68.8	82.8		15.03			11.2	7.5
1-1	do	do	50		19.0	13.2	13.3	69.5	82.6		15.17			11.9	7.4
4-11	do	do	80		18.1	12.6		69.6							
B-7	do	do	30		18.4	12.9	13.4	70.1	85.6		14.90				7.7
4-26	do	do	55		18.1	12.8	13.0	70.7	84.1		14.77			11.3	7.3
150	Univ. Pa. Mus.	do	60		18.4	13.0	13.5	70.7	86.0		14.97			12.4	7.7
146	do	do	40		18.2	12.9	13.4	70.9	86.2		14.83			12.4	7.3
4-20	Wistar Inst.	do	50		17.7	12.6	13.8	71.2	91.1		14.70			12.3	7.3
143	Univ. Pa. Mus.	do	30		17.4	12.4	13.5	71.3	90.6		14.43			11.6	6.6
B-8	Wistar Inst.	do	40		18.2	13.0	13.4	71.4	85.9		14.87				7.2
B-11	do	do	30		18.2	13.0	13.3	71.4	85.3		14.83				7.1
2-1	do	do	40		18.4	13.2	13.3	71.7	84.2		14.97				
3-15	do	do	60		18.8	13.5	13.6	71.8	84.2		15.30			10.9	7.1
5-3	do	do	60		17.8	12.8	13.3	71.9	86.9		14.63				
6-2	do	do	75		18.3	13.2	13.2	72.1	83.8		14.90				
1-2	do	do	40		17.9	12.9	13.4	72.1	87.0		14.73			11.5	6.9
2-1a	do	do	20		17.6	12.7	13.4	72.2	88.5		14.57			10.8	6.7
B-13	do	do	25		18.2	13.2	13.6	72.5	86.6		15.00				7.4
B-6	do	do	35		17.9	13.0	13.4	72.6	86.7		14.77				7.0
3-2	do	do	20		17.3	12.6	13.2	72.8	88.3		14.37			11.3	6.7
3-12	do	do	30		17.0	12.4	12.9	72.9	87.8		14.10			10.8	6.6
B-4	do	do	50		17.8	13.0	12.8	73.0	83.1		14.53				7.1
B-14	do	do	50		17.9	13.1	13.3	73.2	85.8		14.77				7.8
1-17	do	do	60		17.6	12.9	13.0	73.3	85.3		14.50				
3-13	do	do	55		18.4	13.5	13.3	73.4	83.4		15.07			9.8	5.9
148	Univ. Pa. Mus.	do	70		.8.7	13.8	13.7	73.8	84.3		15.40				

BARROW ESRIMO: FEMALES—Continued
(Igloo Mounds)

Catalog No.	Collection [2]	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth wear	Mento-Nasion Height (a) [1]	Alveol. Pt.-Nasion Height (b)
B-9	Wistar Inst.	do	25		18.4	13.6	12.7	*73.9*	*79.4*		14.90				8.0
1-6	do	do	25		17.6	13.0	12.9	*73.9*	*84.3*		14.50			10.7	6.3
147	Univ. Pa. Mus.	do	65		18.1	13.4	13.4	*74.0*	*85.1*		14.97				
B-10	Wistar Inst.	do	24		17.6	13.1	13.8	*74.4*	*89.9*		14.83				7.1
B-2	do	do	55		18.1	13.6	13.0	*75.1*	*82.0*		14.90				7.2
145	Univ. Pa. Mus.	do	25		17.0	13.0	12.9	*76.5*	*86.0*		14.30			12.2	7.0
B-12	Wistor Inst.	od	50		17.2	13.2	13.4	*76.7*	*88.2*		14.60				7.2
B-5	do	do	55		17.8	13.9	12.9	*78.1*	*81.4*		14.87				8.2
B-3	do	do	30		17.6	13.8	12.9	*78.4*	*82.2*		14.77				6.9
B-1	do	do	24		17.0	13.5	12.9	*79.4*	*84.6*		14.47				7.0
Specimens			(44)		(44)	(44)	(43)	(44)	(43)		(43)			(19)	(35)
Totals			1.941		793.0	560.1	570.9				631.1			215.5	249.6
Averages			44.1		18.02	12.73	13.28	*70.6*	*86.3*		14.68			11.34	7.13
Minima			20		17.0	11.6	12.0	*66.3*	*79.4*		13.60			9.8	5.9
Maxima			80		19.0	13.9	14.0	*79.4*	*91.3*		15.40			12.4	8.2

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
1-2a	13.0				9.7	10.7			3.75	3.7	3.75	3.75	*100.0*	*98.7*	5.75	2.2	*38.3*	5.5	6.5	*84.6*	
1-7	13.0		*56.4*	10.1	9.4	10.3	70.0	66.0		3.45		3.7		*93.2*	5.1	2.1	*41.2*	5.2	6.1	*85.3*	
1-16	11.7	*87.2*	*53.0*		9.2	9.8			3.2	3.2	3.35	3.35	*95.5*	*95.5*	4.6	1.85	*40.2*	5.1	5.6	*91.1*	2.95
3-9	13.3	*87.2*	*55.6*	10.5	9.3	10.7	71.5	53.5	3.4	3.45	4.0	4.1	*85.0*	*84.2*	5.2	2.5	*48.1*	5.3	6.4	*82.8*	3.3
1-X	13.1	*85.5*	*54.2*	9.9	9.0	10.1	70.5	59.0	3.25	3.25	3.7	3.7	*87.8*	*87.8*	5.0	2.2	*44.0*	5.8	6.4	*90.6*	3.65
4-1	12.9	*88.4*	*53.5*	9.9	8.8	9.9	70.0	52.5							5.0	2.45	*49.0*	5.2	6.4	*81.3*	3.5
5-2						10.0															

4-17	13.7		*53.6*	10.5	9.4	10.6	71.0	54.5		3.7		4.0		*92.5*	5.3	2.05	*38.7*	5.2	6.0	*86.7*	
1-14	13.0	*86.2*	*57.7*	10.5	9.3	10.4	68.5	53.5	3.7	3.8	3.8	3.8	*97.4*	*100.0*	5.3	2.5	*47.2*	5.8	6.6	*87.9*	3.1
1-1	13.8	*86.2*	*53.6*	10.4	9.2	10.6	71.0	53.5	3.6	3.7	4.0	4.0	*90.0*	*92.5*	5.15	2.25	*43.7*	5.4	6.3	*85.7*	3.8
4-11	13.0								3.65	3.6	3.8	3.7	*96.1*	*97.3*	4.9	2.25	*45.9*				
B-7	12.5		*61.6*	10.4	9.5	10.5	69.0	59.5	3.9	3.75	4.0	4.0	*97.5*	*93.8*	5.6	2.3	*41.1*	5.3	6.4	*82.8*	
4-26	13.2	*85.6*	*55.3*		9.1	9.8			3.25	3.3	3.7	3.65	*87.8*	*90.4*	4.9	2.25	*45.9*				3.6
150	12.9	*96.1*	*59.7*	10.6	9.1	10.2	65.0	49.5	3.65	3.7	3.95	3.9	*92.4*	*94.9*	5.25	2.4	*45.7*	5.8	6.3	*92.1*	3.5
146	13.7	*90.5*	*53.3*	10.2	9.2	10.2	69.0	58.0		3.7		4.0		*92.5*	5.0	2.7	*54.0*	5.3	7.0	*75.7*	3.7
4-20	12.8	*96.1*	*57.0*	10.5	9.3	10.3	68.0	54.5	3.5	3.5	4.0	4.0	*87.5*	*87.5*	4.9	1.95	*39.8*	5.5	5.9	*95.2*	3.9
143	12.4	*93.6*	*53.2*	10.1	9.0	10.0	70.0	52.5	3.65	3.75	4.0	3.85	*91.3*	*97.4*	4.65	2.2	*47.5*	5.0	5.9	*84.8*	3.6
B-8	13.2		*54.6*	10.3	9.2	10.4	70.0	57.0	3.6	3.5	3.8	3.8	*94.7*	*92.1*	4.85	2.25	*46.4*	5.4	6.1	*88.5*	
B-11	13.4		*53.0*		9.1	10.2				3.8		3.9		*97.4*	5.3	2.3	*43.4*	4.8	5.7	*84.2*	
2-1	13.2				9.3	10.4				3.5		4.1		*85.4*							3.4
3-15	14.2	*76.8*	*50.0*	10.3	9.2	10.7	73.0	49.0	3.5	3.5	3.85	3.75	*90.9*	*93.3*	5.5	2.6	*47.3*	5.4	6.3	*85.7*	3.1
5-3	13.9					10.5															3.6
6-2	13.0				8.6	9.9			3.6	3.5	4.0	4.0	*90.0*	*87.5*	4.8	2.15	*44.8*				
1-2	12.6	*91.3*	*54.8*	10.0	9.2	10.1	71.0	61.5	3.3		3.9		*84.6*		4.9	2.0	*40.8*	5.2	6.2	*83.9*	3.6
2-1a	12.5	*86.4*	*53.6*	9.2	8.3	9.6	72.5	55.5	3.6		3.7		*97.3*		4.95	2.2	*44.4*				3.0
B-13	12.9		*57.4*	10.0	8.8	10.4	71.5	53.0	3.55	3.55	3.9	3.9	*91.0*	*91.0*	5.15	2.5	*48.5*	5.4	6.4	*84.4*	
B-6	13.4		*52.2*	10.0	9.0	10.1	70.0	53.0		3.4		3.8		*89.5*	5.2	2.3	*44.2*	5.1	5.7	*89.5*	
3-2	12.8	*88.3*	*52.3*			9.6															3.2
3-12	13.2	*81.8*	*50.0*	9.5	8.4	9.7	71.5	53.0	3.3	3.35	3.9	3.8	*84.6*	*88.2*	4.7	2.35	*50.0*	5.0	6.5	*76.9*	3.2
B-4	13.7		*51.8*	10.0	9.0	10.1	70.0	56.5	3.4	3.4	3.9	3.9	*87.2*	*87.2*	5.0	2.35	*47.0*	5.6	6.4	*87.5*	
B-14	13.3		*60.0*	10.5	9.2	10.1	65.0	53.5	3.6		3.95		*91.1*		5.3	2.5	*47.2*	5.8	6.6	*87.9*	
1-17	13.4				9.1	10.0			3.6	3.6	4.0	4.0	*90.0*	*90.0*	4.8	2.4	*50.0*				
3-13	12.9	*76.0*	*45.7*	10.0	8.9	10.2	75.0	47.0		3.3		3.7		*89.2*	4.45	2.6	*58.4*	5.0	6.0	*83.3*	3.1
148	13.6					10.7															
B-9	13.7		*58.4*	9.6	8.7	10.1	69.5	56.5	3.8	3.9	4.1	4.1	*92.7*	*95.1*	6.1	2.65	*43.4*	5.3	6.4	*82.8*	
1-6	12.3	*87.0*	*51.2*	9.6	8.7	9.6	71.5	54.5	3.5		3.8		*92.1*		4.65	2.2	*47.3*	5.2	6.2	*83.9*	3.0
147					8.5	9.5									4.6	2.45	*53.3*				
B-10				10.2	9.2	10.2	69.5	52.0	3.75	3.65	4.0	4.0	*93.8*	*91.3*	5.4	2.35	*43.5*	5.6	6.6	*84.9*	
B-2	13.4		*53.7*	9.8	9.2	10.3	72.5	65.0		3.65		4.0		*91.3*	5.35	2.2	*41.1*	4.9	6.0	*81.7*	
145	13.0	*93.9*	*53.9*	10.6	9.6	10.1	66.5	55.5		3.7		3.8	*97.4*		5.0	2.3	*46.0*	5.6	6.4	*87.5*	3.9
B-12	12.8		*56.3*	10.6	9.3	10.3	67.5	49.0	3.7	3.7	3.8	3.8	*97.4*	*97.4*	5.1	2.3	*45.1*	5.7	6.2	*91.9*	
B-5	14.1		*58.2*	10.7	9.5	10.3	64.0	54.0	3.9	3.85	4.1	4.1	*95.1*	*93.9*	5.6	2.2	*39.3*	5.9	6.3	*93.7*	
B-3	13.1		*52.7*	9.6	8.7	9.7	70.0	59.0	3.4	3.5	3.75	3.7	*90.7*	*94.6*	4.8	2.15	*44.8*	5.0	6.2	*80.7*	
B-1	13.0		*53.9*	9.3	8.5	9.7	71.5	60.0	3.6		4.0		*90.0*		5.05	2.05	*40.6*	5.1	5.9	*86.4*	
Specimens	(41)	(19)	(34)	(31)	(39)	(43)	(31)	(31)	(29)	(33)	(29)	(33)	(29)	(33)	(39)	(39)	(39)	(33)	(33)	(33)	(21)
Totals	538.6			313.4	353.7	436.6	2,165.5	1,711.0	103.2	117.9	112.5	127.65			198.15	89.5		176.4	205.9		71.7
Averages	13.14	*87.5*	*54.7*	10.11	9.07	10.15	69.9	55.2	3.56	3.57	3.88	3.87	*91.7*	*92.4*	5.08	2.29	*45.2*	5.35	6.24	*85.7*	3.41
Minima	11.7	*76.0*	*45.7*	9.2	8.3	9.5	64.0	47.0	3.2	3.2	3.35	3.35	*84.6*	*84.2*	4.45	1.85	*38.3*	4.8	5.6	*75.7*	2.95
Maxima	14.2	*96.1*	*61.6*	10.7	9.7	10.7	75.0	66.0	3.9	3.9	4.1	4.1	*100.0*	*100.0*	6.1	2.7	*54.0*	5.9	7.0	*93.7*	3.9

[1] Allowance made for wear of teeth, where needed.

BARROW ESKIMO

PIGINIK MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
365904	(*J. A. Ford*) U.S.N.M.	Piginik	45		18.8	13.2	14.4	*70.21*	*90.0*		15.47			12.8	7.3

PIGINIK FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
365909	U.S.N.M.	Piginik	20		18.5	13.1	13.7	*70.81*	*86.71*		15.10				
365905	do	do	25		17.8	13.0		*73.03*							7.0
365902	do	do	40		17.1	12.5	12.6	*73.10*	*85.14*		14.07			12.0	6.9
365906	do	do	60		17.2	13.5	13.8	*78.49*	*89.90*		14.83			12.0	7.3
Specimens			(4)		(4)	(4)	(3)	(4)	(3)		(3)			(2)	(3)
Totals			145		70.6	52.1	40.1				44.0			24.0	21.2
Averages			36.3		17.65	13.03	13.37	*73.8*	*87.3*		14.67			12.0	7.07
Minima			20		17.1	12.5		*70.8*							
Maxima			60		18.5	13.5		*78.5*							

PIGINIK MALES

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
365904	13.8	*92.75*	*52.90*	11.2	10.2	11.0	69.5	59.0	3.25	3.3	4.0	3.9	*81.25*	*84.62*	5.1	2.3	*45.10*	6.1	7.0	*87.14*	3.5

PIGINIK FEMALES

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total*	*Facial Index, upper*	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
365909						10.4															
365905	13.7		*51.1*						3.45		4.1		*84.15*		5.0	2.1	*42.0*	5.0	5.7	*87.72*	
365902				9.8	9.0	10.2	73.0	60.0		3.65		3.8		*96.05*	5.05	2.15	*42.57*	5.2	5.8	*89.66*	3.2
365906	13.7	*87.59*	*53.28*	9.6	8.9	10.3	73.5	65.5	3.55		4.2		*84.52*		4.95	2.4	*48.48*	4.8	6.0	*80.0*	3.0
Specimens	(2)		(2)	(2)	(2)	(3)	(2)	(2)	(2)		(2)		(2)		(3)	(3)	(3)	(3)	(3)	(3)	(2)
Totals	27.4			19.4	17.9	30.9	146.5	125.5	7.0		8.3				15.0	6.65		15.0	17.5		6.2
Averages	13.7			9.70	8.95	10.30	73.2	62.7	3.50		4.15		*84.3*		5.0	2.22	*44.3*	5.0	5.83	*85.7*	3.1
Minima																					
Maxima																					

BARROW ESKIMO

(Utkiavik Males)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Mento-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
365885	(*J. A. Ford*) U.S.N.M.	Old Heaps, near Utkiavik.	Mid-aged		19.9	13.3	14.0	*66.83*	*84.34*		15.73				7.8
365894	do	do	55		18.7	13.0	13.7	*69.52*	*86.44*		15.13				7.6
365891	do	do	Mid-aged		18.6	13.2		*70.97*							
365864	do	do	50		19.1	13.6		*71.20*							
365853	do	do	Aged		19.6	14.0	(High)	*71.43*							
365857	do	do	50		19.1	13.7	13.4	*71.73*	*81.71*		15.40				7.2
365911A	do	do	Aged		19.2	13.8		*71.88*							
365897	do	do	Mid-aged		18.9	13.6	14	*71.96*	*86.15*		15.50			12.3	7.3
365891	do	do	do		18.4	13.4	(High)	*72.83*							
365854	do	do	do		18.8	13.8	14.0	*73.40*	*85.89*		15.53				
365879	do	do	50		18.9	13.9	13.8	*73.54*	*84.15*		15.53				
365856	do	do	Mid-aged		18.6	13.7	13.6	*73.66*	*84.21*		15.30				8.1
365858	do	do	50		19.4	14.4	14.4	*74.23*	*85.21*		16.07				7.9
365877	do	do	Aged		19.3	14.4		*74.61*							
365867	do	do	40		17.8	13.6	13.4	*76.40*	*85.35*		14.93				
365859	do	do	Mid-aged		18.8	14.4	13.5	*76.60*	*81.33*		15.57				8.1
365855	do	do	Near mid-aged		18.9	14.8		*78.31*							
365896	do	do	65		19.7	(Narrow)	(High)								
Specials			(18)		(18)	(17)	(10)	(17)	(10)		(10)				(7)
Totals			Approx. 960		341.7	234.6	137.8				154.7				54.0
Averages			53.3		18.98	13.80	13.78	*72.9*	*84.1*		15.47				7.71
Minima			40		17.8	13	13.4	*66.8*	*81.3*		14.93				7.2
Maxima			70		19.9	14.8	14.4	*78.3*	*86.4*		16.07				8.1

Catalog No.	Diam. Bizygomatic maxim. (e)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Aveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left
365885	------	------	------	11.1	10.1	11.2	70.0	61.0	3.4	3.45
365894	13.7	------	*55.47*	10.8	9.9	10.7	68.5	61.0	3.5	3.55
365891	------	------	------	------	------	------	------	------	------	------
365864	------	------	------	------	------	------	------	------	------	------
365853	14.6	------	------	------	------	------	------	------	3.5	3.35
365857	14.7	------	*48.98*	10.6	9.6	10.6	70.0	56.5	3.35	3.4
365911 A	------	------	------	------	------	------	------	------	------	------
365897	13.8	*89.13*	*52.90*	------	9.4	10.3	------	------	3.7	------
365891	------	------	------	------	------	------	------	------	------	------
365854	------	------	------	------	------	10.7	------	------	------	------
365879	13.8	------	------	------	------	10.8	------	------	3.55	------
365856	14.4	------	*56.25*	10.5	9.3	10.2	65.0	56.0	------	3.45
365858	14.4	------	*54.86*	10.1	9.1	11	74.5	60.0	3.6	3.65
365877	------	------	------	------	------	------	------	------	------	------
365867	13.9	------	------	------	9.1	10.3	------	------	3.6	3.5
365859	14.2	------	*57.04*	10.8	9.6	10.7	67.5	56.0	3.55	3.5
365896	------	------	------	------	------	------	------	------	------	------
Specials	(9)	------	*(6)*	(6)	(8)	(10)	(6)	(6)	(9)	(8)
Totals	127.5	------	------	63.9	76.1	106.5	415.5	350.5	31.75	27.85
Averages	14.17	------	*54.2*	10.65	9.51	10.65	69.2	58.4	3.53	3.48
Minima	13.7	------	*49.0*	10.1	9.1	10.2	65.0	56.0	3.35	3.35
Maxima	14.7	------	*57.0*	11.1	10.1	11.1	74.5	61.0	3.7	3.65

Catalog No.	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
365885	4.0	4.0	*85.0*	*86.25*	5.2	2.5	*48.08*	5.5	6.5	*84.62*	------
365894	3.75	3.7	*93.33*	*95.95*	5.3	2.5	*47.17*	5.6	6.2	*90.32*	3.1
365891	------	------	------	------	------	------	------	------	------	------	------
365864	------	------	------	------	------	------	------	------	------	------	------
365853	4.5	4.7	*77.78*	*71.28*	5.9	2.55	*43.22*	------	------	------	------
365857	4.0	4.1	*83.75*	*82.93*	5.15	2.3	*44.66*	5.5	6.4	*85.94*	------
365911 A	------	------	------	------	------	------	------	------	------	------	------
365897	4.0	------	*92.50*	------	5.35	2.3	*42.99*	------	------	------	3.5
365891	------	------	------	------	------	------	------	------	------	------	------
365854	------	------	------	------	------	------	------	------	------	------	------
365879	3.8	------	*93.42*	------	------	------	------	------	------	------	------
365856	------	3.9	------	*88.46*	5.55	2.5	*45.05*	------	------	------	------
365858	4.2	4.4	*85.71*	*82.95*	5.5	2.15	*39.09*	5.5	6.5	*84.62*	------
365877	------	------	------	------	------	------	------	------	------	------	------
365867	4.0	4	*90.0*	*87.50*	4.9	2.55	------	------	------	------	------
365859	3.9	4	*91.03*	*87.50*	5.5	2.5	*45.45*	5.6	6.6	*84.85*	------
365896	------	------	------	------	------	------	------	------	------	------	3.1
Specials	(9)	(8)	(9)	(8)	(9)	(9)	(9)	(5)	(5)	(5)	(3)
Totals	36.15	32.8	------	------	48.35	21.85	------	27.7	32.2	------	9.7
Averages	4.01	4.10	*87.8*	*84.9*	5.37	2.43	*45.2*	5.54	6.44	*86.0*	3.23
Minima	3.75	3.7	*77.8*	*71.3*	4.9	2.15	*39.1*	5.5	6.2	*84.6*	------
Maxima	4.5	4.7	*93.4*	*95.9*	5.9	2.55	*52*	5.6	6.6	*90.3*	------

BARROW ESKIMO

(Utkiavik Females)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
365884	(*J. A. Ford*) U.S.N.M	Old heaps north Utkiavik	35		18.8	12.6	13.8	*67.02*	*87.90*		15.07				
365889	do	do	25		18.6	12.6	13.1	*67.74*	*83.97*		14.77				
365887	do	do	35		19.1	13.0	(High)	*68.06*							7.4
365886	do	do	35		18.6	12.8	(High)	*68.82*							
365860(♀ or weak ♂)	do	do	35		18.9	13.2	13.8	*69.84*	*85.98*		15.30				7.7
365869	do	do	55		18.1	13.1	12.6	*72.38*	*80.77*		14.60				7.3
365872	do	do	50		18.5	13.4	12.8	*72.43*	*80.25*		14.90				7.2
365853	do	do	75		18.7	13.6	(High)	*72.73*							
365863	do	do	35		18.4	13.4		*72.83*							
365893	do	do	24		17.2	12.6	12.7	*73.26*	*85.23*		14.17			10.9	7.0
365725	do	do	40		17.7	13.0		*73.45*							
365870	do	do	50		18.5	13.6		*73.51*							
365895	do	do	65		18.2	13.4	12.7	*73.63*	*80.38*		14.77				
365868	do	do	40		17.9	13.2	13.3	*73.74*	*85.53*		14.80				7.0
365892	do	do	30		17.6	13.0	12.6	*73.86*	*82.35*		14.40			11.1	6.8
365881	do	do	40		18.0	13.3	13.4	*73.89*	*85.62*		14.90				
365875	do	do	60		17.9	13.4	12.8	*74.86*	*81.79*		14.70				7.4
365861(prob. ♀)	do	do	65		18.8	14.2	14.0	*75.53*	*84.85*		15.67				
365874	do	do	75		18.0	13.6	13.2	*75.56*	*83.54*		14.93				
365862	do	do	23		17.6	13.4		*76.14*							
365873	do	do	60		18.2	13.9	13.6	*76.37*	*84.74*		15.23				7.9
365880	do	do	35		17.5	13.6	13.2	*77.71*	*84.89*		14.77				
365866	do	do	50		16.7	13.5	12.4	*80.84*	*82.12*		14.20				7.0
365876	do	do	25		16.6	13.6	12.6	*81.93*	*83.44*		14.27				
Specimens			(24)		(24)	(24)	(17)	(24)	(17)		(17)				(10)
Totals			1,057		434.1	319.0	222.6				251.4				72.7
Averages			44.0		18.09	13.29	13.09	*73.5*	*83.7*		14.85				7.27
Minima			23		16.6	12.6	12.3	*67.0*	*80.3*		14.17				6.8
Maxima			75		19.1	14.2	14.0	*81.9*	*87.9*		15.67				7.9

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
365884	13.2																				
365889						9.7															
365887	13.6		*54.41*							3.7		4.0		*92.50*	5.2	2.5	*48.08*				
365886																					
365860 (♀ or weak ♂)				9.8	8.6	10.9	76.0	50.5	3.8	3.85	4.0	(3.7)	*95.0*	*(104.1)*	5.75	2.45	*42.61*	5.3	6.3	*84.13*	
365869	13.7		*53.28*	10.4	9.1	10.2	67.5	49.5	3.5		4.25		*82.35*		5.2	2.15	*41.35*	5.3	6.1	*86.89*	
365872				9.5	8.2	9.9			3.65		4.0		*91.25*								
365853																					
365863																					
365893	12.1	*90.08*	*57.85*	9.7	8.8	9.7	69.0	58.0	3.6	3.5	3.85	3.8	*93.52*	*92.11*	4.95	2.1	*42.42*	5.3	5.8	*91.38*	3.0
365725																					
365870																					
365895																					3.2
365868	12.9		*54.26*	9.9	8.7	10.1	71.0	50.0													
365892	12.8	*86.72*	*53.13*	9.2	8.2	9.2	68.5	56.5	3.5	3.5	3.8	3.8	*92.11*	*92.11*	4.7	2.1	*44.68*	5.1	5.8	*87.93*	3.25
365881						10.1				3.65		3.9		*93.59*							
365875	12.9		*57.36*	9.8	8.8	10.0	69.5	58.0	3.3	3.4	4.0	3.9	*82.50*	*87.18*	5.1	2.1	*41.18*				
365861 (prob. ♀)	13.1				8.9	10.6				3.85		4.2		*91.67*	5.2	2.45	*47.12*				
365874	13.2				8.4	10.1			3.35		4.1		*81.71*		5.5	2.35	*42.73*				
365862																					
365873	13.4		*58.96*	10.4	9.1	10.6	69.0	52.0	3.75	3.75	4.2	4.2	*89.29*	*89.29*	5.55	2.5	*45.05*	5.8	6.8	*85.29*	
365880	13.7					10.3			3.9		4.1		*95.12*								
365866	13.0		*53.85*	10.3	9.2	10.0	68.0	51.5		3.7		3.9		*94.87*	5.05	2.2	*43.56*				
365876	12.7					9.8															
Specimens	(13)		*(8)*	(9)	(11)	(15)	(8)	(8)	(9)	(9)	(9)	(8)	(9)	(8)	(10)	(10)	(10)	(5)	(5)	(5)	(3)
Totals	170.3			89.0	96.0	151.2	558.5	426.0	3,235.0	32.9	36.3	31.7			52.2	22.9		26.8	30.8		9.45
Averages	13.10		*55.4*	9.89	8.73	10.08	69.8	53.3	3.59	3.66	4.03	3.96	*89.1*	*91.6*	5.22	2.29	*43.9*	5.36	6.16	*87.0*	3.15
Minima	12.1		*53.1*	9.2	8.2	9.2	67.5	49.5	3.3	3.4	3.8	3.8	*81.7*	*87.2*	4.7	2.1	*41.4*	5.1	5.8	*84.1*	
Maxima	13.7		*59.0*	10.4	9.2	10.9	76.0	58.0	3.9	3.85	4.25	4.2	*95.1*	*94.9*	5.75	2.5	*48.1*	5.8	6.3	*91.4*	

BARROW ESKIMO—Continued

(Barrow Males)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)[1]	Alveol. Pt.-Nasion Height (b)
332658	(*A. H.*) U.S.N.M.	At Barrow	Adult		20.1	13.8		*68.7*							
332559	do	do	do		19.4	13.4	13.6	*69.1*	*82.9*		15.47	1,485			
332656	do	do	do		19.0	13.3	13.9	*70.0*	*85.8*		15.40				7.6
332659	do	do	do		19.0	13.4	13.8	*70.5*	*85.2*		15.40				7.8
332644	do	do	do		19.4	13.7	13.8	*70.6*	*83.1*		15.63				
332654	do	do	do		19.9	14.1	14.3	*70.8*	*84.1*		16.10				8.4
332632	do	do	do		19.2	13.6	13.3	*70.8*	*81.1*		15.37				7.9
332643	do	do	do		18.7	13.4	13.9	*71.7*	*86.9*		15.33				
332653	do	do	do		19.4	14.1	14.5	*72.7*	*86.3*		16.0				
332667	do	do	do		18.8	13.8	12.9	*73.4*	*79.1*		15.17				
332561	do	do	do		18.4	13.7	13.6	*74.5*	*85.0*		15.23	1.440			
332636	do	do	do		18.1	13.5	13.4	*74.6*	*84.8*		15.0				
332649	do	do	do		18.6	14.1	13.6	*75.8*	*82.9*		15.43				
332660	do	do	do		18.7	14.3	14.0	*76.5*	*84.8*		15.67				
332666	do	do	do		18.2	14.1	13.6	*77.5*	*84.0*		15.30				7.8
332639	do	do	do		18.3	14.3	13.6	*78.1*	*83.4*		15.40				
Specimens					(16)	(16)	(15)	(16)	(15)		(15)				(5)
Totals					303.2	220.6	205.8				231.6				39.5
Averages					18.95	13.78	13.72	*72.8*	*82.8*		15.41				7.9
Minima					18.1	13.3	12.9	*68.7*	*79.1*		15.0				7.6
Maxima					20.1	14.3	14.5	*78.1*	*86.9*		16.10				8.4

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
332658																					
332559						10.5															
332656	14.4		*52.7*	10.4	9.8	10.8	72.0	68.0	3.7		4.0		*92.5*		5.4	2.3	*42.6*				
332659	14.3		*54.5*	10.5	9.4	10.9	71.5	54.5		3.55		4.0		*88.7*	5.7	2.7	*47.4*	5.8	6.7	*86.6*	
332644						10.5															
332654	14.7		*57.1*	10.4	9.4	10.9	70.0	61.5	3.7	3.55	4.15	4.15	*89.2*	*85.5*	5.65	2.4	*42.5*	5.7	6.4	*89.1*	
332632	14.3		*55.2*	10.0	8.9	10.4	70.0	55.0	3.55	3.6	4.2	4.2	*84.5*	*85.7*	5.7	2.4	*42.1*				
332643						10.5															
332653						11.1															
332667	14.3				8.3	9.8			3.65	3.65	4.25	4.25	*85.9*	*85.9*	5.55	2.6	*46.8*				
332561	14.2				9.4	10.4			3.75	3.65	3.85	3.95	*97.4*	*92.4*	5.75	2.3	*40.0*				
332636					9.1	10.5			3.65	3.5	4.1	4.2	*89.0*	*83.3*	5.1	2.3	*45.1*				
332649						11.0															
332660	15.0					10.3			3.7		4.0		*92.5*								
332666	14.7		*53.1*	9.7	8.9	10.8	75.0	58.0	3.55	3.6	4.1	4.1	*86.6*	*87.8*	6.1	2.7	*44.3*	5.4	6.6	*81.8*	
332639						10.2			3.7		4.1		*90.2*								
Specimens	(8)		(5)	(5)	(8)	(15)	(5)	(5)	(9)	(7)	(9)	(7)	(9)	(7)	(8)	(8)	(8)	(3)	(3)	(3)	
Totals	115.9			51.0	73.2	158.6	358.5	297.0	32.95	25.1	36.75	28.85			44.95	19.7		16.9	19.7		
Averages	14.4		*54.6*	10.2	9.15	10.5	71.7	59.4	3.66	3.59	4.08	4.12	*89.7*	*87.0*	5.61	2.4	*43.85*	5.6	6.5	*85.8*	
Minima	14.2		*52.7*	9.7	8.3	9.8	70.0	55.0	3.55	3.5	3.85	3.95	*84.5*	*83.3*	5.1	2.3	*40.0*				
Maxima	15.0		*57.1*	10.5	9.8	11.1	75.0	68.0	3.75	3.65	4.25	4.25	*97.4*	*92.4*	6.1	2.7	*47.4*				

[1] Allowance made for wear of teeth where needed.

BARROW ESKIMO

(Barrow Females)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*A. H.*)														
332646	U.S.N.M.	At Barrow	Adult		17.9	12.7	12.8	*71.0*	*83.7*		14.47				
332648	do	do	do		17.9	12.7	12.3	*71.0*	*80.4*		14.30				
332665	do	do	do		17.9	12.8	13.3	*71.5*	*86.4*		14.67				6.1
332558	do	do	do		17.8	12.9	12.2	*72.5*	*79.2*		14.30	1,255			6.7
332631	do	do	do		18.7	13.6	13.6	*72.7*	*84.0*		15.30			12.4	7.4
332642	do	do	do		17.2	12.5	12.7	*72.7*	*85.8*		14.13				7.3
332662	do	do	do		17.6	12.8	12.9	*72.7*	*84.9*		14.43				
332661	do	do	do		18.3	13.4	12.5	*73.2*	*79.1*		14.73				6.8
332645	do	do	do		18.0	13.2	13.0	*73.3*	*83.3*		14.73				
332640	do	do	do		17.6	12.9	13.4	*73.3*	*88.2*		14.63				6.9
332652	do	do	do		17.8	13.1		*73.6*							
332657	do	do	do		17.9	13.2	13.4	*73.7*	*85.8*		14.83				
332635	do	do	do		18.4	13.6	12.7	*73.9*	*79.4*		14.90				
332633	do	do	do		17.0	12.6	12.5	*74.1*	*84.5*		14.03				
332650	do	do	do		17.8	13.4	13.4	*75.3*	*85.9*		14.87				
332641	do	do	do		17.4	13.2	12.4	*75.9*	*81.0*		14.33				
332647	do	do	do		17.1	13.0	12.4	*76.0*	*82.7*		14.17				
332655 (prob. ♀)	do	do	do		18.2	14.2	13.8	*78.0*	*85.2*		15.40				7.4
332638	do	do	do		17.4	13.6		*78.2*							
332637	do	do	do		17.7	14.0	12.5	*79.1*	*79.1*		14.73				
332634	do	do	do		16.2	12.9	11.8	*79.6*	*80.8*		13.63				6.5
332557	do	do	do		17.5	14.0	12.7	*80.0*	*80.4*		14.73	1,320			
Specimens					(22)	(22)	(20)	(22)	(20)		(20)				(8)
Totals					389.3	290.3	256.3				291.3				55.1
Averages					17.70	13.20	12.81	*74.6*	*82.9*		14.57				6.9
Minina					16.2	12.5	11.8	*71.0*	*79.1*		13.63				6.1
Maxima					18.7	14.2	13.8	*80.0*	*88.2*		15.40				7.4

Catlog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
332,646						9.6															
332,648	13.2				8.3	9.6			3.35	3.25	3.9	3.8	*85.9*	*85.5*	5.0	2.5	*50.0*	4.9	6.1	*80.3*	
332,665	12.8		*47.7*	9.6	8.9	9.9	74.5	61.0							4.5	2.2	*48.9*				
332,558	12.3		*54.5*	8.7	7.9	9.5	75.0	58.0	3.4	3.4	3.65	3.65	*93.2*	*93.2*	5.05	2.5	*49.5*	4.8	6.1	*78.7*	2.9
332,631	13.3	*93.2*	*55.6*	10.0	9.2	10.5	72.5	61.0	3.5	3.6	3.8	3.7	*92.1*	*97.3*	5.4	2.5	*46.3*	5.2	6.6	*78.8*	3.5
332,642	12.5		*58.4*	9.0	8.2	9.5	70.5	61.5	3.5	3.5	3.7	3.6	*94.6*	*97.2*	5.2	2.35	*45.2*	5.1	(5.4)	*(94.4)*	
332,662						10.2															
332,661	12.6		*54.0*	9.6	8.6	10.0	73.0	52.5	3.6	3.6	3.85	3.85	*93.5*	*93.5*	5.05	2.3	*45.6*	4.9	5.4	*90.7*	
332,645						10.2															
332,640	12.8		*53.9*	10.1	8.9	10.2	71.0	51.0	3.4		3.9		*87.2*		4.95	2.35	*47.5*	5.2	6.3	*82.5*	
332,652																					
332,657					9.0	10.3				3.4		3.65		*93.2*	4.9	2.3	*46.9*				
332,635				9.6	8.7	10.0			3.65		3.85		*94.8*		5.5	2.1	*38.2*	5.1	5.9	*86.4*	
332,633						9.2															
332,650						10.2															
332,641					8.3	9.6				3.65		3.85		*94.8*	5.05	2.2	*43.6*				
332,647						9.4															
332,655 (prob. ♀)	14.1		*52.5*	9.6	9.0	10.5	75.0	58.0	3.85	3.85	4.1	4.1	*93.9*	*93.9*	5.3	2.15	*40.6*	5.2	6.3	*82.5*	
332,638																					
332,637						10.0															
332,634	13.1		*49.6*	9.4	8.7	9.6	71.5	60.0	3.55	3.45	3.75	3.85	*94.7*	*89.6*	4.85	2.25	*46.4*	4.8	6.1	*78.7*	
332,557	13.7				9.0	10.3				3.4		3.65		*93.2*	4.9	2.3	*44.5*				3.4
Specimens	(10)		(8)	(9)	(13)	(20)	(8)	(8)	(9)	(10)	(9)	(10)	(9)	(10)	(13)	(13)	(13)	(9)	(8)	(8)	(3)
Totals	130.4			85.6	112.7	197.9	583.0	463.0	31.8	35.1	34.5	37.7			66.25	30.15		45.2	54.2		9.8
Averages	13.04		*53.2*	9.51	8.67	9.90	72.9	57.9	3.53	3.51	3.83	3.77	*92.2*	*93.1*	5.10	2.32	*42.6*	5.02	6.02	*83.35*	3.27
Minima	12.3		*47.7*	8.7	7.9	9.2	70.5	51.0	3.35	3.25	3.65	3.6	*85.9*	*85.5*	4.5	2.1	*38.2*	4.8	5.4	*78.7*	
Maxima	14.1		*58.4*	10.1	9.2	10.5	75	61.5	3.85	3.85	4.1	4.1	*94.8*	*97.2*	5.5	2.5	*50.0*	5.2	6.6	*90.7*	

BARROW ESKIMO

(Point Barrow Males)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(Mainly V. Stefansson)														
6792	A.M.N.H	Point Barrow	60		19.9	13.7	14.0	*68.8*	*83.3*		15.87		Considerable		
6832	do	do	65		18.7	13.0	[1] 14.3	*69.5*	*90.2*		15.33		do		
6797	do	do	55		19.2	13.5	13.7	*70.3*	*83.8*		15.47		Medium		8.0
6840	do	do	40		19.1	13.5	13.5	*70.7*	*82.8*		15.37		Slight		7.3
6839	do	do	30		18.8	13.3	13.7	*70.7*	*80.4*		15.27		+		7.1
6875	do	do	65		19.2	13.6	13.8	*70.8*	*84.2*		15.53				7.8
242933	U.S.N.M	do	50		18.8	13.4	13.8	*71.3*	*85.7*		15.33		Moderate		8.1
6879	A.M.N.H	do	45		19.6	14.0		*71.4*							
6813	do	do	25		19.0	13.6	13.2	*71.6*	*81.0*		15.27		Considerable		7.7
6871	do	do	24		18.7	13.4	13.6	*71.7*	*84.7*		15.23		+		7.5
6880	do	do	55		18.9	13.6	14.1	*72.0*	*86.8*		15.53		Moderate		7.8
6850	do	do	60		18.6	13.4	13.5	*72.0*	*84.4*		15.17				
6795	do	do	45		18.6	13.4	13.7	*72.0*	*85.6*		15.23				7.5
6794	do	do	70		19.0	13.7	13.5	*72.1*	*82.6*		15.40		Considerable		
6810	do	do	60		19.5	14.1	14.4	*72.3*	*85.7*		16.00		do		[1] 7.4
6901	do	do	60		19.2	13.9	13.6	*72.4*	*82.2*		15.57				8.5
6790	do	do	65		19.1	13.9	14.0	*72.8*	*84.9*		15.67		Considerable		7.7
242928	U.S.N.M	do	55		17.7	12.9	13.4	*72.9*	*87.6*		14.67		Medium	12.7	7.9
6870	A.M.N.H	do	75		19.0	13.9		*73.2*					All		
6791	do	do	65		18.8	13.8	13.6	*73.4*	*83.4*		15.40		All		
6847	do	do	50		19.3	14.2	14.1	*73.6*	*89.2*		15.87				
6787	do	do	70		18.2	13.4	14.0	*73.6*	*88.6*		15.30		All		7.9
6895	do	do	65		18.7	13.8	13.7	*73.8*	*84.3*		15.40		All		
6859	do	do	55		19.5	14.4	14.1	*73.85*	*83.2*		16.00		Medium		8.8
6885	do	do	45		18.8	13.9	13.4	*73.9*	*82.0*		15.37		Slight		8.1
6831	do	do	35		18.8	13.9	14.0	*73.9*	*85.6*		15.37		+		8.0
242931	U.S.N.M	do	50		18.4	13.6	13.0	*73.9*	*81.3*		15.00		Slight		7.1
6854	A.M.N.H	do	45		19.2	14.2	14.2	*74.0*	*85.0*		15.87		Moderate		8.7
6874	do	do	60		18.5	13.7	14.2	*74.05*	*88.2*		15.47		Considerable		[1] 7.8
6786	do	do	30		18.6	13.8	13.6	*74.2*	*84.0*		15.33				7.4
6818	do	do	55		18.5	13.8	13.8	*74.6*	*85.4*		15.37		Moderate		7.8
6846	do	do	55		18.6	13.9	14.0	*74.7*	*86.2*		15.50				7.5
6785	do	do	55		19.1	14.3	14.4	*74.9*	*86.2*		15.93				8.1

6814	do	do	70		18.8	14.1	13.4	*75.0*	*81.5*		15.43		Considerable		
6783	do	do	65		18.6	14.0	14.4	*75.3*	*88.3*		15.67		All		7.9
6887	do	do	50		19.0	14.3	13.9	*75.3*	*83.5*		15.73				8.1
6900	do	do	60		19.1	14.4	14.0	*75.4*	*83.6*		15.83		Considerable		8.6
242935	U.S.N.M	do	50		18.4	13.9	13.7	*75.5*	*84.8*		15.33	1,440	N. +		7.9
6805	A.M.N.H	do	70		18.0	13.6	13.0	*75.6*	*82.3*		14.87		All		
6893	do	do	24		18.5	14.0	14.0	*75.9*	*86.2*		15.50		+		7.5
6888	do	do	60		18.4	14.0	13.4	*76.1*	*82.7*		15.27		Medium		7.3
6793	do	do	65		18.4	14.0	14.3	*76.1*	*88.3*		15.57		All		
6815	do	do	60		18.5	14.1	13.6	*76.2*	*83.4*		15.40		Medium	13.5	8.2
6852	do	do	40		18.2	14.0	14.2	*76.9*	*88.2*		15.47		N. +		7.7
6868	do	do	30		18.8	14.6	13.7	*77.7*	*82.0*		15.70		+		8.4
6884	do	do	55		18.0	14.0	14.2	*77.8*	*88.8*		15.40		Above medium.		7.5
242927	U.S.N.M	do	60		18.3	14.4	[1] 13.2	*78.7*	*80.7*		15.30	1,380	do		8.4
6811	A.M.N.H	do	65		18.5	14.6	13.7	*78.9*	*82.8*		15.60		Considerable		8.3
6899	do	do	60		17.4	13.9	13.3	*79.9*	*85.0*		14.87		Medium		7.6
Specimens			(49)		(49)	(49)	(47)	*(49)*	*(47)*		(47)			(2)	(37)
Totals			2,623		918.5	678.4	647.9				726.1			26.2	290.9
Averages			53.5		18.74	13.84	13.78	*73.9*	*84.7*		15.44			13.10	7.86
Minima			24		17.4	12.9	13.0	*68.8*	*80.4*		14.67			12.7	7.1
Maxima			75		19.9	14.6	14.4	*79.9*	*90.2*		16.0			13.5	8.8

[1] Near.

BARROW ESKIMO—Continued

(Point Barrow Males)

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
6792	14.2				9.3	10.6				3.9		3.95		*98.7*	5.3	2.3	*43.4*				
6832					9.3	10.8				3.65		4.15		*88.0*	5.95	2.4	*40.3*				
6797	14.4		*55.6*	10.9	9.8	11.3	72.0	59.0	3.5	3.4	3.95	4.05	*88.6*	*84.0*	5.55	2.0	*36.0*	5.7	6.6	*86.4*	
6840	13.5		*54.1*	9.9	9.0	10.0	69.0	60.0	3.7	3.7	[1] 4.05	4.05	*91.4*	*91.4*	5.15	2.3	*44.7*	5.5	6.1	*90.2*	
6839	13.8		*51.4*	10.2	9.2	10.4	71.0	55.0	3.3	3.3	3.85	3.85	*85.7*	*85.7*	5.25	2.2	*41.9*	5.7	6.1	*93.4*	
6875	14.3		*54.5*	10.1	8.9	10.2	68.0	53.0	4.0	4.0	4.25	4.35	*94.1*	*91.5*	5.6	2.35	*42.0*				
242933	14.5		*55.9*	10.7	9.2	10.6	67.0	51.0	3.4	3.4	4.0	4.1	*85.0*	*82.9*	5.5	2.4	*43.6*	5.9	6.7	*88.1*	
6879																					
6813	14.1		*54.7*	10.4	9.4	10.6	70.0	61.0	3.6	3.7	3.95	3.9	*91.1*	*94.9*	5.05	2.35	*46.5*	5.7	6.5	*87.7*	
6871	13.6		*55.2*	10.3	9.2	10.5	70.0	54.0	3.7	3.6	3.85	3.8	*96.1*	*94.7*	5.5	2.1	*38.2*	5.3	5.9	*89.8*	
6880	[1] 14.2		*54.9*	9.8	8.8	10.5	72.0	60.0	3.75	3.75	4.05	4.05	*92.6*	*92.6*	5.35	2.4	*44.9*	5.4	6.3	*85.7*	
6850						10.5															
6795	14.3		*52.5*	10.3	9.2	10.4	70.0	54.0	3.3	3.4	4.0	3.9	*82.5*	*87.2*	5.45	2.45	*44.9*	5.6	6.5	*86.2*	
6794	[1] 14.6				8.9	10.6				3.8		4.2		*90.5*	5.6	2.35	*42.0*	5.3	6.1	*86.9*	
6810	14.5		*51.0*	11.1	10.1	11.3	72.0	58.0	3.2	3.2	3.85	3.9	*83.1*	*82.1*	5.3	2.5	*47.2*	[1] 5.7	7.1	*80.3*	
6901	14.9		*57.1*	10.6	9.2	10.9	69.0	54.0	3.5	3.6	4.0	4.1	*87.5*	*87.8*	5.75	2.2	*38.3*	5.8	6.7	*86.6*	
6790	14.1		*54.7*	10.4	9.4	10.6	70.0	58.0	3.6	3.55	3.9	3.85	*92.3*	*92.2*	5.5	2.35	*42.7*				
242928	14.3	88.81	*55.2*	10.3	9.2	10.4	68.0	56.0	3.8	3.8	4.05	4.05	*93.8*	*93.8*	5.65	2.35	*41.6*	5.5	6.7	*82.1*	3.8
6870	14.5								3.8	3.7	4.2	4.1	*90.5*	*90.2*	5.3	2.6	*49.1*				
6791	14.5				9.8	10.8			3.6	3.6	4.3	4.1	*83.7*	*87.8*	5.4	2.45	*45.4*				
6847						11.0															
6787	[1] 14.0		*56.4*	9.9	8.8	10.4	71.0	57.0	3.35		4.2		*79.8*		5.6	[1] 2.4	*42.9*				
6895	13.9				9.0	10.4			3.55	3.45	4.1	4.1	*86.6*	*84.2*	5.4	2.4	*44.4*				
6859	[1] 14.7		*59.9*	11.6	10.0	11.4	66.0	50.0	3.8	3.85	4.1	4.2	*92.7*	*91.7*	6.05	2.35	*38.8*	6.3	6.4	*98.4*	
6885	14.0		*57.9*	11.0	9.8	10.1	62.0	57.0	3.45	3.5	4.1	4.0	*84.2*	*87.5*	5.5	2.45	*44.5*	6.0	6.7	*89.6*	
6831	14.1		*56.7*	11.0	9.4	10.4	64.0	52.0	3.35	3.4	4.05	4.05	*82.7*	*84.0*	5.0	2.35	*47.0*	6.3	6.6	*95.5*	
242931	14.6		*48.6*	10.5	9.6	10.6	71.0	54.0	3.8	3.7	4.1	4.05	*92.7*	*91.4*	5.5	2.4	*43.6*	5.6	7.1	*78.9*	
6854	13.9		*62.6*	10.6	9.0	10.1	62.0	52.0	3.8	3.7	3.9	3.9	*97.4*	*94.9*	5.65	2.15	*38.1*	5.8	6.7	*86.6*	
6874	14.4		*54.2*		9.0	10.4			3.0	3.0	4.25	4.25	*70.6*	*70.6*	5.35	2.25	*42.1*	[1] 5.5	6.5	*84.6*	
6786	14.1		*52.5*	10.2	9.0	10.4	70.0	54.0	3.6		4.0		*90.0*		5.2	2.35	*45.2*				
6818	[1] 13.7		*56.9*	9.6	8.6	9.9	68.0	60.0	3.55		4.0		*88.8*		5.3	2.1	*39.6*	5.2	6.2	*83.9*	
6846	14.3		*52.5*	9.7	8.7	10.4	73.0	59.0	3.4	3.4	3.9	3.9	*87.2*	*87.2*	5.2	2.3	*44.2*	5.2	6.6	*78.8*	
6785	14.4		*56.3*	10.5	9.2	10.8	70.0	52.0	3.7	3.7	4.0	4.1	*92.5*	*90.2*	5.85	2.5	*42.7*	5.8	6.5	*89.2*	
6814	14.0				8.8	9.8			3.45	3.45	3.7	3.6	*93.2*	*95.8*	5.5	1.95	*35.5*				

6783	14.7	------	*53.7*	10.4	9.2	10.7	70.0	56.0	3.7	3.7	3.9	3.8	*94.9*	*97.4*	5.35	2.4	*44.9*	------	------	------	------
6887	14.4	------	*56.3*	10.6	9.4	11.0	71.0	55.0	3.65	3.55	4.0	4.0	*91.3*	*88.8*	5.7	2.2	*38.6*	5.4	5.8	*93.1*	------
6900	14.9	------	*57.7*	10.1	8.8	10.8	70.0	56.0	3.85	3.8	4.3	4.3	*89.5*	*88.4*	5.8	2.4	*41.4*	5.5	6.1	*90.2*	------
242935	------	------	------	10.2	9.0	10.2	67.0	56.0	3.55	3.55	3.75	3.8	*94.7*	*93.4*	5.4	1.95	*36.1*	5.7	6.4	*89.1*	------
6805	13.9	------	------	------	8.5	10.4	------	------	3.6	3.6	3.9	3.9	*92.3*	*92.3*	5.2	2.15	*41.3*	------	------	------	------
6893	13.5	------	*55.6*	10.0	8.9	10.6	73.0	55.0	3.6	3.6	3.8	3.8	*94.7*	*94.7*	5.3	2.15	*40.6*	5.4	6.5	*83.1*	------
6888	13.8	------	*52.9*	10.2	9.0	10.2	69.0	50.0	3.6	3.55	3.85	3.8	*93.5*	*93.4*	5.4	2.35	*43.5*	5.5	6.5	*84.6*	------
6793	14.2	------	------	------	9.3	10.7	------	------	3.55	3.6	3.9	3.9	*91.0*	*92.3*	5.3	2.25	*42.5*	------	------	------	------
6815	14.6	*92.47*	*56.2*	10.8	9.3	10.3	64.0	52.0	4.0	4.0	4.15	4.15	*96.4*	*96.4*	5.5	2.45	*44.5*	5.8	6.7	*86.6*	4.0
6852	14.1	------	*54.7*	10.7	9.6	10.6	68.0	56.	3.9	4.05	4.1	4.0	*95.1*	*101.3*	5.4	2.6	*48.2*	5.6	6.3	*88.9*	------
6868	14.6	------	*57.5*	10.8	9.6	11.0	68.0	57.	3.5	3.5	4.1	4.1	*85.4*	*85.4*	5.75	2.6	*46.2*	5.5	6.8	*80.9*	------
6884	14.4	------	*52.1*	10.1	9.2	10.3	70.0	61.	3.5	3.6	3.8	3.8	*92.1*	*94.7*	5.2	2.2	*42.3*	5.5	6.3	*87.3*	------
242927	[1] 14.3	------	*58.7*	10.2	9.2	10.6	69.0	59.	3.8	3.8	4.2	[1] 4.2	*90.5*	*90.5*	6.1	2.2	*36.1*	5.7	6.6	*86.4*	------
6811	14.9	------	*55.7*	10.3	9.2	10.4	67.0	57.	3.75	3.8	4.1	4.0	*91.5*	*95.0*	6.0	2.3	*38.3*	5.6	6.4	*87.5*	------
6899	14.6	------	*52.1*	10.2	9.4	10.5	71.0	64.0	3.5	3.65	4.2	4.2	*83.3*	*86.9*	5.35	2.2	*41.1*	5.7	6.6	*86.4*	------
Specimens	(44)	*(2)*	*(36)*	(36)	(45)	(47)	(36)	(36)	(43)	(43)	(43)	(43)	*(43)*	*(43)*	(46)	(46)	*(46)*	(33)	(33)	*(33)*	(2)
Totals	627.3	------	------	374.2	415.3	495.4	------	------	154.6	155.55	172.7	172.35	------	------	252.0	106.4	------	185.7	213.6	------	7.8
Averages	14.26	*90.7*	*55.1*	10.39	9.23	10.54	69.0	55.94	3.60	3.62	4.02	4.01	*89.5*	*90.2*	5.48	2.31	*42.2*	5.63	6.47	*86.9*	3.9
Minima	13.5	*88.81*	*48.6*	9.6	8.5	9.8	62.0	50.0	3.0	3.0	3.7	3.6	*70.6*	*70.6*	5.0	1.95	*35.5*	5.2	5.8	*78.8*	3.8
Maxima	14.9	*92.47*	*62.6*	11.6	10.1	11.4	73.0	64.0	4.0	4.05	4.3	4.35	*97.4*	*101.3*	6.1	2.6	*49.1*	6.3	7.1	*98.4*	4.0

[1] Near.

BARROW ESKIMO—Continued

(Point Barrow Females)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*Mainly V. Stefansson*)														
6812	A.M.N.H	Point Barrow	50		19.0	13.0	13.7	*68.4*	*85.6*		15.57		Medium		7.5
6801	do	do	50		18.4	12.8	12.6	*69.6*	*80.8*		14.60		Moderate		7.1
6834	do	do	60		18.2	12.8	13.2	*70.3*	*85.2*		14.73		Considerable		7.5
6881	do	do	60		18.4	13.0	13.0	*70.6*	*82.8*		14.80		do		7.3
6853	do	do	45		18.2	12.9	13.5	*70.9*	*86.8*		14.87		Slight		7.7
6821	do	do	70		18.3	13.0	13.4	*71.0*	*85.6*		14.90				
6823	do	do	40		17.8	12.8	13.6	*71.9*	*88.9*		14.73				6.9
6866	do	do	65		18.0	13.0	13.2	*72.2*	*85.2*		14.73		All		
6804	do	do	60		17.7	12.8	12.8	*72.3*	*83.9*		14.43		Considerable		7.0
6872	do	do	45		18.8	13.6	13.8	*72.3*	*85.2*		15.40		Moderate		7.8
6798	do	do	65		17.7	12.9	13.0	*72.9*	*85.0*		14.53		All		
6833	do	do	75		18.6	13.6	13.0	*73.1*	*80.8*		15.07		All		
6819	do	do	55		18.2	13.3	13.1	*73.1*	*83.2*		14.87		Medium		7.2
6796	do	do	30		18.0	13.2	12.9	*73.3*	*82.7*		14.70		+		6.8
6822	do	do	55		18.5	13.6	13.3	*73.5*	*82.9*		15.13				7.5
6858	do	do	55		17.9	13.2	13.1	*73.7*	*84.2*		14.73		Considerable		7.1
6894	do	do	35		17.6	13.0	12.8	*73.9*	*83.7*		14.47		N. +		7.3
6802	do	do	50		18.0	13.3	12.8	*73.9*	*81.8*		14.70		Medium		7.3
6873	do	do	25		17.4	12.9	12.0	*74.1*	*79.2*		14.43		+		7.2
6817	do	do	40		17.8	13.2	12.8	*74.2*	*82.6*		14.60		Slight		7.6
6865	do	do	45		17.8	13.2	12.8	*74.2*	*82.6*		14.60		N. +		7.6
6784	do	do	30		17.8	13.2	13.8	*74.2*	*89.0*		14.93		+		7.8
6886	do	do	45		18.0	13.4	13.0	*74.4*	*82.8*		14.80		Moderate		6.8
6878	do	do	50		18.0	13.4	12.9	*74.4*	*82.2*		14.43		Mdeium		6.9
6844	do	do	65		18.0	13.4	12.9	*74.4*	*82.2*		14.77		All		
6863	do	do	35		18.6	13.9	13.9	*74.7*	*85.5*		15.47				7.8
6857	do	do	45		17.4	13.0	12.2	*74.7*	*80.3*		14.20		Moderate		6.9
242898	U.S.N.M	do	30		18.0	13.5	12.9	*75.0*	*81.9*		14.80	1,245	N. +		7.4
6789	A.M.N.H	do	25		18.4	13.8	13.2	*75.0*	*82.0*		15.13				
6898	do	do	40		18.4	13.8	13.2	*75.0*	*82.0*		15.13				7.3
6861	do	do	65		18.1	13.6	13.0	*75.1*	*82.0*		14.90		All		
6869	do	do	45		17.7	13.3	12.2	*75.1*	*78.7*		14.40				7.2
6856	do	do	35		17.8	13.4	13.4	*75.3*	*85.9*		14.87		+		6.9

242934	U.S.N.M	do	30		17.8	13.4	12.6	*75.3*	*80.8*		14.60	1,325	+		7.2
6849	A.M.N.H	do	30		17.9	13.5	13.0	*75.4*	*82.8*		14.80		+		6.8
6860	do	do	50		17.9	13.5	13.0	*75.4*	*82.8*		14.80				
6825	do	do	55		17.2	13.0	12.9	*75.6*	*85.4*		14.37		Medium		6.7
6862	do	do	30		18.2	13.8	14.1	*75.8*	*88.1*		15.37				
6889	do	do	60		17.8	13.5	13.1	*75.8*	*83.7*		14.80		Medium		7.4
242896	U.S.N.M	do	30		17.2	13.1	12.2	*76.2*	*80.5*		14.17	1,135	+		7.0
6816	A.M.N.H	do	45		17.7	13.5	13.0	*76.3*	*83.3*		14.73		Slight		7.0
6890	do	do	35		17.4	13.3	12.9	*76.4*	*84.0*		14.53		do		7.1
6800	do	do	40		17.0	13.0	12.7	*76.5*	*84.7*		14.23		do		6.4
6847	do	do	55		17.9	13.7	13.4	*76.5*	*84.8*		15.00				[1] 7.2
6803	do	do	18		17.2	13.2	12.8	*76.7*	*84.2*		14.40		+		
6846	do	do	60		17.6	13.5	13.2	*76.7*	*84.9*		14.77		All		
6799	do	do	30		18.1	13.9	13.1	*76.8*	*81.9*		15.03				7.1
6830	do	do	35		17.0	13.0	12.6	*76.8*	*84.0*		14.30		Slight		7.2
6788	do	do	60		17.4	13.4	13.4	*77.0*	*87.0*		14.73				
6892	do	do	45		17.8	13.8	12.9	*77.5*	*81.7*		14.83		Slight		7.1
6820	do	do	35		17.4	13.5	12.9	*77.6*	*83.5*		14.60				7.2
6896	do	do	60		18.1	14.2	12.7	*78.4*	*78.6*		15.00		Moderate		7.9
Specimens			(52)		(52)	(52)	(52)	*(52)*	*(52)*		(52)	(3)			(40)
Totals			2,388		931.1	692.6	677.5				767.1	3,705			288.7
Averages			45.9		17.91	13.32	13.03	*74.4*	*83.4*		14.75	1,235			7.22
Minima			18		17.00	12.80	12.20	*68.4*	*78.6*		14.17	1,135			6.4
Maxima			75		19.00	13.90	13.80	*78.4*	*89.0*		15.57	1,325			7.9

[1] Near.

BARROW ESKIMO—Continued

(Point Barrow Females)

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
6812	[1] 13.0	------	*57.7*	9.8	8.9	10.4	73.0	61.0	------	3.6	------	4.15	------	*86.8*	5.2	2.4	*46.2*	------	------	------	------
6801	12.3	------	*57.7*	9.5	8.4	9.9	72.0	51.0	3.55	3.55	3.85	3.9	*92.2*	*91.0*	5.35	2.45	*45.8*	5.1	6.4	*79.7*	------
6834	13.3	------	*56.4*	10.0	8.9	10.3	71.0	58.0	3.75	------	3.95	------	*94.9*	------	5.0	2.4	*48.0*	5.3	[1] 6.1	*86.9*	------
6881	[1] 13.0	------	*56.2*	------	9.6	10.6	------	------	3.5	3.55	3.9	4.0	*89.7*	*88.8*	5.15	2.2	*42.7*	[1] 5.5	6.4	*85.9*	------
6853	13.3	------	*57,9*	10.6	9.3	10.5	68.0	51.0	3.55	3.55	4.0	3.9	*88.8*	*91.0*	5.5	2.45	*44.6*	5.6	6.1	*91.8*	------
6821	------	------	------	------	------	10.8	------	------	3.6	------	4.05	------	*88.9*	------	------	------	------	------	------	------	------
6823	13.0	------	*53.1*	[1] 10.4	9.4	10.4	71.0	59.0	3.0	3.05	3.75	3.7	*80.0*	*82.4*	4.6	2.2	*47.8*	5.4	6.3	*85.7*	------
6866	13.3	------	------	------	8.8	10.2	------	------	3.6	3.7	4.1	4.05	*87.8*	*91.4*	5.3	2.45	*46.2*	------	------	------	------
6804	12.8	------	*54.7*	9.3	8.3	9.6	71.0	55.0		3.6		3.7		*97.3*	5.1	2.2	*43.1*	------	------	------	------
6872	12.7	------	*61.4*	10.5	9.0	10.2	66.0	51.0	3.6	3.5	4.0	4.1	*90.0*	*85.4*	5.2	2.35	*45.2*	5.9	6.5	*90.8*	------
6798	[1] 13.1	------	------	------	8.7	9.8	------	------	3.5	3.4	3.9	3.95	*89.7*	*86.1*	4.95	2.3	*46.5*	------	------	------	------
6833	13.2	------	------	------	8.7	10.4	------	------	3.6	3.6	4.0	3.95	*90.0*	*91.1*	5.5	2.2	*40.0*	------	------	------	------
6819	13.0	------	*55.4*	[1] 9.5	8.6	9.8	71.0	59.0	3.45	3.5	4.0	3.8	*86.3*	*92.1*	5.1	2.5	*49.0*	------	------	------	------
6796	12.8	------	*53.1*	9.2	8.4	9.8	74.0	60.0	------	3.8	------	3.85	------	*98.7*	5.0	2.05	*41.0*	4.7	5.7	*82.5*	------
6822	13.5	------	*55.6*	10.1	9.0	10.3	70.0	54.0	3.85	------	4.1	------	*93.9*	------	5.5	2.45	*44.6*	5.5	6.5	*84.6*	------
6858	13.2	------	*53.8*	[1] 10.1	9.3	10.4	72.0	61.0	3.8	3.75	[1] 4.2	4.1	*90.5*	*91.5*	5.2	2.3	*44.2*	------	------	------	------
6894	12.9	------	*56.6*	10.0	8.4	9.8	67.0	44.0	3.65	3.75	3.85	3.85	*94.8*	*97.4*	5.1	2.35	*46.1*	5.4	5.9	*91.5*	------
6802	12.7	------	*57.5*	10.05	9.1	10.0	68.0	57.0	3.3	3.2	3.8	3.8	*86.8*	*84.2*	5.3	2.2	*41.5*	5.4	5.9	*91.5*	------
6873	12.6	------	*57.1*	9.5	8.6	9.6	69.0	61.0	3.6	3.5	3.9	3.95	*92.3*	*88.6*	4.95	2.1	*42.4*	5.2	5.6	*92.9*	------
6817	13.3	------	*57.1*	9.9	8.6	9.6	65.0	52.0	3.6	------	4.1	------	*87.8*	------	5.3	2.6	*49.1*	5.3	6.2	*85.5*	------
6865	------	------	------	10.3	8.8	10.0	66.0	46.0	------	------	------	------	------	------	5.4	2.5	*46.3*	5.6	5.6	*100.0*	------
6784	13.4	------	*58.2*	9.8	8.9	9.3	63.0	61.0	3.8	3.8	3.9	3.85	*97.4*	*98.7*	5.6	2.2	*39.3*	5.4	6.6	*81.8*	------
6886	13.2	------	*51.5*	------	9.0	10.2	------	------	3.2	3.4	3.8	3.7	*84.2*	*91.9*	4.9	2.35	*48.0*	[1] 5.5	6.0	*91.7*	------
6878	13.1	------	*52.7*	9.5	8.7	10.0	73.0	63.0	3.65	3.6	4.2	4.15	*86.9*	*86.8*	4.8	2.45	*51.0*	5.3	[1] 6.1	*86.9*	------
6844	13.2	------	------	------	8.9	10.0	------	------	3.4	3.45	3.8	3.8	*89.5*	*90.8*	4.7	2.5	*53.2*	------	------	------	------
6863	13.4	------	*58.2*	10.7	9.4	10.2	65.0	53.0	3.75	3.6	4.0	3.9	*93.8*	*92.3*	5.4	2.15	*39.8*	5.4	6.4	*84.4*	------
6857	12.6	------	*54.8*	9.8	8.8	9.8	70.0	56.0	3.4	3.4	3.95	3.95	*86.1*	*86.1*	4.85	2.2	*45.4*	5.2	[1] 5.6	*92.9*	------
242898	[1] 13.3	------	*55.6*	10.1	8.9	9.8	66.0	53.0	3.4	3.45	4.05	4.0	*84.0*	*86.3*	5.25	2.3	*43.8*	5.5	6.4	*85.9*	------
6789	------	------	------	------	------	10.0	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
6898	13.2	------	*55.3*	9.8	8.8	9.8	68.0	59.0	3.4	3.45	3.85	3.8	*88.3*	*90.8*	4.9	2.4	*49.0*	5.3	6.1	*86.9*	------
6861	13.3	------	------	------	8.6	9.8	------	------	3.7	3.6	4.0	3.9	*92.5*	*92.3*	5.05	2.45	*48.5*	------	------	------	------
6869	12.7	------	*56.7*	9.8	8.8	10.0	70.0	56.0	------	3.6	------	3.7	------	*97.3*	5.25	2.1	*40.0*	5.1	5.8	*87.9*	------
6856	12.8	------	*53.9*	9.7	8.3	9.6	68.0	49.0	3.55	3.5	3.85	3.85	*92.2*	*90.9*	4.7	2.35	*50.0*	5.35	5.8	*92.2*	------

242934	12.9		55.8	9.6	8.4	9.8	70.0	53.0	3.6	3.7	3.95	3.85	91.1	96.1	5.1	2.2	43.1	5.1	6.0	85.0	
6849	[1] 12.4		54.8	9.4	8.4	9.5	70.0	56.0	3.6	3.5	3.8	3.9	94.7	89.7	4.85	2.3	47.4	5.2	5.7	91.2	
6860						9.7															
6825	13.0		51.5	9.0	8.2	9.6	74.0	61.0	3.4	3.5	3.85	3.85	88.3	90.9	4.75	2.15	45.3				
6862						10.8															
6889	13.6		54.4	9.4	8.7	9.8	70.0	65.0	3.65	3.65	4.3	4.1	84.8	89.0	5.35	2.3	43.0	5.1	[1] 6.0	85.0	
242896	12.3		56.9	9.7	8.7	9.7	69.0	58.0	3.4	3.4	3.8	3.8	89.5	89.5	4.9	2.1	42.9	5.3	5.7	93.0	
6816	12.8		54.7	9.6	8.6	9.8	71.0	54.0	3.6	3.5	3.75	3.8	96.0	92.1	5.2	2.2	42.3	4.8	5.7	84.2	
6890	12.5		56.8	9.5	8.3	9.4	67.0	51.0	3.6	3.65	3.7	3.65	97.3	100.0	5.1	2.0	39.2	5.2	5.3	98.1	
6800	[1] 12.7		50.4	[1] 9.2	8.4	9.8	76.0	57.0		3.7		3.8		97.4	4.9	2.0	40.8	[1] 4.7	[1] 5.5	85.5	
6847	13.7		52.6		8.6	10.0			3.65	3.7	3.9	3.8	93.6	97.4	5.1	2.3	45.1				
6803						9.0															
6846	13.2				8.8	9.7			3.3	3.4	3.8	3.7	86.8	91.9	4.9	2.3	46.9				
6799	13.9		51.1	9.8	8.9	10.2	72.0	59.0	3.5	3.55	3.9	3.9	89.7	91.0	5.05	2.4	47.5	4.9	6.6	74.2	
6830	13.2		54.6	9.9	8.6	9.8	68.0	52.0	3.25	3.35	3.8	3.7	85.5	90.5	4.95	2.5	50.5	5.4	6.3	85.7	
6788	[1] 13.5					9.9															
6892	13.7		51.8	9.4	8.4	10.0	73.0	55.0	3.4	3.4	3.85	3.85	88.3	88.3	5.2	2.1	40.4	4.9	5.8	84.5	
6820	13.1		55.0	9.0	8.0	9.2	69.0	58.0	3.5	3.6	3.85	3.8	90.9	94.7	4.95	2.15	43.4	4.8	5.8	82.8	
6896	13.2		59.9	10.0	8.5	10.0	67.0	48.0	3.8	3.9	[1] 4.1	4.0	92.7	97.5	5.5	2.3	41.8				
Specimens	(46)		(39)	(37)	(46)	(5[illegible])	(37)	(37)	(41)	(42)	(41)	(42)	(41)	(42)	(46)	(46)	(46)	(33)	(33)	(33)	
Totals	600.9			361.45	401.4	51[illegible].6			145.0	148.95	161.2	162.85			234.9	105.4		173.35	198.4		
Averages	13.06		55.3	9.77	8.73	[illegible].94	69.0	55.0	3.54	3.55	3.93	3.88	90.0	91.5	5.11	2.29	44.9	5.25	6.01	87.4	
Minima	12.3		50.4	9.0	8.0	9.0	63.0	44.0	3.0	3.05	3.7	3.65	80.0	82.4	4.6	2.0	39.2	4.7	5.3	74.2	
Maxima	13.9		61.4	10.7	9.6	10.8	76.0	65.0	3.85	3.9	4.3	4.15	97.4	100.0	5.6	2.6	53.2	5.9	6.6	100.0	

[1] Near.

BARROW ESKIMOS

(Nixerak Males)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Mento-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*J. A. Ford*)														
365797	U.S.N.M.	Nixerak Village	40		19.2	13.6	13.8	*70.83*	*84.15*		15.53				
365826	do	do	60		18.7	13.4	13.2	*71.66*	*82.24*		15.10				7.5
365804	do	do	70		18.8	13.7	13.5	*72.87*	*83.08*		15.33				
365807	do	do	60		18.8	13.7	13.6	*72.87*	*83.69*		15.37				[2] 7.9
365798	do	do	45		19.2	14.0	13.9	*72.92*	*83.73*		15.70				8.1
365811	do	do	60		18.6	13.6	13.5	*73.12*	*83.85*		15.23				
365790	do	do	28		18.5	13.6	13.0	*73.51*	*81.0*		15.03				7.4
365805	do	do	70		18.9	13.9	13.7	*73.54*	*83.54*		15.50				
365808	do	do	70		19.4	14.3	13.9	*73.71*	*82.49*		15.87				[2] 8.0
365806	do	do	50		18.7	13.8	13.9	*73.80*	*85.54*		15.47				7.9
365792	do	do	55		18.9	14.0	14.2	*74.07*	*86.32*		15.70				[2] 7.3
365810	do	do	40		18.6	13.8	13.7	*74.19*	*84.57*		15.37				7.3
365809	do	do	75		18.8	14.0	13.8	*74.47*	*84.15*		15.53				
365814	do	do	65												
365791	do	do	60		18.2	13.6	13.2	*74.73*	*83.02*		15.0				[2] 7.8
365795	do	do	40		19.0	14.2	13.8	*74.74*	*83.13*		15.67				7.6
365803	do	do	50		18.6	14.0	13.2	*75.27*	*80.98*		15.27				
365801	do	do	45		19.0	14.4	13.6	*75.79*	*81.44*		15.67				
365794	do	do	19		18.6	14.2	13.0	*76.34*	*79.27*		15.27				7.2
365793	do	do	50		18.3	14.0	13.3	*76.50*	*82.35*		15.20				
365800	do	do	75		18.2	14.0	13.6	*76.92*	*84.47*		15.27				
365799	do	do	45		18.0	13.9	13.2	*77.22*	*82.76*		15.03				8.0
365813	do	do	60		18.9	14.6	13.6	*77.25*	*81.19*		15.70			12.8	[2] 7.7
365812	do	do	70		18.1	14.0	14.6	*77.35*	*90.97*		15.57				[2] 7.6
365819	do	do	50		18.6	14.4	14.4	*77.42*	*87.27*		15.80				
365796	do	do	45		18.9	14.7	13.8	*77.78*	*82.14*		15.80				8.2
365802	do	do	30		18.0	[2] 14.3	13.7	*79.44*	*84.83*		15.33				7.9
Specimens			(27)		(26)	(26)	(26)	(26)	(26)		(26)				(16)
Totals			1,427		485.5	363.7	354.7				401.3				123.4
Averages			52.9		18.67	13.99	13.64	*74.9*	*83.5*		15.43				7.71
Minima			19.		18.0	13.4	13.0	*70.8*	*79.3*		15.0				7.2
Maxima			75.		19.4	14.7	14.6	*79.4*	*91.0*		15.90				8.2

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Aleolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
365797	---	---	---	---	9.6	11.0	---	---	3.7	3.8	4.3	4.1	*86.05*	*92.68*	5.8	2.7	*46.55*	---	---	---	---
365826	13.8	---	*54.35*	10.2	9.0	10.3	69.5	52.0	3.7	3.8	4.0	4.0	*92.50*	*95.0*	5.4	2.3	*42.59*	5.3	6.0	*88.33*	---
365804	14.3	---	---	---	9.1	10.5	---	---	3.5	3.45	4.1	4.0	*85.37*	*86.25*	5.7	2.5	*43.86*	---	---	---	---
365807	13.8	---	*57.25*	[2] 10.6	9.2	11.0	71.0	46.0	3.7	3.55	4.2	4.2	*88.10*	*84.52*	5.6	2.35	*41.96*	[2] 5.6	5.9	*94.92*	---
365798	14.1	---	*57.45*	10.9	10.0	11.0	69.0	62.0	3.95	3.9	4.3	4.1	*91.86*	*95.12*	5.7	2.5	*43.86*	5.7	6.9	*82.61*	---
365811	14.4	---	---	---	---	10.7	---	---	---	4.0	---	4.2	---	*95.24*	---	---	---	---	---	---	---
365790	13.3	---	*57.25*	9.9	9.2	10.4	72.5	65.5	3.6	3.5	3.95	3.9	*91.14*	*89.74*	5.15	2.25	*43.69*	5.4	6.2	*87.10*	---
365805	14.7	---	---	---	---	10.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
365808	13.9	---	*57.55*	10.4	9.4	10.4	67.0	59.5	3.75	3.75	4.05	3.95	*92.59*	*94.94*	5.45	2.4	*44.04*	---	---	---	---
365806	13.8	---	*57.25*	10.5	9.4	10.4	67.0	58.0	3.3	---	3.95	---	*83.54*	---	5.4	2.5	*46.30*	5.8	6.7	*86.57*	---
365792	14.6	---	*50.0*	10.5	9.6	10.8	72.0	58.0	3.6	3.6	4.2	4.1	*85.71*	*87.80*	5.3	2.6	*49.06*	5.6	6.4	*87.50*	---
365810	14.4	---	*50.69*	[2] 10.4	9.2	10.6	71.0	49.5	3.45	3.5	4.05	4.05	*85.19*	*86.42*	5.4	2.2	*40.74*	5.2	6.2	*83.87*	---
365809	14.3	---	---	---	9.0	10.8	---	---	4.2	4.2	4.3	4.2	*97.67*	*100.0*	5.65	2.6	*46.02*	---	---	---	---
365814	[2] 14.6	---	---	---	---	---	---	---	3.5	3.55	4.0	4.0	*87.50*	*88.75*	5.4	2.4	*44.44*	---	---	---	---
365791	14.3	---	*54.55*	10.3	9.2	10.5	69.5	52.5	3.65	3.65	4.3	4.2	*84.88*	*86.90*	5.8	2.25	*38.79*	5.4	[2] 6.1	*88.52*	---
365795	14.8	---	*51.35*	11.3	10.0	10.8	66.0	51.0	3.55	3.5	4.3	4.2	*82.56*	*83.33*	5.3	2.5	*47.17*	5.8	6.6	*87.88*	---
365803	14.3	---	---	---	9.2	10.6	---	---	3.85	3.85	4.1	4.1	*93.90*	*93.90*	5.55	2.5	*45.05*	---	---	---	---
365801	[2] 14.5	---	---	---	---	10.5	---	---	3.7	---	4.0	---	*92.50*	---	---	---	---	---	---	---	---
365794	13.5	---	*53.33*	10.3	9.2	10.2	68.5	52.5	---	3.5	---	3.8	---	*92.11*	5.15	2.3	*44.66*	5.6	6.9	*81.16*	---
365793	---	---	---	---	---	10.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
365800	13.4	---	---	---	9.4	10.6	---	---	3.3	3.2	3.75	3.65	*88.0*	*87.67*	5.55	2.4	*43.24*	---	---	---	---
365799	13.6	---	*58.82*	10.6	9.4	10.6	68.0	56.0	3.9	3.8	4.05	4.1	*96.30*	*92.68*	5.5	2.05	*37.27*	(5.7)	(5.7)	[3]*(100.0)*	---
365813	14.3	*89.51*	*53.85*	[2] 10.2	9.0	10.2	68.0	53.0	3.7	3.6	4.1	4.0	*90.24*	*90.0*	5.45	2.45	*44.95*	---	---	---	3.9
365812	14.0	---	*54.29*	[2] 10.6	9.4	11.0	72.0	54.5	3.6	3.5	4.1	4.0	*87.80*	*87.50*	5.3	2.35	*44.34*	---	---	---	---
365819	[2] 14.2	---	---	---	---	11.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
365796	[2] 14.0	---	*58.57*	10.7	9.5	10.4	65.5	54.5	---	3.85	---	4.0	---	*96.25*	5.75	2.5	*43.48*	---	---	---	---
365802	14.5	---	*54.48*	11.0	10.0	10.8	67.5	60.5	3.55	3.5	4.0	4.0	*88.75*	*87.50*	5.4	2.4	*44.44*	6.0	6.7	*89.55*	---
Specimens	(25)	---	*(16)*	(16)	(21)	(26)	(16)	(16)	(21)	(22)	(21)	(22)	(21)	(22)	(22)	(22)	(22)	(11)	(11)	(11)	---
Totals	353.4	---	---	168.4	197.0	275.9	1,104.0	885.0	76.75	80.55	86.1	88.85	---	---	120.7	53.0	---	61.4	70.6	---	---
Averages	14.14	---	*54.9*	10.53	9.38	10.61	69.0	55.3	3.65	3.66	4.10	4.04	*89.1*	*90.7*	5.49	2.41	*43.9*	5.58	6.42	*87.0*	---
Minima	13.3	---	*50.0*	9.9	9.0	10.0	65.5	46.0	3.3	3.2	3.75	3.65	*82.6*	*83.3*	5.15	2.05	*37.3*	5.2	5.9	*81.2*	---
Maxima	14.8	---	*58.8*	11.3	10.0	11.1	72.5	65.5	4.2	4.2	4.3	4.2	*97.7*	*100.0*	5.8	2.7	*49.1*	6.0	6.9	*94.9*	---

[1] Allowance made for wear of teeth, where needed.
[2] Near.
[3] U-shaped palate.

BARROW ESKIMO

(Nixerak Females)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(J. A. Ford)														
365840	U.S.N.M.	Nixerak	40		18.2	12.8		*70.33*							
365823	do	do	50		18.2	13.0	12.4	*71.43*	*79.49*		14.63				
365848	do	do	20		18.0	13.0	12.9	*72.22*	*83.23*		14.63				7.7
365834	do	do	45		18.2	13.2	13.6	*72.53*	*86.62*		15.0				7.6
365830	do	do	35		18.0	13.2	13.4	*73.33*	*85.90*		14.87				
365816	do	do	60		18.0	13.2	12.9	*73.33*	*82.69*		14.70				7.7
365838	do	do	45		18.2	13.5	13.4	*74.18*	*84.54*		15.03				7.1
365831	do	do	24		17.9	13.3	13.5	*74.30*	*86.54*		14.70				6.9
365833	do	do	40		18.3	13.6	13.1	*74.32*	*82.13*		15.0				
365818	do	do	35		17.6	13.1	12.6	*74.43*	*82.08*		14.43				
365815	do	do	45		18.5	13.8	13.6	*74.59*	*84.21*		15.30				7.8
365839	do	do	45		17.4	13.0	13.1	*74.71*	*86.18*		14.50				6.8
365828	do	do	24		18.2	13.6	12.6	*74.73*	*79.25*		14.80				
365825	do	do	50		18.3	13.8	14.1	*75.41*	*87.85*		15.40				7.1
365832	do	do	55		17.9	13.5	13.2	*75.42*	*84.08*		14.87				7.2
365847	do	do	30		17.5	13.2	13.0	*75.43*	*84.69*		14.57				7.3
365831	do	do	50		17.8	13.5	13.0	*75.84*	*83.07*		14.77				7.0
365829	do	do	45		17.9	13.6	12.9	*75.98*	*81.90*		14.80				
365836	do	do	70		18.0	13.7		*76.11*							
365835	do	do	65		18.5	14.1	14.2	*76.22*	*87.12*		15.60				
365841	do	do	25		17.3	13.2		*76.30*							6.6
365817	do	do	70		17.5	13.4	13.8	*76.57*	*89.32*		14.90				
365821	do	do	45		18.0	13.8	12.8	*76.67*	*80.50*		14.87				7.0
365824	do	do	50		17.7	13.6	13.6	*76.84*	*86.90*		14.90				
365842	do	do	26		17.5	13.5		*77.14*							
365827	do	do	45		18.1	14.0	13.4	*77.35*	*83.49*		15.17				
365843	do	do	60		18.2	14.2	13.4	*78.02*	*82.72*		15.27				7.5
365845	do	do	65		16.8	13.4	13.0	*79.76*	*86.09*		14.40				7.0
Specimens			(28)		(28)	(28)	(24)	(28)	(24)		(24)				(15)
Totals			1,259		501.7	376.8	317.5				357.3				108.3
Averages			45.0		17.92	13.46	13.23	*75.1*	*84.2*		14.89				7.22
Minima			20		16.8	12.8	12.4	*70.3*	*79.3*		14.40				6.6
Maxima			70		18.5	14.2	14.2	*79.8*	*89.3*		15.60				7.8

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
365840																		5.2	6.5	*80.0*	
365823	12.9				8.6	9.8			3.45	3.45	3.9	3.9	*88.46*	*88.46*	5.1	2.25	*44.12*				
365848	12.4		*62.10*	10.0	9.1	10.1	68.0	61.0	3.3		3.8		*86.84*		5.3	2.25	*42.45*	5.5	6.4	*85.94*	
365834	13.1		*58.02*	9.7	8.6	10.0	69.5	54.0		3.65		4.1		*89.02*	5.5	2.2	*40.0*	5.5	6.3	*87.30*	
365830	12.8					10.2			3.25		3.95		*82.28*								
365816	12.8		*60.16*	9.8	8.8	10.2	70.5	58.0	3.85		4.05		*95.06*		5.4	2.5	*46.30*				
365838	13.6		*52.21*	10.2	9.4	10.6	73.0	60.0		3.55		4.0		*88.75*	5.2	1.9	*36.54*	5.1	5.9	*86.44*	
365822	12.7		*54.33*	9.7	8.9	10.4	75.5	58.0	3.7	3.6	3.9	3.9	*94.87*	*92.31*	5.2	2.25	*43.27*	5.0	5.5	*90.91*	
365833	13.5					10.2															
365818						9.8															
365815	13.3		*58.65*	10.3	9.4	10.4	68.5	62.5	3.55	3.45	4.0	3.9	*88.75*	*88.46*	5.2	2.25	*43.27*	5.3	6.2	*85.48*	
365839	12.5		*54.40*	9.5	8.8	9.9	73.0	63.5	3.4	3.4	3.8	3.7	*89.47*	*91.89*	4.8	2.4	*50.0*				
365828						9.5															
365825	13.1		*54.20*	10.1	9.0	10.5	73.0	54.5		3.6		3.8		*94.74*	5.05	2.5	*49.50*	5.1	6.1	*83.61*	
365832	13.3		*54.14*	9.4	8.3	9.6	69.0	52.0	3.55	3.6	4.1	4.0	*86.59*	*90.0*	5.25	2.4	*45.71*	5.3	5.9	*89.83*	
365847	13.1		*55.73*	9.3	8.2	9.6	69.5	56.0	3.55	3.75	3.9	3.9	*91.03*	*96.15*	5.0	2.25	*45.0*	5.0	5.9	*84.75*	
365831	13.4		*52.24*		8.0	10.3			3.45	3.4	4.0	4.1	*86.25*	*82.93*	5.25	2.5	*47.62*	5.1	6.0	*85.0*	
365829						10.0															
365836																					
365835	13.2					10.2															
365841	12.8		*51.56*						3.65	3.65	3.9	3.9	*93.59*	*93.59*	5.0	2.0	*40.0*	4.8	6.1	*78.69*	
365817	13.4					10.3															
365821	13.4		*52.24*	10.3	9.1	9.8	66.0	51.0	3.7		3.9		*94.87*		4.9	2.3	*46.94*				
365824	13.2				8.6	10.2			3.7	3.75	3.95	3.9	*93.67*	*96.15*	5.1	2.25	*44.12*	4.8	6.3	*76.19*	
365842																					
365827	13.3				9.0	10.4			3.7		4.25		*87.06*		5.5	2.2	*40.0*	5.1	6.1	*83.61*	
365843	13.4		*55.97*	9.9	8.6	10.0	69.0	52.0	3.65	3.6	4.0	4.0	*91.65*	*90.0*	5.1	2.4	*47.06*				
365845	12.7		*55.12*	9.4	8.6	9.7	71.0	61.5	3.2	3.3	3.8	3.65	*84.21*	*90.41*	5.0	2.2	*44.0*				
Specimens	(22)		(15)	(13)	(17)	(24)	(13)	(13)	(16)	(14)	(16)	(14)	(16)	(14)	(18)	(18)	(18)	(13)	(13)	(13)	
Totals	287.9			127.6	149.0	241.7	915.5	744	56.65	49.75	63.2	54.75			92.85	41.0		66.8	79.2		
Averages	13.09		*55.4*	9.82	8.76	10.07	70.4	57.2	3.54	3.55	3.95	3.91	*89.6*	*90.9*	5.16	2.28	*44.2*	5.14	6.09	*84.3*	
Minima	12.4		*51.6*	9.3	8.0	9.5	66.0	51.0	3.2	3.3	3.8	3.65	*82.3*	*82.9*	4.8	1.9	*36.5*	4.8	5.5	*76.2*	
Maxima	13.6		*62.1*	10.3	9.4	10.6	75.5	63.5	3.85	3.75	4.25	4.1	*95.1*	*96.2*	5.5	2.5	*50.0*	5.5	6.5	*90.9*	

BARROW DISTRICT ESKIMO

(Abstract)

MALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
	(52)	(52)	(52)	(51)	(52)	(51)		(51)			(21)	(44)	(48)
Igloo Mounds	2,735	993. 6	698. 0	711. 8				790. 3			264. 5	342. 1	680. 4
	52.6	19. 11	13. 42	14. 21	*70. 3*	*85. 8*		15. 50			12. 60	7. 78	14. 18
Piginik	(1)	(1)	(1)	(1)	(1)	(1)		(1)			(1)	(1)	(1)
	(45)	(18. 8)	(13. 2)	(14. 4)	*(70. 2)*	*(90. 0)*		(15. 47)			(12. 8)	(7. 3)	(13. 8)
	(18)	(18)	(17)	(10)	(17)	(10)		(10)				(7)	(9)
Utkiavik	960	341. 7	234. 6	137. 8				154. 7				54. 0	127. 5
	53.3	18. 98	13. 80	13. 78	*72. 9*	*84. 1*		15. 47				7. 71	14. 17
	(16)	(16)	(16)	(15)	(16)	(15)		(15)				(5)	(8)
Barrow		303. 2	220. 6	205. 8				231. 6				39. 5	115. 9
	Adult	18. 95	13. 78	13. 72	*72. 8*	*82. 8*		15. 44				7. 90	14. 40
	(49)	(49)	(49)	(47)	(49)	(47)		(47)			(2)	(37)	(44)
Point Barrow	2,623	918. 5	678. 4	647. 9				726. 1			26. 2	290. 9	627. 3
	53.5	18. 74	13. 84	13. 78	*73. 9*	*84. 7*		15. 44			(13. 10)	7. 86	14. 26
	(27)	(26)	(26)	(26)	(26)	(26)		(26)				(16)	(25)
Nixerak	1,427	485. 5	363. 7	354. 7				401. 3				123. 4	353. 4
	52.9	18. 67	13. 99	13. 64	*74. 9*	*83. 5*		15. 43				7. 71	14. 14

Locality	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
	(21)	(43)	(40)	(51)	(51)	(39)	(39)	(47)	(47)	(47)	(47)	(47)	(47)	(52)	(52)	(52)	(39)	(39)	(39)	(26)
Igloo Mounds	1,858.5	2,360.7	419.4	478.1	544.8	2,730.0	2,192.0	168.25	168.8	187.65	186.4	------	------	284.05	123.2	------	217.8	258.5	------	97.2
	88.5	*54.9*	10.49	9.37	10.68	70.0	56.2	3.58	3.59	3.99	3.97	*89.7*	*90.6*	5.46	2.37	*43.4*	5.58	6.63	*84.3*	3.74
	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Piginik	(*92.7*)	(*52.9*)	(11.2)	(10.2)	(11.0)	(69.5)	(59.0)	(3.25)	(3.3)	(4.0)	(3.9)	(*81.3*)	(*84.6*)	(5.1)	(2.3)	(*45.1*)	(6.1)	(7.0)	(*87.1*)	(3.5)
	------	(6)	(6)	(8)	(10)	(6)	(6)	(9)	(8)	(9)	(8)	(9)	(8)	(9)	(9)	(9)	(5)	(5)	(5)	(3)
Utkiavik	------	325.2	63.9	76.1	106.5	415.5	350.5	31.75	27.85	36.15	32.8	------	------	48.35	21.85	------	27.7	32.2	------	9.7
	------	*54.2*	10.65	9.51	10.65	69.2	58.4	3.53	3.48	4.01	4.10	*87.8*	*84.9*	5.37	2.43	*45.2*	5.54	6.44	*86.0*	3.23
	------	(5)	(5)	(8)	(15)	(5)	(5)	(9)	(7)	(9)	(7)	(9)	(7)	(8)	(8)	(8)	(3)	(3)	(3)	------
Barrow	------	273.0	51.0	73.2	158.6	358.5	297.0	32.95	25.1	36.75	28.85	------	------	44.95	19.7	------	16.9	19.7	------	------
	------	*54.6*	10.20	9.15	10.50	71.7	59.4	3.66	3.59	4.08	4.12	*89.7*	*87.0*	5.61	2.4	*43.6*	5.6	6.5	*85.8*	------
	(2)	(36)	(36)	(45)	(47)	(36)	(36)	(43)	(43)	(43)	(43)	(43)	(43)	(46)	(46)	(46)	(33)	(33)	(33)	(2)
Point Barrow	181.4	1,983.6	374.2	415.3	495.4	2,484.0	2,012.4	154.6	155.55	172.7	172.35	------	------	252.0	106.4	------	185.7	213.6	------	7.8
	(*90.7*)	*55.1*	10.39	9.23	10.54	69.0	55.9	3.60	3.62	4.02	4.01	*89.5*	*90.2*	5.48	2.31	*42.2*	5.63	6.47	*86.9*	(3.9)
	------	(16)	(16)	(21)	(26)	(16)	(16)	(21)	(22)	(21)	(22)	(21)	(22)	(22)	(22)	(22)	(11)	(11)	(11)	------
Nixerak	------	878.4	168.4	197.0	275.9	1,104.0	885.0	76.75	80.55	86.1	88.85	------	------	120.7	53.0	------	61.4	70.6	------	------
	------	*54.9*	10.53	9.38	10.61	69.0	55.3	3.65	3.66	4.10	4.04	*89.1*	*90.7*	5.49	2.41	*43.9*	5.58	6.42	*87.0*	------

FEMALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
Igloo Mounds	(44)	(44)	(44)	(43)	(44)	(43)		(43)			(19)	(35)	(41)
	1,941	793.0	560.1	570.9				631.1			215.5	249.6	538.6
	44.1	18.02	12.73	13.28	*70.6*	*86.3*		14.68			11.34	7.13	13.14
Piginik	(4)	(4)	(4)	(3)	(4)	(3)		(3)			(2)	(3)	(2)
	145	70.6	52.1	40.1				44.0			24.0	21.2	27.4
	36.3	17.7	13.0	13.4	*73.8*	*87.3*		14.67			(12.0)	7.07	(13.7)
Ukiavik	(24)	(24)	(24)	(17)	(24)	(17)		(17)				(10)	(13)
	1,057	434.1	319.0	222.6				251.4				72.7	170.3
	44.0	18.09	13.29	13.09	*73.5*	*83.7*		14.85				7.27	13.10
Barrow	(22)	(22)	(22)	(20)	(22)	(20)		(20)				(8)	(10)
		389.3	290.3	256.3				291.3				55.1	130.4
	Adult	17.70	13.20	12.81	*74.6*	*82.9*		14.57				6.90	13.04
Point Barrow	(52)	(52)	(52)	(52)	(52)	(52)		(52)	(3)			(40)	(46)
	2,388	931.1	692.6	677.5				767.1	3,705			288.7	600.9
	45.9	17.91	13.32	13.03	*74.4*	*83.4*		14.75	(1,235)			7.22	13.06
Nixerak	(28)	(28)	(28)	(24)	(28)	(24)		(24)				(15)	(22)
	1,259	501.7	376.8	317.5				357.3				108.3	287.9
	45.0	17.92	13.46	13.23	*75.1*	*84.2*		14.89				7.22	13.09

Locality	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth max-im.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
	(19)	(34)	(31)	(39)	(43)	(31)	(31)	(29)	(33)	(29)	(33)	(29)	(33)	(39)	(39)	(39)	(33)	(33)	(33)	(21)
Igloo Mounds	1,672.5	1,859.8	313.4	353.7	436.6	2,165.5	1,711.0	103.2	117.9	112.5	127.65	------	------	198.15	89.5	------	176.4	205.9	------	71.7
	87.5	*54.7*	10.11	9.07	10.15	69.9	55.2	3.56	3.57	3.88	3.87	*91.7*	*92.4*	5.08	2.29	*45.2*	5.35	6.24	*85.7*	3.41
	(1)	(2)	(2)	(2)	(3)	(2)	(2)	(2)	(–)	(2)	(–)	(2)	(–)	(3)	(3)	(3)	(3)	(3)	(3)	(2)
Piginik	------	------	19.4	17.9	30.9	146.5	125.5	7.0	------	8.3	------	------	------	15.0	6.65	------	15.0	17.5	------	6.2
	(87.6)	*(52.2)*	(9.70)	(8.95)	10.30	(73.2)	(62.7)	(3.50)	------	(4.15)	------	*(84.3)*	------	5.0	2.22	*44.3*	5.0	5.83	*85.7*	(3.1)
	------	(8)	(9)	(11)	(15)	(8)	(8)	(9)	(9)	(9)	(8)	(9)	(8)	(10)	(10)	(10)	(5)	(5)	(5)	(3)
Utkiavik	------	443.2	89.0	96.0	151.2	558.5	426.0	32.35	32.9	36.3	31.7	------	------	52.2	22.9	------	26.8	30.8	------	9.45
	------	*55.4*	9.89	8.73	10.08	69.8	53.3	3.59	3.66	4.03	3.96	*89.1*	*91.6*	5.22	2.29	*43.9*	5.36	6.16	*87.0*	3.15
	------	(8)	(9)	(13)	(20)	(8)	(8)	(9)	(10)	(9)	(10)	(9)	(10)	(13)	(13)	(13)	(9)	(8)	(8)	(3)
Barrow	------	425.6	85.6	112.7	197.9	583.0	463.0	31.8	35.1	34.5	37.7	------	------	66.25	30.15	------	45.2	54.2	------	9.8
	------	*53.2*	9.51	8.67	9.90	72.9	57.9	3.53	3.51	3.83	3.77	*92.2*	*93.1*	5.10	2.32	*42.6*	5.02	6.02	*83.4*	3.27
	------	(39)	(37)	(46)	(52)	(37)	(37)	(41)	(42)	(41)	(42)	(41)	(42)	(46)	(46)	(46)	(33)	(33)	(33)	------
Point Barrow	------	2,156.7	361.45	401.4	516.6	2,553.0	2,035.0	145.0	148.95	161.2	162.85	------	------	234.9	105.4	------	173.35	198.4	------	------
	------	*55.3*	9.77	8.73	9.94	69.0	55.0	3.54	3.55	3.93	3.88	*90.0*	*91.5*	5.11	2.29	*44.9*	5.25	6.01	*87.4*	------
	------	(15)	(13)	(17)	(24)	(13)	(13)	(16)	(14)	(16)	(14)	(16)	(14)	(18)	(18)	(18)	(13)	(13)	(13)	(–)
Nixerak	------	831.0	127.6	149.0	241.7	915.5	744.0	56.65	49.75	63.2	54.75	------	------	92.85	41.0	------	66.8	79.2	------	------
	------	*55.4*	9.82	8.76	10.07	70.4	57.2	3.54	3.55	3.95	3.91	*89.6*	*90.9*	5.16	2.28	*44.2*	5.14	6.09	*84.3*	------

NORTHERN AND NORTHEASTERN ESKIMO

NORTHERN ESKIMO: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol.Pt.-Nasion Height (b)
XIV-F-23	Nat. Mus. Can.	Barter Island	60		18.8	13.2	12.8	*70.2*	*80.0*		14.93				7.8
XIV-H-4	do	Victoria Island	45		19.6	14.2	14.0	*72.4*	*82.8*		15.93			14.0	9.2
XIV-C-30	do	King William Island.	40		19.9	14.8	14.0	*74.4*	*80.7*		16.23				8.2
XIV-F-33	do	Collinson Point	60		18.7	14.0	14.2	*74.9*	*86.9*		15.63				7.9
XIV-F-31	do	Barter Island	50		18.2	14.2	13.8	*78.0*	*85.2*		15.40				7.0
Specimens			(5)		(5)	(5)	(5)	(5)	(5)		(5)			(1)	(5)
Totals			255		95.2	70.4	68.8				78.13			14.0	40.1
Averages			51		19.04	14.08	13.76	*74.0*	*83.1*		15.63			(14.0)	8.02
Minima			40		18.2	13.2	12.8	*70.2*	*80.0*		14.93				7.0
Maxima			60		19.9	14.8	14.2	*78.0*	*86.9*		16.23				9.2

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
XIV-F-23	14.1		*55.3*	10.4	9.1	10.2	67.0	54.0	3.8	3.8	4.1	4.1	*92.7*	*92.7*	5.3	2.0	*37.7*				
XIV-H-4	14.8	*94.6*	*62.2*	10.5	9.3	11.0	68.0	59.0	3.95	3.95	4.35	4.3	*90.8*	*91.9*	6.2	2.2	*35.5*	5.9	6.8	*86.8*	4.2
XIV-C-30	15.0		*54.7*	11.0	9.6	10.4	64.0	55.0	3.9	3.9	4.2	4.2	*92.9*	*92.9*	5.3	2.5	*47.2*	6.2	7.4	*83.8*	
XIV-F-33	14.4		*54.9*	10.9	9.6	11.2	71.0	54.0	3.7	3.65	4.25	4.2	*87.1*	*86.9*	5.5	2.3	*41.8*	6.0	6.6	*90.9*	
XIV-F-31	13.9		*50.4*	9.5	8.4	10.6	78.0	56.0	3.75		4.3		*87.2*		4.9	2.6	*53.1*	5.1	6.0	*85.0*	
Specimens	(5)	(1)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(4)	(5)	(4)	(5)	(4)	(5)	(5)	(5)	(4)	(4)	(4)	(1)
Totals	72.2			52.3	46.0	53.4	348.0	278.0	19.1	15.3	21.2	16.8			27.2	11.6		23.2	26.8		(4.2)
Averages	14.44	(*94.6*)	*55.5*	10.46	9.20	10.68	69.0	55.0	3.82	3.82	4.24	4.20	*90.1*	*91.0*	5.44	2.32	*42.6*	5.8	6.7	*86.6*	
Minima	13.9		*50.4*	9.5	8.4	10.2	64.0	54.0	3.7	3.65	4.1	4.1	*87.1*	*86.9*	4.9	2.0	*35.5*	5.1	6.0	*83.8*	
Maxima	15.0		*62.2*	11.0	9.6	11.2	78.0	59.0	3.95	3.95	4.35	4.3	*92.9*	*92.9*	6.2	2.6	*53.1*	6.2	7.4	*90.9*	

NORTHERN ESKIMO: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
XIV-D-2	Nat. Mus. Can	Cape Bathurst	50		18.6	13.4	13.0	*72.0*	*81.3*		15.0				
XIV-F-33a	do	Collinson Point	40		17.9	12.9	12.7	*72.1*	*82.5*		14.50				7.1
XIV-F-22	do	Barter Island	18		16.6	12.0	11.9	*72.3*	*83.2*		13.50				6.8
XIV-H-5	do	Victoria Island	35		18.2	13.2	12.6	*72.5*	*80.3*		14.67			12.7	7.9
XIV-F-33b	do	Collinson Point	60		18.2	13.2	12.6	*72.5*	*80.3*		14.67				
XIV-F-33d	do	do	50		18.0	13.2	13.0	*73.3*	*83.3*		14.73				6.9
XIV-H-10	do	Victoria Island	40		18.5	13.6	13.2	*73.5*	*82.2*		15.10				7.8
XIV-D-3	do	Cape Bathurst	65		18.2	13.4	13.8	*73.6*	*87.3*		15.13				
XIV-D-1	do	Baillie Island	55		17.9	13.2	13.2	*73.7*	*84.9*		14.77				7.5
XIV-F-16	do	Barter Island	22		17.4	12.9	11.8	*74.1*	*77.9*		14.03				7.1
XIV-F-20	do	do	35		17.2	12.9	13.3	*75.0*	*88.4*		14.47				7.0
XIV-H-6	do	Victoria Island	18		18.4	13.8	13.0	*75.0*	*80.8*		15.07				7.0
XIV-D-8	do	MacKenzie Delta	45		18.2	13.7	12.8	*75.3*	*80.3*		14.90				7.8
XIV-F-25	do	Barter Island	50		17.7	13.4	12.5	*75.7*	*80.3*		14.53				7.8
XIV-F-18	do	do	30		17.3	13.2	13.0	*76.3*	*85.2*		14.50				7.2
XIV-F-21	do	do	55		17.8	13.6	12.3	*76.4*	*78.3*		14.57				
Specimens			(16)		(16)	(16)	(16)	(16)	(16)		(16)			(1)	(12)
Totals			668		286.1	211.6	204.7				234.1			12.7	87.9
Averages			41.8		17.88	13.23	12.79	*74.0*	*82.3*		14.63			(12.7)	7.32
Minima			18		16.6	12.0	11.8	*72.0*	*77.9*		13.50				6.8
Maxima			65		18.6	13.8	13.8	*76.4*	*88.4*		15.13				7.9

NORTHERN ESKIMO: FEMALES—Continued

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
XIV-D-2					9.0	10.0			3.4	3.45	3.9	3.9	*87.2*	*88.5*	5.1	2.1	*41.2*				
XIV-F-33a	12.3		*57.7*	10.3	9.2	10.0	68.0	58.0	3.65	3.55	3.8	3.7	*96.1*	*96.0*	4.7	2.0	*42.6*	5.4	5.9	*91.5*	
XIV-F-22	12.1		*56.2*	10.0	9.0	9.9	69.0	50.0	3.75	3.6	3.55	3.6	*105.6*	*100.0*	5.2	2.0	*38.5*	5.2	6.4	*81.3*	
XIV-H-5	12.9	*98.4*	*61.2*	9.8	8.4	9.8	67.0	51.0	3.5	3.6	3.8	3.8	*92.1*	*94.7*	5.4	2.1	*38.9*	5.4	6.7	*80.6*	3.7
XIV-F-33b	12.8				9.1	10.2			3.4	3.3	4.0	4.0	*85.0*	*82.5*	5.0	2.05	*41.0*				
XIV-F-33a	13.0		*53.1*	10.1	8.9	9.4	64.0	54.0	3.15	3.2	3.55	3.5	*88.7*	*91.4*	4.5	2.2	*48.9*	5.4	6.2	*87.1*	
XIV-H-10	12.9		*60.5*		8.3	10.1			3.7		3.9		*94.9*								
XIV-D-3					9.2	10.5			3.75	3.65	3.9	3.8	*96.2*	*96.1*	5.4	2.5	*46.3*				
XIV-D-1	13.6		*55.2*	10.4	9.3	10.4	69.0	59.0	3.6	3.65	3.9	3.8	*92.3*	*96.1*	4.95	2.3	*46.5*	5.4	5.9	*91.5*	
XIV-F-16	12.6		*56.4*	9.6	8.4	9.4	66.0	53.0	3.5	3.35	3.9	3.7	*89.7*	*90.5*	4.9	2.0	*40.8*	5.2	6.1	*85.3*	
XIV-F-20	12.5		*56.0*	9.1	8.0	9.5	71.0	54.0	3.65	3.65	3.85	3.75	*94.8*	*97.3*	5.0	2.05	*41.0*	5.1	6.2	*82.3*	
XIV-H-6				9.7	8.9	10.4	75.0	62.0	3.3	3.3	3.8	3.8	*86.8*	*86.8*	5.1	1.95	*38.2*	5.3	6.3	*84.1*	
XIV-D-8	13.2		*59.1*	9.9	8.2	9.9	67.0	46.0	3.6	3.7	4.0	3.9	*90.0*	*94.9*	5.3	2.1	*39.6*	5.4	6.3	*85.7*	
XIV-F-25	14.1		*55.3*	10.4	9.1	10.2	66.0	54.0	3.55	3.55	3.9	3.9	*91.0*	*91.0*	5.35	2.1	*39.3*	5.0	6.1	*82.0*	
XIV-F-18	13.5		*53.3*		8.2	9.8			3.85	4.0	3.9	3.9	*98.7*	*102.6*	5.35	2.0	*37.4*	4.7	6.0	*78.3*	
XIV-F-21					8.9	9.6			3.7	3.55	3.9	3.9	*94.9*	*91.0*	5.2	2.15	*41.3*				
Specimens	(12)	(1)	(11)	(10)	(16)	(16)	(10)	(10)	(16)	(15)	(16)	(15)	(16)	(15)	(15)	(15)	(15)	(11)	(11)	(11)	(1)
Totals	155.5			99.3	140.1	159.1	680.0	540.0	55.05	53.1	61.55	56.95			76.45	31.6		57.5	68.1		3.7
Averages	12.96	*(98.4)*	*56.7*	9.93	8.76	9.94	68.0	54.0	3.44	3.54	3.85	3.8	*89.4*	*93.2*	5.10	2.11	*41.3*	5.23	6.19	*84.4*	(3.7)
Minima	12.1		*53.1*	9.1	8.0	9.4	64.0	46.0	3.15	3.2	3.55	3.5	*85.0*	*82.5*	4.5	1.95	*37.4*	4.7	5.9	*78.3*	
Maxima	14.1		*61.2*	10.4	9.3	10.5	75.0	62.0	3.85	4.0	4.0	4.0	*105.6*	*102.6*	5.4	2.5	*48.9*	5.4	6.7	*91.5*	

HUDSON BAY: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
99-4654	A.M.N.H.	Hudson Bay	55		19.2	14.0	14.3	*72.9*	*86.1*		15.83				7.9
99-4660	do	do	45		18.6	13.7	13.8	*73.7*	*85.4*		15.37			12.0	7.6
XIV-C-2	Nat. Mus. Can.	do	30		18.6	14.1	14.0	*75.8*	*85.6*		15.57			12.0	7.2
XIV-B-1	do	Ungava Bay	55		19.0	14.5	12.9	*76.3*	*77.0*		15.47			11.9	7.7
241900	U.S.N.M.	do	24		18.5	14.2	13.8	*76.8*	*84.4*		15.50	1,450		12.8	7.4
Specimens			(5)		(5)	(5)	(5)	(5)	(5)		(5)	(1)		(4)	(5)
Totals			209		93.9	70.5	68.8				77.7	1,450		48.7	37.8
Averages			41.8		18.78	14.10	13.76	*75.1*	*83.7*		15.55	(1,450)		12.18	7.56
Minima			24		18.5	13.7	12.9	*72.9*	*77.0*		15.37			11.9	7.2
Maxima			55		19.2	14.5	14.3	*76.8*	*86.1*		15.83			12.8	7.9

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Apper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
99-4654	14.3		*55.2*	11.0	9.6	11.0	69.0	54.5	3.65	3.65	4.1	4.1	*89.0*	*89.0*	5.1	2.35	*46.1*	5.9	7.2	*81.9*	
99-4660	14.0	*85.7*	*54.3*	10.6	9.4	10.4	70.0	60.0	3.6	3.5	4.1	4.15	*87.8*	*84.3*	5.2	2.3	*44.2*	5.7	7.0	*81.4*	3.45
XIV-C-2	13.3	*90.2*	*54.1*	10.4	9.2	10.5	69.0	49.0	3.6	3.55	3.75	3.75	*96.0*	*94.7*	5.2	2.25	*43.3*	5.9	6.3	*93.6*	3.6
XIV-B-1	14.6	*81.5*	*52.7*	10.2	8.9	10.1	67.0	52.0	3.65	3.55	3.85	3.9	*94.8*	*91.0*	5.3	2.3	*43.4*	5.5	6.1	*90.2*	3.5
241900	14.1	*90.8*	*52.5*	10.8	9.6	10.9	69.5	54.5	3.55	3.45	4.1	3.9	*86.6*	*88.5*	4.9	2.45	*50.0*	5.9	7.0	*84.3*	3.7
Specimens	(5)	(4)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(4)
Totals	70.3			53.0	46.7	52.9	344.5	270.0	18.05	17.70	19.9	19.8			25.7	11.65		28.9	33.6		14.25
Averages	14.06	*87.0*	*53.8*	10.60	9.34	10.58	68.9	54.0	3.61	3.54	3.98	3.96	*90.7*	*89.4*	5.14	2.33	*45.3*	5.78	6.72	*86.0*	3.56
Minima	13.3	*81.5*	*52.5*	10.2	8.9	10.1	67.0	49.0	3.55	3.45	3.75	3.75	*86.6*	*84.3*	4.9	2.25	*43.3*	5.5	6.1	*81.4*	3.45
Maxima	14.6	*90.8*	*55.2*	11.0	9.6	11.0	70.0	60.0	3.65	3.65	4.1	4.15	*96.0*	*94.7*	5.3	2.45	*50.0*	5.9	7.2	*93.6*	3.7

HUDSON BAY: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
XIV-A-1	Nat. Mus. Can	Hudson Straits	45		18.1	14.0	13.5	*77.4*	*84.1*		15.20				7.3
XIV-C-3	do	do	30		17.0	13.2	11.6	*77.6*	*76.8*		13.93				6.6

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Sunasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Apper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
XIV-A-1	13.3		*54.9*	10.2	8.7	9.7	72.5	58.5	3.6	3.55	3.9	3.9	*92.3*	*91.0*	5.05	2.15	*42.6*	4.9	5.9	*83.0*	3.2
XIV-C-3	12.0		*55.0*	9.3	8.0	9.1	71	51.5	3.6	3.65	3.7	3.7	*97.3*	*98.6*	4.75	2.15	*45.3*	4.8	5.8	*82.8*	3.1

SOUTHAMPTON ISLAND: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
99-4661	A.M.N.H	Southampton Island.	55		20.4	14.0	13.5	*68.6*	*78.5*		16.0	1,775		12.6	7.5
99-4662	do	do	45		19.1	13.9	14.5	*72.8*	*87.9*		15.80	1,540		13.2	7.9
99-4102	do	do	55		18.8	13.7	13.3	*72.9*	*81.5*		15.27	1,415		12.3	7.6
99-4654	do	do	50		19.3	14.1	14.3	*73.1*	*85.6*		15.90	1,725			7.8
99-4660	do	do	60		18.6	13.7	13.8	*73.7*	*85.5*		15.36	1,515		12.3	7.6
99-4653	do	do	25		18.6	13.9	13.9	*74.7*	*85.5*		15.50	1,583			7.6
99-4659	do	do	27		19.0	14.2	14.0	*74.7*	*84.3*		15.70	1,600		12.8	7.8
99-4652	do	do	28		18.3	14.0	14.5	*76.5*	*89.8*		15.60	1,455			7.7
99-4104	do	do	50		18.7	14.4	14.1	*77.0*	*85.2*		15.73	1,480		12.6	7.7
"Z"	do	do	27		17.9	14.0	13.9	*78.2*	*87.2*		15.27	1,495		12.2	7.4
Specimens			(10)		(10)	(10)	(10)	(10)	(10)		(10)	(10)		(7)	(10)
Totals			422		188.7	139.9	139.8				156.1	15,583		88.0	76.6
Averages			42.2		18.87	13.99	13.98	*74.1*	*85.1*		15.61	1,558		12.57	7.66
Minima			25		17.9	13.7	13.3	*68.6*	*78.5*		15.27	1,455		12.2	7.4
Maxima			60		20.4	14.4	14.5	*78.2*	*89.8*		16.0	1,775		13.2	7.9

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
99-4661	14.7	85.7	51.0	11.4	10.4	11.2	68	55	3.5	3.5	4.25	4.1	82.4	85.4	5.6	2.55	45.5	6.0	6.8	88.2	3.6
99-4662	14.8	89.2	53.4	11.1	9.8	11.4	71	53	3.55	3.55	4.05	4.1	87.7	86.6	5.6	2.5	44.6	6.2	7.3	84.9	3.9
99-4102	14.5	84.8	52.4	10.6	9.3	10.4	67.5	52	3.45	3.5	4.00	3.95	86.3	88.6	5.3	2.2	41.5	5.7	6.5	87.7	3.6
99-4654	14.3	------	54.5	11.0	9.6	10.9	68	51	3.65	3.6	4.15	4.2	87.5	85.7	5.3	2.4	45.3	5.9	7.2	81.9	------
99-4660	14.0	87.9	54.3	10.4	9.4	10.7	70	58	3.55	3.5	4.1	4.15	86.6	84.4	5.2	2.3	44.2	5.8	7.0	82.9	------
99-4653	14.7	------	51.7	10.4	9.2	10.6	70	53	3.7	3.7	3.95	4.05	93.7	91.4	5.3	2.15	40.6	5.5	7.0	78.6	------
99-4659	14.2	90.1	54.9	10.4	9.3	10.8	71	58	3.55	3.55	4.1	4.0	86.6	88.8	5.2	2.2	42.3	5.9	7.5	78.7	3.6
99-4652	14.4	------	53.5	11.0	9.6	10.9	68	49	3.6	3.6	3.9	3.9	92.3	92.3	5.4	2.35	43.5	6.0	6.8	88.2	------
99-4104	14.5	86.9	53.9	------	9.0	10.7	------	------	4.2	4.2	4.3	4.25	97.7	98.8	5.55	2.15	38.7	5.4	6.5	83.1	3.85
"Z"	14.2	85.9	52.1	10.3	9.4	10.5	70	56	3.8	3.75	3.85	3.8	98.7	98.1	5.6	2.2	39.3	5.7	7.0	81.4	3.35
Specimens	(10)	(7)	(10)	(9)	(10)	(10)	(9)	(9)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(6)
Totals	144.3	------	------	96.6	95.0	108.1	623.5	485	36.55	36.45	40.65	40.5	------	------	54.05	23.0	------	58.1	69.6	------	21.9
Average	14.43	87.2	53.1	10.73	9.50	10.81	69.3	53.9	3.66	3.65	4.07	4.05	89.9	90.0	5.41	2.30	42.6	5.81	6.96	83.5	3.65
Minima	14.0	84.8	51.0	10.3	9.0	10.4	67.5	49	3.45	3.5	3.85	3.8	82.4	84.4	5.2	2.15	38.7	5.4	6.5	78.6	3.35
Maxima	14.8	90.1	54.9	11.4	10.4	11.4	71	58	4.2	4.2	4.3	4.25	98.7	98.8	5.6	2.55	45.5	6.2	7.5	87.7	3.9

SOUTHAMPTON ISLAND: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
99-4656	A.M.N.H.	Southampton Island.	45		18.3	13.4	13.8	*73.2*	*87.1*		15.18				
99-4107	do	do	35		18.9	14.1	13.4	*74.6*	*81.2*		15.47				7.4
"Y"	do	do	21		18.1	13.8	13.9	*75.7*	*87.2*		15.28	1,450		11.7	7.3
99-4655	do	do	45		17.4	13.4	13.1	*77.0*	*85.1*		14.60	1,290			6.6
Specimens			(4)		(4)	(4)	(4)	(4)	(4)		(4)			(1)	(3)
Totals			146		72.7	54.7	54.2				45.4			11.7	21.3
Averages			36.5		18.18	13.68	13.55	*75.2*	*85.1*		15.13			(11.7)	7.1
Minima					17.4	13.4	13.1	*73.2*	*81.2*		14.60				
Maxima					18.9	14.1	13.9	*77.0*	*87.2*		15.47				

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
99-4656						10.5															
99-4107	13.5		*54.8*	9.6	8.4	10.0	71	53	3.7	3.8	4.2	4.25	*88.1*	*89.4*	5.15	2.15	*41.8*	5.3	6.5	*81.5*	
"Y"	13.5	*86.7*	*54.1*	9.9	9.0	10.1	67	53	3.9	3.8	3.7	3.7	*105.4*	*102.7*	5.3	2.2	*41.5*	5.2	6.5	*80.0*	2.9
99-4655	14.3		*46.2*	10.2	9.3	10.2	71	56	3.5	3.5	3.95	3.9	*88.6*	*89.7*	4.75	2.3	*48.4*	5.5	6.3	*87.3*	
Specimens	(3)	(1)	(3)	(3)	(3)	(4)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(1)
Totals	41.3			29.7	26.7	40.8	209	162	11.1	11.1	11.85	11.85			15.2	6.65		16.0	19.3		2.9
Average	13.77	*(86.7)*	*51.6*	9.9	8.9	10.2	69.7	54	3.7	3.7	3.95	3.95	*93.7*	*93.7*	5.07	2.22	*43.8*	5.33	6.43	*82.9*	(2.9)
Minima						10.0															
Maxima						10.5															

BAFFIN LAND: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
XIV-H-2	Nat. Mus. Can.	North Baffin Land	55		20.2	14.0	14.4	*69.3*	*84.2*		16.20			14.8	9.0
XIV-C-34	do	do	65		19.3	13.5	14.1	*69.9*	*86.0*		15.63				7.7
XIV-C-33	do	do	60		19.6	14.0	14.0	*71.4*	*83.3*		15.87				
XIV-C-11	do	do	50		19.0	14.2	13.8	*74.7*	*83.1*		15.67				7.7
XIV-C-32	do	do	55		18.4	13.8	14.0	*75.0*	*87.0*		15.40				
242754	U. S. N. M.	Cumberland Gulf.	45		19.0	13.4	14.4	*70.2*	*88.9*		15.60	1,605			7.6
242834	do	do	50		17.9	13.2	13.4	*73.7*	*86.2*		14.83	1,350			7.7
242692	do	do	55		18.1	13.7	13.9	*75.7*	*87.4*		15.23	1,415		11.4	7.2
XIV-H-16	Can. Nat. Mus.	do	50		19.2	14.6	13.4	*76.0*	*79.3*		15.73				7.6
XIV-H-12	do	Devon Island (n. of Baffin Land)	60		19.6	13.4	13.9	*68.4*	*84.2*		15.63			11.7	
XIV-H-13	do	do	30		18.8	13.4	13.8	*71.3*	*85.7*		15.33			12.1	7.3
XIV-H-14	do	do	35		18.6	13.7	13.6	*73.7*	*84.2*		15.30			11.3	6.6
6690	A. M. N. H.	Ponds Inlet Baffin Bay	50		19.1	14.1	14.2	*73.8*	*85.5*		15.80				7.5
6689	do	do	60		19.3	14.3	13.9	*74.1*	*82.7*		15.83				
6691	do	do	50		18.6	14.2	13.9	*76.3*	*84.8*		15.57			12.3	7.7
8970	do	do	50		17.9	13.8	13.8	*77.1*	*87.1*		15.17				7.7
Specimens			(16)		(16)	(16)	(16)	(16)	(16)		(16)			(6)	(12)
Totals			820		302.6	221.3	222.5				248.8			73.6	91.3
Averages			51.3		18.91	13.83	13.87	*73.1*	*84.9*		15.55			12.27	7.61
Minima			30		17.9	13.2	13.4	*68.4*	*79.3*		14.83			11.3	6.6
Maxima			65		20.2	14.6	14.4	*77.1*	*88.9*		16.20			14.8	9.0

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
XIV-H-2	14.5	*102.1*	*62.1*	10.6	9.6	11.2	69.0	62.5	3.5	3.4	4.1	3.95	*85.4*	*86.1*	5.9	2.3	*39.0*	6.2	7.2	*86.1*	4.9
YIV-C-34	13.8	-------	*55.8*	11.3	9.8	10.9	67.5	50.0	3.55	4.1	4.1	4.0	*86.6*	*88.8*	5.2	2.4	*46.2*	-------	-------	-------	-------
XIV-C-33	14.4	-------	-------	-------	9.2	10.0	-------	-------	3.4	3.4	4.0	3.9	*85.0*	*87.2*	5.4	2.5	*46.3*	-------	-------	-------	4.3
XIV-C-11	14.1	-------	*54.6*	10.1	9.1	10.6	71.5	58.5	3.85	-------	4.3	-------	*89.5*	-------	5.4	2.25	*41.7*	5.8	6.8	*85.3*	-------
XIV-V-32	14.0	-------	-------	-------	8.2	10.1	-------	-------	3.75	3.75	3.9	3.9	*96.2*	*96.2*	5.6	2.1	*37.5*	-------	-------	-------	-------
242754	14.3	-------	*53.2*	10.4	9.4	10.8	72.0	58.5	3.5	3.6	4.0	3.85	*87.5*	*93.5*	5.3	2.1	*39.6*	5.4	6.7	*80.6*	-------
242834	14.2	-------	*54.2*	10.0	9.0	10.1	68.0	61.0	3.4	3.3	4.0	3.85	*85.0*	*85.7*	5.0	2.45	*49.0*	5.8	7.0	*82.9*	-------
242692	14.3	*79.7*	*50.4*	10.0	9.0	10.2	71.0	56.0	3.55	3.55	3.9	3.8	*91.0*	*93.4*	5.2	2.0	*38.5*	5.3	6.6	*80.3*	3.55
XIV-H-16	14.2	-------	*53.5*	10.6	9.4	10.6	69.0	55.5	3.9	3.8	4.2	4.1	*92.9*	*92.7*	5.2	2.5	*48.1*	5.9	6.9	*85.5*	-------
XIV-H-12	14.4	*81.3*	-------	-------	9.1	10.6	-------	-------	3.4	-------	4.0	-------	*85.0*	-------	5.2	2.3	*44.2*	-------	-------	-------	3.4
XIV-H-13	14.7	*82.3*	*49.7*	10.2	9.0	10.3	70.0	50.0	3.45	3.45	3.95	3.95	*87.3*	*87.3*	5.4	2.1	*38.9*	5.7	7.1	*80.3*	3.65
XIV-H-14	13.8	*81.9*	*47.8*	9.7	9.0	10.2	74.5	59.5	3.3	3.2	3.75	3.8	*88.0*	*84.2*	5.1	2.25	*44.1*	5.0	6.2	*80.7*	3.1
6690	14.3	-------	*52.5*	10.8	9.9	10.8	70.0	59.0	3.7	3.65	4.05	3.9	*91.4*	*93.6*	5.5	2.4	*43.6*	5.4	6.1	*88.5*	-------
6689	14.6	-------	-------	-------	9.3	10.4	-------	-------	-------	3.65	-------	3.95	-------	*92.4*	5.4	2.7	*50.0*	-------	-------	-------	-------
6691	14.0	*87.9*	*55.0*	10.8	9.5	10.5	66.5	55.0	3.7	3.7	4.1	4.0	*90.2*	*92.5*	5.1	2.3	*45.1*	5.7	6.5	*87.7*	3.9
8970	13.9	-------	*55.4*	10.4	9.3	10.7	71.0	58.0	3.6	3.6	4.1	4.1	*87.8*	*87.8*	5.2	2.25	*43.3*	5.7	6.8	*83.8*	-------
Specimens	(16)	(6)	(12)	(12)	(16)	(16)	(12)	(12)	(15)	(14)	(15)	(14)	(15)	(14)	(16)	(16)	(16)	(11)	(11)	(11)	(7)
Totals	227.5	-------	-------	124.9	147.8	168.2	840.0	683.5	53.55	49.6	60.45	55.05	-------	-------	85.1	36.9	-------	61.9	73.9	-------	26.8
Averages	14.22	*85.9*	*53.7*	10.41	9.24	10.51	70.0	57.0	3.57	3.54	4.03	3.93	*88.6*	*90.1*	5.32	2.31	*43.4*	5.63	6.72	*83.8*	3.83
Minima	13.8	*79.7*	*47.8*	9.7	8.2	10.1	66.5	50.0	3.3	3.2	3.75	3.8	*85.0*	*84.2*	5.0	2.0	*37.5*	5.0	6.1	*80.3*	3.1
Maxima	14.7	*102.1*	*62.1*	11.3	9.9	11.2	74.5	62.5	3.9	3.8	4.3	4.1	*96.2*	*96.2*	5.9	2.7	*50.0*	6.2	7.2	*88.5*	4.9

BAFFIN LAND: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
XIV-H-1	Nat. Mus. Can.	North Baffin Land	65		18.8	13.6	13.4	*69.8*	*82.7*		15.27				
XIV-C-31	do	do	55		18.6	13.0	13.5	*69.9*	*85.4*		15.03				
XIV-C-16	do	do	70		17.5	13.2	13.2	*75.4*	*86.0*		14.63				
XIV-H-3	do	do	30		17.0	12.9	12.5	*75.9*	*83.6*		14.13				
XIV-C-15	do	do	50		17.8	13.6	12.9	*76.4*	*82.2*		14.77			11.6	6.7
242765	U.S.N.M.	Cumberland Gulf	30		17.8	12.3	12.8	*69.1*	*85.1*		14.30				
242696	do	do	40		18.4	13.2	13.3	*71.7*	*84.2*		14.97	1,325			6.5
242703	do	do	55		18.7	13.6	13.4	*72.7*	*83.0*		15.23	1,390			7.1
242731	do	do	45		18.4	13.4	12.9	*72.8*	*81.1*		14.90				6.8
242830	do	do	45		18.6	13.8	13.2	*74.2*	*81.5*		15.20	1,375			7.1
242705	do	do	60		18.5	13.8	13.7	*74.6*	*84.8*		15.33	1,320		11.9	7.5
XIV-C-27	Nat. Mus. Can.	Devon Island	40		18.4	13.6	13.3	*73.9*	*83.1*		15.10	1,385			7.5
XIV-H-15	do	do	45		18.4	13.6	14.2	*73.9*	*88.8*		15.40			12.1	7.8
XIV-C-28	do	do	35		18.6	14.3	13.4	*76.9*	*81.5*		15.43				6.7
XIV-H-11	do	do	40		17.8	13.8	13.4	*77.5*	*84.8*		15.0			11.8	7.1
8969	A.M.N.H.	Ponds Inlet, Baffin Bay.	35		19.4	13.2	13.5	*68.0*	*82.9*		15.37			10.6	6.6
6686	do	do	40		18.9	13.5	14.2	*71.4*	*87.7*		15.53				7.8
Specimens			(17)		(17)	(17)	(17)	(17)	(17)		(17)			(5)	(12)
Totals			780		311.6	228.4	226.8				255.6			58.0	85.2
Averages			45.9		18.33	13.44	13.34	*73.3*	*84.0*		15.04			11.60	7.10
Minima			30		17.0	12.3	12.5	*68.0*	*81.1*		14.13			10.6	6.5
Maxima			65		19.4	14.3	14.2	*77.5*	*88.8*		15.53			12.1	7.8

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
XIV-H-1	13.3				9.0	10.6			3.65	3.65	3.9	3.8	93.6	96.1	5.5	2.2	40.0				
XIV-C-31	13.8					10.5															
XIV-C-16						9.7															
XIV-H-3	13.1	88.6	51.2	9.1	8.2	9.5	72.0	59.0	3.5	3.35	3.75	3.7	93.3	90.5	4.65	2.15	46.2	4.8	5.9	81.4	3.5
XIV-C-15						9.5															
242765	12.7		51.2	9.7	8.4	9.7	70.0	46.0	3.6	3.6	4.1	4.1	87.8	87.8	4.65	2.3	49.5	5.2	5.8	89.7	
242696	13.2		53.8	10.1	9.0	10.3	71.0	55.5		3.5		3.9		89.7	4.9	2.1	42.9	5.6	6.3	88.9	
242703				10.7	9.5	10.6	70.5	50.0	3.45	3.6	3.95	3.9	87.3	92.3	4.9	2.2	44.9	5.3	6.2	85.5	
242731	12.8		55.5	9.1	7.7	9.0	66.0	45.5	3.3	3.25	3.6	3.6	91.7	90.3	5.0	2.1	42.0	5.4	6.4	84.4	
242830	13.2	90.2	55.5	10.1	8.9	10.1	68.5	56.5	3.4	3.35	3.8	3.8	89.5	88.2	4.85	2.15	44.3	5.6	6.2	90.3	3.7
242705	13.6		55.1	10.2	8.9	10.4	70.0	52.0	3.4	3.45	3.85	3.85	88.3	89.6	5.2	2.25	43.3	5.6	6.2	90.3	
XIV-C-27	13.6	89.0	55.2	10.6	9.0	10.5	67.5	49.5	3.65	3.65	4.15	4.1	88.0	89.0	5.1	2.15	42.2	5.6	6.1	91.8	3.5
XIV-H-15	12.8		52.3	10.6	9.3	10.3	69.0	48.5	3.75	3.75	3.85	3.85	97.4	97.4	4.7	2.3	48.9	5.6	6.4	87.5	
XIV-C-28	13.6	86.8	52.2	10.5	9.2	10.2	67.5	47.0	3.5	3.5	3.9	3.8	89.7	92.1	5.15	2.2	42.7	5.6	6.3	88.9	3.6
XIV-H-11	13.5	78.5	48.9	9.9	9.0	10.1	73.0	58.0	3.6	3.55	3.9	3.8	92.3	93.4	4.8	2.15	44.8	5.1	6.1	83.6	3.0
8969	13.1					9.8															
6686	13.5		57.8	11.0	9.6	11.0	69.5	52.5	3.7	3.7	4.1	4.0	90.2	92.5	5.3	2.4	45.3	5.9	6.7	88.1	
Specimens	(14)	(5)	(11)	(12)	(13)	(17)	(12)	(12)	(12)	(13)	(12)	(13)	(12)	(13)	(13)	(13)	(13)	(12)	(12)	(12)	(5)
Totals	185.8			121.6	117.7	171.8	834.5	620.	42.5	45.9	46.85	50.2			64.7	28.65		65.3	74.6		17.3
Averages	13.27	86.6	53.9	10.13	9.05	10.11	69.5	51.7	3.54	3.53	3.90	3.86	90.7	91.4	4.98	2.20	44.3	5.44	6.22	87.6	3.46
Minima	12.7	78.5	48.9	9.1	8.2	9.0	66.0	45.5	3.3	3.25	3.6	3.6	87.3	87.8	4.65	2.1	40.0	4.8	5.8	81.4	3.0
Maxima	13.8	90.2	57.8	11.0	9.7	11.0	73.0	59.0	3.75	3.75	4.15	4.1	97.4	97.4	5.5	2.4	49.5	5.9	6.7	91.8	3.7

NORTHEASTERN ESKIMO: MALES [1]

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
99-108	(*Capt. Peary*) A.M.N.H.	Smith Sound	Adult		19.3	14.1	14.2	*73.1*	*85.0*		15.90	1,545		11.9	7.8
99-109	do	do	do		19.4	14.5	14.2	*74.7*	*83.8*		16.03			12.9	8.3
99-111	do	do	do		19.0	14.3	14.0	*75.3*	*84.1*		15.77	1,590		11.7	7.2
99-3610	do	do	do		19.1	14.4	13.6	*75.4*	*81.2*		15.70	1,600		12.1	7.4
99-110	do	do	do		18.5	14.1	13.8	*76.2*	*84.6*		15.47	1,445			7.7
99-115	do	do	do		19.1	14.8	14.6	*77.5*	*86.1*		16.17	1,645		12.3	7.8
99-3607	do	do	do		18.3	14.4	14.0	*78.7*	*85.6*		15.60	1,570		11.9	7.3
Specimens					(7)	(7)	(7)	(7)	(7)		(7)	(6)		(6)	(7)
Totals					132.7	100.6	98.4				110.64	9,395		72.8	53.5
Averages					18.96	14.37	14.06	*75.8*	*84.4*		15.81	1,566		12.13	7.64
Minima					18.3	14.1	13.6	*73.1*	*81.2*		15.47	1,445		11.7	7.2
Maxima					19.4	14.8	14.6	*78.7*	*86.1*		16.17	1,645		12.9	8.3

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, mean		Orbits—Breadth, mean		*Orbital—Index, mean*		Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
99-108	14.2	*83.8*	*54.9*	10.6	9.5	10.4	67.0	54.0	3.8	3.7	4.05	4.05	*93.4*	*91.4*	5.6	2.35	*42.0*	5.8	7.0	*82.9*	3.6
99-109	15.2	*84.9*	*54.6*	11.2	10.4	11.6	71.0	64.0	3.5	3.5	4.25	4.2	*82.4*	*83.3*	6.1	2.3	*37.7*	5.9	7.1	*83.1*	3.6
99-111	15.0	*78.0*	*48.0*	10.0	9.3	10.9	76.0	56.0	3.25	3.35	4.2	4.15	*77.4*	*80.7*	5.8	2.4	*41.4*	5.4	6.9	*78.3*	3.6
99-3610	14.0	*86.4*	*52.9*	8.9	8.0	10.0	74.0	55.0	4.0	3.8	3.9	3.9	*102.6*	*97.4*	5.6	2.1	*37.5*	5.1	6.5	*78.5*	3.3
99-110	14.5		*53.1*	10.4	9.5	10.6	70.0	59.0	3.6	3.55	4.15	4.05	*86.7*	*87.7*	5.7	2.2	*38.6*	5.6	6.2	*90.3*	
99-115	15.8	*77.8*	*49.4*	10.9	10.2	11.3	72.0	63.0	3.7	3.75	4.4	4.15	*84.1*	*90.4*	5.95	2.45	*41.2*	5.4	7.0	*77.1*	3.7
99-3607	14.1	*85.0*	*51.8*	9.8	8.8	10.1	70.0	53.0	3.5	3.5	4.15	4.1	*84.3*	*85.4*	5.4	2.15	*39.8*	5.3	6.5	*81.5*	3.3
Specimens	(7)	(6)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(6)
Totals	102.8			71.80	65.70	74.90	500.0	404.0	25.35	25.15	29.10	28.60			40.1	15.9		38.5	47.2		21.10
Averages	14.7	*82.4*	*52.0*	10.26	9.39	10.70	71.4	57.7	3.62	3.59	4.16	4.09	*87.11*	*87.94*	5.73	2.27	*39.7*	5.50	6.74	*81.6*	3.52
Minima	14.0	*77.8*	*48.0*	8.9	8.0	10.0	67.0	53.0	3.25	3.35	3.9	3.9	*77.4*	*80.7*	5.4	2.1	*37.5*	5.1	6.2	*77.1*	3.3
Maxima	15.8	*86.4*	*54.9*	11.2	10.4	11.6	76.0	64.0	4.0	3.8	4.4	4.2	*102.6*	*97.4*	6.1	2.45	*42.0*	5.9	7.1	*83.1*	3.7

NORTHEASTERN ESKIMO: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*Capt. Peary*)														
99-106	A.M.N.H.	Smith Sound	Adult		18.4	13.8	13.9	*75.0*	*86.3*		15.37	1,510		11.2	6.9
99-3608	do	do	do		17.6	13.8	13.4	*78.4*	*85.4*		14.90			11.2	6.7

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, mean		Orbits—Breadth mean		*Orbital—Index, mean*		Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
99-106	13.4	*83.6*	*51.5*	9.6	8.5	9.8	70.0	45.0	3.65	3.65	4.05	4.1	*90.1*	*89.0*	5.5	2.30	*41.8*	5.3	6.4	*82.8*	3.35
99-3608	13.0	*86 1*	*51.5*	9.1	8.2	9.5	72.0	53.0	3.35	3.4	3.9	3.8	*85.9*	*87.2*	5.1	2.35	*46.1*	5.1	6.0	*85.0*	3.5

[1] See author's "Contribution to the Anthropology of the Central and Smith Sound Eskimo." Anthrop. Pap. Amer. Mus. Nat. Hist., vol. 5, pt. 2, 1910.

NORTHERN AND EASTERN ESKIMO

(Abstract)

MALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
	(5)	(5)	(5)	(5)	(5)	(5)		(5)			(1)	(5)	(5)
Northern	255	95.2	70.4	68.8				78.13			14.0	40.1	72.2
								(5)					
	51	19.04	14.08	13.76	*74.0*	*83.1*		15.63			(14.0)	8.02	14.44
	(5)	(5)	(5)	(5)	(5)	(5)		(5)	(1)		(4)	(5)	(5)
Hudson Bay	209	93.9	70.5	68.8				77.7	1,450		48.7	37.8	70.3
	41.8	18.78	14.10	13.76	*75.1*	*83.7*		15.55	(1,450)		12.18	7.56	14.06
	(10)	(10)	(10)	(10)	(10)	(10)		(10)	(10)		(7)	(10)	(10)
Southampton Island	422	188.7	139.9	139.8				156.1	15,583		88.0	76.6	144.3
	42.2	18.87	13.99	13.98	*74.1*	*85.1*		15.61	1,558		12.57	7.66	14.43
	(16)	(16)	(16)	(16)	16)	(16)		(16)			(6)	(12)	(16)
Northeastern	820	302.6	221.3	222.5				248.8			73.6	91.3	227.5
	51.3	18.91	13.83	13.87	*73.1*	*84.9*		15.55			12.27	7.61	14.22
	(7)	(7)	(7)	(7)	(7)	(7)		(7)	(6)		(6)	(7)	(7)
Smith Sound		132.7	100.6	98.4				110.64	9,395		72.8	53.5	102.8
	Adult	18.96	14.37	14.06	*75.8*	*84.4*		15.81	1,566		12.13	7.64	14.69
Specimens	(36)	(43)	(43)	(43)	(43)	(43)		(43)	(17)		(24)	(39)	(43)
Totals	1,706	813.1	602.7	598.3				671.37	26,428		297.1	299.3	617.1
Averages	47.4	18.91	14.02	13.91	*74.1*	*84.5*		15.61	1,555		12.38	7.67	14.35

Locality	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
	(1)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(4)	(5)	(4)	(5)	(4)	(5)	(5)	(5)	(4)	(4)	(4)	(4)
Northern			52.3	46.0	53.4	348.0	278.0	19.1	15.3	21.2	16.8			27.2	11.6		23.2	26.8		(4.2)
	(94.6)	*55.5*	10.46	9.20	10.68	69.0	55.0	38.2	3.82	4.24	4.20	*90.1*	*91.0*	5.44	2.32	*42.6*	5.80	6.70	*86.6*	(4.2)
	(4)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(4)
Hudson Bay			53.0	46.7	52.9	344.5	270.0	18.05	17.70	19.9	19.8			25.7	11.65		28.9	33.6		14.25
	87.0	*53.8*	10.60	9.34	10.58	68.9	54.0	3.61	3.54	3.98	3.96	*90.7*	*89.4*	5.14	2.33	*45.3*	5.78	6.72	*86.0*	3.56
	(7)	(10)	(9)	(10)	(10)	(9)	(9)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(6)
Southampton Island			96.6	95.0	108.1	623.5	485.0	36.55	36.45	40.65	40.5			54.05	23.0		58.1	69.6		21.9
	87.2	*53.1*	10.73	9.50	10.81	69.3	53.9	3.66	3.65	4.07	4.05	*89.9*	*90.0*	5.41	2.30	*42.6*	5.81	6.96	*83.5*	3.65
	(6)	(12)	(12)	(16)	(16)	(12)	(12)	(15)	(14)	(15)	(14)	(15)	(14)	(16)	(16)	(16)	(11)	(11)	(11)	(7)
Northeastern			124.9	147.8	168.2	840.0	683.5	53.55	49.6	60.45	55.05			85.1	36.9		61.9	73.9		26.8
	85.9	*53.7*	10.41	9.24	10.51	70.0	57.0	3.57	3.54	4.03	3.93	*88.6*	*90.1*	5.32	2.31	*43.4*	5.63	6.72	*83.8*	3.83
	(6)	(7)	(7)	(7)	(7)	(7)	(7)	(7)		(7)		(7)		(7)	(7)	(7)	(7)	(7)	(7)	(6)
Smith Sound			71.8	65.7	74.9	499.5	404.0	24.78		28.77				40.1	15.9		38.5	47.2		21.1
	82.4	*52.0*	10.26	9.39	10.70	71.4	57.7	3.54		4.11		*86.7*		5.73	2.27	*39.7*	5.50	6.74	*81.6*	3.52
Specimens	(24)	(39)	(38)	(43)	(43)	(38)	(38)	(42)	(40)	(42)	(40)	(42)	(40)	(43)	(43)	(43)	(37)	(37)	(37)	(24)
Totals	2,062.8	2,085.9	398.6	401.2	457.5	2,655.5	2,120.5	152.0	143.8	171.0	160.9			232.15	99.05		210.6	251.1		88.25
Averages	*85.9*	*53.5*	10.49	9.33	10.64	69.9	55.8	3.62	3.60	4.07	4.02	*88.9*	*89.4*	5.40	2.30	*42.7*	5.69	6.79	*83.9*	3.68

NORTHERN AND EASTERN ESKIMOS—Continued

(Abstract)

FEMALES

Locality	Approximate age of subject	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)	Diam. Bizygomatic maxim. (c)
Northern	(16)	(16)	(16)	(16)	(16)	(16)		(16)			(1)	(12)	(12)
	668	286.1	211.6	204.7				234.1			12.7	87.9	155.5
								(16)					
	41.8	17.88	13.23	12.79	*74.0*	*82.3*		14.63			(12.7)	7.32	12.96
Hudson Straits	(2)	(2)	(2)	(2)	(2)	(2)		(2)				(2)	(2)
	75	35.1	27.2	25.1				29.1				13.9	25.3
	(37.5)	17.55	13.60	12.55	*77.5*	*80.5*		14.57				6.95	12.65
Southampton Island	(4)	(4)	(4)	(4)	(4)	(4)		(4)			(1)	(3)	(3)
	146	72.7	54.7	54.2				45.4			11.7	21.3	41.3
	36.5	18.18	13.68	13.55	*75.2*	*85.1*		15.13			(11.70)	7.10	13.77
Northeastern	(17)	(17)	(17)	(17)	(17)	(17)		(17)			(5)	(12)	(14)
	780	311.6	228.4	226.8				255.6			58.0	85.2	185.8
	45.9	18.33	13.44	13.34	*73.3*	*84.0*		15.04			11.60	7.10	13.27
Smith Sound		(2)	(2)	(2)	(2)	(2)		(2)			(2)	(2)	(2)
		36.0	27.6	27.3				30.30			22.4	13.6	26.4
		18.0	13.80	13.65	*76.7*	*85.8*		15.15			11.20	6.80	13.20
Specimens	(39)	(41)	(41)	(41)	(41)	(41)		(41)			(9)	(31)	(33)
Totals	1,669	741.5	549.5	538.1				594.5			104.8	221.9	434.3
Averages	42.8	18.09	13.40	13.12	*74.1*	*83.4*		14.50			11.64	7.16	13.16

Locality	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
Northern	(1)	(11)	(10)	(16)	(16)	(10)	(10)	(16)	(15)	(16)	(15)	(16)	(15)	(15)	(15)	(15)	(11)	(11)	(11)	(1)
			99.3	140.1	159.1	680.0	540.0	55.05	53.1	61.55	56.95			76.45	31.6		57.5	68.1		3.7
	(98.4)	*56.7*	9.93	8.76	9.94	68.0	54.0	3.44	3.54	3.85	3.8	*89.4*	*93.2*	5.10	2.11	*41.3*	5.23	6.19	*84.4*	(3.7)
Hudson Straits		(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
			19.5	16.7	18.8	143.5	110.0	7.2	7.2	7.6	7.6			9.8	4.3		9.7	11.7		6.3
		55.0	9.75	8.35	9.4	71.7	55.0	3.6	3.6	3.8	3.8	*94.7*	*94.7*	4.9	2.15	*43.9*	4.85	5.85	*82.9*	3.15
Southampton Island	(1)	(3)	(3)	(3)	(4)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(1)
			29.7	26.7	40.8	209.0	162.0	11.1	11.1	11.85	11.85			15.2	6.65		16.0	19.03		2.9
	(86.7)	*51.6*	9.9	8.9	10.2	69.7	54.0	3.7	3.7	3.95	3.95	*93.7*	*93.7*	5.07	2.22	*43.8*	5.33	6.43	*82.9*	(2.90)
Northeastern	(5)	(11)	(12)	(13)	(17)	(12)	(12)	(12)	(13)	(12)	(13)	(12)	(13)	(13)	(13)	(13)	(12)	(12)	(12)	(5)
			121.6	117.7	171.8	834.5	620.0	42.5	45.9	46.85	50.2			64.7	28.65		65.3	74.6		17.3
	86.6	*53.9*	10.13	9.05	10.11	69.5	51.7	3.54	3.53	3.90	3.86	*90.7*	*91.4*	4.98	2.20	*44.3*	5.44	6.22	*87.6*	3.46
Smith Sound	(2)	(2)	(2)	(2)	(2)			(2)		(2)		(2)		(2)	(2)	(2)	(2)	(2)	(2)	(2)
			18.7	16.7	19.3			7.0		7.9				10.6	4.65		10.4	12.4		6.85
	84.9	*51.5*	9.35	8.35	9.65			3.51		3.96		*88.6*		5.30	2.32	*43.9*	5.20	6.20	*83.9*	3.42
Specimens	(9)	(29)	(29)	(36)	(41)	(27)	(27)	(35)	(35)	(35)	(35)	(35)	(35)	(35)	(35)	(35)	(30)	(30)	(30)	(11)
Totals	787.9	1,584.4	288.8	317.9	409.8	1,867.0	1,432.0	122.85	124.3	135.75	134.5			176.75	75.85		158.9	185.83		37.05
Averages	*87.5*	*54.6*	9.96	8.83	10.0	69.2	53.0	3.51	3.55	3.88	3.84	*90.5*	*92.4*	5.05	2.25	*44.6*	5.30	6.19	*85.5*	3.37

GREENLAND ESKIMO

GREENLAND: MALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, Wear	Menton-Nasion Height (a) [1]	Alveol. Pt.-Nasion Height (b)
242707	(*Misc.*) U.S.N.M.	Greenland	55		19.3	12.6	14.6	*65.3*	*91.5*		15.50	1,445			7.9
227805	do	Noursoak Peninsula.	55		20.0	13.2	14.4	*66.0*	*86.8*		15.87	1,580			8.1
242835	do	Greenland	55		19.5	13.0	13.6	*66.7*	*83.7*		15.37	1,400			7.5
242829	do	Northwest Greenland.	50		19.5	13.1	14.2	*67.2*	*87.1*		15.60	1,460			7.4
225035	do	do	45		19.1	12.9	13.8	*67.5*	*86.3*		15.27	1,420		12.4	7.8
242721	do	do	30		19.2	13.0	13.6	*67.7*	*84.5*		15.27	1,450			7.0
242832	do	Greenland (probably northwest).	55		19.5	13.2	13.9	*67.7*	*85.0*		15.53	1,575		13.4	8.6
242734	do	Northwest Greenland.	35		19.4	13.3	14.4	*68.6*	*88.1*		15.70	1,600			7.6
242760	do	do	35		19.4	13.3	13.4	*68.6*	*82.0*		15.37	1,495			7.7
99-8913	A.M.N.H	West Greenland	50		20.2	13.9	14.8	*68.8*	*86.8*		16.30				8.1
242726	U.S.N.M	Northwest Greenland.	50		19.3	13.3	14.1	*68.9*	*86.5*		15.57	1,620			7.7
177992	do	Greenland (probably northwest).	65		19.8	13.7	13.8	*69.2*	*82.4*		15.77	1,625			
242702	do	Northwest Greenland.	35		19.2	13.3	14.2	*69.3*	*87.4*		15.57	1,585			7.8
242758	do	do	23		18.7	13.0	14.6	*69.5*	*92.1*		15.43	1,545			7.3
242761	do	Noursoak Peninsula.	45		19.8	13.8	14.5	*69.7*	*86.3*		16.03	1,675			8.2
228268	do	Greenland	50		19.8	13.8	13.6	*69.7*	*81.0*		15.73	1,585		12.3	7.5
242736	do	Northwest Greenland.	45		19.3	13.6	13.4	*70.5*	*81.4*		15.43	1,480			7.2
242720	do	do	60		19.0	13.4	13.8	*70.5*	*85.2*		15.40	1,500			7.8
242747	do	do	40		19.0	13.4	12.8	*70.5*	*79.0*		15.07	1,415			7.6
242710	do	do	55		19.1	13.5	13.5	*70.7*	*82.8*		15.37	1,515			7.2
99-8912	A.M.N.H	West Greenland	55		19.1	13.6	13.8	*71.2*	*84.4*		15.17				7.5
242730	U.S.N.M	Northwest Greenland.	45		18.8	13.4	14.4	*71.3*	*89.4*		15.53	1,495			7.8
228264	do	Greenland	45		20.2	14.4	14.0	*71.3*	*80.9*		16.20	1,670		12.1	7.6

242833	do	Northwest Greenland.	50		18.9	13.5	14.0	*71.4*	*86.4*		15.47	1,605			8.1
99-8915	A.M.N.H	West Greenland	30		18.2	13.0	13.8	*71.4*	*88.5*		15				7.8
242715	U.S.N.M	Northwest Greenland.	60		18.6	13.3	13.4	*71.5*	*84.0*		15.10	1,390			7.6
242742		West Greenland	50		18.6	13.3	13.5	*71.5*	*84.6*		15.13	1,545			6.8
99-8911	A.M.N.H	do	55		19.2	13.8	13.8	*71.9*	*83.6*		15.60				8.0
99-8910	do	do	50		19.0	13.7	14.4	*72.1*	*88.0*		15.70				7.6
242698	U.S.N.M	Northwest Greenland.	35		18.3	13.2	14.0	*72.1*	*88.9*		15.17	1,570		13.1	7.8
242733	do	Greenland	60		18.8	13.6	14.4	*72.3*	*88.9*		15.60	1,460		12.5	7.7
242743	do	Northwest Greenland.	40		18.8	13.6	13.6	*72.3*	*84.0*		15.33	1,485			7.3
242695	do	do	40		18.2	13.2	14.2	*72.5*	*90.5*		15.20	1,455			7.0
242716	do	do	55		19.0	13.8	14.0	*72.6*	85.4		15.60	1,570			8.0
242744	do	do	35		18.8	13.7	13.6	*72.9*	*83.7*		15.37	1,585			7.8
242713	do	do	50		18.9	13.8	14.4	*73.0*	*88.1*		15.70	1,520			
228271	do	Greenland	50		18.8	13.8	13.6	*73.4*	*83.4*		15.40	1,440		12.4	7.8
177996	do	Noursoak Peninsula.	40		18.5	13.6	14.0	*73.5*	*87.2*		15.37	1,530		*12.1*	*7.4*
242706	do	Greenland	45		19.0	14.0	13.9	*73.7*	*84.2*		15.63	1,595			7.8
242687	do	Northwest Greenland.	50		19.1	14.1	14.5	*73.8*	*87.4*		15.90	1,755		12.6	7.3
99-8916	A.M.N.H	West Greenland	45		19.5	14.5	14.3	*74.4*	*84.1*		16.10				7.2
242749	U.S.N.M	Northwest Greenland.	65		18.8	14.0	14.1	*74.5*	*86.0*		15.63	1,530			7.4
242688	do	do	24		18.8	14.0	14.2	*74.5*	*86.6*		15.67	1,675		12.6	7.4
214150	do	Cape York	55		18.4	13.8	13.3	*75.0*	*82.6*		15.17	1,465			
226170	do	Greenland	40		18.5	13.9	13.4	*75.1*	*82.7*		15.27	1,410			7.5
242709	do	Northwest Greenland.	50		18.7	14.1	13.8	*75.4*	*84.2*		15.53	1,460			7.0
242729	do	do	50		18.8	14.2	13.2	*75.7*	*80.0*		15.40	1,425			7.8
225148	do	Greenland (probably northwest).	55		19.3	14.6	14.5	*75.7*	*85.5*		16.13	1,600			8.3
228263	do	Greenland	50		18.2	13.8	14.1	*75.8*	*88.1*		15.37	1,425		11.1	6.8
99-8917	A.M.N.H	West Greenland	45		18.1	13.8	13.9	*76.2*	*87.1*		15.27			12.3	7.5
242697	U.S.N.M	Northwest Greenland.	60		18.4	14.4	14.0	*78.3*	*85.4*		15.60	1,600		11.8	7.3
228267	do	do	60		18.2	14.3	13.2	*78.6*	*81.2*		15.23	1,465			7.3
Specimens			(52)		(52)	(52)	(52)	(52)	(52)		(52)	(45)		(13)	(49)
Totals			2,472		988.6	708.1	724.3				807.0	68,695		160.7	372.2
Averages			47.6		19.01	13.62	13.93	*71.6*	*85.4*		15.52	1,527		12.36	7.60
Minima			23		17.5	12.6	12.8	*65.3*	*79.0*		15.0	1,400		11.1	6.8
Maxima			65		20.2	14.6	14.8	*78.6*	*92.1*		16.30	1,755		13.4	8.6

GREENLAND: MALES—Continued

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
242707	13.2	------	*59.9*	10.8	9.5	11.0	70	55	3.75	3.8	3.9	3.85	*96.2*	*98.7*	5.35	2.2	*41.1*	5.6	6.3	*88.9*	------
227805	14.7	------	*55.1*	11.2	9.9	11.3	70	54	3.5	3.5	4.05	3.95	*86.4*	*88.6*	5.6	2.2	*39.3*	6.1	7.0	*87.1*	------
242835	13.9	------	*54.0*	10.6	9.6	10.7	70	59	3.4	3.55	3.8	3.8	*89.5*	*93.4*	5.25	2.4	*45.7*	5.8	6.8	*85.3*	------
242829	13.5	------	*54.8*	10.7	9.6	10.6	69	54	3.35	3.35	3.9	3.85	*85.9*	*87.0*	4.9	2.3	*46.9*	5.5	6.5	*84.6*	3.4
225035	13.1	*94.7*	*59.5*	10.6	9.2	10.2	65	52	3.65	------	4.0	------	*91.2*	------	5.3	2.4	*45.3*	5.6	6.6	*84.9*	3.95
242721	13.3	------	*52.6*	10.2	9.3	10.6	74	58	3.9	3.9	3.95	4.0	*98.7*	*97.5*	5.15	2.05	*39.8*	5.3	6.1	*86.9*	------
242832	14.2	*94.4*	*60.6*	10.2	9.0	10.6	68	57	3.85	3.8	4.05	3.95	*95.1*	*96.2*	5.9	2.3	*39.0*	5.5	6.6	*83.3*	4.0
242734	13.3	------	*57.1*	11.5	10.0	11.0	67	48	3.65	3.7	4.1	3.9	*89.0*	*94.9*	5.35	2.15	*40.2*	6.1	6.5	*93.9*	------
242760	13.7	------	*56.2*	10.7	9.5	10.6	68	55	3.8	3.8	4.05	4.05	*93.8*	*93.8*	5.4	2.25	*41.7*	5.7	6.4	*89.1*	3.8
99-8913	15.0	------	*54.0*	11.4	10.1	11.5	70	59	3.9	3.9	4.5	4.4	*86.7*	*88.6*	5	2.1	*43.0*	5.8	6.6	*87.9*	------
242726	13.8	------	*55.8*	10.8	9.3	10.5	67	50	3.7	3.75	4.1	4.0	*90.2*	*93.8*	5.25	2.6	*49.5*	6.0	6.8	*88.2*	------
177992	14.4	------	------	------	9.4	10.4	------	------	3.8	3.9	4.2	4.1	*90.5*	*95.1*	5.5	2.6	*47.3*	------	------	------	------
242702	13.6	------	*57.4*	10.8	9.6	11.0	70	52	3.65	3.8	3.85	3.85	*94.8*	*98.7*	5.7	2.2	*38.6*	5.6	6.1	*91.8*	------
242758	13.7	------	*53.3*	10.0	9.0	10.4	72	59	3.55	3.55	3.9	3.8	*91.0*	*93.4*	5.0	2.15	*43.0*	5.2	6.4	*81.3*	4.1
242761	15.0	------	*54.7*	11.3	9.8	11.1	67	52	3.7	3.6	4.05	4.0	*91.4*	*90.0*	5.55	2.4	*43.2*	6.1	6.9	*88.4*	------
228268	14.9	*82.6*	*50.3*	10.8	9.4	10.4	66	53	3.55	3.55	4.1	4.1	*86.6*	*86.6*	4.9	2.4	*49.0*	5.5	6.0	*91.7*	------
242736	13.2	------	*54.6*	10.6	9.6	10.6	70	58	3.75	3.75	4.1	3.9	*91.5*	*96.2*	5.1	1.9	*37.3*	5.4	6.1	*88.5*	------
242720	13.2	------	*59.1*	10.7	9.1	10.6	68	50	------	3.85	------	4.0	------	*96.2*	5.2	2.6	*50.0*	5.8	6.1	*95.1*	------
242747	13.2	------	*57.6*	10.4	9.0	10.2	67	52	3.7	3.6	3.85	3.75	*96.1*	*96.0*	5.1	2.05	*40.2*	5.8	6.3	*92.1*	------
242710	14.1	------	*51.1*	10.3	9.2	10.4	71	57	3.5	3.55	3.9	3.9	*89.7*	*91.0*	4.9	2.35	*48.0*	5.5	6.4	*85.9*	------
99-8912	14.1	------	*53.2*	10.4	9.2	10.4	69	54	3.6	3.45	3.95	3.9	*91.1*	*88.5*	5.25	2.3	*43.8*	5.8	6.8	*85.3*	------
242730	14.2	------	*54.9*	9.9	8.6	10.4	71	51	3.7	3.9	4.2	4.0	*88.1*	*97.5*	5.6	2.25	*40.2*	5.5	6.6	*83.3*	------
228264	14.6	*82.9*	*52.1*	11.3	10.0	10.8	67	53	3.4	3.3	4	4.0	*85.0*	*82.5*	5.2	2.15	*41.3*	5.7	7.0	*81.4*	3.8
242833	14.0	------	*57.9*	10	8.8	10.3	69	59	3.95	4.05	4.15	4.0	*95.2*	*101.2*	5.2	2.15	*41.3*	5.7	6.4	*89.1*	------

99-8915	14.1	---	55.3	10.9	9.4	10.2	64	53	3.6	3.7	4.2	4.1	85.7	90.2	4.9	2.4	49.0	5.7	6.8	83.8	---
242715	13.9	---	54.7	10.6	9.6	10.4	67	61	3.5	3.5	3.9	3.9	89.7	89.7	5.05	2.1	41.6	6	7.1	84.5	---
242742	13.1	---	51.9	9.7	8.6	10.0	72	42	3.5	3.6	3.9	3.9	89.7	92.3	5.5	2.2	40.0	5.3	6.1	86.9	3.25
99-8911	14.2	---	56.3	10.5	9.5	11.0	73	60	3.7	3.65	4.05	4.05	91.4	91.0	5.6	2.3	41.1	5.6	6.9	81.2	3.35
99-8910	14.3	---	53.1	10.4	9.5	11.0	74	62	3.65	3.65	3.95	3.85	92.4	94.8	5.35	2.3	43.0	5.2	6.9	75.4	---
242698	13.7	95.6	56.9	10.9	9.6	10.8	68	54	3.7	3.7	3.9	3.9	94.9	94.9	5.35	2.2	41.1	5.9	6.6	89.4	4.1
242733	14.8	84.5	52.0	10.3	9.5	11.2	76.0	66.0	3.55	3.7	3.9	3.9	91.0	94.9	5.2	2.4	46.2	5.4	6.7	80.6	4.15
242743	13.3	---	54.9	10.2	9.0	10.4	71.0	53.0	3.9	4.0	4.0	4.0	97.5	100.0	5.1	1.95	38.2	5.3	6.1	86.9	---
242695	13.8	---	50.7	9.8	8.8	10.3	74.0	57.0	3.7	3.75	4.0	3.9	92.5	96.2	5.0	2.1	42.0	5.2	6.6	78.8	---
242716	14.1	---	56.7	11.1	9.6	10.8	67.0	52.0	3.5	3.6	3.9	3.9	89.7	92.3	5.3	2.65	50.0	6.2	7.0	88.6	---
242744	14.3	---	54.5	10.6	9.1	10.2	65.0	52.0	3.3	3.35	4.1	3.9	80.5	85.9	5.0	2.2	44.0	5.9	6.6	89.4	---
242713	---	---	---	---	---	10.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
228271	14.7	84.4	53.1	10.9	9.8	10.7	68.0	59.0	3.6	3.6	4.15	4.05	86.8	88.9	5.3	2.5	47.2	6.1	7.1	85.9	3.7
177996	13.7	88.3	54.0	10.5	9.5	10.5	69.0	60.0	3.75	---	3.95	---	94.9	---	5.1	2.45	48.0	5.7	6.5	87.7	3.6
242706	---	---	---	---	---	---	---	---	3.75	3.6	4.1	4.1	91.5	87.8	5.35	2.6	48.6	5.9	7.5	78.7	---
242687	13.7	92.0	53.3	10.5	9.2	10.6	71.0	51.0	3.8	3.75	4.2	4.0	90.5	93.8	5.15	2.3	44.7	5.8	6.7	86.6	3.85
99-8916	13.9	---	51.8	10.1	8.8	10.1	69.0	53.0	3.3	3.2	3.7	3.9	89.2	82.1	4.85	2.1	43.3	5.8	6.6	87.9	---
242749	14.6	---	50.7	10.7	9.6	10.7	70.0	58.0	3.85	3.85	4.0	4.0	96.3	96.3	5.1	2.2	43.1	5.3	6.5	81.5	---
242688	14.0	90.0	52.9	10.3	9.0	10.6	72.0	54.0	3.75	3.8	3.9	3.9	96.2	97.4	5.0	2.0	40.0	5.6	6.8	82.4	3.7
214150	13.7	---	---	---	9.0	10.4	---	---	---	3.6	---	4.1	---	87.8	5.1	2.1	41.2	---	---	---	---
226170	14.2	---	52.8	10.2	9.1	10.4	70.0	56.0	3.45	3.4	4.0	4.0	86.3	85.0	5.3	2.2	41.5	5.4	6.4	84.4	---
242709	14.6	---	47.9	10.9	9.6	10.6	69.0	50.0	3.5	3.5	3.9	3.8	89.7	92.1	4.95	2.55	51.5	5.8	7.2	80.6	---
242729	14.6	---	53.4	---	9.1	10.4	---	---	3.7	3.65	4.1	4.0	90.1	91.3	5.65	2.25	39.8	---	---	---	---
225148	14.7	---	56.5	10.6	10.0	11.2	72.0	70.0	4.0	3.85	4.1	4.0	97.6	96.3	5.7	2.15	37.7	5.6	6.4	87.5	---
228263	13.9	79.9	48.9	10.7	9.6	10.7	72.0	51.0	3.4	3.5	4.15	4.0	81.9	87.5	5.1	2.3	45.1	5.5	6.6	83.3	3.1
99-8917	13.9	88.5	54.0	9.3	8.3	10.0	72.0	55.0	3.7	---	3.9	---	94.9	---	5.5	2.3	41.8	5.4	6.7	80.6	3.5
242697	15.1	78.2	48.3	10.0	9.2	10.8	71.0	61.0	3.75	3.85	4.05	4.05	92.6	95.1	5.4	2.2	40.7	5.4	6.7	80.6	3.8
228267	14.1	---	51.8	---	8.7	10.0	---	---	3.8	3.7	4.15	4.15	91.6	89.2	5.0	2.35	47.0	---	---	---	3.9
Specimens	(50)	(13)	(48)	(46)	(50)	(51)	(46)	(46)	(49)	(48)	(49)	(48)	(49)	(48)	(51)	(51)	(51)	(47)	(47)	(47)	(18)
Totals	700.9	---	---	485.1	466.4	540.5	320.1	254.1	179.0	175.95	196.8	190.4	---	---	267.55	115.85	---	265.6	310.7	---	67.05
Averages	14.02	87.2	54.2	10.55	9.33	10.60	69.6	55.2	3.65	3.67	4.02	3.97	91.0	92.4	5.25	2.27	43.3	5.65	6.61	85.5	3.73
Minima	13.1	78.2	47.9	9.3	8.3	10.0	64.0	42.0	3.3	3.3	3.7	3.75	80.5	82.1	4.9	1.9	37.7	5.2	6.0	75.4	3.1
Maxima	15.1	95.6	60.6	11.5	10.1	11.5	76.0	70.0	4.0	4.05	4.5	4.4	98.7	101.2	5.9	2.6	51.5	6.2	7.5	95.1	4.15

[1] Allowance made for wear of teeth, where needed.

GREENLAND: FEMALES

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
177985	U.S.N.M.	Greenland	35		17.9	12.0	12.9	*67.0*	*86.3*		14.27				6.7
242711	do	Northwest	30		19.1	12.8	12.9	*67.0*	*80.9*		14.93	1,420			7.1
99-8914	A.M.N.H.	West Greenland	35		18.7	12.6	13.6	*67.4*	*86.9*		14.97				6.5
242732	U.S.N.M.	Northwest Greenland.	40		18.5	12.6	12.4	*68.1*	*79.7*		14.50	1,275			7.4
242735	do	do	70		18.2	12.6	12.9	*69.2*	*83.8*		14.57	1,200			
242700	do	do	65		18.5	12.8	14.0	*69.2*	*89.5*		15.10	1,370			
225036	do	do	45		17.7	12.3	13.2	*69.5*	*88.0*		14.40	1,260			6.9
242714	do	do	24		18.4	12.8	12.8	*69.6*	*82.1*		14.67	1,360			7.2
232691	do	do	60		17.9	12.5	13.0	*69.8*	*85.5*		14.47	1,180			
225034	do	do	65		18.2	12.7	13.4	*69.8*	*86.7*		14.77	1,210			6.6
177993	do	Greenland (probably northwest).	50		18.6	13.0	13.0	*69.9*	*82.3*		14.87	1,330			
228172	do	Greenland	40		18.3	12.8	13.1	*70.0*	*84.2*		14.73	1,290			6.6
242699	do	Northwest Greenland.	55		18.0	12.6	13.0	*70.0*	*85.0*		14.53	[1] 1,300			6.8
242719	do	do	35		18.4	12.9	13.4	*70.1*	*85.6*		14.90	1,320			7.2
242717	do	do	45		17.7	12.4	12.6	*70.1*	*83.7*		14.23	1,185			6.7
242757	do	do	35		18.2	12.8	13.3	*70.3*	*85.8*		14.77	1,415			6.1
242740	do	do	70		18.3	12.9	13.0	*70.5*	*83.3*		14.73	1,290			
242693	do	do	40		17.8	12.6	13.2	*70.8*	*86.8*		14.53	1,310			7.0
242704	do	do	50		17.9	12.7	12.9	*71.0*	*84.3*		14.50	1,170		11.8	7.2
242741	do	do	55		17.9	12.7	12.9	*71.0*	*84.3*		14.50	1,175			7.2
228266	do	Greenland	55		18.0	12.8	13.1	*71.1*	*85.1*		14.63	1,370			
242725	do	Northwest Greenland.	40		17.9	12.8	12.9	*71.5*	*84.0*		14.53	1,250		11.6	7.0
242739	do	do	35		17.6	12.6	13.4	*71.6*	*88.7*		14.53	1,365			7.5
225147	do	do	40		16.9	12.1	13.2	*71.6*	*91.0*		14.07	1,170		10.8	6.8
242745	do	do	50		18.0	12.9	13.2	*71.7*	*85.4*		14.70	1,375			7.4
242737	do	do	35		17.8	12.8	12.6	*71.9*	*82.4*		14.40	1,285			6.7
242689	do	do	35		17.8	12.8	12.4	*71.9*	*81.1*		14.33	1,265			7.3
242722	do	do	35		18.3	13.2	13.4	*72.1*	*85.1*		14.97				
242759	do	do	40		18.3	13.2	13.0	*72.1*	*82.5*		14.83	1,390			7.6
242724	do	Greenland	35		18.0	13.0	13.0	*72.2*	*83.9*		14.67	1,270			6.7
242694	do	Northwest Greenland.	35		18.0	13.0	13.6	*72.2*	*87.7*		14.87	1,350			6.5

177986	do	Greenland (probably northwest).	35	17.8	13.0	12.4	*73.0*	*80.5*		14.40				6.9
242746	do	Northwest Greenland.	55	17.6	12.9	12.6	*73.3*	*82.6*		14.37	1,225			7.1
242690	do	do	60	17.7	13.0	12.4	*73.5*	*80.8*		14.37	1,220			7.5
225037	do	do	65	18.2	13.4	12.6	*73.6*	*79.8*		14.73	1,310			7.4
242738	do	do	30	17.5	12.9	13.2	*73.7*	*86.8*		14.53	1,350			6.7
242708	do	do	50	18.0	13.3	13.1	*73.9*	*83.7*		14.80	1,365			7.4
172990	do	Greenland (probably northwest).	25	18.0	13.3	13.4	*73.9*	*85.6*		14.90				7.1
177991	do	do	45	17.9	13.3	13.4	*74.3*	*85.9*		14.87				6.7
228270	do	Greenland	45	17.5	13.0	13.0	*74.3*	*85.2*		14.50	1,165			6.8
177994	do	Greenland (probably northwest).	25	17.1	12.8	13.1	*74.9*	*87.6*		14.33				6.9
228265 (prob. ♀)	do	Greenland	30	18.2	13.8	13.4	*75.8*	*83.8*		15.13	1,445			7.3
242718	do	Northwest Greenland.	60	17.8	13.6	12.8	*76.4*	*81.5*		14.73	1,325			7.6
242712	do	do	25	17.2	13.2	13.0	*76.7*	*85.5*		14.47	1,240			7.1
213619	do	Elsmere Island	55	17.6	13.5	13.4	*76.7*	*86.2*		14.83				6.9
242748 (sm. ♂ like)	do	Northwest Greenland.	50	17.5	13.5	14.0	*77.1*	*90.3*		15.00	1,345			7.6
213620	do	Elsmere Island	45	17.8	13.9	13.8	*78.1*	*87.1*		15.17	1,375		11.3	7.3
Specimens			(47)	(47)	(47)	(47)	(47)	(47)		(47)	(38)		(4)	(40)
Totals			2,079	841.2	606.7	614.9				688.60	49,210		45.5	281.0
Averages			44.2	17.96	12.91	13.08	*71.9*	*84.8*		14.66	1,295		11.38	7.03
Minima			24	16.5	12.0	12.4	*67.0*	*79.7*		14.07	1,165		10.8	6.1
Maxima			70	19.1	13.9	14.0	*78.1*	*91.0*		15.1	1,145		11.8	7.6

[1] Allowance made for wear of teeth, where needed.

GREENLAND: FEMALES—Continued

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a \times 100}{c}\right)$	*Facial Index, upper* $\left(\frac{b \times 100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
177985	12.5		*53.6*	9.4	8.5	10.0	75	60	3.5	3.5	3.75	3.7	*93.3*	*94.6*	4.7	2.1	*44.5*	4.9	5.9	*83.1*	
242711	13.2		*53.8*	10.3	9.2	10.2	69	55	4.0	3.9	4.05	4.0	*98.8*	*97.5*	5.05	2.3	*45.5*	5.0	6.0	*83.3*	
99-8914	12.6		*51.6*	9.5	8.4	9.7	74	50	3.65	3.65	3.9	3.9	*93.6*	*93.6*	4.85	2.45	*50.5*	5.1	6.5	*78.5*	
242732	12.5		*59.2*	10.8	9.4	10.5	68	51	3.3	3.3	3.9	3.8	*84.6*	*86.8*	5.0	2.4	*48.0*	5.9	6.5	*90.8*	
242735	12.2				8.6	10.0			3.3	3.25	3.6	3.45	*91.7*	*94.2*	5.0	2.25	*45.0*				
242700	13.5				9.3	10.4			3.7	3.7	4.15	4.15	*89.2*	*89.2*	5.4	1.9	*35.2*				
225036	12.7		*54.3*	10.0	9.0	10.3	73	55	3.25	3.3	3.6	3.6	*90.3*	*91.7*	5.05	2.45	*48.5*	5.1	6.5	*78.5*	
242714	13.1		*55.0*	10.6	9.4	10.8	72	54	3.6	3.6	3.9	3.95	*92.3*	*91.1*	5.0	2.0	*40.0*	5.7	6.2	*91.9*	
242691	13.2				9.3	10.0			3.5	3.5	3.9	3.8	*89.7*	*92.1*	5.1	2.4	*47.1*				
225034	12.9		*51.2*	10.5	9.1	10.4	71	46	3.15	3.1	3.95	3.95	*79.7*	*78.5*	4.7	2.25	*47.9*	5.3	5.9	*89.8*	
177993						10.3															
228172	13.1		*50.4*	10.3	9.4	10.7	75	59	3.45	3.6	4.0	3.9	*86.2*	*92.3*	4.65	2.1	*45.2*	5.5	5.8	*94.8*	3.7
242699	13.3		*51.1*	9.4	8.3	9.8	73	48	3.75	3.8	3.9	3.8	*96.2*	*100.0*	5.2	2.2	*42.3*	5.1	6.1	*83.6*	
242719	12.9		*55.8*	10.5	9.3	10.7	72	53	3.4	3.4	3.9	3.95	*87.2*	*86.1*	5.1	2.45	*48.0*	5.4	5.8	*93.1*	
242717	12.3		*54.5*	10.2	9.0	9.9	68	52	3.7	3.7	4.15	4.1	*89.2*	*90.2*	4.6	2.2	*47.8*	5.3	6.6	*80.3*	
242757	12.7		*48.0*	9.7	8.8	9.7	72	51	3.5	3.5	3.7	3.85	*94.6*	*90.9*	4.7	2.0	*42.6*	5.2	6.0	*86.7*	2.8
242740	13.0				9.2	10.5			3.85	3.8	4.0	4.0	*96.2*	*95.0*	5.15	2.4	*46.6*				
242693	12.2		*57.4*	10.4	9.0	10.3	70	48	3.5	3.5	3.6	3.6	*97.2*	*97.2*	4.95	2.35	*47.5*	5.5	6.1	*90.2*	
242704	13.2	*89.4*	*54.6*	10.5	9.1	10.4	69	51	3.55	3.6	3.9	3.8	*91.0*	*94.7*	4.9	2.4	*49.0*	5.7	6.1	*93.4*	3.9
242741	13.0		*55.4*	10.2	9.0	10.0	68	52	3.55	3.4	3.6	3.6	*98.6*	*94.4*	5.1	2.2	*43.1*	5.3	6.2	*85.5*	
228266	13.0				8.4	10.0			3.95	3.9	4.05	3.9	*97.5*	*100.0*	4.9	2.0	*40.8*				2.65
242725	12.8	*90.6*	*54.7*	9.7	8.4	10.0	72	51	3.3	3.4	3.9	3.8	*84.6*	*89.5*	4.9	2.1	*42.9*	5.3	6.3	*84.1*	3.45
242739	12.6		*59.5*	9.4	8.3	9.8	70	55	3.6	3.7	3.8	3.8	*94.7*	*97.4*	5.35	1.95	*36.4*	5.0	5.9	*84.8*	
225147	13.6	*79.4*	*50.0*	10.3	9.3	10.3	71	57	3.25	3.3	3.7	3.7	*87.8*	*89.2*	4.8	1.9	*39.6*	5.4	6.0	*90.0*	3.5
242745	12.8		*57.8*	10.0	8.8	10.0	69	51	3.85	3.85	3.89	3.85	*98.7*	*100.0*	5.4	2.1	*38.9*	5.1	6.5	*80.0*	
242737	13.2		*50.8*	9.4	8.4	9.8	73	54	3.55	3.5	3.8	3.8	*93.4*	*92.1*	4.95	2.1	*43.4*	5.0	5.9	*84.8*	
242689	13.2		*55.3*	10.2	8.8	9.5	63	51	3.55	3.65	3.95	3.85	*89.9*	*94.8*	4.75	2.2	*46.3*	5.5	6.0	*91.7*	
242722						10.2															
242759	12.5		*60.8*	10.0	8.6	9.8	66	52	3.5	3.6	3.7	3.5	*94.6*	*102.9*	5.1	2.25	*44.1*	5.5	6.0	*91.7*	

242724	13.3		50.4	10.2	9.0	9.8	67	50	3.2	3.1	3.7	3.7	86.5	83.8	4.7	2.1	44.7	5.5	6.3	87.3	
242694	12.8		50.8	9.5	8.8	10.1	76	65	3.5	3.5	3.85	3.9	90.9	89.7	4.45	2.1	47.2	5.0	5.9	84.8	3.5
177986	13.5		51.1	10.5	9.3	10.0	66	53	3.75		3.8		98.7		4.8	2.2	45.8	5.4	6.5	83.1	
242746	13.0		54.6	10.4	9.0	9.7	64	46	3.4	3.4	3.9	3.8	87.2	89.5	5.0	2.0	40.0	5.6	6.5	86.2	
242690	13.0		57.7	10.7	9.0	10.4	67	46	3.55		4.0		88.8		4.95	2.3	46.5	5.6	6.4	87.5	
225037	12.9		57.4	10.2	8.8	10.0	67	49	3.35	3.45	3.9	3.8	85.9	90.8	5.2	2.3	44.2	5.5	6.4	85.9	3.6
242738	12.7		52.8	10.1	8.8	9.6	66	43	3.45	3.5	3.75	3.7	92.0	94.6	5.0	2.3	46.0	5.4	6.3	85.7	
242708	13.4		55.2	10.4	9.2	10.3	68	56		3.6		3.9		92.3	4.9	2.2	44.9	5.5	6.6	83.3	
177990	14.3		49.7	11.0	9.6	10.5	67	59	3.5		3.9		89.7		4.9	1.95	39.8	5.5	5.9	93.2	
177991	14.0		47.9	9.7	8.8	10.0	72	55		3.15		3.7		85.1	5.0	2.2	44.0	5.2	6.3	82.5	
228270	12.5		54.4	9.7	8.8	10.0	72	58	3.45	3.55	3.75	3.7	92.0	95.9	4.9	1.9	38.8	4.9	5.6	87.5	
177994	12.8		53.9	10.3	9.2	10.2	70	50	3.45	3.6	4.0	4.0	86.2	90.0	5.15	2.2	42.7	5.4	6.2	87.1	3.6
228265 (prob. ♂)	13.4		54.5	9.7	8.6	9.8	69	56	3.7	3.6	3.9	3.9	94.9	92.3	5.1	2.1	41.2	5.4	6.2	87.1	
242718	12.8		59.4	10.6	9.1	10.1	65	50	3.4	3.5	3.8	3.75	89.5	93.3	5.1	2.05	40.2	5.7	6.2	91.9	3.4
242712	12.6		56.4	9.4	8.4	9.6	70	58	3.5		3.65		95.9		4.95	2.1	42.4	5.1	6.0	85.0	
213619	12.9		53.5	9.3	8.4	10.0	75	59	3.5	3.5	3.95	4.05	88.6	86.4	4.95	2.5	50.5	5.0	5.5	90.9	
242748 (sm.♂ like)	14.0		54.3	10.2	9.2	10.5	70	61	3.7	3.8	4.0	3.8	92.5	100.0	5.0	2.2	44.0	5.3	6.8	77.9	
213620	13.9	81.3	52.5	10.2	9.2	10.6	73	58	3.5	3.4	4.1	4.0	85.4	85.0	5.15	2.4	46.6	5.3	6.5	81.5	3.3
Specimens	(45)	(4)	(40)	(40)	(45)	(47)	(40)	(40)	(43)	(41)	(43)	(41)	(43)	(41)	(45)	(45)	(45)	(40)	(40)	(40)	(11)
Totals	585.6			403.4	401.5	475.4	2,797	2,119	151.65	144.65	166.2	156.8			223.55	98.55		213.2	246.6		37.4
Averages	13.0	85.0	54.0	10.09	8.92	10.11	69.9	53	3.53	3.53	3.87	3.83	91.3	92.3	4.97	2.18	43.9	5.33	6.17	86.5	3.4
Minima	12.2	79.4	47.9	9.3	8.3	9.5	63	43	3.2	3.1	3.6	3.45	79.7	78.5	4.45	1.9	35.2	4.9	5.5	77.9	2.65
Maxima	14.3	90.6	60.8	11.0	9.6	10.8	76	65	4.0	3.9	4.15	4.15	98.8	102.9	5.4	2.5	50.5	5.9	6.8	94.8	3.9

GENERAL ABSTRACT OF ESKIMO CRANIA

(In Geographical Sequence)

MALES

Group	Alaskan Peninsula [1]	Great Western Rivers, with Intermediate Coasts and Islands	Northeastern Bering Sea	Seward Peninsula	St. Lawrence Punuk Islands	Diomede Islands and Northeastern Asia	Point Hope	Old Igloo-Heaps near Barrow	Barrow region	Point Barrow and Nixerak	Northern and Northeastern Eskimo	Greenland
Approximate mean age	(19) 46.8	(124) 49.1	(76) 46.7	(81) 49.8	(231) 47.7	(18) 48.1	(32) 54.9	(52) 52.6	(19) 52.9	(76) 53.3	(36) 47.4	(52) 47.6
Vault:												
Length	(18) 17.99	(135) 18.23	(76) 18.76	(110) 18.68	(230) 18.39	(23) 18.54	(163) 18.41	(52) 19.11	(35) 18.96	(75) 18.72	(43) 18.91	(52) 20.2
Breadth	(18) 14.53	(135) 14.11	(76) 14.11	(110) 13.76	(229) 14.14	(23) 14.25	(163) 13.90	(52) 13.42	(34) 13.78	(75) 13.89	(43) 14.02	(52) 14.6
Height	(18) 13.39	(135) 13.60	(76) 13.73	(108) 13.86	(206) 13.73	(22) 13.72	(160) 13.94	(51) 14.21	(26) 13.77	(73) 13.73	(43) 13.91	(52) 14.8
Cranial index	(18) *80.8*	(135) *77.4*	(76) *75.2*	(110) *73.6*	(229) *76.9*	(23) *76.9*	(163) *75.6*	(52) *70.3*	(34) *72.6*	(75) *74.2*	(43) *74.1*	(52) *71.6*
Mean height index	(18) *82.4*	(135) *84.1*	(76) *83.5*	(108) *85.5*	(206) *84.4*	(22) *83.7*	(160) *86.3*	(51) *85.8*	(26) *83.7*	(73) *84.3*	(43) *84.5*	(52) *85.4*
Module (mean diameter)	(19) 15.33	(135) 15.31	(76) 15.53	(108) 15.43	(206) 15.42	(22) 15.51	(160) 15.42	(51) 15.50	(26) 15.45	(73) 15.44	(43) 15.61	(52) 15.52
Capacity		(35) 1,505	(63) 1,508	(41) 1,489	(155) 1,465	(5) 1,470	(126) 1,475				(17) 1,555	(45) 1,527
Face:												
Total height	(18) 12.76	(87) 12.74	(38) 12.98	(44) 12.88	(41) 12.68	(3) (13.07)	(27) 12.80	(21) 12.60			(24) 12.38	(13) 12.36
Upper height	(18) 7.60	(103) 7.75	(70) 7.90	(89) 7.79	(205) 7.84	(19) 7.83	(142) 7.56	(44) 7.78	(13) 7.75	(53) 7.82	(39) 7.67	(49) 7.60
Maximum breadth	(18) 14.21	(129) 14.08	(74) 14.28	(102) 14.15	(211) 14.15	(23) 14.16	(156) 14.33	(48) 14.18	(18) 14.29	(69) 14.21	(43) 14.35	(50) 14.02
Facial index: Total	(18) *89.8*	(86) *90.7*	(38) *90.9*	(44) *90.9*	(41) *89.3*	(3) *(93.1)*	(27) *89.4*	(21) *88.5*			(24) *85.9*	(13) *87.2*
Facial index: Upper	(18) *53.5*	(103) *55.2*	(70) *55.3*	(88) *55.2*	(198) *55.5*	(19) *55.8*	(138) *52.7*	(43) *54.9*	(12) *54.3*	(52) *55.0*	(39) *53.5*	(48) *54.2*
Base, etc.:												
Endobasion-prealveolar point	(18) 10.10	(99) 10.26	(66) 10.58	(83) 10.54	(184) 10.47	(16) 10.43	(128) 10.35	(40) 10.49	(12) 10.51	(52) 10.43	(38) 10.49	(46) 10.55
Endobasion-subnasal point	(19) 8.95	(128) 9.10	(73) 9.42	(102) 9.39	(202) 9.29	(21) 9.30	(155) 9.28	(51) 9.37	(17) 9.38	(66) 9.58	(43) 9.33	(50) 9.33
Endobasion-nasion	(19) 10.28	(134) 10.38	(74) 10.82	(105) 10.62	(205) 10.39	(21) 10.49	(160) 10.52	(51) 10.68	(26) 10.62	(73) 10.57	(43) 10.64	(51) 10.60
Facial angle	(18) 69.8	(99) 68.8	(65) 68	(81) 68.6	(184) 67.6	(16) 67.2	(128) 69.9	(39) 70	(12) 70.3	(52) 69	(38) 69.9	(46) 69.6
Alveolar angle	(18) 55.7	(99) 55.6	(65) 57.5	(81) 54.9	(184) 57.7	(16) 55.7	(128) 56.0	(39) 56.2	(12) 58.9	(52) 55.7	(38) 55.8	(46) 55.2

Orbits:												
Mean height	(19) 3.60	(123) 3.60	(70) 3.65	(100) 3.65	(211) 3.67	(23) 3.67	(149) 3.62	(47) 3.59	(19) 3.55	(65) 3.62	(42) 3.61	(49) 3.66
Mean breadth	(19) 3.99	(123) 4.0	(70) 4.05	(100) 4.06	(211) 4.02	(23) 4.05	(149) 4.04	(47) 3.98	(19) 4.07	(65) 4.03	(42) 4.04	(49) 4.0
Mean index	(19) *90.5*	(123) *90.0*	(70) *90.1*	(100) *90.0*	(211) *91.3*	(23) *90.6*	(149) *89.7*	(47) *90.2*	(19) *87.1*	(65) *89.9*	(40) *89.1*	(49) *91.7*
Nose:												
Height	(19) 5.34	(130) 5.42	(73) 5.40	(103) 5.41	(220) 5.44	(23) 5.49	(158) 5.38	(52) 5.46	(18) 5.47	(68) 5.48	(43) 5.40	(51) 5.25
Breadth	(19) 2.39	(130) 2.41	(73) 2.34	(103) 2.36	(220) 2.46	(23) 2.49	(158) 2.40	(52) 2.37	(18) 2.44	(68) 2.34	(43) 2.30	(51) 2.27
Nasal-index	(19) *44.7*	(130) *44.6*	(73) *43.3*	(103) *43.6*	(220) *45.3*	(23) *45.4*	(158) *44.7*	(52) *43.4*	(18) *44.6*	(68) *42.8*	(43) *42.7*	(51) *43.3*
Upper Alveolar Arch:												
Length	(18) 5.41	(103) 5.49	(69) 5.64	(83) 5.75	(173) 5.61	(17) 5.57	(124) 5.53	(39) 5.58	(9) 5.63	(44) 5.62	(37) 5.69	(47) 5.65
Breadth	(18) 6.76	(103) 6.61	(69) 6.75	(83) 6.82	(173) 6.75	(17) 6.61	(124) 6.53	(39) 6.63	(9) 6.54	(44) 6.46	(37) 6.79	(47) 6.61
Index	(18) *80.0*	(103) *83.0*	(69) *83.5*	(83) *84.3*	(173) *83.1*	(17) *84.3*	(124) *84.7*	(39) *84.3*	(9) *86.1*	(44) *86.9*	(37) *83.9*	(47) *85.5*
Lower jaw:												
Height at symphysis	(19) 3.60	(113) 3.71	(46) 3.95	(59) 3.86	(49) 3.63	(4) 3.84	(33) 3.77	(26) 3.74			(24) 3.68	(18) 3.73

FEMALES

Approximate mean age	(20) 47.1	(146) 48.3	(113) 43.1	(109) 45.0	(249) 41.1	(19) 44.2	(26) 42.5	(44) 44.1	(28) 42.9	(80) 45.6	(39) 42.8	(47) 44.2
Vault:												
Length	(20) 17.08	(162) 17.40	(113) 17.79	(140) 17.87	(249) 17.63	(24) 17.71	(118) 17.66	(44) 18.02	(50) 17.88	(80) 17.91	(41) 18.09	(47) 17.96
Breadth	(20) 14.06	(162) 13.65	(113) 13.63	(140) 13.26	(249) 13.66	(24) 13.71	(118) 13.43	(44) 12.73	(50) 13.23	(80) 13.37	(41) 13.40	(47) 12.91
Height	(20) 13.03	(161) 12.92	(111) 13.06	(137) 13.15	(216) 13.21	(24) 13.30	(115) 13.24	(43) 13.28	(40) 12.98	(76) 13.09	(41) 13.12	(47) 13.08
Cranial index	(20) *82.3*	(162) *78.5*	(113) *76.6*	(140) *74.2*	(249) *77.4*	(24) *77.4*	(118) *76.1*	(44) *70.6*	(50) *74.0*	(80) *74.6*	(41) *74.1*	(47) *71.9*
Mean height index	(20) *83.7*	(161) *83.3*	(111) *83.2*	(137) *84.5*	(216) *84.5*	(24) *84.7*	(115) *85.2*	(43) *86.3*	(40) *83.6*	(76) *83.7*	(41) *83.4*	(47) *84.8*
Module (mean diameter)	(20) 14.72	(161) 14.66	(111) 14.83	(137) 14.76	(216) 14.83	(24) 14.90	(115) 14.77	(43) 14.68	(40) 14.67	(76) 14.79	(41) 14.50	(47) 14.66
Capacity		(35) 1,358	(86) 1,346	(46) 1,337	(134) 1,334	(7) 1,333	(84) 1,316					(38) 1,295
Face:												
Total height	(18) 11.73	(107) 11.76	(49) 11.69	(45) 11.89	(56) 11.59	(3) (11.97)	(22) 12.05	(19) 11.34	(2) (12.0)		(9) 11.64	(4) 11.38
Upper height	(18) 6.96	(119) 7.21	(81) 7.25	(113) 7.27	(204) 7.27	(21) 7.40	(99) 7.09	(35) 7.13	(21) 7.10	(55) 7.22	(31) 7.16	(40) 7.03
Maximum breadth	(18) 13.20	(145) 13.12	(99) 13.25	(127) 13.19	(214) 13.27	(23) 13.23	(109) 13.34	(41) 13.14	(25) 13.12	(68) 13.07	(33) 13.16	(45) 13.0
Facial index, total	(17) *88.7*	(106) *91.3*	(46) *88.4*	(45) *90.2*	(55) *87.8*	(3) *(91.0)*	(22) *90.2*	(19) *87.5*			(9) *87.5*	(4) *85.0*
Facial index: upper	(17) *52.8*	(116) *55.0*	(80) *54.5*	(110) *55.1*	(200) *54.8*	(20) *55.5*	(98) *53.3*	(34) *54.7*	(18) *54.7*	(54) *55.3*	(29) *54.6*	(40) *54.0*

GENERAL ABSTRACT OF ESKIMO CRANIA—Continued

(In Geographical Sequence)

MALES

Group	Alaskan Peninsula [1]	Great Western Rivers, with Intermediate Coasts and Islands	North eastern Bering Sea	Seward Peninsula	St. Lawrence Punuk Islands	Diomede Islands and Northeastern Asia	Point Hope	Old Igloo-Heaps near Barrow	Barrow region	Point Barrow and Nixerak	Northern and Northeastern Eskimo	Greenland
Base, etc.:												
Endobasion prealveolar point	(17)	(117)	(73)	(105)	(185)	(20)	(95)	(31)	(20)	(50)	(29)	(40)
	9.63	9.91	10.09	10.17	10.03	10.07	9.80	10.11	9.70	9.78	9.96	10.09
Endobasion subnasal point	(18)	(146)	(98)	(126)	(199)	(22)	(108)	(39)	(26)	(63)	(36)	(45)
	8.61	8.73	8.89	8.99	8.91	8.91	8.76	9.07	8.72	8.74	8.83	8.92
Endobasion nasion	(20)	(162)	(109)	(136)	(213)	(24)	(115)	(43)	(38)	(76)	(41)	(47)
	9.83	9.86	9.95	10.08	9.95	9.94	9.96	10.15	10.0	9.98	10.0	10.11
Facial angle	(17)	(115)	(71)	(104)	(184)	(20)	(95)	(31)	(18)	(50)	(27)	(40)
	71.1	68.0	67.5	68.2	68.0	67.4	69.8	69.9	71.5	69.4	69.2	69.9
Alveolar angle	(17)	(115)	(71)	(104)	(184)	(20)	(95)	(31)	(18)	(50)	(27)	(40)
	55.1	52.8	54.2	54.2	54.5	55.3	55.3	55.2	56.4	55.6	53.0	53.0
Orbits:												
Mean height	(18)	(139)	(96)	(126)	(204)	(23)	(106)	(33)	(20)	(57)	(35)	(43)
	3.47	3.54	3.53	3.56	3.58	3.55	3.54	3.57	3.57	3.54	3.53	3.53
Mean breadth	(18)	(139)	(96)	(126)	(204)	(23)	(106)	(33)	(20)	(57)	(35)	(43)
	3.86	3.86	3.88	3.93	3.90	3.92	3.91	3.87	3.91	3.92	3.86	3.85
Mean index	(18)	(139)	(96)	(126)	(204)	(23)	(106)	(33)	(20)	(57)	(35)	(43)
	90.0	*91.6*	*91.0*	*90.7*	*91.7*	*90.8*	*90.5*	*92.1*	*91.3*	*90.6*	*91.4*	*91.8*
Nose:												
Height	(19)	(148)	(100)	(127)	(214)	(23)	(111)	(39)	(26)	(64)	(35)	(45)
	4.91	5.04	5.01	5.05	5.14	5.15	5.05	5.08	5.13	5.12	5.05	4.97
Breadth	(19)	(148)	(100)	(127)	(214)	(23)	(111)	(39)	(26)	(64)	(35)	(45)
	2.38	2.37	2.30	2.27	2.39	2.43	2.28	2.29	2.30	2.29	2.25	2.18
Nasal index	(19)	(148)	(100)	(127)	(214)	(23)	(111)	(39)	(26)	(64)	(35)	(45)
	48.4	*47.0*	*45.9*	*45.0*	*46.6*	*47.1*	*45.2*	*45.2*	*44.7*	*44.7*	*44.6*	*43.9*
Upper alveolar arch:												
Length	(17)	(113)	(77)	(98)	(182)	(18)	(93)	(33)	(17)	(46)	(30)	(40)
	5.19	5.19	5.37	5.48	5.33	5.43	5.27	5.35	5.12	5.22	5.30	5.33
Breadth	(17)	(113)	(77)	(98)	(182)	(18)	(93)	(33)	(16)	(46)	(30)	(40)
	6.14	6.25	6.29	6.43	6.44	6.48	6.22	6.24	6.41	6.03	6.19	6.17
Index	(17)	(113)	(77)	(98)	(182)	(18)	(93)	(33)	(16)	(46)	(30)	(40)
	84.6	*84.7*	*85.4*	*85.2*	*82.8*	*83.9*	*84.7*	*85.7*	*84.9*	*86.5*	*85.5*	*86.5*
Lower jaw:												
Height at symphysis	(19)	(129)	(54)	(56)	(60)	---------	(25)	(21)	(8)	---------	(11)	(11)
	3.32	3.43	3.47	3.53	3.19	---------	3.51	3.41	3.18	---------	3.37	3.40

[1] Mixed group (Eskimo-Koniag-Aleut).

ESKIMO JUVENILES: BRISTOL BAY REGION

(Both Sexes)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. anteroposterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(A. H.)														
363601	U.S.N.M.	Egegik	8-9 months		14.4	12.7	9.4	*88.19*	*69.37*		12.17				4.4
363566	do	Kwichak River	1-2 years		16.4	13.0	11.2	*79.27*	*76.19*		13.53			8.4	5.0
363602	do	Egegik	do											8.1	5.0
363543	do	Kálewak (Nushagak River).	2 years		16.0	13.8	11.9	*86.25*	*79.87*		13.90			8.3	5.1
363537	do	Woods Lake	2-3 years		15.0	13.6		*90.67*							5.4
363536	do	do	3-4 years		15.4	14.4		*90.91*						9.1	5.4
363515	do	Hurley (Nushagak River).	6 years		16.8	13.8	12.0	*82.14*	*78.43*		14.20			10.0	6.2
363512(♀)	do	do	7 years		16.3	13.0	12.2	*79.75*	*83.28*		13.83			9.6	6.0
363564	do	Kwichak River	do											9.8	5.6
363546	do	Hurley	8 years		16.5	13.6	12.6	*82.42*	*83.72*		14.23			10.0	5.9
363569	do	Páwik (Peninsula).[2]	10 years		15.7	13.7	12.9	*87.26*	*87.76*		14.10			9.5	5.9
363572(♂)	do	do	14 years		16.8	14.4	12.6	*85.71*	*80.77*		14.60			10.6	6.3
363563(♀)	do	Kwichak River	do		17.0	13.5	13.8	*79.41*	*90.49*		14.77			10.7	6.5
363565	do	do	15 years		18.0	11.0	13.3	*77.78*	*83.13*		15.10			10.8	6.3
363571(♂)	do	Páwik[2]	17 years			(4)									
363539(♂)	do	Kákvak[1]	17 years		17.6	14.6	14.0	*82.95*	*86.96*		15.40				7.0
363581(♂)	do	Páwik	17 years		17.2	14.0	13.2	*81.40*	*84.62*		14.80			11.9	7.4
ADULTS OF SAME REGION:															
Males (19)					17.99	14.53	13.39	*80.77*	*82.35*		15.33			12.76	7.6
Females (20)					17.08	14.06	13.03	*82.34*	*83.70*		14.72			11.73	6.96

[1] Nushagak River.
[2] Naknek River.
[4] Broad.

ESKIMO JUVENILES: BRISTOL BAY REGION—Continued

(Both Sexes)

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth, maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
363601	9.3	------	*47.31*	6.4	6.1	6.8	75.5	69.0	3.0	2.95	3.2	3.0	*93.75*	*98.33*	3.2	1.7	*53.13*	------	------	------	2.0
363566	10.3	*81.55*	*48.54*	7.6	7.2	8.1	77.0	69.0	2.9	3.0	3.2	3.05	*90.63*	*98.36*	3.4	1.95	*57.35*	------	5.3	------	2.35
363602	------	------	------	------	------	------	------	------	3.15	------	3.15	------	*100.0*	------	3.4	1.8	*52.94*	------	5.2	------	2.25
363543	9.7	*85.57*	*52.58*	7.7	7.0	8.0	74.5	59.0	2.95	3.1	3.1	3.1	*95.16*	*100.0*	3.5	1.8	*51.43*	------	5.1	------	2.3
363537	10.6		*50.94*						3.05	2.95	3.2	3.25	*95.31*	*90.76*	3.6	1.95	*54.17*	------	5.5	------	2.1
363536	10.5	*86.67*	*51.43*	------	------	------	------	------	2.85	2.8	3.5	3.4	*81.43*	*82.35*	3.55	2.05	*57.75*	------	5.5	------	2.6
363545	11.3	*88.50*	*54.87*	8.2	7.9	9.1	77.0	73.0	3.3	3.3	3.5	3.5	*94.29*	*94.29*	4.3	2.05	*47.67*	------	5.8	------	2.8
363542(♀)	11.0	*87.27*	*54.55*	8.5	7.8	8.8	72.0	59.0	------	3.15	------	3.5	------	*90.0*	4.4	2.1	*47.73*	------	5.7	------	2.4
363564	------	------	------	------	------	------	------	------	3.35	3.4	3.5	3.6	*95.71*	*94.44*	4.15	2.1	*50.60*	------	------	------	2.4
363546	11.7	*85.47*	*50.43*	9.1	8.4	9.1	71.5	60.5	3.25	3.4	3.6	3.6	*90.28*	*94.44*	4.2	2.1	*50.0*	------	5.9	------	2.8
363569	11.6	*81.90*	*50.86*	------	------	------	------	------	3.4	3.5	3.45	3.4	*98.55*	*102.9*	4.35	2.05	*47.13*	------	5.7	------	2.4
363572(♂)	12.3	*86.18*	*51.22*	9.3	8.4	9.4	71.0	57.0	3.4	3.4	3.7	3.6	*91.89*	*94.44*	4.4	2.15	*48.86*	------	6.2	------	2.9
363563(♀)	12.0	*89.17*	*54.17*	9.0	8.3	9.9	77.5	61.0	3.75	3.75	3.7	3.6	*101.4*	*104.2*	4.8	2.05	*42.71*	------	5.7	------	2.85
363565	11.8	*91.53*	*53.39*	8.6	8.1	9.2	74.5	66.5	3.5	3.45	3.65	3.6	*95.89*	*95.83*	4.6	2.05	*44.57*	------	6.2	------	2.9
363571(♂)	13.3	------	------	------	------	------	------	------	------	------	------	------	------	------	------	2.3	------	5.2	6.1	[3] *85.25*	3.0
363539(♂)	13.4	------	*52.24*	10.1	9.5	10.6	74.5	67.0	3.3	3.35	4.1	4.0	*80.49*	*86.25*	4.85	2.35	*48.45*	------	6.8	------	------
363581(♂)	13.4	*88.81*	*55.22*	10.6	9.8	10.5	69.0	62.5	3.35	3.4	3.7	3.6	*90.54*	*94.44*	5.2	2.1	*40.38*	5.3	6.3	*84.13*	3.35
ADULTS OF SAME REGION:																					
Males	14.21	*89.80*	*53.48*	10.10	8..95	10.28	69.8	55.7	3.58	3.63	4.01	3.96	*89.17*	*91.82*	5.34	2.39	*44.73*	5.41	6.76	*80.02*	3.60
Females	13.20	*88.67*	*52.78*	9.63	8.61	9.83	71.1	55.1	3.46	3.48	3.89	3.83	*89.03*	*90.87*	4.91	2.38	*48.42*	5.19	6.14	*84.58*	3.32

[3] Palate U-shaped, square in front.

ESKIMO JUVENILES: KUSKOKWIM RIVER

(Both Sexes)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
			Year												
351347	U.S.N.M.	Kuskokwim River.	2		16.0	13.4	11.6	*83.75*	*78.91*		13.67				
351241	do	do	3		16.0	12.4	11.0	*77.50*	*77.46*		13.13			8.3	5.0
351286	do	do	3		15.7	13.2	11.3	*84.08*	*78.20*		13.40			8.4	5.0
351229	do	do	4		16.2	12.8	12.2	*79.01*	*84.14*		13.73			9.1	5.6
351323	do	do	4		16.4	14.1	12.4	*85.98*	*81.31*		14.30			9.2	5.7
351325	do	do	4		16.3	12.2		*74.85*						9.0	5.6
351251	do	do	5		15.7	12.7		*80.89*						8.9	5.4
351228	do	do	6		16.5	14.1	12.2	*85.45*	*79.74*		14.27			9.8	5.7
351264 ♂	do	do	10		17.4	14.6	13.1	*83.91*	*81.88*		15.03			10.9	6.8
351257 ♂	do	do	12		17.5	14.9	13.9	*85.14*	*85.80*		15.43			11.0	6.8
351285 ♀	do	do	13		17.4	13.4	12.8	*77.01*	*83.12*		14.53			11.5	7.0
351340 prob. ♂	do	do	15		17.6	13.6	13.6	*77.27*	*87.18*		14.93			10.6	6.2
351198 ♀	do	do	17		17.8	13.4	12.2	*75.28*	*78.21*		14.47			11.5	7.1
351338 ♀	do	do	17		17.2	14.3	13.2	*83.14*	*83.81*		14.90			11.3	6.9
ADULTS OF SAME REGION:															
Lower River (below Bethel):															
Males (30)					18.13	14.20	13.50	*78.34*	*83.51*		15.28			12.82	7.77
Females (21)					17.36	13.77	12.78	*79.34*	*82.27*		14.62			11.79	7.15
Upper River (above Bethel):															
Males (27)					18.44	13.87	13.67	*75.18*	*84.59*		15.33			13.14	7.80
Females (36)					17.41	13.52	12.82	*77.66*	*82.88*		14.58			11.97	7.10

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
351347	9.5	------	------	------	------	8.0	------	------	------	------	------	------	------	------	------	------	------	4.1	4.9	*83.67*	2.25
351241	9.3	*89.25*	*53.76*	7.3	7.0	7.8	76.0	71.0	3.6	------	3.4	------	*105.9*	------	3.55	1.7	*47.89*	3.8	5.0	*76.0*	2.4
351286	9.5	*88.42*	*52.63*	8.0	7.2	7.8	69.0	53.5	2.9	2.85	3.35	3.3	*86.37*	*86.36*	3.5	1.9	*54.29*	4.5	5.2	*86.54*	2.3
351229	10.1	*90.10*	*55.45*	7.8	7.4	8.4	75.5	69.0	3.3	------	3.5	------	*94.29*	------	3.8	1.9	*50.0*	4.5	5.4	*83.33*	2.3
351323	10.9	*84.40*	*52.29*	7.5	7.4	8.4	77.5	80.0	3.3	3.35	3.45	3.35	*95.65*	*100.0*	3.8	2.2	*57.89*	4.4	5.3	*83.02*	2.55
351325	10.0	*90.0*	*56.0*	------	------	------	------	------	3.35	------	3.35	------	*100.0*	------	3.7	1.85	*50.0*	4.0	5.0	*80.0*	2.65
351251	10.2	*87.25*	*52.94*	------	------	------	------	------	2.85	------	3.2	------	*89.06*	------	3.6	1.95	*54.17*	4.2	5.3	*79.25*	2.5
351228	10.5	*93.33*	*54.29*	7.7	7.0	8.4	75.5	56.0	3.3	3.4	3.45	3.4	*95.65*	*100.0*	4.2	2.2	*52.38*	4.2	5.8	*72.41*	2.7
351264 ♂	12.4	*87.90*	*54.84*	8.9	8.0	9.0	68.0	57.5	3.6	3.75	3.85	3.6	*93.51*	*104.2*	4.6	2.0	*43.48*	4.9	6.2	*79.03*	2.9
351257 ♂	12.1	*90.91*	*56.20*	9.6	8.8	10.0	72.5	61.0	3.55	3.65	3.8	3.75	*93.42*	*97.33*	4.6	2.0	*43.48*	4.8	5.8	*82.76*	2.95
351285 ♀	11.9	*96.64*	*58.82*	9.1	8.3	9.4	70.0	60.0	3.3	3.3	3.7	3.6	*89.19*	*91.67*	4.95	2.4	*48.48*	5.0	6.6	*75.76*	3.3
351340 prob. ♂	12.5	*84.80*	*49.60*	8.7	8.2	9.6	78.0	66.5	------	3.4	------	3.6	------	*94.44*	4.55	2.2	*48.35*	4.5	6.0	*75.0*	----
351198 ♀	12.7	*90.55*	*55.91*	10.1	8.9	9.6	65.0	51.5	3.4	3.45	3.75	3.85	*90.67*	*89.61*	4.9	2.2	*44.90*	5.5	6.7	*82.09*	3.25
351338 ♀	12.2	*92.62*	*56.56*	8.2	7.4	9.0	72.0	61.5	3.45	------	3.6	------	*95.83*	------	4.65	2.0	*43.01*	4.4	6.1	*72.13*	3.1
ADULTS OF SAME REGION:																					
Lower River (below Bethel):																					
Males (30)	14.21	*90.79*	*54.70*	10.14	8.93	10.21	67.9	54.6	3.55	3.56	4.03	3.98	*88.11*	*89.59*	5.44	2.40	*44.12*	5.46	6.59	*82.94*	3.74
Females (21)	13.17	*89.52*	*54.53*	9.76	8.58	9.70	67.6	51.9	3.49	3.49	3.97	3.88	*87.92*	*89.92*	5.02	2.43	*48.36*	5.22	6.22	*83.81*	3.30
Upper River (above Bethel):																					
Males (27)	13.91	*94.43*	*56.24*	10.33	9.18	10.48	68.3	56.1	3.52	3.55	4.02	3.95	*87.45*	*89.87*	5.37	2.45	*45.72*	5.55	6.65	*83.46*	3.81
Females (36)	13.14	*91.63*	*54.16*	9.86	8.70	9.82	67.7	51.6	3.50	3.51	4.01	3.86	*87.18*	*90.73*	4.97	2.40	*48.38*	5.28	6.13	*86.13*	3.41

ESKIMO JUVENILES: LOWER YUKON RIVER

(Both Sexes)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
	(*A. H.*)		*Years*												
345712	U.S.N.M.	Kotlik	1		14.8	13.0		*87.84*						8.2	
345386	do	Paimute	1		14.5	12.5		*86.21*						7.8	4.6
345708	do	Pilot Station	2		15.3	13.1		*85.62*						8.4	5.3
345713	do	Kotlik	2		16.8	13.4		*79.76*							5.0
345720	do	do	3		16.5	13.4		*81.21*						9.0	5.5
345345	do	Pilot Station	3		16.5	13.4		*81.21*						8.4	5.1
345726	do	do	4		16.4	13.8	12.0	*84.15*	*79.47*		14.07			9.2	5.8
345706	do	do	4		16.4	13.0		*79.27*							6.1
345319 ♀	do	do	5		16.1	11.9		*73.91*							5.9
345729 ♂	do	Kwiguk Pass	7		16.7	14.2	13.1	*85.03*	*84.79*		14.67			10.1	6.1
345737	do	do	8		16.4	13.2	12.2	*80.49*	*82.43*		13.93			9.6	6.1
345725 (prob. ♂)	do	Pilot Station	12		17.0	14.1	13.1	*82.94*	*84.24*		14.73			10.6	6.4
345711 (*)	do	Kotlik	12		18.0	14.2	13.2	*78.89*	*81.99*		15.13			11.0	6.9
345399 (prob. ♂)	do	New Hamilton	14		17.4	13.7	13.3	*78.74*	*85.53*		14.80			11.6	7.2
345750 (♀)	do	do	15		16.8	13.5	13.1	*80.36*	*86.47*		14.47			10.9	6.5
345748 (prob. ♂)	do	do	16		17.6	13.8	13.6	*78.41*	*86.62*		15.0			11.3	6.9
345728 (♀)	do	do	18		16.7	13.4	12.6	*80.24*	*83.72*		14.23			10.3	6.3
ADULTS OF SAME REGION:															
Males (41)			47		18.27	14.04	13.72	*76.9*	*84.9*		15.34	1,520		12.46	7.72
Females (63)			45		17.51	13.63	13.04	*77.8*	*83.7*		14.73	1,371		11.67	7.32

ESKIMO JVVENILES: LOWER YUKON RIVER—Continued

(Both Sexes)

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
345712	------	------	------	------	------	------	------	------	------	3.15	------	3.2	------	*98.44*	3.5	1.9	*54.29*	------	------	------	2.15
345386	9.0	*86.67*	*51.11*	------	------	------	------	------	3.15	------	3.0	------	*105.0*	------	3.35	1.7	*50.75*	------	------	------	2.15
345708	10.5	*80.0*	*50.48*	------	------	------	------	------	3.3	3.35	3.4	3.4	*97.06*	*98.53*	3.6	3.2	*55.56*	4.0	5.5	*72.73*	2.25
345713	------	------	------	------	------	------	------	------	------	3.2	------	3.3	------	*96.97*	3.4	1.9	*55.88*	4.1	5.0	*82.0*	------
345720	10.2	*88.24*	*53.92*	------	------	------	------	------	------	3.25	------	3.4	------	*95.59*	3.95	1.9	*48.10*	------	------	------	2.5
345345	(8.3)	*(101.2)*	*(61.45)*	------	------	------	------	------	3.15	3.15	3.45	3.45	*91.30*	*91.30*	3.6	1.9	*52.78*	4.0	5.5	*72.73*	2.4
345726	10.8	*85.19*	*53.70*	8.4	7.8	8.7	73.0	64.0	3.3	3.4	3.55	3.4	*92.96*	*100.0*	4.0	2.1	*52.50*	4.4	5.7	*77.19*	2.5
345706	10.3	------	*59.22*	------	------	------	------	------	3.3	3.35	3.65	3.6	*90.41*	*93.06*	4.2	2.05	*48.81*	4.1	5.4	*75.93*	------
345319	10.2	------	*57.84*	------	------	------	------	------	3.35	------	3.15	------	*106.4*	------	4.0	2.1	*52.50*	4.6	5.2	*88.46*	------
345729 (♀)	12.0	*84.17*	*50.83*	7.85	7.4	8.9	78.0	68.5	3.3	3.35	3.85	3.7	*85.71*	*90.54*	4.4	2.1	*47.73*	4.2	6.3	*66.67*	2.6
345737	11.1	*86.49*	*54.95*	------	7.9	9.1	------	------	------	3.4	------	3.5	------	*97.14*	4.2	1.9	*45.24*	------	------	------	2.5
345725 (prob. ♂)	12.8	*82.81*	*50.0*	9.4	8.4	9.6	72.0	51.0	3.6	3.65	3.9	3.85	*92.31*	*94.81*	4.85	2.0	*41.24*	5.2	5.9	*88.14*	2.7
345711 (♂)	12.0	*91.67*	*57.50*	9.6	8.6	9.7	70.0	55.0	3.5	3.5	3.6	3.6	*97.22*	*97.22*	4.9	2.2	*44.90*	5.3	5.8	*91.38*	3.05
345399 (prob. ♂)	11.6	*100.0*	*62.07*	9.3	8.4	9.7	71.0	61.0	3.55	3.55	3.55	3.55	*100.0*	*100.0*	4.85	2.15	*44.33*	5.0	6.2	*80.65*	3.25
345750 (♀)	11.7	*93.16*	*55.50*	9.5	8.7	9.8	73.0	60.0	3.5	3.5	3.7	3.6	*94.59*	*97.22*	4.6	2.1	*45.65*	5.1	6.2	*82.26*	2.95
345748 (prob. ♂)	12.0	*94.17*	*57.56*	9.3	8.2	9.3	68.5	55.0	3.55	------	3.55	------	*100.0*	------	4.7	2.3	*48.94*	5.0	6.2	*80.65*	3.3
345728 (♀)	12.4	*83.06*	*50.81*	9.1	8.2	9.2	71.0	55.0	------	3.7	------	4.0	------	*92.50*	4.6	2.45	*53.26*	4.9	6.1	*80.33*	2.5
Adults of Same Region:																					
Males (41)	14.09	*88.7*	*54.9*	10.30	9.18	10.45	69.7	55.9	3.69	3.66	4.02	3.99	*90.6*	*91.8*	5.42	2.40	*44.2*	5.51	6.65	*82.8*	3.69
Females (63)	13.16	*92.1*	*55.6*	10.11	8.89	10.0	67.9	52.8	3.58	3.59	3.87	3.82	*92.5*	*93.8*	5.12	1.36	*44.1*	5.42	6.38	*85.0*	3.46

ESKIMO JUVENILES: SEAWARD PENINSULAR (BOTH SEXES)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
352411	U.S.N.M.	Rocky Point, Golovin Bay.	3 months		13.4	11.3	9.7	*84.33*	*78.54*		11.47			6.1	4.1
346026	do	Golovin Bay	1 year		15.0	11.6		*77.33*						7.1	4.6
346031	do	do	5 years		16.8	12.9	12.2	*76.79*	*82.15*		13.97			9.6	5.6
346030	do	do	6 years		17.0	12.7	12.6	*74.71*	*84.85*		14.10				6.1
346025	do	Norton Bay	6 years		16.8	12.7	12.5	*75.60*	*84.75*		14.0				5.5
346247	do	Point Clarence	9 years		16.5	12.6	13.1	*76.36*	*90.03*		14.07			10.3	6.2
346167	do	Shishmarev	10 years		17.0	13.3	13.2	*78.24*	*87.13*		14.50				6
352402	do	Rocky Point, Golovin Bay.	10 years		17.6	12.4	12.8	*70.45*	*85.33*		14.27				6.2
352372	do	do	12 years		17.4	12.8	12.4	*73.56*	*82.12*		14.20			9.8	6.0
346236	do	Cape Darby	12 years		17.4	13.5	12.8	*77.59*	*82.85*		14.57			10.8	6.5
346203(♂)	do	Near Teller	14 years		18.0	14.5	13.5	*80.56*	*83.08*		15.33			11.1	6.3
346109(♂)	do	Golovin Bay	15 years		17.9	13.4	13.4	*74.86*	*85.62*		14.90			11.4	6.8
346009	do	Norton Bay	15 years		17.2	13.4	12.6	*77.91*	*82.35*		14.40				6.8
346035	do	Golovin Bay	17 years		17.3	13.6	13.3	*78.61*	*86.08*		14.73			10.9	6.9
346112	do	do	17 years		17.8	13.4	13.5	*75.28*	*86.54*		14.90			11.3	6.8
ADULTS OF SAME REGION:															
Male (110)			49.8		18.68	13.76	13.86	*73.6*	*85.5*		15.43			12.88	7.79
Female (140)			45		17.87	13.26	13.15	*74.2*	*84.5*		14.76			11.89	7.27

ESKIMO JUVENILES: SEAWARD PENINSULAR (BOTH SEXES)—Continued

Catalog No.	Diam. Bizygomatic Maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
352411	8.1	*75.31*	*50.62*	6.0	5.6	6.6	79.5	67.0	2.7	-----	2.85	-----	*94.74*	-----	2.8	1.5	*53.57*	3.2	4.5	*71.11*	1.9
346026	9.0	*78.89*	*51.11*	-----	-----	-----	-----	-----	3.0	3.0	3.0	2.9	*100 0*	*103.5*	3.3	1.7	*51.52*	-----	4.5	-----	1.95
346031	10.3	*93.20*	*54.37*	-----	-----	-----	-----	-----	3.3	3.3	3.3	3.2	*100.0*	*103.1*	4.1	1.8	*43.90*	4.2	5.55	*75.68*	2.6
346030	11.0	-----	*55.45*	-----	-----	-----	-----	-----	3.15	3.15	3.4	3.4	*92.65*	*92.65*	4.4	2.0	*45.45*	4.5	6.3	*71.43*	-----
346025	10.4	-----	*52.88*	8.3	7.8	8.6	74.0	65.0	3.3	3.4	3.3	3.3	*100.0*	*103.0*	3.9	1.8	*46.15*	-----	5.5	-----	-----
346247	-----	-----	-----	-----	-----	9.2	-----	-----	3.2	-----	3.55	-----	*90.14*	-----	4.05	2.05	*45.56*	4.6	5.9	*77.97*	3.0
346167	11.4	-----	*52.63*	8.8	8.0	9.2	74.0	58.5	3.3	3.3	3.5	3.55	*94.29*	*92.96*	4.25	1.9	*44.71*	-----	-----	-----	-----
352402	11.2	-----	*55.36*	9.0	8.4	9.4	74.0	62.5	3.45	3.5	3.5	3.5	*98.57*	*100.0*	4.45	1.9	*42.70*	4.6	5.9	*77.97*	-----
352372	11.7	*83.76*	*51.28*	-----	-----	-----	-----	-----	3.45	3.6	3.9	3.8	*88.46*	*94.74*	4.6	2.25	*48.91*	5.2	6.1	*85.25*	2.8
346236	12.1	*89.26*	*53.72*	9.5	8.5	9.4	69.5	56.0	3.45	3.4	3.7	3.7	*93.24*	*91.89*	4.55	1.9	*41.76*	5.0	6.4	*78.13*	3.05
346203(♂)	12.3	*90.24*	*51.22*	8.5	8.0	9.6	79.0	66.0	3.65	3.65	3.9	3.8	*93.59*	*96.05*	4.8	2.1	*43.75*	4.3	6.1	*70.49*	3.2
346109(♂)	12.0	*95.0*	*56.67*	9.8	8.9	9.8	69.5	58.5	3.4	3.35	3.5	3.5	*97.14*	*95.71*	4.7	2.1	*45.45*	5.4	6.7	*80.60*	3.3
346009	12.6	-----	*53.97*	9.3	8.2	9.8	73.5	55.0	3.75	3.75	3.8	3.8	*98.68*	*98.68*	4.9	2.05	*41.84*	5.0	6.5	*76.92*	-----
346035	11.5	*94.78*	*60.0*	8.8	7.8	8.9	68.0	55.0	3.5	3.55	3.55	3.4	*98.59*	*104.4*	4.9	2.0	*40.82*	4.9	6.2	*79.03*	3.2
346112	12.8	*88.28*	*53.13*	9.8	9.0	10.2	73.0	61.0	3.6	3.55	3.9	3.9	*92.31*	*91.03*	4.9	2.2	*44.90*	5.2	6.2	*83.87*	3.4
ADULTS OF SAME REGION:																					
Male (110)	14.15	*90.9*	*55.2*	10.54	9.39	10.62	68.6	54.9	3.65	3.66	4.10	4.03	*89.2*	*90.8*	5.41	2.36	*43.6*	5.75	6.82	*84.3*	3.86
Female (140)	13.19	*90.2*	*55.1*	10.17	8.99	10.08	68.2	51.2	3.55	3.56	3.95	3.91	*90.1*	*91.2*	5.05	2.27	*45*	5.48	6.43	*85.2*	3.53

ESKIMO JUVENILES: ST. LAWRENCE ISLAND

(Both Sexes)

Catalog No.	Collection	Locality	Approximate age of subject	Deformation	Diam. antero-posterior maxim. (glabella ad maximum)	Diam. lateral maxim.	Basion-Bregma height	*Cranial Index*	*Mean Height Index*	*Height-Breadth Index*	Cranial Module	Capacity, in c. c. (Hrdlička's method)	Teeth, wear	Menton-Nasion Height (a)	Alveol. Pt.-Nasion Height (b)
			Years			(*Brachycephalic*)									
346127	U.S.N.M.	St. Lawrence Island.	3											8.2	5.2
346042	do	do	3		15.6	13.4		*85.90*						9.0	5.5
364809	do	do	5		15.8	13.0		*82.28*							5.5
364803	do	do	8-9		16.5	12.8	12.9	*77.58*	*88.05*		14.07			10.1	6.3
346092	do	do	10		17.4	13.3	12.8	*76.44*	*83.30*		14.50				6.5
364808	do	do	11		17.1	14.2	12.7	*83.04*	*81.15*		14.67				7.0
368278	do	do	12		16.8	13.6		*80.95*							
346089	do	do	12		16.4	13.6	12.6	*82.93*	*84.0*		14.20				6.9
364800♂	do	do	12		17.5	14.0	13.3	*80.0*	*84.44*		14.93			10.8	6.8
364802	do	do	14		17.1	13.8	13.4	*80.70*	*86.73*		14.77			10.6	6.6
346075	do	do	14		17.6	14.7	13.0	*80.68*	*81.76*		14.93			11.8	7.2
364799	do	do	14-15		16.8	13.6	13.7	*80.95*	*90.13*		14.70			11.1	6.5
364786	do	do	15												
364807♂	do	do	15		16.9	13.4	12.9	*79.29*	*85.15*		14.40				
346080♀	do	do	16		17.8	13.4		*75.28*							
364801♀	do	do	16-17		16.9	13.4	12.9	*79.29*	*85.15*		14.40			11.2	6.7
364785♂	do	do	17-18		17.6	14.0	13.2	*79.55*	*83.54*		14.93			12.2	7.5
364784♂	do	do	18-19		18.5	14.8	13.4	*80.0*	*80.48*		15.57			12.8	7.6
346079♀	do	do	19		17.5	13.6	13.4	*77.71*	*86.17*		14.83				7.7
Adults of Same Region:															
Male (231)			47.7		18.39	14.14	13.73	*76.9*	*84.4*		15.42			12.68	7.84
Female (249)			41.1		17.63	13.66	13.21	*77.4*	*84.5*		14.83			11.59	7.27

ESKIMO JUVENILES: ST. LAWRENCE ISLAND—Continued

(Both Sexes)

Catalog No.	Diam. Bizygomatic maxim. (c)	*Facial Index, total* $\left(\frac{a\times100}{c}\right)$	*Facial Index, upper* $\left(\frac{b\times100}{c}\right)$	Basion-Alveolar Pt.	Basion Subnasal Pt.	Basion-Nasion	Facial Angle	Alveolar Angle	Orbits—Height, right	Orbits—Height, left	Orbits—Breadth, right	Orbits—Breadth, left	*Orbital Index, right*	*Orbital Index, left*	Nose—Height	Nose—Breadth maxim.	*Nasal Index*	Upper Alveolar Arch—Length maxim.	Upper Alveolar Arch—Breadth maxim.	*Upper Alveolar Arch—Index*	Lower Jaw—Height at Symphysis
346127	9.9	*82.83*	*52.53*						3.15	3.15	3.30	3.25	*95.45*	*96.92*	3.4	2.0	*58.82*		5.1		2.55
346042	10.6	*84.91*	*51.89*						3.35	3.35	3.30	3.20	*101.5*	*104.7*	3.6	1.8	*50.0*		5.3		2.75
364809									3.1		3.25		*95.38*		3.7	1.8	*48.65*				
364803	11.2	*90.18*	*56.25*	9.4	8.6	9.7	73.5	60.5	3.25		3.5		*92.86*		4.35	2.05	*47.13*		5.7		2.9
346092	12.0		*54.17*	8.6	8.0	9.2	73.0	64.0	3.6	3.5	3.9	3.9	*92.31*	*89.74*	4.7	2.35	*50.0*		5.9		
364808	12.0		*58.33*	10.1	9.1	9.8	67.5	54.0							5.1	2.0	*39.22*		6.1		
368278																					2.85
346089	11.9		*57.98*	9.1	8.5	9.1	67.5	66.5	3.4		3.6		*94.44*		4.7	2.3	*48.94*				
364800♂	12.3	*87.80*	*55.28*	9.4	8.6	9.4	69.0	61.0	3.45	3.4	3.55	3.45	*97.18*	*98.55*	4.7	2.1	*44.68*		6.0		2.95
364802	12.2	*86.89*	*54.10*	9.2	8.5	9.6	73.0	62.5	3.55	3.65	3.6	3.4	*98.61*	*107.4*	4.75	1.85	*38.95*		6.2		2.9
346075	12.4	*95.18*	*58.06*	9.4	8.4	9.6	69.5	58.5	3.5	3.5	3.8	3.8	*92.11*	*92.11*	4.75	2.1	*44.21*	5.1	6.4	*79.69*	3.45
364799	12.4	*89.52*	*52.42*	9.6	8.7	9.9	73.0	54.0	3.4	3.4	3.85	3.7	*88.31*	*91.89*	4.9	2.4	*48.98*	5.1	6.2	*82.26*	2.9
364786															5.3	2.4	*45.28*				2.9
364807♂			*51.94*						3.45		3.85		*89.61*		4.9	2.25	*45.92*		6.3		
346080♀	12.5														4.8	2.25	*46.88*	4.8	6.0	*80.0*	3.3
364801♀	12.2	*91.80*	*54.92*	9.9	8.9	9.6	67.5	55.0	3.7	3.8	3.75	3.7	*98.67*	*102.7*	4.7	2.15	*45.74*	5.3	5.9	*89.83*	3.15
364785♂	13.3	*91.73*	*56.39*	9.9	9.2	10.4	72.5	63.5	3.4	3.35	3.8	3.7	*89.47*	*90.54*	5.5	2.25	*40.91*	5.1	6.5	*78.46*	3.3
364784♂	13.5	*94.81*	*56.30*	10.3	9.4	10.5	70.0	59.0	3.8	3.65	3.65	3.65	*104.1*	*100.0*	5.5	2.4	*43.64*	5.2	6.8	*76.47*	3.4
346079♀	12.9		*59.69*	10.4	9.5	10.4	68.0	60.0	3.55		3.95		*89.87*		5.5	2.3	*41.82*				
ADULTS OF SAME REGION:																					
Male (231)	14.15	*89.3*	*55.5*	10.47	9.29	10.39	67.6	57.7	3.67	3.67	4.05	3.99	*90.6*	*92.0*	5.44	2.46	*45.3*	5.61	6.75	*83.1*	3.63
Female (249)	13.27	*87.8*	*54.8*	10.03	8.91	9.95	68.0	54.5	3.58	3.59	3.92	3.88	*91.2*	*92.4*	5.14	2.39	*46.6*	5.33	6.44	*82.8*	3.19

ABSTRACT AND NOTES ON THE ESKIMO CRANIA

The preceding records relate to 11 larger geographical groups of the true Eskimo, extending over almost their whole habitat. They include only fullbloods, i. e., unmixed with the white or the Negro. Any specimen doubtful in this respect was excluded, but there were very few such specimens. The material was almost wholly collected by scientific workers.

The measurements show some local differences, but a close basic similarity is evident throughout. Here, plainly, is a single physical strain of the human family, differing only, as any other large and widely scattered strain would, in secondary peculiarities. There is nevertheless a possibility that the ancestry of the group was not homogeneous but that it consisted of two related yet separate strains, one with shorter head and face and one with longer; but it may be possible also that such local differentiations as the group presents were realized within itself, through inherent variability and segregation. Whatever may be the truth in this respect, it seems certain that the mixture or changes took place not on the American continent but well back in the original habitat of the people, which doubtless was Arctic Asia.

Before proceeding with the results as shown by the preceding data it will be useful to give what is now known of the statures of the people in the various regions, and the mean bicondylar length of the femur. Where the stature is not known or not known well, the length of the femur gives a very good basis by which to gage the relative values of the various measurements. This femoral length moreover gives an excellent means for estimating the stature where it is not known definitely. In all the Eskimo groups where both the stature and the femoral length are known with some reliability the latter is close to 26 percent of the former. The available data follow; they are by no means all that could be desired, yet they have a value.

Eskimo: Stature and mean [1] bicondylar length of the femur

Group	Male			Female		
	Stature	Length of femur	Ratio (F=100)	Stature	Length of femur	Ratio (F=100)
Western rivers and coasts and Northeast Bering Sea	(202) 161.7	(157) 42.09	*26.0*	(36) 151.0	(168) 39.31	*26.0*
Seward Peninsula		(66) 42.98			(57) 39.82	
St. Lawrence Island	(63) 163.3	(80) 42.49	*26.0*	(48) 151.3	(51) 38.82	*25.7*
Point Hope	(13) 166.5	(39) 43.43	*26.1*		(13) 40.55	
Igloos near Barrow		(33) 43.86			(25) 40.31	
Barrow region	(51) 161.5	(8) [2] (42.45)	*(26.3)*	(28) 153.6	(9) (40.14)	*(26.1)*
North and northeast Alaska	(162) 164.3			(80) 154.6		
Greenland (all)	(86) 159.0	(3) (40.80)	*(25.7)*	(62) 153.0		

[1] Mean of the 2 sides.
[2] Inadequate numbers.

THE CRANIAL INDEX

The importance and stability of the cranial index and the corresponding cephalic index have been much overrated; nevertheless the index is always of interest and help in racial studies. It is, of course, only the percental relation of the cranial breadth and length, has no bearing on the size of the skull, and must always be considered with the height of the vault, which may completely change its significance. The values of this index in the Eskimo, it was seen in the General Abstract, were *70.3* to *77.4* in the males and *70.5* to *78.5* in the females. As a rule it is somewhat higher in the females than in the males, though in some of the groups the differences are small. It does not, it will be seen below, harmonize wholly with territorial sequence, and it presents one striking peculiarity, in the old "igloo" people near Barrow. It shows the highest values along the great western Alaskan rivers, along the coasts and on most of the islands of the Bering Sea, and at Point Hope; also in Hudson Bay and in Smith Sound, which are not given in the abstract[1]; it is lowest in the old "igloos" near Barrow, partly about Barrow itself, in Greenland, and on most of the Seward Peninsula. Its means are abstracted in the following table:

[1] 76.3 and 76.2; see detailed tables; and detailed data in author's Anthropological Survey in Alaska, 46th Ann. Rep., Bur. Amer. Ethnol., pp. 259–260, 1930.

Cranial index, in detail, by locality groups, west to east

Group	Male	Female	Group	Male	Female
Nushagak River	(13) 78.9	(20) 79.1	St. Lawrence Island, Gambell, Early	(5) 72.8	----------
Kuskokwim River, Upper	(27) 75.2	(36) 77.7	St. Lawrence Island and Punuk	(229) 76.9	(249) 77.4
Kuskokwim River, Lower	(30) 78.3	(21) 79.3	Diomede Island	(5) 78.8	(6) 77.0
Yukon River	(41) 76.9	(63) 77.8	Northeast Siberia	(18) 76.4	(18) 77.6
Togiak	(5) 78.6	(7) 82.7	Point Hope	(163) 75.6	(118) 76.1
Mumtrak	(4) 78.5	(4) 80.6	Old Igloos, near Barrow	(52) 70.3	(44) 70.6
Hooper Bay	(15) 78.9	(9) 77.8	Barrow (Utkiavik)	(33) 72.9	(46) 74.0
Nunivak Island	(46) 75.0	(70) 76.3	Piginik (near Barrow)	(4) 73.8	----------
Nelson Island	(9) 77.2	(17) 78.7	Point Barrow	(49) 73.9	(52) 74.4
St. Michael Island	(8) 75.9	(6) 75.5	Nixerak	(26) 74.9	(28) 75.1
Unalakleet	(7) 73.8	(9) 76.5	Northern groups (west of Hudson Bay)	(5) 74.0	(16) 74.0
Norton Bay	(6) 74.8	(11) 76.5	Hudson Bay and Strait	(5) 75.1	(2) 77.5
Golovin Bay	(16) 72.4	(15) 73.6	Southampton Island	(10) 74.1	(4) 75.2
Rooky Point	(18) 74.3	(27) 74.9	Northeastern groups (west of Greenland and Labrador)	(16) 73.1	(17) 73.3
Capes Derby and Nome	(5) 73.4	(6) 73.8	Smith Sound	(7) 75.8	(2) 76.7
Sledge Island	(5) 71.7	(9) 74.4	Greenland (mainly northwest).	(52) 71.6	(47) 71.9
Kovieruk	(7) 75.1	(16) 75.6			
Port Clarence	(12) 74.5	(13) 75.4			
Wales	(20) 72.8	(22) 73.1			
Metlatavik	(15) 73.5	(26) 73.1			
Shishmarev	(17) 74.0	(15) 74.8			

The above data are of considerable interest. Notwithstanding the inadequacy of the numbers of specimens in many of the series, certain facts are quite evident. The cranial index differs regionally, and the differences apparently are not insignificant. There are represented in the Eskimo, it seems, two related yet unequal strains, one considerably to extremely dolichocranic, the other mesocranic. The presence of the dolichoid variety in the earliest strata discovered so far near Gambell, St. Lawrence Island, suggests that this strain might have been the earlier; but the distribution of the two forms would seem to incline to the opposite conclusion. The narrow type is found in its greatest purity in the old "igloos" near Barrow,[2] where the mean cranial index in both sexes does not reach even *71* and individually falls as low as *62*; but it is also manifest in Greenland (and Labrador [3]), more or less in the more eastern of the northern groups, and in most localities on the Seward Peninsula. The mesocranic strain, on the other hand, reaches in a large arc from northeastern Asia to the Alaska Peninsula, but it occurs also quite pure at Point Hope, and it is probably somewhat mixed with the more oblong type at the old settlement of Nixerak near Point Barrow, in some localities about the Hudson Bay, and in Smith Sound. It is quite probable that both the variants developed in prehistoric times, under some territorial segregation, in the same stock, but the evidence indicates that they were separate when they came to America, and that while the broader-headed strain spread essentially southwestward, the narrower extended mainly northward and then northeastward.

Both the extreme narrow and the broader type are in all visual and most other metric aspects true Eskimo and cannot be separated as distinct racial components.

[2] For details of these finds see Hrdlička, "Anthropological Survey in Alaska," p. 318.
In 34 male skulls *71.8*—Stewart.

THE MEAN HEIGHT INDEX OF THE SKULL

The mean height index is the percental relation of the basion-bregma height of the vault to the mean of its length and breadth. The use of this mean is preferable to that of either of the single measurements, because these stand in close compensation with each other and have therefore but little if any individuality. The mean values of this index in human groups range from approximately 76 to 88, in individuals they reach both lower and higher. The Eskimo values are given in the following table:

Eskimo: Mean height index in detail, by locality groups, west to east

Group	Male	Female	Group	Male	Female
Nushagak River	(13) 83.4	(20) 84.1	Gambell, early	(5) 83.6	
Kuskokwim River	(30) 83.5	(20) 82.3	St. Lawrence Island and Punuk	(206) 84.4	(216) 84.5
Yukon River	(41) 84.9	(63) 83.7	Diomede Island	(5) 83.9	(6) 84.7
Togiak	(5) 82.1	(7) 82.0	Northeastern Siberia	(17) 83.6	(18) 84.7
Mumtrak	(6) 82.7	(6) 82.4	Point Hope	(160) 86.3	(115) 85.2
Hooper Bay	(15) 84.1	(9) 83.8	Old Igloos, near Barrow	(51) 85.8	(43) 86.3
Nunivak Island	(46) 83.2	(70) 83.4	Barrow (Utkiavik)	(25) 83.3	(37) 83.3
Nelson Island	(9) 82.0	(16) 82.1	Point Barrow	(47) 84.7	(52) 83.4
St. Michael Island	(8) 86.2	(6) 84.0	Nixerak	(26) 83.5	(24) 84.2
Unalakleet	(7) 84.0	(9) 83.4	Northern groups (west of Hudson Bay)	(5) 83.1	(16) 82.3
Norton Bay	(6) 85.3	(10) 82.7	Hudson Bay and Strait	(5) 83.7	
Golovin Bay	(16) 85.7	(15) 83.9	Southampton Island	(10) 85.1	(4) 85.1
Rocky Point	(18) 84.3	(27) 84.6	Northeastern groups (west of Greenland and Labrador)	(16) 84.9	(17) 84.0
Sledge Island	(5) 85.8	(9) 83.6	Smith Sound	(7) 84.4	(2) 85.8
Kovieruk	(7) 84.9	(16) 84.9	Greenland (mainly northwest)	(52) 85.4	(47) 84.8
Port Clarence	(11) 85.5	(13) 85.4			
Wales	(20) 86.4	(22) 84.6			
Metlatavik	(15) 86.9	(24) 83.7			
Shishmarev	(16) 84.4	(14) 84.5			

The means of the index range only from 82 to 86.9, or approximately 5 points, and this would probably be reduced were the series more adequate. With such a widespread habitat and such differences in the cranial index, this range is small. Moreover, but little correlation is evident in the two indexes. The relatively broad-headed southwestern Alaska groups are on the whole somewhat lower than the rest, but this does not hold true for all the contingents nor for those of similar type beyond that region. Among the narrow headed the index in most is above its general mean, but here too there are exceptions.

In general the mean height index of the Eskimo skull may be said to range from somewhat submedium to above medium, with most of the groups in the latter class. It is low in no part of their territory, nor is it exceptionally high. It would not be a reliable means of distinguishing the type of the skull as indicated by the cranial index.

CRANIAL MODULE $\left(\frac{L+B+H}{3}\right)$

The cranial module, or mean diameter, is a highly convenient and valuable means of expressing the size of the skull; and it bears close relation, though this differs in the two sexes,[4] to the size of the brain. Throughout the habitat of the Eskimo the module shows good proportions and a considerable similarity. There are some differences, but these would probably diminish were all the localities represented adequately. The female–male relation of the module, in the larger groups, is also much alike. The details are given in the next table.

Eskimo: Cranial Module

Group	Module		F:M relation
	Male	Female	
Nushagak River	(13) 15.04	(20) 14.55	*96.7*
Kuskowim River	(57) 15.30	(56) 14.60	*95.4*
Yukon River	(41) 15.34	(64) 14.73	*96.0*
West coast	(24) 15.26	(22) 14.69	*96.3*
Nunivak Island	(46) 15.53	(70) 14.90	*95.9*
Nelson Island	(9) 15.59	(16) 14.64	*93.9*
St. Michael Island	(8) 15.30	(6) 14.72	-------
Unalakleet	(7) 15.78	(9) 149.1	-------
Norton Bay	(6) 15.48	(10) 14.62	-------
Golovin Bay	(16) 15.51	(15) 14.77	*95.2*
Rocky Point	(18) 15.44	(27) 14.70	*95.2*
Sledge Island	(5) 15.63	(9) 14.95	-------
Kovieruk	(7) 15.38	(16) 14.70	-------
Port Clarence	(11) 15.47	(13) 14.71	*95.1*
Wales	(20) 15.47	(23) 14.93	*96.5*
Metlatavik	(15) 15.53	(24) 14.70	*94.7*
Shishmarev	(16) 15.24	(14) 14.77	*96.9*

Group	Module		F:M relation
	Male	Female	
Gambell, early	(5) 15.11	-------	-------
St. Lawrence and Punuk Islands	(206) 15.42	(216) 14.83	*96.2*
Diomede Island	(5) 15.33	(6) 15.07	-------
Northeastern Siberia	(17) 15.56	(18) 14.85	*95.4*
Point Hope	(160) 15.42	(115) 14.77	*95.8*
Old igloos (near Barrow)	(51) 15.50	(43) 14.68	*94.7*
Barrow (Utkiavik)	(25) 15.45	(37) 14.67	*95.0*
Point Barrow	(47) 15.44	(52) 14.75	*95.5*
Nixerak	(26) 15.43	(24) 14.89	*96.5*
Northern groups (west of Hudson Bay)	(5) 15.63	(16) 14.63	-------
Hudson Bay and Straits	(5) 15.55	(2) (14.57)	-------
Southampton Island	(10) 15.61	(4) 15.13	-------
Northeastern groups (west of Greenland and Labrador)	(16) 15.55	(17) 15.04	*96.7*
Smith Sound	(7) 15.81	(2) (15.15)	-------
Greenland (mainly northwestern)	(52) 15.52	(47) 14.66	*94.5*

General Female : Male mean = approx. *95.6*.

CRANIAL CAPACITY

The cranial capacity was taken by the method described in my Anthropometry.[5] Though I am convinced that this is the best method devised so far, it is still laborious, time-consuming, and not ideally satisfactory. It would almost seem desirable to replace the measurement by that of the mean diameter, were it not for the fact that it is a great and often a deciding factor in the sexing of the skull. This is due to the fact that the relation of the capacity to the module is in general markedly less in the female than in the male cranium. There are exceptions, but they are infrequent. In the males the capacity in cubic centimeters is near the module expressed

[4] See Hrdlička, Practical Anthropometry, Wistar Institute, 1939.
[5] Wistar Inst., 1920, 1939.

in four figures; in the female it is farther from it. The difference in the female may amount to as much as 200 units, which appears never to be equaled in the male.

The cranial-capacity data on the Eskimo are given in the following table. They show much similarity, which would doubtless be even more striking were all the series fully adequate and equal in number. There are, unfortunately, not yet enough data for racial comparisons.

Eskimo: Cranial capacity

Group	Capacity in cc.		F : M relation	Capacity module relation	
	Male	Female		Male	Female
Yukon	(18) 1,520.0	(21) 1,371.0	*90.2*	*99.1*	*93.1*
West coast	(17) 1,489.0	(14) 1,339.0	*89.9*	*97.6*	*91.2*
Nunivak Island	(46) 1,504.0	(66) 1,353.0	*90.0*	*96.8*	*90.8*
Nelson Island	(9) 1,566.0	(14) 1,334.0	*85.2*	*100.4*	*91.1*
St. Michael Island	(8) 1,461.0	(6) 1,293.0	*88.5*	*95.5*	*87.8*
Sledge Island		(9) 1,346.0			*90.0*
Wales	(19) 1,472.0	(20) 1,361.0	*92.5*	*95.2*	*91.2*
Metlatavik	(15) 1,512.0	(20) 1,342.0	*88.8*	*97.4*	*91.3*
St. Lawrence Island and Punuk	(155) 1,465.0	(134) 1,334.0	*91.1*	*95.0*	*90.0*
Point Hope	(126) 1,475.0	(84) 1,316.0	*89.2*	*95.7*	*89.1*
Southampton Island	(10) 1,558.0			*99.8*	
Greenland (mainly northwestern)	(45) 1,527.0	(38) 1,295.0	*84.8*	*98.4*	*88.3*
General Eskimo, means	(468) 1,485.0	(426) 1,320.0	*89.0*	*97.5*	*90.5*

It is regrettable that up to the present time we do not have similar data on the White people, at least. There are fairly numerous data on the capacity of the White and other crania, but they have been taken by several differing methods and the results are not strictly comparable either with the records presented here or one with another.

What is plain from the above figures is that the Eskimo cranial capacity, and hence the size of the brain, is by no means inferior to the Whites, particularly when we consider that in general the Eskimo are of decidedly lower stature than the Whites.

The female-male relation in the dimension is less than that in stature. Thus on St. Lawrence Island the relation in stature between 63 adult nonsenile males and females is *92.7*, which is about identical with that in Old White Americans (*92.9*); that in the Eskimo capacity is but *89.0*. Either the capacity in the males is relatively submedium, or that in the females relatively above medium. There are indications that would seem to sustain the latter deduction, but a real conclusion is not yet possible

The relation in the two sexes between the capacity and the mean cranial diameter is of special interest. This relation in all the groups, and in man in general is distinctly lower in the females than in the males. I have pointed this out on several occasions. The reason for this is not yet clear, but it is doubtless connected with differences in the two sexes in the development of certain parts of the brain—the contents of the fossae and perhaps of the base of the brain—in the two sexes.

FACIAL INDICES

The facial dimensions of the Eskimo are among the largest known in human groups. and both the indices are rather high, indicating a relatively high face. There are individual Eskimo crania, especially on St. Lawrence Island, in which the face is very high indeed; but there are also others in which the facial height relative to the great breadth of the skull is moderate. The indices in our different groups follow:

Eskimo: Facial indices

Group	Facial index, total		Upper	
	Male	Female	Male	Female
Nushagak River	(8) 89.6	(16) 91.0	(10) 55.1	(16) 54.6
Lower Kuskokwim	(14) 90.8	(10) 89.5	(19) 54.7	(13) 54.5
Upper Kuskokwim	(20) 94.4	(20) 91.6	(20) 56.2	(22) 54.2
Yukon River	(28) 88.7	(50) 92.1	(35) 54.9	(51) 55.6
West Coast	(16) 89.8	(10) 89.0	(19) 55.0	(14) 54.6
Nunivak Island	(24) 90.3	(26) 88.2	(43) 54.6	(51) 54.8
Nelson Island	(7) 90.5	(10) 87.0	(9) 56.7	(14) 53.6
St. Michael Island	(2) (87.8)	(3) (88.2)	(7) 56.4	(3) (54.7)
Unalakleet	(2) (95.8)	(3) (91.4)	(6) 57.4	(7) 53.9
Norton Bay	(3) (95.4)	(4) 91.1	(5) 54.8	(5) 55.3
Golovin Bay	(10) 91.1	(4) 86.3	(15) 56.3	(11) 54.7
Rocky Point	(5) 95.5	(9) 90.8	(13) 56.0	(21) 55.5
Sledge Island	(4) 89.2	(3) (90.9)	(5) 55.2	(7) 55.1
Kovieruk	------	(10) 91.7	(3) (51.9)	(13) 54.0
Port Clarence	(5) 91.9	------	(10) 53.7	(7) 52.4
Wales	(13) 89.7	(17) 89.3	(17) 55.1	(22) 54.9
Metlatavik	----	(3) (93.2)	(12) 55.3	(20) 56.7
Shishmarev	(7) 88.4	(2) (90.7)	(13) 54.2	(12) 54.7
Gambell, early	(3) (86.0)	------	(4) 52.6	------
St. Lawrence and Punuk Islands	(41) 89.3	(55) 87.8	(198) 55.5	(200) 54.8
Diomede Island	------	------	(5) 56.1	(5) 56.5
Northeastern Siberia	(3) (93.1)	(3) (91.0)	(14) 55.7	(15) 55.1
Point Hope	(27) 89.4	(22) 90.2	(138) 52.7	(98) 53.3
Old igloos near Barrow	(21) 88.5	(19) 87.5	(43) 54.9	(34) 54.7
Barrow (Utkiavik)	------	------	(11) 54.4	(16) 54.3
Point Barrow	------	------	(36) 55.1	(39) 55.3
Nixerak	------	------	(16) 54.9	(15) 55.4
Northern groups (west of Hudson Bay)	------	------	(5) 55.5	(11) 56.7
Hudson Bay and Straits	(4) 87.0	------	(5) 53.8	(2) (55.0)
Southampton Island	(7) 87.2	------	(10) 53.1	(3) (51.6)
Northeastern groups (west of Greenland and Labrador	(6) 85.9	(5) 86.6	(12) 53.7	(11) 53.9
Smith Sound	(6) 82.4	(2) (84.9)	(7) 52.0	(2) (51.5)
Greeland (mainly northwestern)	(13) 87.2	(4) 85.0	(48) 54.2	(40) 54.0

FACIAL ANGLES

The method of taking the facial angles has been explained. One measures the total facial protrusion, the other measures that of the alveolar portion, which is somewhat independent. Both these angles in the Eskimo show but a moderate protrusion of the face—more than in the whites, about as much as in the Indian, decidely less than in the Negro, the Melanesian, and the Australian. Direct racial comparisons, regrettably, are not yet possible.

The total angle, it is seen, is much alike in the two sexes, but the alveolar slant is appreciably greater in the females (narrower angle) of nearly all the groups.

Eskimo: Facial angles

Group	Angles, facial		Alveolar		Group	Angles, facial		Alveolar	
	Male	Female	Male	Female		Male	Female	Male	Female
Nushagak River	(9) 69.3	(16) 69.7	(9) 55.4	(16) 53.8	Shishmarev	(13) 67.9	(13) 68.7	(13) 54.2	(13) 56.1
Lower Kuskokwim	(19) 68.0	(14) 67.6	(19) 54.6	(14) 51.9	Gambell, Early	(4) 67.9	-----	(4) 53.6	-----
Upper Kuskokwim	(19) 68.3	(20) 67.7	(19) 56.1	(20) 51.6	St. Lawrenee and Punuk Island	(184) 67.6	(184) 68.0	(184) 57.7	(184) 54.5
Yukon River	(33) 69.7	(51) 67.9	(33) 55.9	(51) 52.8	Diomede Island	(4) 68.0	(5) 69.1	(4) 55.5	(5) 60.7
West Coast	(19) 68.4	(14) 67.5	(19) 55.7	(14) 54.1	Northeastern Siberia	(12) 66.9	(15) 66.8	(12) 55.8	(15) 53.4
Nunivak Island	(41) 68.0	(45) 67.5	(41) 58.0	(45) 55.0	Point Hope	(128) 69.9	(95) 69.8	(128) 56.0	(95) 55.3
Nelson Island	(7) 66.0	(13) 66.5	(7) 53.0	(13) 50.0	Old Igloos, near Barrow	(39) 70.0	(31) 69.9	(39) 56.2	(31) 55.2
St. Michael Island	(7) 69.0	(3) (71.0)	(7) 56.5	(3) (57.0)	Barrow (Utkiavik)	(11) 70.0	(16) 71.3	(11) 58.8	(16) 55.6
Unalakleet	(6) 68.8	(6) 67.4	(6) 59.3	(6) 55.2	Point Barrow	(36) 69.0	(37) 69.0	(36) 55.9	(37) 55.0
Norton Bay	(4) 69.1	(4) 68.1	(4) 59.0	(4) 55.4	Nixerak	(16) 69.0	(13) 70.4	(16) 55.3	(13) 57.2
Golovin Bay	(12) 68.2	(10) 67.4	(12) 56.3	(10) 52.6	Northern groups (west of Hudson Bay)	(5) 69.0	(10) 68.0	(5) 55.0	(10) 54.0
Rocky Point	(13) 68.1	(19) 67.6	(13) 55.9	(19) 54.0	Hudson Bay and Straits	(5) 68.9	(2) (71.7)	(5) 54.0	(2) (55.0)
Sledge Island	(5) 71.1	(6) 68.6	(5 60.1	(6) 52.1	Southampton Island	(9) 69.3	(3) (69.7)	(9) 53.9	(3) (54.0)
Kovieruk	------	(12) 70.1	-----	(12) 54.4	Northeastern groups (west of Greenland and Labrador)	(12) 70.0	(12) 69.5	(12) 57.0	(12) 51.7
Port Clarence	(10) 69.2	(6) 70.4	(10) 55.5	(6) 54.3	Smith Sound	(7) 71.4	-----	(7) 57.7	-----
Wales	(17) 68.8	(22) 67.9	(17 56.3	(22) 54.3	Greenland (mainly northwestern)	(46) 69.6	(40) 69.9	(46) 55.2	(40 53.0)
Metlatavik	(11) 68.8	(18) 67.5	(10) 54.4	(18) 54.0					

THE ORBITS

The orbits of the Eskimo skulls are absolutely large. The orbital index is fairly high, but not extraordinary. The index in the females, as usual, is somewhat higher than that in males (approximately as 101.5 is to 100). The variation according to locality is very moderate.

Eskimo: Orbital index

Group	Orbital index		Group	Orbital index	
	Male	Female		Male	Female
Nushagak River	(11) 88.7	(17) 92.2	St. Lawrence and Punuk Island	(211) 91.4	(204) 91.7
Lower Kuskokwim	(28) 88.9	(17) 89.1	Diomede Island	(5) 89.0	(5) 90.5
Upper Kuskokwim	(23) 88.7	(31) 89.2	Northeast Siberia	(18) 91.0	(18) 90.9
Yukon River	(40) 91.3	(57) 93.1	Point Hope	(149) 89.7	(106) 90.5
West Coast	(22) 91.3	(18) 91.5	Old igloos, near Barrow	(47) 90.2	(33) 92.1
Nunivak Island	(42) 89.2	(59) 90.9	Barrow (Utkiavik)	(18) 87.5	(19) 91.5
Nelson Island	(9) 92.0	(15) 91.9	Point Barrow	(43) 89.9	(42) 90.8
St. Michael Island	(8) 88.3	(5) 95.5	Nixerak	(22) 89.9	(16) 90.2
Unalakleet	(6) 88.3	(9) 90.5	Northern groups (west of Hudson Bay)	(5) 90.5	(16) 91.3
Norton Bay	(6) 91.8	(9) 92.2	Hudson Bay and Straits	(5) 90.0	(2) (94.7)
Golovin Bay	(16) 89.6	(14) 90.8	Southampton Island	(10) 90.0	(3) (93.7)
Rocky Point	(17) 89.1	(24) 91.2	Northeast groups (west of Greenland and Labrador)	(15) 88.8	(13) 91.1
Sledge Island	(5) 89.0	(7) 89.8	Smith Sound	(7) 86.7	(2) (88.6)
Kovieruk	(6) 89.9	(16) 90.5	Greenland (mainly northwest)	(49) 91.7	(43) 91.8
Port Clarence	(10) 88.6	(10) 89.0			
Wales	(20) 89.7	(23) 89.2			
Metlatavik	(12) 92.3	(21) 92.9			
Shishmarev	(15) 91.6	(15) 89.1			
Gambell, early	(5) 87.4	----------			

NASAL INDEX

The nasal index in the Eskimo is decidedly low. It averages. in general, approximately *43.8* in the males and *45.3* in the females and presents much similarity all over the territory occupied by these people. Nevertheless, in general it is higher (nose broader) in the southwestern and St. Lawrence Island contingents than it is farther north. Because of their relatively lower nasal height it is larger in the females than in the males, in the proportion of approximately 103 : 100.

Eskimo: Nasal index

Group	Male	Female	Group	Male	Female
Nushagak River	(12) 44.8	(18) 47.6	St. Lawrence and Punuk Island	(220) 45.3	(214) 46.6
Lower Kuskokwim River	(29) 44.1	(17) 48.4	Diomede Island	(5) 44.6	(5) 44.0
Upper Kuskokwim River	(26) 45.7	(31) 48.4	Northeast Siberia	(18) 45.7	(18) 48.0
Yukon River	(41) 44.2	(62) 46.1	Point Hope	(158) 44.7	(111) 45.2
West Coast	(22) 44.3	(20) 46.3	Old igloos, near Barrow	(52) 43.4	(39) 45.2
Nunivak Island	(44) 43.8	(63) 46.4	Barrow (Utkiavik)	(17) 44.6	(23) 43.3
Nelson Island	(9) 43.0	(14) 46.3	Point Barrow	(46) 42.2	(46) 44.9
St. Michael Island	(8) 42.1	(5) 43.8	Nixerak	(22) 43.9	(18) 44.2
Unalakleet	(6) 42.3	(8) 44.4	North groups (west of Hudson Bay)	(5) 42.6	(15) 41.3
Norton Bay	(6) 42.9	(10) 44.7	Hudson Bay and Straits	(5) 45.3	(2) (43.9)
Golovin Bay	(16) 42.8	(13) 45.8	Southampton Island	(10) 42.6	(3) (43.8)
Rocky Point	(17) 43.0	(25) 44.3	Northeast groups (west of Greenland and Labrador)	(16) 43.4	(13) 44.3
Sledge Island	(5) 42.3	(7) 44.3	Smith Sound	(7) 39.7	(2) (43.9)
Kovieruk	(7) 45.9	(15) 45.8	Greenland (mainly northwest)	(51) 43.3	(45) 43.9
Port Clarence	(11) 43.8	(9) 47.7			
Wales	(20) 44.6	(23) 46.1			
Metlatavik	(12) 43.2	(22) 44.1			
Shishmarev	(15) 44.2	(15) 46.4			
Gambell, early	(5) 46.9	----------			

UPPER ALVEOLAR ARCH

This index in the Eskimo is but moderate, owing largely to the considerable breadth of the arch. It averages approximately *84.5* in the males and *85* in the females, and the range of the means of the different localities is small. As with the orbital and nasal indices, it is higher in the females than in the males, owing mainly to a slightly greater relative breadth of the female arch; but the excess is slight, the female-male proportion being approximately 100.7:100. The point of principal interest in this connection is the large absolute size of the arch.

Eskimo: Index of the upper alveolar arch

Group	Male	Female	Group	Male	Female
Nushagak River	(10) 83.2	(15) 84.2	St. Lawrence and Punuk Islands	(173) 83.1	(182) 82.8
Lower Kuskowim	(21) 82.9	(13) 83.8	Diomede Island	(5) 83.3	(3) (79.8)
Upper Kuskowim	(21) 83.5	(24) 86.1	Northeast Siberia	(12) 84.7	(15) 84.7
Yukon River	(32) 82.8	(55) 85.0	Point Hope	(124) 84.7	(93) 84.7
West Coast	(19) 82.9	(13) 82.5	Old igloos, near Barrow	(39) 84.3	(33) 85.7
Nunivak Island	(44) 83.4	(46) 85.4	Barrow (Utkiavik)	(8) 85.9	(13) 84.8
Nelson Island	(8) 85.8	(14) 85.3	Point Barrow	(33) 86.9	(33) 87.4
St. Michael Island	(7) 82.1	(3) (86.6)	Nixerak	(11) 87.0	(13) 84.3
Unalakleet	(6) 82.6	(7) 84.1	Northern groups (west of Hudson Bay)	(4) 86.6	(11) 84.4
Norton Bay	(4) 84.2	(7) 86.8	Hudson Bay and Straits	(5) 86.0	(2) (82.9)
Golovin Bay	(15) 85.1	(10) 85.7	Southampton Island	(10) 83.5	(3) (82.9)
Rocky Point	(10) 84.1	(21) 85.5	Northeast groups (west of Greenland and Labrador)	(11) 83.8	(12) 87.6
Sledge Island	(5) 83.3	(6) 86.9	Smith Sound	(7) 81.6	(2) (83.9)
Kovieruk	(3) (84.0)	(13) 85.3	Greenland (mainly northwest)	(47) 85.5	(40) 86.5
Port Clarence	(9) 83.9	(6) 83.3			
Wales	(18) 83.8	(21) 84.9			
Metlatavik	(11) 83.9	(12) 88.2			
Shishmarev	(12) 84.9	(11) 83.8			
Gambell, early	(4) 87.7	------------			

JUVENILE ESKIMO CRANIA

For the first time in our studies of the Eskimo, in fact for the first time in the study of any American group or any other human group except possibly that of the Whites, it is possible to present data on a large series of juvenile skulls. From the inception of my work in Alaska I made it a point to collect all such skulls (and skeletons) in good state of preservation, and with additions from some of our other expeditions we have gathered the 80 specimens here reported upon. An additional similar report will also be possible on juvenile crania from the Kodiak Island and the Aleutian chain.

The specimens are of different ages, from about 3 months after birth to 19 years. The ages have been estimated from the denture and often from other parts of the skeleton. There is not enough in any age category for satisfactory conclusions, but the data give some clear indications, and they are supplemented by records on adult skulls from the same regions. Sex identification has been added only where very palpable.

Cranial index.—This index is decidedly higher in the young, in every subdivision; but lower indices occur individually from as early as the first year.

Mean-height index.—This index, conversely to the cranial, is evidently relatively low at birth and it gradually rises with age, but it may individually in later childhood reach or even surpass the adult mean.

The opposed behavior in the young of the two indices indicates that the growth of the skull during this period is relatively greater in its length and height than in its breadth. The probable cause of this is the restraining effect on the breadth of the temporal muscles.

Facial indices.—In the Eskimo infant the face is relatively low and as a result so are the facial indices; but from the second year the relative proportions of the face approach those of the adult.

Facial angles.—Facial and alveolar protrusion, low in the infant, gradually increases with age, the angles correspondingly growing less obtuse. The cause, of course, is the development of the dental apparatus.

Orbital index.—In general in juvenile Eskimo skulls this index is very perceptibly higher than it is in the adults; and there is no definite regression in it up to adolescence and even later. After that it is doubtless influenced, especially in the males, by the development of the supraorbital region.

Nasal index.—The nose in the young is relatively short but gradually grows longer; the nasal index correspondingly is higher at first but gradually, in general, becomes lower. As in all other characters there are some individual exceptions.

Dental arch.—The dental arch in the young is defective posteriorly and so cannot well be compared with that of the adults. It is especially short in the infant, giving low index; but from childhood on its relative dimensions show no clear-cut difference from those in the adult.

General.—The present available data show that the Eskimo infant is characterized by the following conditions, as contrasted with the adult:

1. Relatively its head is markedly broader;
2. The vault is relatively lower;
3. The face is relatively shorter, its indices lower;
4. Facial protrusion is lesser, facial and alveolar angles more obtuse;
5. The orbits are relatively higher, their index higher;
6. The nose is relatively lower, its index higher; and
7. The dental arch is relatively shorter and its index is lower.

U. S. GOVERNMENT PRINTING OFFICE: 1942

PROCEEDINGS OF THE UNITED STATES NATIONAL MUSEUM

issued by the

SMITHSONIAN INSTITUTION
U. S. NATIONAL MUSEUM

Vol. 91 Washington: 1942 No. 3132

THE SPECIES OF AEGLA, ENDEMIC SOUTH AMERICAN FRESH-WATER CRUSTACEANS[1]

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Widely distributed throughout the greater part of temperate South America from about latitude 20°30′ S. (Franca, São Paulo, Brazil) to latitude 40° 28′ S. (Abtao, Llanquihue, Chile) is the unique, endemic genus of fresh-water decapod Crustacea known as *Aegla* (family Aeglidae). Its nearest relatives are marine and probably to be found somewhere among the galatheids (tribe Galatheidea). There are no fresh-water Crustacea at all like *Aegla* anywhere else in the world.

Most authorities have believed the genus monotypic—genotype, *A. laevis* (Latreille), 1818 (pl. 308, fig. 2). In so doing they certainly must have considered differences that are at times rather marked between specimens from widely separated places, or in some instances from the same locality, as variations of no great importance, or else were possessed of altogether too little material to be able to evaluate it properly. Carlos Moreira (1901), at the time a member of the zoological staff of the Museu Nacional, Rio de Janeiro, Brazil, was the first to dissent, insisting and, indeed, demonstrating that at least the species described by Fritz Müller (1876) as *A. odebrechtii* was distinct from *A. laevis*. For his Brazilian specimens, regrettably, Moreira employed the name *Aegla intermedia*, which had been given a

[1] This paper was first presented as an illustrated address, entitled "Some Remarks on the Endemic South American Freshwater Crustacean *Aegla laevis* (Latreille)," before Section II, Biological Sciences, of the Eighth American Scientific Congress, Washington, May 16, 1940. An abstract of this address appears in the Proceedings of that Congress, vol. 3, p. 491, 1942.

Chilean species by Girard (1855, p. 255) and which species, by the way, seems never to have been taken again.

On my first visit to South America, in the fall of 1926, under the auspices of the Walter Rathbone Bacon Scholarship of the Smithsonian Institution, I planned to obtain additional specimens of *A. odebrechtii.* I thought I was successful at Castro, Paraná, Brazil, but the specimens I got there, however much they may superficially resemble *A. odebrechtii*, are another species (*castro*), named in this paper.

En route to Castro, I stopped in Rio Negro. Here, with the help of Carlos Zornig, at whose hotel I stayed, and with baited wicker fish traps that he provided, I caught several large Aeglas. One of these is the largest representative of the genus ever to be taken, measuring approximately 44 mm. in length of carapace and rostrum together. It is the type of the species *parana*, which I am naming for the State in which it was found.

Although I was chiefly interested in procuring marine decapods at the time, I did not neglect looking for Aeglas as opportunities arose. In that verdant park, the Prado, at Montevideo, Uruguay, Juan Tremoleras and I collected a lot of small Aeglas from one of the smaller watercourses. These, too, proved new, and are named *prado* in commemoration of the place and occasion of their capture.

When Dr. Martin Doello-Jurado, director of the Museu Argentino de Ciencias Naturales, learned of my interest in *Aegla*, he most generously took me on an all-day excursion to the delightful resort of Tigre. Here numbers of smaller specimens of a hitherto unrecognized species were found. This species (*uruguayana*), however, I have described from a larger, more fully developed specimen from San Carlos, Uruguay, belonging to the Field Museum of Natural History in Chicago. Dr. Doello-Jurado also kindly granted a loan of his museum's collection of these crustaceans. Without this great help, this paper could scarcely have been written, for in that fine collection, along with representatives of several other species, are the holotypes of four of the new species herein described: *sanlorenzo*, *jujuyana*, *affinis*, and *humahuaca*.

At Concepcion, Chile, January 1927, the director of the Concepcion Museum, Dr. Carlos Oliver Schneider, Carl Junge, and I made a very successful haul of Aeglas on the outskirts of town. These formed the basis of *A. concepcionensis*.

In the course of an examination of the crustacean collections of the Field Museum, two new species of *Aegla* were located, one (*papudo*) from Papudo, Chile, and one (*uruguayana*) from San Carlos, Uruguay, a species already referred to above.

The Museum of Comparative Zoology, Cambridge, Mass., through the kindness of Dr. Fenner A. Chace, Jr., also lent me all their Aeglas for study. One specimen of a lot from Santiago, Chile, was selected as the neotype of *A. laevis.* There is no certainty that the original type is extant or in the Paris Museum, where it was believed to have been deposited. Another specimen, from Talcahuano, Chile, has been made the type of a new subspecies of *A. laevis* bearing the subspecific name *talcahuano.*

From the late Dr. Carl H. Eigenmann, of the University of Indiana, the National Museum received certain Chilean Crustacea, which included a new species, *A. abtao,* and several specimens of the long-lost *A. denticulata* of Nicolet.

In the type collections of the United States National Museum, in addition to *A. castro, parana, prado, odebrechtii* (neotype), *concepcionensis,* and *abtao,* there are the types of five other new forms: *A. platensis, franca, odebrechtii paulensis, neuquensis,* and *riolimayana.*

The late Dr. Florentino Felippone, of Montevideo, contributed specimens of *Aegla* from Uruguay to the United States National Museum collections on several occasions, as did also Alberto Tremoleras, of the same city. Finally, I received additional very helpful material from Dr. Carlos E. Porter, of Santiago, collected in part by Dr. A. Santa Cruz, of Concepcion, Chile; from Dr. Carlos Moreira, of Rio de Janeiro, collected by Dr. G. Kuhlmann at Blumenau, Santa Catharina, Brazil; and from Dr. Paulo Sawaya, of the University of São Paulo.

Through the kindness of Henry W. Fowler, of the Academy of Natural Sciences of Philadelphia, and G. Ayres Coventry, research associate in charge of Crustacea, I had the opportunity of examining seven Aeglas (four lots) contained in the Academy's collections: (1) Three females collected by "Dr. Wilson" in Chile, which proved to be *A. papudo;* (2) two females of *A. laevis* received years ago from the Smithsonian Institution, for which regrettably there are no locality data or any record at the Institution of this particular sending; (3) a dried specimen of what is unmistakably *A. odebrechtii,* "du Brésil. Donni par M. M. Derreaux"; and (4) one of Dana's Wilkes Exploring Expedition Aeglas with an original printed Expedition label filled out presumably by Dana himself—"*Aeglea laevis.* Chili."

I am immeasurably indebted to the Walter Rathbone Bacon Scholarship of the Smithsonian Institution, which enabled me to visit South America personally to collect some of the specimens upon which this paper is based and to establish the many helpful contacts that made it possible to gather the most comprehensive representation of the genus *Aegla* that has ever been in anyone's hands for study at one time. I am also deeply grateful to the many good friends and scientific institutions who helped me with specimens, pertinent information, facilities of various kinds, and assistance in the field and otherwise. Most, if not all, of these are mentioned either in the foregoing recapitulation or in the following text.

The manuscript was helpfully criticized and typed by my secretary, Miss Lucile McCain. The drawings are the work of Mrs. Aime Awl, staff artist to the department of biology of the United States National Museum. The photographs and prints were made by Gurney I. Hightower and F. B. Kestner, of the Museum's photographic staff. I am also indebted to Dr. Olga Hartman, of the Allan Hancock Foundation, and Dr. Walter Weymouth, of Stanford University, for some very helpful suggestions.

HISTORICAL REVIEW

In 1818 (pl. 308, fig. 2) Latreille figured, without description, a new crustacean to which he gave the name *Galathea laevis*, perhaps unaware that his species was from fresh water and that the genus in which he placed it was exclusively marine. Not more than two years later Leach (1820 [1821], p. 49) quite correctly observed that Latreille's species represented not only a new species, but a new genus as well. This he named *Aegla.*

According to Dr. R. A. Philippi (1894, p. 372 [p. 4 of sep.]), and the late Edwyn C. Reed in a letter to Dr. Mary J. Rathbun dated June 6, 1895, a crustacean of this type was recognized (but not described) as early as 1782 (pp. 206, 347; 1789, p. 182) by Molina in his "Saggio sulla Storia Naturale del Chile" as *Cancer apancora.*

So far as I am aware, it was Desmarest (1825, p. 187, pl. 33, fig. 2) who, without contributing any additional information, introduced the incorrect spelling of the generic name, *Aeglea*, which all subsequent authors, except Dr. Mary J. Rathbun (1910, p. 602), seem to have followed, even Latreille (1829, p. 84) himself. Miss Rathbun, however, called attention to the fact that Leach spelled the name *Aegla*, not *Aeglea.*

The figure of *Aegla laevis* that Desmarest published along with his brief description is very similar to Latreille's, yet in some respects it is different enough in the shape of the chelae and in the addition of orbital spines to have been taken from some other specimen. If based on the same specimen, Desmarest's is the better figure. Both Leach and Desmarest state that the material upon which their remarks were based was to be found in the collections of the Paris Museum. Neither made mention of a locality. There is now no specimen in that museum that can be definitely linked with either of these authors, or with Latreille, for that matter, unless, as I am informed by Dr. Louis Fage, of the Laboratoire de Zoologie (Vers et Crustacés), Muséu National d'Histoire Naturelle, Paris, it might be a very old, dried specimen carrying the name *A. laevis* without other data.

Griffith (1833, p. 184, pl. 7, fig. 2), who, in his "Animal Kingdom of Cuvier," supplied a colored illustration of *A. laevis*, which appears to be a crudely done, reversed reproduction of Desmarest's figure, adds nothing in the way of a locality or specific characters to the still scanty knowledge of this crustacean.

In his classic "Histoire Naturelle des Crustacés," H. Milne-Edwards (1837, p. 258) gave a rather extensive discussion of the genus, and a concise description of the species, which, however, is of no more than generic value today. Also, he is the first to give the species a home: "Habite les côtes du Chili."

The "Disciples Edition" of Cuvier's "Le Règne Animal" (1837,[2] p. 124, pl. 47, fig. 3) has an *Aegla* in color, together with some details in black and white, that is quite different from the figures that antedated it. The Paris Museum may have come into possession of better material of what was taken to be *A. laevis*, but it is difficult to believe that this particular drawing could have been based on the original type, for, in spite of its more natural appearance the lateral margin of the anterior portion of the carapace is most certainly not accurate, no matter what the species represented may actually be.

The "aeglée lisse" of these several authors next appears as "*Aeglea laevigata*" in H. Milne-Edwards and Lucas' account (1843 [1844], p. 34) of the Crustacea of d'Orbigny's "Voyage dans l'Amérique Méridionale," surely an unintentional mistranslation of the French common name of what was known in the scientific literature of the day as *A. laevis*.

It may be that all the foregoing records were based on the same species, but it was given to Nicolet (1849, p. 200; Atlas, pl. 2, fig. 1) to add a second and unmistakably new species to the genus, *A. denticulata*, in Gay's monumental "Historia Fisica y Politica de Chile." His well-characterized and distinctively figured species is readily identifiable. On the other hand, his description of *A. laevis*, which he unfortunately did not figure, leaves much to be desired. It cannot be distinguished from any of the species, except *A. denticulata*, now known to inhabit Chile. Nicolet's *A. denticulata* was so at variance with what most authors, myself included, thought a species of *Aegla* could possibly look like, that it always was believed to have been

[2] In a little note seeking to establish the date of issue of the crustacean plates of Cuvier's "Le Règne Animal" (Disciples Edition) I stated (1937, p. 151) that no reference to this particular edition was to be found in the second volume of Milne-Edwards' "Histoire Naturelle des Crustacés" (1837). In the course of reviewing the history of *Aegla laevis*, I find that I was mistaken and that a number of the Disciples Edition plates are cited in that volume. This oversight in no way invalidates my contention that the date of the crustacean plates in the Disciples Edition should be 1837.

incorrectly figured and described. The most surprising thing about it, however, is that a so strikingly different *Aegla* eluded rediscovery for so long a time. Specimens taken by the late Dr. C. H. Eigenmann at Osorno, Chile, in 1919 have at last enabled me to establish the validity of Nicolet's species 93 years after its original description.

In April 1839, the United States Exploring Expedition secured a number of Aeglas "in shallow fresh water streams, [in] Chili, from beyond the Cuesto del Prado, on the road from Valparaiso to Santiago, sixty miles from the sea; abundant, swimming generally over the bottom." Dana (1852, p. 476; Atlas, 1855, pl. 30, fig. 6*a-f*) determined, redescribed, and figured these specimens as *A. laevis*, yet they cannot safely be assigned to any of the known species of the genus, as the fingers of the chelae as figured are without a lobular tooth on their prehensile margins; the general appearance of the palmar crest and the lack of a definite or spiny lobe on the outer margin of the movable finger near the base suggest *A. laevis talcahuano*.

[After the foregoing paragraph had been type-set I had the opportunity of examining one of Dana's original specimens as noted above (p. 433). It is identical with what I have redescribed as true *A. laevis*. Except for its somewhat smaller size, 9 mm. less in length of carapace and rostrum taken together, it might have been the specimen figured by Dana. His drawing seems to have been a little hastily done, for the rostrum is too slender and sharp, and the hands are not very well drawn. This particular specimen distinctly shows a well-formed lobular tooth on the prehensile margin of the fixed finger of each hand and a definite, though small, spined lobe near the base of the outer margin of each movable finger.]

A third species, *A. intermedia*, was proposed by Girard (1855, p. 255) in his report on the Crustacea of the United States Naval Astronomical Expedition. A discussion of the genus preceded a listing of the two previously described species, *A. laevis* and *A. denticulata*, and his description of the new one. This description does not supply enough detailed information to permit the keying out of his from the other species of *Aegla*. I have therefore not dealt with Girard's species beyond this brief mention and on page 431 and page 448, footnote. Some day it may be found again at the type locality, "the upper affluents of the Rio de Maypu, 2,000 feet above the level of the sea, near Santiago [Chile]," and perhaps be recognized by the second row of spines on the carpus of the cheliped. Such a second row of spines occurs in *A. denticulata* but not in any of the other known Chilean species, but the marginal toothing of the posterior portion of the carapace at once sets the two apart. If Girard's *A. intermedia* had possessed such toothing, surely he could not have failed to see or mention it.

Heller's report (1868, p. 81) on the *Novara* Crustacea has *A. laevis* as being represented in the material collected in "Chili." Up to and including Heller's report, *Aegla* had been recorded only from Chile.

The very first records from any other part of South America are those of von Martens (1868, p. 26; 1869, p. 14). He had specimens from Rio Grande do Sul, Brazil, Rödersberg, and Porto Alegre, some of which had been collected as early as 1831. Unless specimens are extant and in good condition, it will be impossible to determine just what von Martens, or, indeed, almost every other author cited in this paper, took to be *A. laevis*.

The next record from Brazil is that of Fritz Müller (1876, p. 13). He described a unique species from the Serra do Mar, between the headwaters of the Itajahy and the Rio das Marombas, in the State of Santa Catharina, under the name of *A. odebrechtii*. His species, like *A. denticulata*, by virtue of its illustration and excellent description, was easily recognizable on rediscovery (see Moreira, 1901; p. 439 of this résumé; also p. 431 above).

This same year Lucas (1876, p. cx) announced the discovery of *A. "laevis"* in Argentina from the Rio de la Plata. He said that on the tidal flats of the estuary, which are exposed at low tide, and where the water is quite fresh because of the great distance from the sea, this crustacean is found in prodigious numbers under slightly embedded rocks, shingle, pebbles, remains of shells, and detritus of all kinds, and that it is much sought after for food by the inhabitants, with whom, in this part of South America, it occupies the place held by the crayfish in Europe. Some time later (1891, p. lxxxix), Lucas received specimens from the Rio Mendoza in the Argentine Cordillera at an elevation of from 1,800 to 2,000 meters.

Scarcely six months thereafter Wierzejski (1892, p. 15 [1893, p. 232, 243]) obtained *A. "laevis"* from the environs of the city of Mendoza, in the province of the same name. Wierzejski's paper, perhaps because it was published in Polish, escaped notice until he (1897, p. 1) furnished a German translation of the portion dealing with *Aegla*, in order to correct Nobili's impression (1896) (below, p. 438) of being the first to report *Aegla* from the Argentine. Wierzejski's remarks, in part, are here translated again, this time somewhat freely into English: "Associated with [the fresh-water amphipod] *Hyalella inermis* in one of the streams discharging from one of the larger lagunas in the vicinity of [the city of] Mendoza. In life apparently dark blue; alcoholic specimens are dorsally bluish gray, ventrally reddish. So far as I can ascertain from the description of Professor Martens, there are no appreciable differences between the Argentine form and those from Chile and Brazil which were described by Milne-Edwards and Dana. The largest specimens measure 7 cm. in length and 1.7 cm. in width; the natives gather this crustacean for culinary purposes. Hitherto, it was known only from the streams in virgin forests in Chile and Brazil. Martens regarded it as an endemic South American species."

In 1892 (p. ccvi) Berg corroborated Lucas' (1876; 1891) observations on the occurrence of *Aegla*, and its range from the elevated regions of the country to the lowlands, from the Cordillera of Mendoza to the River Plate in the vicinity of Buenos Aires, but there at a distance from the sea. He reported its presence in Uruguay, where he said that it is more abundant and is found [at times] close to the sea coast, as in the rivulets Miguelete and Carrasco, and also in some localities where the fresh water becomes brackish at sea level, and that it had also been found at Minas, about 159 kilometers from Montevideo, in a spring that had been uncovered on a small mountain in the course of excavating limestone. Berg, who appears not to have seen these particular specimens, credited the find to Prof. Arechavaleta, the chemist who examined the water with a view to its utilization by the city. He regretted that the latter failed to state whether the organs of sight were developed in these animals or not. Berg also took occasion to say, on comparison of specimens from southern Brazil, Chile, Mendoza, Buenos Aires, and Montevideo, that it was his belief that Fritz Müller's *A. odebrechtii* is the same as *A. laevis*.

This same year, Ortmann (1892, p. 246) summarized the distribution of *A.* "*laevis*" and added a new south Brazilian locality record, São Lourenço, and figured the mouth parts.

Not aware that he had been antedated, Nobili (1896, p. 1) thought he had seen the first Aeglas from the Argentine, from San Lorenzo (Jujuy), Tala (Tucuman), and the Province of San Luis. He observed that the coloration of the Tala specimens differed from that of the San Lorenzo and San Luis ones. To some degree, at least, I believe color of specific significance in this genus. Nobili also called attention to S. I. Smith's (1869, p. 31) "List of the Described Species of Brazilian Podop[h]thalma," saying that *A. laevis* had been omitted. Smith (1869, p. 39) made reference to a *Galathea amplectens* of Fabricius (1798, p. 415) but believed that "it is probably not a true *Galathea*." This species in some respects suggests *Aegla*. According to Fabricius, the carapace of *G. amplectens* is smooth and the rostrum short and emarginate [forming the orbits]; but, contrariwise, Fabricius distinctly stated that this species inhabits the ocean off Brazil and that it is luminous at night. The latter phenomenon might have been due to bacterial infection and the reference to a marine habitat in error. However, as this crustacean seems to have come under the scrutiny of Latreille (1803, p. 199), the author of *A. laevis*, as well as that of H. Milne-Edwards (1837, p. 276), and yet was not identified by either of them with

Aegla, it must be distinct, even if not a true *Galathea* as Smith suspected.

Apprised by Wierzejski (1897, p. 1) of the shortcomings of his earlier note, Nobili (1898, p. 6) hastened to publish an emendation. In this he pointed out that Wierzejski (1892) himself had been anticipated by Lucas (1876), and that Berg's note (1892) appeared the same year as Wierzejski's.

Almost on the heels of this note of Nobili's (1898), not quite three months later, Berg (1898, p. 7) reprinted verbatim his notes of 6 years before. To these he added references to the remarks of Nobili (1896) and Wierzejski (1892; 1897), and three new Argentine records: the provinces of Salta and Córdoba and Neuquen Territory.

Strictly in agreement with the pronouncements of Wierzejski (1892) and Berg (1892; 1898), Ortmann (1898, p. 1149), under the family Aegleidae [now better Aeglidae], tersely stated, "Monotype Familie, von der Gattung *Aeglea* Leach gebildet, die einzige Art (*A. laevis* Latr. Taf. lxxiv, Fig. 1**) in Süd-Brasilien, Argentinien und Chile besitzt, wo sie in Süsswasser, besonders in Gebirgsbächen lebt." As the figure cited appears to have been copied directly from Cuvier (1837, pl. 47, fig. 3), quite naturally my comments on the original (p. 435) apply to Ortmann's black-and-white reproduction of it.

Following Cunningham (1870, p. 495), who merely mentions *A.* "*laevis*" as having been "collected in a fresh-water stream in the neighborhood of Valparaiso," no further references to *Aegla* from Chile appeared in literature so far as I am aware, until that of Doflein (1901, p. 135). He added a new locality to its range in that country: Lake Llanquihue, near Puerto Montt. His *A.* "*laevis*" may be *A. abtao*.

Carlos Moreira (1901, pp. 21–23, 84) with fresh material that he had collected in the State of Santa Catharina, Brazil, in his invaluable work on the "Crustaceos do Brazil," fully demonstrated the distinctness of the *A. odebrechtii* of Fritz Müller. At the time, unfortunately, he believed it to be synonymous with Girard's Chilean *A. intermedia*.

In spite of Moreira's able presentation of the case, Ortmann (1902), in his extremely interesting paper on "The Geographic Distribution of Freshwater Decapods and Its Bearing upon Ancient Geography," continued to insist that the genus was monotypic. This stand, which also had been emphasized by Berg (1892; 1898), seemed to close the door on further taxonomic investigations. Most, if not all, subsequent work has apparently been undertaken under the impression that there was only one species of *Aegla*, for it has been confined

"***A. odebrechti* F. Müll. is hiervon nicht verschieden."

largely to morphologic, parasitological, and biological investigations: Porter, 1907; Bennati-Mouchet, 1931a, 1931b, 1932a, 1932b; Porter, 1936[3]; Perez, 1936.

I should not fail to mention here the modest yet very useful check-list prepared by the late Hermann Luederwaldt, naturalist to the Museu Paulista, at the time curator of the invertebrate collections. In his "Lista dos Crustaceos Superiores (Thoracostraca) do Museu Paulista que Foram Encontrados no Estado de S. Paulo" (1919, p. 431) under *A. intermedia*, the species with which *A. odebrechtii* had been thought synonymous, he has specimens from "Perus" and "Alto da Serra," localities that I have included in the distribution of *A. odebrechtii paulensis* (p. 492), and states that the *A. laevis* from Franca is regarded as an "especie duvidosa." From undoubted duplicates of this Franca material received from Dr. H. von Ihering in 1915 the type of a new species, *A. franca*, has been selected. Dr. von Ihering also sent the National Museum specimens of *A. o. paulensis* from Perus.

The foregoing résumé by no means represents a complete bibliography of *Aegla*. It has been assembled for the purpose of setting forth its taxonomic history, indicating its distribution and the sources of my information. More has been done on its parasites than is indicated by the works cited above. The genus and its supposedly unique species are usually, if only briefly, referred to in the more comprehensive general zoological and carcinological texts.

ZOOGEOGRAPHIC NOTES

The recorded occurrences of the several species of *Aegla*, despite the present additions thereto, are altogether too few to admit of more than brief mention of the intriguing speculations that are suggested by their geographic distribution. When this is plotted it appears that each of the major tributaries of the largest rivers possesses its own peculiar species (as exemplified in part of *A. franca*, *A. castro*, and *A. parana*). Although in some cases several tributaries, where near enough together, may have the same species in common (*A. platensis*[4] and *A. uruguayana*[5]), other localities of

[3] Porter remarks that *Aegla "laevis"* has often been collected in the Chilean provinces Valparaiso, Aconcagua, Coquimbo, and Atacama and records the recent accession of a specimen from the Río Maipo, at Santiago.

[4] This species is found in the State of Rio Grande do Sul, Brazil; Uruguay; and Buenos Aires, Argentina. However, I cannot explain its existence in a locality as far removed as Tucuman, Argentina. A confirmation of this occurrence is needed, as well as collections from the vast stretch of country between Tucuman and the eastern seaboard.

[5] This species seems to be rather generally distributed in the River Plate region and more particularly on both sides of the Rio Uruguay and some little distance up the Paraná. For this species we have one tentative record from San Luis, Argentina between 400 and 500 miles to the westward of Buenos Aires. As with *A. platensis* (footnote 4), collections from the intervening stretch of territory, from which we have seen no Aeglas at all, are much to be desired.

Figure 40.—Distribution of *Aegla*. This map is based on material that has actually been studied in preparation of this account of the genus. So far as collecting stations are definitely known, they have been accurately plotted; otherwise, their positions are approximations only. The actual locality at which the Rio Grande do Sul, Brazil, specimens of *A. platensis* were taken is not known; it is also unknown for *A. uruguayana* from the Province of San Luis, Argentina. As indicated, three species, *A. platensis*, *prado*, and *uruguayana*, have been found at Montevideo or in its immediate vicinity; at Buenos Aires both *A. platensis* and *uruguayana* occur. As some doubt attaches to the origin of our *A. affinis* material, its occurrence has not been plotted (cf. p. 498, "Holotype").

even lesser extent may support more than one species (i. e., Buenos Aires and adjacent region, two species: *A. platensis* and *A. uruguayana;* and Montevideo and vicinity, three species: *A. platensis*, *A. uruguayana*, and *A. prado*). (Fig. 40.)

The presence of two or more species in one locality, as in Buenos Aires and its environs and perhaps also Montevideo, may have resulted from the tremendous floods to which at least the lower reaches of the several rivers that converge to form the Rio de la Plata are subject. Such an agency would serve to bring together in the same region species that otherwise might exist at some distance from one another.

Generally speaking, most of the species seem rather circumscribed in their distribution (but it must be remembered that the number of records we have for any one species is still very small). If this is so, the Aeglas may be very responsive to their immediate environment, very plastic forms, or else the species are very "young."

The climatic extremes encountered by *Aegla* in its geographic range are considerable (Köppen, 1930, fig. 41). These, too, may have a marked effect not only on the distribution of the species but on their actual development or evolution. Two species that may be a living demonstration of the effects of climatic conditions, which, after all, are but a part of the environment of a species, are *A. jujuyana* and *A. humahuaca.* So far as we know now the two are scarcely more than 70 miles apart at their point of nearest approach, yet, on the basis of precipitation figures alone, they are a vastly greater distance apart. At Jujuy, Province of Jujuy, Argentina, the type locality for *A. jujuyana*, as much as 29.26 inches of rain falls during the year, with some rain in each of the twelve months; at Humahuaca, in the same province, the type locality for *A. humahuaca*, on the other hand, the total yearly rainfall, 6.11 inches, is less than that of the wettest month of the year at Jujuy (January, with 6.65 inches), while five months (May to September) are wholly without appreciable precipitation (Reed, undated MS.; see footnote, p. 500).

If it is true that the least differentiated, least spiny or ornamented species stands nearest the ancestral *Aegla*, then perhaps our *A. jujuyana* is least removed from it in an evolutionary sense. This would place the center of distribution somewhere in the northwestern part of Argentina (Province of Jujuy), which is at variance with Ortmann's belief (1902, p. 389) that *Aegla* was originally indigenous to Chile and subsequently extended into northern Argentina and southern Brazil, or perhaps in the reverse direction.

A. jujuyana lacks or has not yet developed the palmar crest that is so characteristic of almost every other species of *Aegla;* its rostrum is somewhat intermediate between the flatter, troughed (Pacific or Andean) type[6] present in species found on the east and west slopes of the Andes and the more spinelike, ridge-roofed (Atlantic type) rostra of the species of the great region more or less immediately tributary to the River Plate.

Of special interest in this connection is the fact that we meet also with the so-called Pacific or Andean type of rostrum in the Serra do Mar bordering the Atlantic coast of Brazil, in Santa Catharina (*A. odebrechtii*) and in São Paulo (*A. odebrechtii paulensis*). This discontinuous distribution of the forms with the Pacific or Andean type of rostrum may be apparent only.

From the center in Argentina at or in Jujuy it may be that the forms or variants with the Pacific type of rostrum spread out westward to the Andes and beyond to Chile and eastward to the Serra do Mar of Brazil, while down the vast Argentine Rio Paraná drainage area and across to at least the lower reaches of the Rio Uruguay to Rio Grande do Sul, and to Paraná, migrated those that developed what I have called the Atlantic type of rostrum. Not fitting in with this speculative scheme of things is *A. franca*, from Franca, São Paulo, Brazil, also a species with what might be called the more intermediate type of rostrum found in *A. jujuyana.* It could be a northeastern offshoot of the original or ancestral *jujuyana* stock, or else a reversion to the ancestral condition of a Brazilian form with the Pacific type of rostrum.

The marine origin of *Aegla* appears indisputable, and therefore it is of more than passing interest that the general region in which *A. jujuyana* is centered has geologically had a long-continued marine history, with marine deposits antedating the Devonian, up through the Carboniferous (Berry, 1922). Since Cretaceous time that part of South America seems to have been wholly continental and its waters no longer marine. Undoubtedly the elevation of the land above the sea was gradual, or at least long enough drawn out to allow the ancient forebears of the Aeglas of today to adapt themselves to progressively less saline and increasingly fresher waters.

Although there are a few very fragmentary crustacean remains said to be decapod in the Permian, the first unquestionable fossil decapods, already well differentiated into groups or tribes, families, genera, and species, are Triassic (Zittel, 1913, p. 760; Glaessner, 1929, pp. 404, 462). *Galathea* first appears in the Upper Cretaceous. *Pseudogalathea* from the Lower Carboniferous of Scotland, however, has been assigned to the "schizopoda" by paleontologists (Zittel, 1913, p. 757).

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[6] A more detailed description of these types of rostra will be found on p. 448 of the notes on "characters used in diagnostic key and specific descriptions," and in the key itself, pp. 451 and 454.

Ortmann (1902, p. 341) in his discussion of the geographic distribution of fresh-water Crustacea and its bearing upon ancient geography stated that "the presence of the genus *Parastacus* on both slopes of the Cordilleras (even the identical species is found in one case on both sides, and in this respect *Aeglea* agrees with *Parastacus*) points to a time when the Cordilleras had not yet attained their present elevation. As von Ihering [1907, 1911] has shown, for many groups of animals this chain forms a very sharp barrier, and it does not seem probable that these freshwater Crustaceans are able to cross these high snow and ice covered mountains." Although this may well have occurred, it is not very necessary to presuppose that *Aegla* reached its continent-wide distribution before the Andes attained their present elevation, for, in spite of the height of this great mountain range and the rigors of the climate investing its summits, there certainly are passes, particularly in the lake region of Chile and Argentina, through which Crustacea such as *Parastacus* and *Aegla* might have made their way in times past, if not present.

There must be a pass of this sort above the headwaters of the Rio Petrohue and Lago Todos Santos, where are to be found "on top of the pass of Perez two small streams, one flowing toward the Pacific, the other toward the Atlantic * * * (Eigenmann, 1928, p. 25). Today one can go by bus, automobile, motor boat, and steamer from Chile to Argentina by way of Petrohue, Lago Todos Santos, Peulla (elevation 190 meters), Casa Pangue, Chile (elevation 320 meters), Lago Frias, Argentina, to Puerto Blest on Lago Nahuel Huapi, Argentina (elevation 756 meters).

Insofar as they apply to the same geographic area, I am most anxious to have an opportunity of checking Dr. Eigenmann's findings (1928, especially references given in the partial bibliography on p. 2) based on his studies of the fresh-water fish fauna, its distribution, and origin, against that of *Aegla*. But before that can be done, vastly more *Aegla* material than has yet been collected would have to be assembled.

There seems to be a relation of sorts between our rostral types and such of the "environment complexes in which the sum total of the natural conditions are about equal" of Haseman (1912, pl. 15). The forms with the ridge-roofed, Atlantic type of rostrum more or less occupy Haseman's "Uruguay-Rio Grande do Sul" area plus some additional territory to the south and west, while the Andean or Pacific type, along with the intermediates, *A. jujuyana* and *A. franca*, occupies his "West Andean," "Patagonian," and "Alto Paraná and its affluents" areas. As the forms with Andean type of rostrum are found in each of the last-named "environmental complexes" of Haseman, they must have something in common, be it geologic history, environment, or something else.

In an endeavor better to evaluate the specific characters of *A. odebrechtii paulensis*, I besought Drs. Paulo Sawaya and Ernesto Marcus, of the University of São Paulo, for further material of this subspecies. Although it was not possible for them to obtain it, I did receive some illuminating information regarding the waters of Alto da Serra, the type locality, in a letter from Dr. Marcus:

"Alto da Serra is a mountain pass, 38 km. from São Paulo and 22 km. from Santos by rail, where the high-road and the railway, after having climbed the very steep coast-slope of the Serra do Mar, reach the level of the highland of São Paulo. The brooks of Alto da Serra chiefly fall in cascades down the coast-slope to the narrow lowland of Santos, but some of them also enter the system of the Tieté River that springs in the Serra do Mar, 15 km. distant from the sea, and flows westward through the city of São Paulo and the interior of the state. The mouth of the Tieté in the Paraná is 650 km. distant from the coast."

Our neotype of *A. odebrechtii* is labeled as from Santa Catherina without particulars, but more recent specimens most helpfully provided by Dr. Carlos Moriera, through the kindness of his good friend Dr. G. Kuhlmann, of Blumenau, are from that place in the State of Santa Catharina. One cannot ascertain from which particular watershed, Atlantic slope or westward slope of the Serra do Mar, Fritz Müller's original specimens were taken.

From what Dr. Marcus had to say about Alto do Serra and from what we now know of the occurrence of *A. odebrechtii* at Blumenau, it may be that the forms with the Andean type of rostrum in east-central Brazil are confined to watercourses draining into the Atlantic Ocean direct.

We need not only a great deal of additional material from all parts of the country but, along with it, much more complete locality and environmental data than has been available heretofore before we can hope to elucidate the distributional and taxonomic problems that have been raised by this manifestly preliminary study.

CHARACTERS USED IN DIAGNOSTIC KEY AND SPECIFIC DESCRIPTIONS (Fig. 41)

It is little wonder that the genus *Aegla* has been considered monotypic by so many authorities. In a general way and in many particulars all Aeglas bear a very close resemblance to one another, but there is diversity of form of the cheliped, shape and armature of the orbit, proportion of the carapace and rostrum, relative development of the anterolateral spines, hepatic lobes, cardiac area, and areola, revealing differences of a kind that can no longer be explained merely as variations of a single species.

In his studies on the North American crayfishes of the genus *Cambarus*, Dr. Herman A. Hagen remarked, according to Faxon (1885, p. 17): "If the reader is unable to determine * * * the specimens in his hands * * * through lack of males, the fault lies, * * * not in the principle of classification, but in the scantiness of his material. A species involves two sexes; and until the species is known, it avails little to attempt the determination of a specimen in this difficult genus." [7]

Aegla, likewise, is a difficult genus. Certain forms represent unquestionably distinct species; others have been proposed with some hesitation; two have been rated merely subspecies.

For the present, at least, it has been necessary to confine specific descriptions and diagnostic key characters to as fully developed male specimens as it has been possible to obtain, for in the females the specific characters do not seem to come to full fruition, and with only females at hand it may be difficult or perhaps at times impossible to identify them as to species.

In *Aegla*, the female, in some respects at least, is definitely the weaker sex, and, even if attaining as large a size, it is never so distinctively developed specifically as the corresponding male. This is particularly true of the hands, or chelae. In either sex these are sufficiently asymmetrical to be referred to as the major and the minor chela. The larger chela may be either the right or the left one, but it is usually the left hand, with comparatively few exceptions, that is the larger. The chelae in the female are undersized and underdeveloped, more of the pattern of the minor chela of the male, which, in turn, might be described as being more or less feminine in appearance. The hands or chelae of the males, more especially the larger one, tend to become more and more swollen as the animals get older and larger.

The prehensile margins of the fingers are furnished with a close-set pavement or palisade of corneous scales; this armature is not otherwise mentioned, although the presence or absence of a large, usually conspicuous, "lobular" tooth is mentioned in the descriptions of certain species and in the diagnostic key. A tooth of this nature occurs on the prehensile margin of the fixed finger of the major chela of most species, usually on the corresponding finger of the minor chela also; often the movable finger has a somewhat similar tooth opposed to one on the fixed finger. In three species the prehensile margin of the fixed finger is without such a lobular tooth: *A. sanlorenzo*, *A. jujuyana*, and *A. humahuaca*.

[7] Specimens studied should be of reasonable size and development. It is difficult to deal with specimens of less than 20 mm. in length of carapace and rostrum together and, indeed, even slightly larger individuals are often none too well developed, even though male.

On the outer margin of the movable finger of a number of species near the base there is a definite projecting lobe or angle, usually spined, and, when present, spined in younger specimens if not in the fully developed adults (as in *A. platensis*); sometimes the lobe is reduced in size or suppressed and no more than suggested by some small spinulation at the place occupied by it in other species, or there may be no lobe, angle, or spinulation present at all, the finger being perfectly smooth and rounded off, as in *A. laevis talcahuano.*

The carpus of the chelipeds is armed on the inner margin with a row of strong spines, but in this series I do not include the spine that

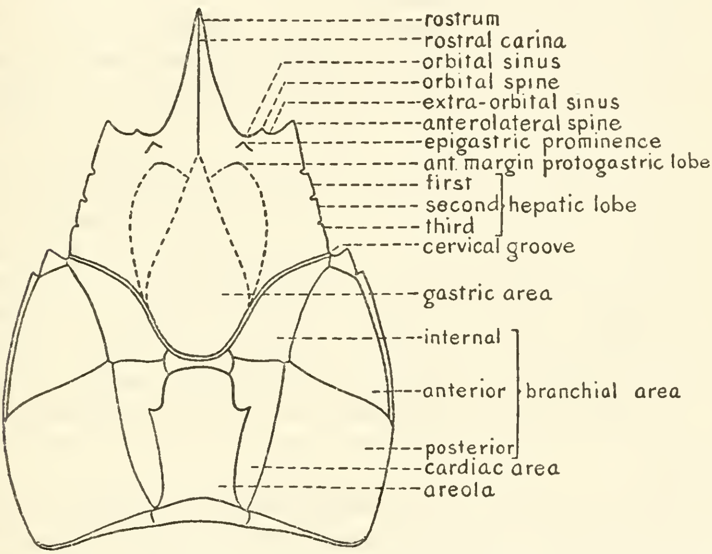

FIGURE 41.—Diagram of *Aegla* carapace, illustrating some of the terms used in describing species.

may arm what I have called the carpal lobe at the anterior inner angle of the carpus. This angle or lobe may be scarcely more than bluntly rounded off and scabrous, sometimes it is more acute and apically spinulated or furnished with a sharp denticle or small corneous spine or two, and it may, as in *A. riolimayana*, carry a slender, clean-cut, sharp, corneous-tipped spine of good size, about as large and conspicuous as the penultimate spine of the series arming the inner margin of the carpus. The carpal lobe is not always so well developed or so well armed in the female as in the male *Aegla;* the descriptions given are based on male specimens only.

More or less parallel to and above the inner spined margin of the carpus there is in most species a definite carpal ridge, usually more or less nodulated, with the nodulations more or less scabrous; on each nodulation there is generally a row of small, corneous scales, which are arranged more or less transversely in the distal half of the ridge and somewhat or at times almost wholly longitudinally at the proximal end of the ridge. In some species the nodulations become tuberculiform, and in still others, such as *A. denticulata* and *A. castro*,[8] actually replaced by sharp-pointed conical spines.

On the middorsal line of the carpus in a number of species there is a suggestion of a second though much less well formed ridge in the shape of an irregular, more or less scattered, longitudinal row of scabrosities somewhat larger than the others that may roughen the surface of the carpus; in *A. parana* there is a middorsal row of small sharp spines, few in number.

The upper longitudinal margin of the merus of the cheliped may be very sharply and conspicuously spined, or else tuberculated with apices of tubercles scabrous, or virtually unarmed as in *A. jujuyana* and *A. humahuaca*.

The anterior margin of the merus may be perfectly smooth and evenly rounded off (*A. humahuaca*), actually spined, or more or less finely denticulate; in other species it will have middorsally a more or less definite swelling, nodule, lobe, or even tubercle (*A. odebrechtii*) which may anteriorly be minutely spinulated whether the rest of the anterior margin is similarly armed in part or not. As with many of the other morphologic features of *Aegla*, there seems to be considerable variation in the degree of development exhibited by this lobe, so that its specific importance, in the light of our limited knowledge of the members of the genus, cannot be satisfactorily determined.

The basis and ischium of the chelipeds are fused to form one joint. Below, toward its proximal end, there are three transverse, more or less impressed lines. The anterior and posterior lines mark muscle attachments; the middle one constitutes "'a fracture plane' at which separation of the limb takes place in [this and] many [other Crustacea] Reptantia" (Calman, 1909, p. 273). In describing the armature of the "inner margin of the ventral surface of the ischium" only that portion of the ischium proper, or of the fused joint, basis-ischium, beyond or distal to the anterior of these three lines of demarcation is referred to.

There seem to be two principal types of rostra to which the various species of *Aegla* may be referred. The first of these I shall call the ridge-roofed (Atlantic) type. In this the dorsal surface rises from

[8] *A. intermedia*, described by Girard (1855, p. 255) but not yet rediscovered, is described as having two rows of spines on the carpus, its only recognizable or rather distinctive character that it shares with *A. denticulata* and *A. castro*. The second of these certainly does not occur in Chile and so could not be confused with Girard's species, from which *A. denticulata* is at once set off by the longitudinal keeling of its carapace and the conspicuous saw-teeth arming the lateral margin of the posterior portion of the carapace.

the lateral margins to form a very definite, rather sharp carina extending straight forward to the anterior extremity of the rostrum, which is distally not, or at most only slightly, bent upwards. At about the level of the corneae the dorsal carina of this type of rostrum almost always attains a greater height or elevation above the lateral margin than the ventral keel has depth below the margin. Above the level of the lateral margins the rostrum in cross section is definitely triangular, like the roof of a ridge-roofed or gable-ended house. The sides of this roof run straight down from the ridge or carina to the lateral margin either side at about a 45° and often steeper angle (that is, at about the middle of the free portion of the rostrum or between that point and the level of the anterior margin of the corneae). At most these lateral slopes in this first group may be slightly concave; they are, however, never particularly depressed or flattened down, excavate, or longitudinally grooved or troughed.

The other type of rostrum (Pacific or Andean) is fairly flat from side to side and not as a rule at all like the so-called ridge-roofed type, although some species assigned to it (A^2 section of the key, p. 454) may have rather a sharp rostral carina (i. e., *A. riolimayana*). In general, rostra of this type in cross section form more of a flat longitudinally corrugated roof than a steep-sided ridged roof, inasmuch as the sides of the roof either side of the median carina are usually more or less depressed below the lateral margins, and excavate or longitudinally troughed. The height to which the rostral carina rises above the lateral margins, at about the level of the corneae, is usually appreciably less than the depth to which the ventral keel extends below the lateral margins. As a general rule, the dorsal carina tends to fade out or disappear as a carina before attaining the distal extremity of the rostrum, which is generally more or less definitely recurved or bent upward.

A few species seem to have rostra of an intermediate or transitional type that may not have been altogether satisfactorily placed in our key. However, such species have been assigned to that primary group, A^1 or A^2, to which they appeared to be most closely related, all characters considered. *A. jujuyana* and *A. franca* have been assigned to section A^1 of the diagnostic key, and *A. affinis* to section A^2. This last-named species, in the unique specimen at hand, has the dorsal rostral carina somewhat higher at the level of the corneae than the ventral keel is deep, yet its basally broad and flattened rostrum is certainly indicative of a nearer relation to the A^2 than to the A^1 species. *A. jujuyana* and *A. humahuaca* fall into opposed primary sections of our key on the basis of the character of the rostrum; nevertheless, there is in some respects a tantalizing resemblance between the two that suggests a suspiciously close kinship.

Width of the orbital and extraorbital sinuses, where referred to, has been measured in line with the tips of the orbital spines, from the extremity of the spine to the rostral margin, and from the spine to the inner margin or slope of the anterolateral spine. The orbital spine (or spinule) is the actual spine or spinule marking the outer or distal end of the orbital margin, without reference to scabrosities, denticles, scales, or tiny, often microscopic, spinules that may arm or persist on the orbital margin of some species. In most species the outermost of such a series of orbital scabrosities becomes so developed as unmistakably to become the orbital spine or spinule.

The length of the anterolateral spines in relation to the eyestalks is perhaps not a very reliable character, owing possibly to differences in contraction as a result of preservation, yet in a species like *A. sanlorenzo* the anterolateral spines exceed the eyestalks, while in *A. abtao* and *A. riolimayana*, for example, they generally fall short of the posterior margin of the cornea.

I have not been able so far to "pin down" the relative proportions of the areolations of the carapace in a way to permit their satisfactory use in specific description. The areola itself is rather elongate in some species, very squat in a number of others, and quite different in the relation of its posterior lateral margins to the lateral furrows or suture lines of the cardiac area, in at least two nearly related species, *A. abtao* and *A. riolimayana*.

Most of the species of *Aegla* exhibit a tendency toward smoothness and bluntness, even to the suppressing of spines in the older, more developed specimens. In *A. parana* quite the reverse is true; there seems to be an accentuation of the spininess of this species, the fully developed adults are very spiny or at least more prickly appearing than any other one of 20 species or subspecies described.

Aegla parana is the only *Aegla* having the ambulatory legs strongly spined above and, with *A. sanlorenzo* and perhaps also *A. prado*, the only species having reasonably strong spines below near the anterior end of the ambulatory merus. Only one ambulatory leg, the first on the left side, has been figured for each of the species dealt with in this paper, chiefly to show the proportions not as yet clearly proved to be of specific value.

In the majority of the Aeglas the sternal plate between the chelipeds carries no particular armature; in a few species a very definite, often corneous-tipped tubercle or low conical spine is to be found on the median line toward its anterior end; the anterolateral angles of this particular plate are sometimes markedly produced or even spiniform.

Except for the contours of the epimera of the second (in lateral view, apparent first) abdominal somite no particularly noticeable specific differences have been observed in the abdomen or the tail fan. In the female the abdomen as a whole is relatively shorter and broader than in the male, and the median dorsal area of the respective abdominal somites is relatively wider. This character usually enables one superficially to distinguish males from females. The sexes, however, are definitely distinguished by means of their genital apertures. In the female these open on the coxopodites of the third (antepenultimate) pair of legs, and in the male on the fifth (last) pair of legs. In mature males the vas deferens on each side is externally produced as a thin-walled tube.

KEY TO THE SPECIES OF AEGLA

A^1. Rostrum definitely ridge-roofed,[9] triangular in cross section; above, with lateral slopes of "roof" running down often at nearly a 45° angle from median carina to lateral margins (these lateral slopes are not distinctly troughed or excavate either side of the median carina as are practically all the relatively flattened rostra of the species under A^2, p. 454; at most the lateral rostral slopes may be slightly concave); rostrum sometimes showing a slight upward inclination toward tip, but usually straight and not recurved; rostral carina and scales with which it may be furnished running straight and usually definitely to anterior extremity; front of species belonging to this section of key generally wide or at least moderately wide, rarely somewhat narrowed (as in *jujuyana* and *franca*); orbital spines well developed; sinus (extraorbital) between orbital and anterolateral spines generally of good size, wide or moderately wide, rarely small (*jujuyana*, *franca*, and occasional specimens of *prado*).

B^1. Hands, though they may become somewhat thick and swollen, never taking on markedly inflated or subglobular appearance of *jujuyana* (B^2, p. 453); inner margin of palm always more or less crested, and when crest is low and little developed armed with at least one sharp spine at anterior end; lobular tooth on at least fixed finger usually present and well developed; rarely is this tooth not definitely present, or obsolescent, as in *A. sanlorenzo* (p. 452) (lobular tooth on fixed finger is also lacking in *jujuyana*, B^2, p. 453, and *humahuaca*, under section A^2, p. 456 of this key); dorsal anterior angle of epimeron of second (in lateral view, apparent first) abdominal somite almost always armed with a spine (sometimes not in *franca*).

C^1. Front generally very wide, extraorbital sinus at least half, usually more than half of, to nearly subequal to orbital sinus (somewhat narrower than other species in this section is *sanlorenzo*); orbital spines a prominent feature of frontal margin.

D^1. Posterior margin of ventral surface of first ambulatory merus armed with at least one conspicuous strong spine near distal end about on a level with proximal border of articular membrane[10]; inner margin of ventral surface of ischium of chelipeds armed with two fairly long, well-developed, acute, corneous-tipped spines, one near distal end of joint, the other near proximal end (spines of this size and

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[9] In lateral view at the level of the anterior margin of the cornea, the height of the rostrum, or its carina, above the lateral margin of the rostrum is usually much greater than the depth of the rostrum below the lateral margin.

[10] *A. prado* has a spine of moderate size in this position and *A. castro* a quite small one or two, but both are species with the front only moderately wide, C^2, p. 453, this key.

prominence are not found in any species of *Aegla* other than the two grouped here under D^1) ; movable finger without definite or real lobe on outer margin near base, even though margin of finger may sometimes be spiny; epimeron of second (in lateral view, apparent first) abdominal somite with anteroventral border more or less deeply concave; anterior dorsal angle produced to form a sharp spine of good size, ventral angle also produced, narrow, extremity may be blunted, sometimes sharply spined like anterior dorsal angle (in certain large specimens of *parana*).

E^1. Merus of ambulatory legs armed on upper margin with several, usually a full series of, strong, well-developed spines; carpus with ridge above spined inner margin, also well spined, and with a second longitudinal row of normally three sharp spines on middorsal surface, sometimes posterior two spines of this series much reduced or wanting; a well-developed lobular tooth at least on fixed finger of either chela; movable finger without a definite lobe or projection on outer margin near base, sometimes, but not often, a spine or several spinules in this position, not to be unexpected in this otherwise very spiny species; outer margins of hands spined; inner margin of palm forming a comparatively low ridge (palmar crest), which is serrate, serrations spined; sometimes inner margin or ridge fairly straight and serrulate.

parana (p. 458)

E^2. Upper margin of ambulatory merus not armed with a number of strong spines, at most scabrous or small spinulated; carpus with ridge above inner spined margin not spined, scabrous-nodulated, and without a longitudinal row of spines on middorsal surface; prehensile margins of fingers slightly sinuous but without lobular tooth on either fixed or movable finger; no lobe on outer margin of fixed finger near base; outer margins of hands scabrous but not spined as in preceding species; inner margin of palm scarcely crested, broadly rounded off, rising anteriorly in a low keel (palmar crest) to form a single short, sharp spine.

sanlorenzo (p. 461)

D^2. No noticeably strong spine near distal end of ventral posterior margin of ambulatory merus, at most a relatively small spine, tubercle or scale in this position; epimeron of second (in lateral view, apparent first) abdominal somite with anteroventral border more or less straight, at most only slightly concave; ventral angle rounded off; fixed finger at least with a definite lobular tooth of good size one prehensile margin.

E^1. Normally only first hepatic lobe well defined and anteriorly spined, second and third lobes scarcely more than indicated (occasionally one of other lobes fairly well marked on one or the other side of carapace) ; movable finger definitely with a lobe on outer margin near base; in most specimens, especially those of medium and small size, the lobe furnished with a small spine or sharp scale, in many of the larger specimens, such as the type, the lobe frequently unarmed, but always distinctly present and more or less angled; ischium of chelipeds with a not particularly prominent tubercle (not spine), which is furnished with a corneous apex or scale, at distal end of inner margin of ventral surface.

platensis (p. 464)

E^2. All three hepatic lobes well marked in specimens of fair size; in mature or adult specimens anterolateral angles of at least first two and usually all three lobes acute and sharply spined; movable finger without a lobe on outer margin near base; ischium of chelipeds with a conspicuous sharp fairly slender spine at distal end of inner margin of ventral surface____ uruguayana (p. 467)

C^2. Front only moderately wide, extraorbital sinus less than half width of orbital sinus, often only one-third or less than one-third its width; a well-developed orbital spine intervenes between the two sinuses; fixed finger at least with a definite lobular tooth of good size on prehensile margin; movable finger definitely and normally with a spined lobe on outer margin near base; anteroventral border of epimeron of second (in lateral view, apparent first) abdominal somite generally just about straight, may at times be very slightly concave.

D^1. All three hepatic lobes well marked, their anterolateral angles acute and spined, each forming a decided offset in lateral margin (forming three steps, as it were before the cervical groove); anterior margins of protogastric lobes acute-angled, more sharply peaked perhaps than in any other species of *Aegla*.
prado [11] (p. 470)

D^2. The three hepatic lobes plainly indicated but only the first well marked and acutely spined at its anterolateral angle alone, forming a distinct offset in the lateral margin of the anterior margin of the carapace (before the cervical groove); anterior margins of protogastric lobes more or less rounded off, or broadly obtuse-angled.

E^1. Carpus of cheliped with ridge parallel to and above inner spined margin armed with conical tubercles, of which the greater part take the form of acute-tipped conical spines; orbital spines well set off from anterolateral; posteriorly dorsal margin of rostrum merges with general surface of carapace on a level with protogastric lobes; palmar crest somewhat approaching subdisciform, impressed, with upturned margins, reminiscent of *odebrechtii* (p. 455 below)______________________ castro (p. 473)

E^2. Ridge above inner spined margin of carpus armed with neither spines nor acute conical tubercles, but scabrous, being furnished with more or less transverse rows of small corneous scales; orbital spine small and placed fairly close to anterolateral; posteriorly dorsal margin of rostral carina ending between protogastric lobes well below general level of carapace behind this point; palmar crest not subdisciform, narrow, longitudinally somewhat troughed or excavate________________ franca (p. 476)

B^2. Hands very thick and inflated and, though scabrous, smooth appearing, as they are rounded off in all directions; inner margin of palm neither crested nor spined, thick and broadly rounded off; fingers with lobular tooth not at all, or at most only very obscurely, indicated; fixed finger of large hand very short and stubby looking (more so perhaps than in any other species of *Aegla*), no lobe on outer margin of movable finger near base; dorsal anterior angle of epimeron of second (in lateral view, apparent first) abdominal somite (based on the very few

[11] The median line of *A. prado* is usually more or less definitely angled the full length of the carapace, in effect carrying the carination of the rostrum back to the posterior border of the carapace in the form of a prominent ridge; carination of this sort is found only in this species and in *A. denticulata* under A^2, B^1, this key, p. 454, in which it is very pronounced.

specimens of this species available) at least spined or with corneous granule or denticle on one or the other side of body in two specimens, in a third specimen, however, on both sides; anteroventral border of epimeron slightly concave to fairly straight---------- jujuyana (p. 478)

A^2. Rostrum more or less transversely flattened[12]; longitudinally troughed or excavate either side of the median carina, often conspicuously so; rostral margins often thickened and appearing more or less raised or upturned; rostral extremity often noticeably recurved, though sometimes straight or only slightly upturned; rostral carina sometimes fading out anteriorly before reaching tip of rostrum, sometimes also merging or fusing with anterior extremity of rostrum to the more or less complete obliteration of carina and the scales with which it may be furnished, corneous scales sometimes continued to tip of rostrum as a feeble, scattered line of scales only; front of species in this section of key relatively narrow, at least in appearance, as compared with species of A^1 section, p. 451; orbital spines usually small, often placed rather close to and sometimes apparently even up the inner slope or margin of anterolateral spine, or wanting altogether.

B^1. Carapace prominently keeled or carinated for its entire length; rostral carina anteriorly fading out in distal third of free portion of rostrum, merging with its thickened distal extremity; lateral margin of posterior portion of carapace (behind cervical groove) conspicuously serrate, sharply notched, and armed with prominent sawteeth or flattened triangular spinelike teeth; orbital spine of good size; extraorbital sinus well formed, a prominent feature of the front, though moderately narrow, being perhaps no more than one-fourth width of orbital sinus; anterolateral spines attaining one-third to one-fourth length of cornea; palmar crest thick, conspicuously spined; movable finger with a sharply spined acute lobe on outer margin near base; dorsal anterior angle of second (in lateral view, apparent first) epimeron produced to form an acute corneous tipped spine.

denticulata (p. 480)

B^2. Except for rostral carina, which may run backward as far as level of anterior margins of protogastric lobes, carapace not noticeably if at all keeled; lateral margins of posterior portion of carapace (behind cervical groove) at most small spinulate or small corneous spined and not at all toothed except perhaps for notch at lateral extremity of cervical groove and at end of suture line immediately behind lateral terminus of cervical groove.

C^1. Anterior third, or even nearly half in some cases, of upper surface of free portion of rostrum gently excavate or concave from side to side with usually no more than trace of forward extension of rostral carina or scales with which its carina is furnished; distal portion of rostrum typically and usually strongly and more or less abruptly recurved; rostral outline moderately broad triangular, carina short but well marked, furnished with a single row of irregularly alternating corneous scales; orbital spine may or may not be developed; nearly always, however, a slight, sometimes abrupt, but always narrow offset between outer end of orbital margin and inner slope or margin of anterolateral spine; this offset about as often without

[12] In lateral view at the level of the anterior margin of the cornea, the dorsal height of the rostrum, or its carina, above the lateral margin of the rostrum is usually much less than the depth of the rostrum below the lateral margin.

as with a small corneous scale or spinule (present in type), which may represent or take the place of an orbital spine; offset usually with slight notch or incision next to anterolateral spine; palmar crest thick, almost obsolescent, upper surface not impressed or excavate. Dorsal anterior angle of epimeron of second (in lateral view, apparent first) abdominal somite normally and usually rounded off and unarmed; very rarely does one find a corneous scale or denticle or two or even a small spinule, and then usually on epimeron of one side only---------------------------------- papuda (p. 483)

C^2. Not even distal third of rostrum concave from side to side without noticeable intervention of dorsal carina; rostrum carinated virtually to its distal extremity or else anterior fourth or so of free portion of rostrum so thickened that rostral carina and any longitudinal troughing that dorsal surface of rostrum may otherwise have either side of carina becomes more or less completely obliterated in this terminal fourth of rostrum.

D^1. Dorsal anterior angle of epimeron of second (in lateral view, apparent first) abdominal somite rounded off and unarmed.

E^1. Margins of palmar crest appreciably and noticeably upturned, upper surface of crest definitely impressed or excavate; crest somewhat or quite subdisciform; movable finger with a definite though sometimes small, but always spined or spiny lobe or projection on outer margin near base; hands more or less subovoid in outline; rostrum normally not exceeding eyestalks by as much as length of cornea; rostral carina not even faintly traceable behind anterior margins of protogastric lobes; orbital spine and extraorbital sinus definitely present; latter always distinct though sometimes small.

F^1. Palmar crest conspicuously large and expanded, subdisciform, noticeably excavate, much as if it had been impressed or pinched out while soft with the ball of one's thumb; margin of crest obscurely serrate at best, scabrous and small spinulose; rostral carina furnished with an irregularly alternating double (in very small part, at times triple) row of small corneous scales---------------------------------- odebrechtii (p. 487)

F^2. Palmar crest only moderately large or expanded and, though somewhat rounded off, not particularly subdisciform, more or less longitudinally troughed; margin of palmar crest definitely serrate; rostral carina almost smooth and naked appearing on top, at most sparsely and well-nigh microscopically scaled where it appears scaled--------- odebrechtii paulensis (p. 490)

E^2. Margins of palmar crest not noticeably upturned, crest at best only slightly or narrowly and very shallowly, if at all, troughed or excavate, not particularly impressed looking; crest more subrectangular in outline than subdisciform; at most only a slight lobe or projection on outer margin of movable finger near base; margin of finger rough-spinulose and usually with a few larger spinules on a slight elevation near base of finger, better seen in smaller than in larger specimens.

F^1. Definite orbital spine or spinule present, set off from anterolateral spine by a small, narrow sinus or notch; palmar crest thinning out to its outer margin, which is sharply though not deeply saw-toothed, and sharply small-spinulose, not troughed or excavate; hands more or less subovoid in outline; rostrum plainly troughed either side of well-defined, narrow, median carina. neuquensis (p. 493)

F^2. No orbital spine or spinule as such (in unique type specimen), outer margin of orbit merges with inner slope or margin of anterolateral spine without appreciable offset; small spinules or spiniform scales on orbital margin tending to run up onto sides of base of anterolateral spine; outer margin of palmar crest fairly thick, rough-scabrous and somewhat lumpily toothed; upper surface of crest longitudinally and narrowly, slightly troughed; hands more or less elongate-subrectangular; rostrum only very shallowly and more or less obsolescently troughed either side of rather blunt and rounded-off median carina -- affinis (p. 495)

D^2. Dorsal anterior angle of epimeron of second abdominal somite armed with a small spine or spinule (very rarely is angle armed with two little spines or spinules).

E^1. Fingers lacking lobular tooth characteristic of most species of *Aegla*, fixed finger at most with only slight sinuosity on prehensile margin; no lobe on outer margin of movable finger near base, although a few larger corneous scales or small spinules sometimes occur there; palmar crest low and thick, very broadly triangular in cross section, dorsal surface at most very shallowly and obsolescently excavate, more scabrous than spinulated, though slightly marked serrations of blunt crest may be spinule tipped; rostrum triangular, thick-looking, only shallowly troughed either side of blunt, proximally more or less swollen median carina. humahuaca (p. 498)

E^2. Fixed finger at least with a well-developed lobular tooth on its prehensile margin.

F^1. Rostrum more or less lingulate (tending to be tongue-shaped rather than sharply triangular), lateral margins often more or less subparallel in midsection of free portion of rostrum; rostrum in lateral view noticeably bent downward, distally recurved; orbital spine or spinule present or not present, when present frequently much reduced, often no extraorbital sinus or notch (small extraorbital sinus and orbital spine or spinule perhaps always present in *A. laevis talcahuano*).

G^1. Typically no orbital spine, normally outer end of orbital margin merging with inner slope or margin of anterolateral spine with little or no demarcation; sometimes a slight sinuosity developing, or a more or less insignificant oblique offset; rarely ever a real offset, notch, or projection with an orbital spinule on one or the other side at all like the condition found in either of the two species immediately following; rostrum broadly lingulate, more or less triangularly so, but never sharply triangular as in *abtao* and *riolimayana* (F^2, G^1, and G^2 below); movable finger with a distinct, usually spined or spinulated lobe on outer margin near base; palmar crest not particularly prominent, posterior margin of crest usually noticeably upturned, troughed or excavate with upturned and broadly and shallowly serrate margins.

concepcionensis (p. 501)

*G*². Orbital spine, or the orbital spinule usually taking its place, generally present on one or both sides of front; extraorbital sinus well formed but narrow or reduced to a mere notch between orbital spinule and anterolateral spine; in the absence of a real orbital spine or spinule (as in about half the representatives of *A. laevis*) virtually always a well-marked, often abrupt, sometimes nearly right-angled offset between inner slope or margin of anterolateral spine and outer end of orbital margin; rostrum somewhat narrowly lingulate, subparallelism of margins of midsection often rather pronounced.[13]

*H*¹. Movable finger with distinct and usually spined or spinulated lobe on outer margin near base; palmar crest only somewhat excavate or impressed with upturned and distinctly serrate spine or sharp-scaled tipped margins.
laevis (p. 504)

*H*². No lobe on outer margin of movable finger near base; palmar crest noticeably excavate, impressed, or longitudinally troughed, margins upturned and more or less entire, obsolescently if at all serrate (remotely somewhat reminiscent of the palmar crest in *odebrechtii*).
laevis talcahuano (p. 508)

*F*². Rostrum distinctly and sharply triangular, lateral margins tapering from base to tip (in no part at all subparallel), rostrum in lateral view running about or nearly straight forward, with only slight if any upward inclination distally (neither upcurved nor recurved); orbital spine or spinule and extraorbital sinus, though sometimes small or narrow, always definitely present.

*G*¹. Rostrum moderately broad and, though sharply triangular, rather broadly so, gradually and not particularly narrowed distally; rostral carina dorsally furnished with two more or less distinct rows of corneous scales for greater part of length, anterior to middle of free portion of rostrum two rows of scales running together to form a single sometimes somewhat scattered row, which continues about to the anterior extremity; areola widening behind____ abtao (p. 510)

*G*². Rostrum narrowly and sharply acuminate (stilletolike); rostral carina sharp crested for greater part of its length and furnished with a single at times slightly wavering row of corneous scales, which in some specimens tends to become a double row of more or less closely juxtaposed scales a little before distal extremity of rostrum; areola narrowing posteriorly______________________________ riolimayana (p. 513)

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[13] The rostra of the two species falling within this section of the key, in general, so far as the specimens I have seen are concerned, look somewhat amorphous, as if they had been partially melted and then solidified.

Family AEGLIDAE

Genus AEGLA Leach

AEGLA PARANA, new species

FIGURES 42, 43; PLATE 25, A

Description.—A large species attaining a length of carapace and rostrum together of at least 44 mm.

Carapace slightly convex anteriorly and laterally, medially quite flattened; front very wide. Rostrum long, slender-spinelike, sharply carinated, ridge-roofed, triangular in cross section, exceeding eyestalk by two to three times the length of the cornea; crest of rostral carina furnished with a closely juxtaposed double row of good-sized corneous scales about to level of corneae, anterior to which the row becomes single with scales often closely set, sometimes a bit separated from one another; posteriorly the carina proper ends just before the anterior margins of protogastric lobes, larger scales of carina often stop at level of epigastric prominences. Epigastric prominences well marked, though low tubercular, furnished with one or more, usually several, corneous scales, individually about the size of the scales on the rostrum; anterior margin of protogastric lobes, though only slightly raised, distinctly marked, in part at least, by a short row of sizable corneous scales, of which the apical one is larger and heavier than the others. Areola relatively long and narrow, lateral sutures of cardiac area markedly converging behind.

Orbits fairly wide, moderately deep, separated from the wide extraorbital sinus either side by a conspicuous strong yet slender spine; the extraorbital sinus exceeds half the width of the orbital one, often about equal to three-fourths of its width.

Anterolateral spine long, strong, acuminate, reaching to middle of cornea or beyond, sometimes nearly as long as eye. Anterolateral angle of first hepatic lobe sharply and strongly spined, spine more or less exserted, second lobe may also be spined, or, like the third, carry a good-sized corneous scale. Angle on lateral margin behind cervical groove spiniform and armed with one, usually several, smaller, sharp, corneous-tipped spines on its posterior slope; angle behind notch which follows the preceding angle also spined; entire lateral margin of posterior portion of carapace (behind cervical groove) conspicuously armed with a continuous fringe of sharp spines; other species may have the corresponding margin more or less small-spinulose or scabrous, but in none (except *A. denticulata*) is it as strongly and well spined as in this one.

Large hand more or less subquadrate, thick, but not inflated or particularly swollen looking, moderately rough scabrous, armed on

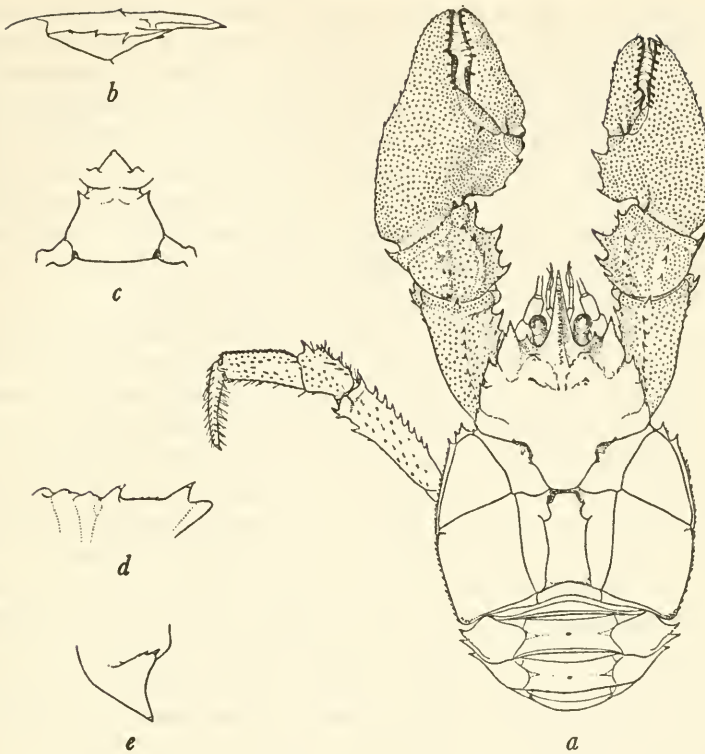

FIGURE 42.—*Aegla parana*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

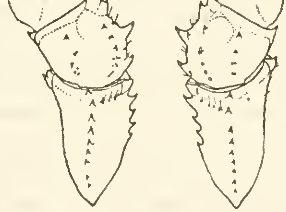

FIGURE 43.—*Aegla parana*, new species, male paratype: Chelipeds, showing variation in shape of hands and palmar crest. Natural size.

outer margin (of both hands) with a number of spinuliform scales, or sharply pointed, short spines. Movable finger with no true lobe on outer margin near base, at best a low, scabrous thickening, but so slightly developed that it in no sense can be considered a lobe such as is found in certain other species of *Aegla;* both fingers with a stout lobular tooth. Palmar crest a comparatively low ridge, broadly serrate, angles of serrations sharp-spined; sometimes (fig. 43) serrations are virtually obliterated so that free edge of crest is nearly straight, and furnished with some corneous, perhaps pointed, scales and a fair-sized spinule anteriorly and posteriorly.

Carpus sharply and strongly spined on inner margin, ridge above this row of spines also sharply and strongly spined; apparently there is an additional longitudinal row of spines running along the median line of the dorsal surface of the carpus; this normally seems to be armed with three good spines, sometimes one or both of the posterior spines may be reduced to a stout scale, or a short-conical spinule. Dorsal longitudinal margin of merus of cheliped armed with a row of large, sharp, well-developed spines; at middle of anterior margin of merus a strong spine about as large as anterior spine of dorsal longitudinal margin. The inner margin of the ventral surface of the ischium of the cheliped is armed with at least two fairly long, strong, more or less subequal corneous-tipped spines; among the Aeglas two ischial spines of this size and prominence are found only in this species and *A. sanlorenzo* (see also last paragraph under "Remarks," *A. castro*, p. 475).

Meri of ambulatory legs likewise normally armed with a series of strong spines along upper margin; sometimes the series is not quite so large and regular as in the type, yet enough of it is present to distinguish this species from all other Aeglas by this feature alone; near distal end of posterior margin of ventral surface of merus, at the level of the posterior end of the articular membrane of the joint, there is a strong spine, behind this there may be a second smaller one, and at the extreme anterior end a small spine or two.

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite produced into a long, sharp spine strongly buttressed behind by a conspicuous ridge or angle running obliquely longitudinally back on the epimeron; anterior margin below this spine deeply concave, ventral angle narrowly produced, subacute and often, as in the type, tipped by a strong corneous spine.

Color.—*A. parana* is very beautifully marked. The general body or ground color is a dark, almost black, bottle green; in one instance a dark grass green with faint suggestions or touches of parrot green; sometimes bister×olive-green to a blackish bister with raw-umber higher portions.

The chelipeds and chela for the greater part have the same general color as the rest of the body, except that as much as the distal half of the fingers may be a bright French or a dark turquoise blue; the dark grass-green specimen has marine or indigo blue on the fingers of the left hand and royal purple on the right; one other specimen has the greater part of the hand Indian purple with prune purple distally on the fingers.

The most proximal portions of the chelipeds and ambulatory legs, more or less hidden by the lateral margins of the carapace, take on a dirty cream-buff to clay color; the under parts of the body are similarly colored, except that the sternum sometimes is a Mars brown, and the outer surface of the turned-under abdominal somites and telson are often faintly tinged with a greenish, bluish, or purplish color much like a poorly dyed, plain-colored Easter egg. The ambulatory legs, usually greenish like the body, are sometimes flushed with purple or blue, especially the under side of the dactyls; in other specimens they may be an almost buff or dirty cream-buff; in two cases it was noted that the articulating membranes are brightly colored ferruginous in one, coral red in the other. Distally, the third maxillipeds at least occasionally are faintly tinged with blue, or the last joints even take on a turquoise blue color. The antennal flagella are usually colored like the carapace. (For colors see Ridgway, 1886.)

Holotype.—A large male, U.S.N.M. No. 80016, the largest of several collected at Rio Negro, October 21, 1925, in a wicker fishpot kindly baited and provided by Carlos Zornig, of the Hotel Zornig. This is the largest individual *Aegla* I have ever seen. It measures a full 44 mm. in length of carapace and rostrum together and 75 mm. from tip of rostrum to posterior margin of telson extending abdomen as much as possible without breaking; from telson margin of extended abdomen over extended chelipeds, 108 mm.

Distribution.—The species so far has been collected only at Rio Negro, Paraná, Brazil, where I secured a modest number of specimens by means of the fishpot and also a cast net used by a local fisherman at night over a brief period from October 12 to 14 and again on October 21 and 22. On the early morning of the 14th the air temperature was 58° F., while the water near the bank at about a foot below the surface registered 64° F.

AEGLA SANLORENZO, new species

FIGURE 44; PLATE 25, B

Description.—The unique type male is a specimen of just about 29 mm. in length of carapace and rostrum taken together. The arms are broken and the right, minor hand is shattered; only the first left leg is complete, though detached. In the accompanying drawing the specimen is "restored."

Carapace slightly to moderately convex, front wide. Rostrum moderately long, spinelike, triangular in cross section, exceeding eyestalks by about three times the length of the cornea; rostral carina sharply ridged, furnished with a double row of light corneous scales closely juxtaposed and more or less alternating up to a little anterior to the level of the posterior margin of the orbits, where the scales form a single, closely set row of scales which extends to the anterior extremity of the rostrum.

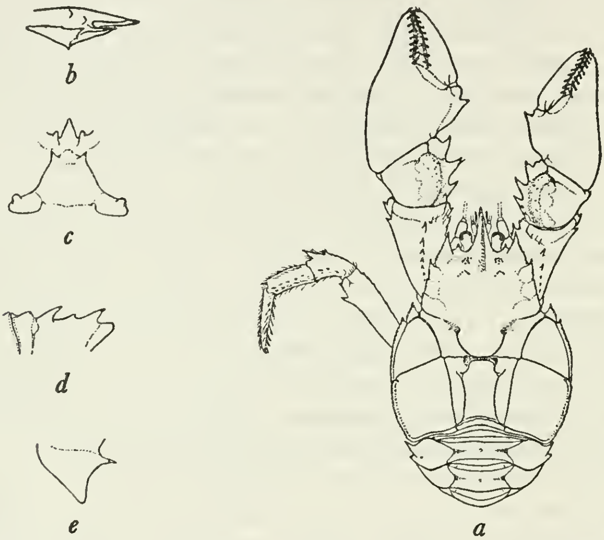

FIGURE 44.—*Aegla sanlorenzo*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

Epigastric prominences low, with few small beadlike scales on summit; anterior margins of protogastric lobes forming an acute angle outlined by a closely-set row of light-colored scales; similar scales scattered elsewhere over carapace. Areola moderately wide, fairly long.

Orbits only moderately wide, moderately deep, separated from the fairly wide extraorbital sinus by a well-developed orbital spine; extraorbital sinus about one-half the width of orbital.

Anterolateral spine long and slender, sharply spiniform, exceeding the cornea. First hepatic lobe sharply spined anteriorly, spine ending in a slender corneous tip and appreciably exserted; second and third hepatic lobes set off by not very prominent, rather weak notches, margins corneous-granulated or scaled.

Larger hand very smooth appearing, but under glass finely granulated (or minutely scaled like the carapace), more or less subrectangular, gently convex, rising to an apparent median longitudinal angle extending from a little distance behind the posterior margin of the sinus between the fingers to the posterior margin of the palm; inner margin of palm can scarcely be said to be crested, it is broadly rounded off but rises at a little distance before the anterior border to form a conspicuous, though short, acutely corneous-tipped spine; the smaller hand of this unique specimen is crushed but seems to have the same conformation as the larger one. There is no lobe on the outer margin of the movable finger near the base; the prehensile margins of both fingers are slightly sinuous, but neither reveals any trace of the large lobular tooth found in most species of *Aegla.*

Carpus of cheliped granulated like hand; ridge above spined inner margin more or less obsolescent, at least not very prominent, lobe at anterior angle produced to form a strong prominent spine. Dorsal longitudinal margin of merus strongly and sharply spined above; anterior margin unarmed, finely scabrous. Inner margin of the ventral surface of ischium is armed with a pair of well-developed strong spines; only on the left (figured type) ischium does a small acute spine intervene between the two large spines; on the right the inner margin of the joint is uninterrupted.

Merus of first ambulatory leg scabrous above; armed with an anteriorly directed spine on the posterior border of the ventral surface a little behind the level of the posterior margin of the articular membrane; there is also a small corneous point or spine close to the anterior end of the ventral margin.

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite produced into a slender, sharp spine; margin of the epimeron below this spine deeply concave; ventral angle strongly and narrowly produced, though bluntly rounded off at its extremity.

Holotype.—The unique male specimen collected by Dr. Carlos Spegazzini in the Rio San Lorenzo, Salta, Argentina (M.A.C.N.[14] No. 7099); length of carapace and rostrum taken together, 29 mm.

Remarks.—This species is certainly more nearly related to *A. parana* than to *A. uruguayana*, which it superficially resembles. The strong ventral spine on the ambulatory legs and the shape of the epimeron of the second abdominal somite point in the direction of *A. parana;* moreover, the inner ventral border of the ischium of the cheliped, like that of *A. parana*, is armed with a strong hooked spine at the anterior end as well as at the posterior end of the joint but, unlike

[14] Museo Argentino de Ciencias Naturales.

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it, it may have a small tubercular or nodular projection intervening between the anterior and posterior spine.

The hands, however, appear to resemble more closely those of *A. uruguayana* in most particulars: Low or no crest, anterior sharp spine on inner margin, and no lobe on outer margin of movable finger. The palm of *A. sanlorenzo* is relatively shorter than that of *A. uruguayana*, and the fingers lack the lobular teeth present in the last-named species.

AEGLA PLATENSIS, new species

FIGURES 45, 46; PLATE 25, C

Aegla laevis R. VON IHERING, Atlas da fauna do Brasil, pl. 4, fig. 17,[15] 1917.

Description.—A large species, attaining a length of carapace and rostrum together of about 39 mm.

Carapace, though gently convex, more or less flattened, front very wide. Rostrum an elongate ridge-roofed, narrowly triangular spine, exceeding eyestalks by about twice the length of the cornea; rostral carina somewhat blunt, only fairly sharp ridged, furnished with three to five rows of cornified, sometimes almost microscopic punctae, except very close to anterior extremity of rostrum, where there is an irregular, short, single row of larger corneous scales; carina runs back as far as the anterior margins of the protogastric lobes, neither protogastric lobes nor epigastric prominences at all well marked. Anterior margins of protogastric lobes broadly obtuse angled, not at all tuberculiform at apex of angle. Areola widens noticeably behind.

Orbital sinus wide, but only a little longer and a little wider appearing than extraorbital sinus, orbital spine well developed. Anterolateral spines large and conspicuous, reaching nearly or about to middle of cornea. Anterolateral angle of first hepatic lobe is produced into a prominent, sharply acute spine; second and third hepatic lobes may be indicated, but are not at all well marked; if spinulated, spinules no larger than spinules found elsewhere on lateral margin of anterior portion of carapace; occasional specimens may have a small notch marking the second hepatic lobe on one or the other side of the carapace, perhaps never on both sides.

Hands large, broadly ovate, much flattened as compared with most species of *Aegla*. Movable finger more or less cylindrical, rather slender in well-developed specimens, and arched, making a considerable gape between the fixed and movable fingers; movable finger with

[15] This figure of Rudolfo von Ihering is original and is undoubtedly based on one of a lot of specimens collected by his father Hermann von Ihering, in the State of Rio Grande do Sul (collector's No. 619). The Rio Grande do Sul record given under "Distribution" of *A. platensis* below is also based on a specimen from that lot of material, presented to the U. S. National Museum by Dr. H. von Ihering in 1915. A comparison of this specimen and the figure convinces me that *A. platensis* is the species represented.

a noticeable lobe at base, blunt angled in the largest specimens (and in the type) but usually sharp angled and anteriorly spined at least in specimens up to 33 mm. in length of carapace and rostrum taken together. Upper margin of palms somewhat compressed, forming a low ridge (palmar crest), most developed at its posterior angle, or "heel"; margin of crest more or less irregular, angulations armed with small, sharp, corneous spines or spinules, sometimes corneous

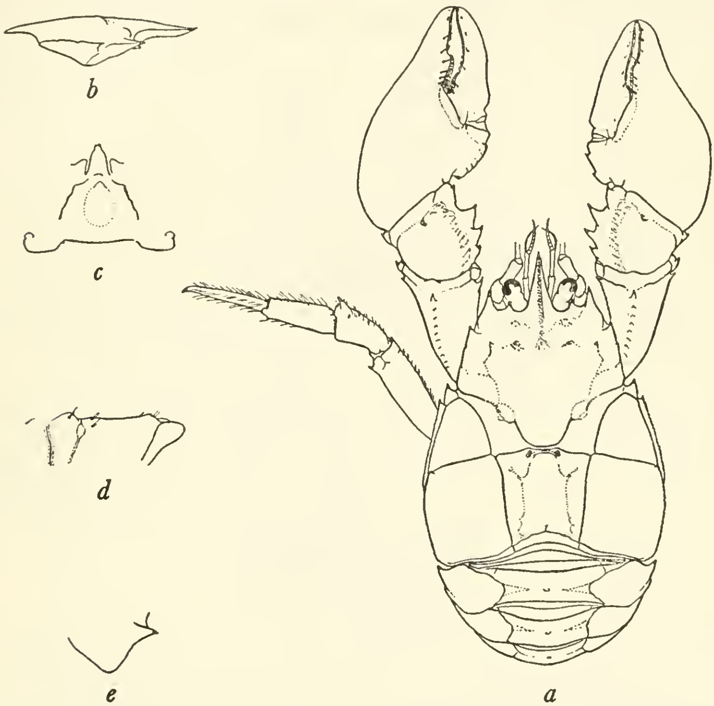

Figure 45.—*Aegla platensis*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

spinulate at anterior angle, border of posterior angle, or heel, somewhat upturned, forming a very slight, short, very shallow trough between border of "heel" and margin of palm proper. In young specimens the margins of the crest may be quite spiny, but this condition is not carried over into the more developed, adult stages.

Ridge of carpus of cheliped above inner spined margin somewhat lumpy and obliquely scabrous ridged, but not spined; anterior internal lobe or angle of carpus produced into a short, stout, conical spine. Upper longitudinal margin of merus with a strong, moderately stout to slender spine at anterior end; anterior margin with only a slight, denticulated convexity on margin in line with spine at anterior end of dorsal longitudinal ridge. Inner margin of ventral surface of ischium not spined, at most with only a low swelling at anterior end, and perhaps a very slight convexity at posterior end.

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite produced to form an acute corneous-tipped spine buttressed behind by a blunt ridge or thickening of epimeron; anterior margin below spine more or less straight, at most only slightly concave; ventral angle rounded off.

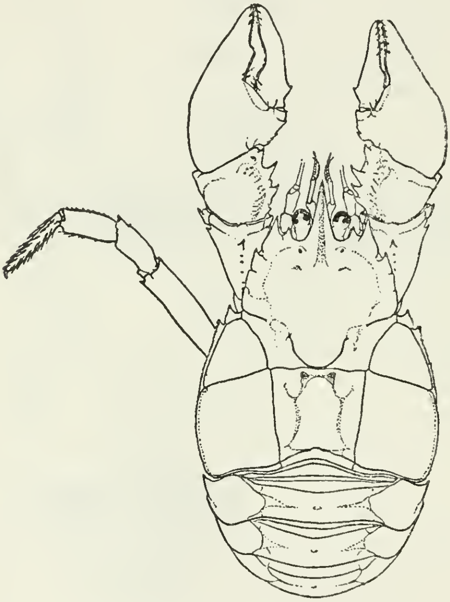

FIGURE 46.—*Aegla platensis*, new species, male paratype. Natural size.

Holotype.—The largest male, U.S.N.M. No. 80018, from a lot of 2 males and 2 females collected at "Isla Flores" [? Tigre, Buenos Aires, Argentina] by Dr. W. E. Safford, U. S. N., at the time attached to the U. S. S. *Mohican*, May 4, 1887. This specimen measures slightly over 38 mm. in length of carapace and rostrum together; the largest female is 33.5 mm. long.

Remarks.—This species and the next are in many respects very similar. They differ, however, in a number of particulars. The movable finger in this species has a lobe on the outer margin near the base; no such lobe seems ever to be developed in any specimen of *A. uruguayana*, male or female; moreover, in case of doubt, the presence of a well-developed sharp spine at the anterior end of the inner border of the ventral surface of the ischium of the cheliped will always distinguish *A. uruguayana* from *A. platensis*, even in very small juvenile specimens.

In well-developed females of *A. platensis* the hands are flatter than in the males, and also somewhat narrower; the fingers are much less strong, and more slender.

The sternal plate between the chelipeds carries a low, blunt keel, which anteriorly may at times be raised a bit or project forward as a low, ventrally keeled, conical tubercle; there is some suggestion of similar keeling on the following sternum between the first pair of ambulatory legs, which, though elevated about as much as the preceding keel, forms a very broad, low swelling, larger and broader at the anterior end than at the posterior.

A. uruguayana has a low median swelling on the anterior half of the sternum between the chelipeds, a little peaked at the forward end, but not appearing so keeled as in *A. platensis;* often in specimens of medium size this swelling or projection takes on the form of a stout, conical, corneous-tipped spine inclined obliquely forward.

Distribution.—In addition to the type lot, I have seen various specimens from the vicinity of Buenos Aires and from Tigre nearby, where Dr. Martin Doello-Jurado, director of the Museo Argentino, most kindly took me collecting one day; from the Prado and the Arroyo Miguelete, Montevideo, and Bahia de Colonia, Uruguay; Rio Grande do Sul, Brazil; and one specimen that appears to be this species from Tucuman, Argentina.

AEGLA URUGUAYANA, new species

Figure 47; Plate 25, D

Description.—A species of good size, attaining a length of carapace and rostrum together of 33 mm.

Carapace moderately convex, well areolated, front wide. Rostrum long, slender, and sharply acuminate, above lateral margins distinctly triangular in cross section; rostrum in the type specimen exceeds the eyestalks by 1½ to nearly 2 times the length of the cornea (in very small specimens rostrum may be only little longer than eyestalks); rostral carina prominent, multiscaled, scales intermingled, plainly marked backward to a little behind the level of the anterior margin of the protogastric lobes. Epigastric prominences just low swellings situated on the forward slope of the carapace between the orbital margin and the much higher lying anterior margins of the protogastric lobes; the anterior margins sharply marked by a row of five or six light corneous beadlike scales. Areola of good size.

Orbits very wide and shallow, distinctly set off from extraorbital sinus by an orbital spine of good size, extraorbital sinus about three-fifths as wide as the orbital sinus.

Anterolateral spines of carapace scarcely reach posterior margin of cornea, in some specimens a little beyond this level. Anterolateral angles of all three hepatic lobes well marked, at least the first (in the type all three) sharply acute and spined; first spine long and slender and appreciably exserted; the second about half the length of the first; the third in the type as much reduced again.

Large hand quite smooth appearing, only very finely scabrous, elongate, subrectangular, upper surface gently convex, with pair of faint yet discernible low obsolescent ridges converging from each of

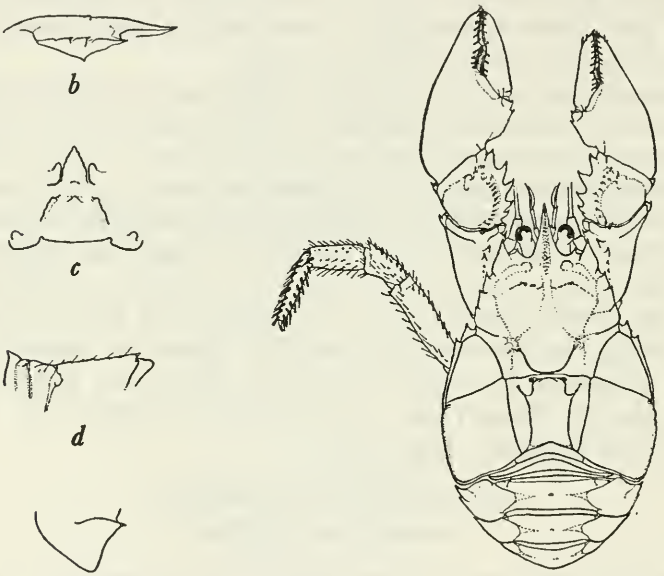

Figure 47.—*Aegla uruguayana*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

the posterior upper angles of the palm to meet and become one about the middle of the length of the palm, shortly thereafter to fade out before reaching the posterior margin of the sinus between the fingers. No lobe on outer margin of movable finger near base; tooth on fixed finger well developed. Virtually no palmar crest, inner margin of palm more or less obsolescently and rather broadly carinated, carina armed anteriorly with a sharp corneous spine.

Carpus of cheliped with acutely spined lobe at anterior-internal angle. Dorsal margin of merus armed with a longitudinal row of strong spines; at anterior end this row of spines appears to turn inward[16] for inside and often a little in advance of the anteriormost of the longitudinal series there is one and sometimes two or more almost equally strong, though usually somewhat more slender, spines in an oblique row (the second spine of this row is always smaller than the first and if there are additional spines they are in turn smaller than the second one); anterior margin of merus with small rounded lobe or tubercle. The inner margin of the ventral surface of the ischium is armed with a well-developed spine anteriorly and only a low swelling or slight nodulation at the posterior end.

Anterior dorsal angle of the epimeron of the second (in lateral view, the apparent first) abdominal somite much produced, ending in a sharp corneous spine; anterior margin of this epimeron below the spine slightly concave and nearly vertical in direction; ventral angle very little less than a right angle, apically rounded off.

Holotype.—The only large specimen, a male, in a lot of 2 males and 4 females, of which the rest are all under 14 mm. in length of carapace and rostrum taken together. This measurement in the holotype about equals 33.3 mm. These specimens were obtained by the Captain Marshall Field Brazilian Expedition of the Field Museum, October 20, 1936, 14 kilometers northeast of San Carlos, Uruguay, Karl P. Schmidt collector, and are in collections of the Field Museum. The holotype carries Field Museum number 2287; paratypes, 2288.

Remarks.—This species is characterized by its long, slender rostrum, triangular in cross section, or, as one might say, ridge-roofed rostrum; the only slightly convex, more or less subrectangular, virtually uncrested hands; and by the distinctly marked hepatic lobes of which the anterolateral angles of at least the first two and often all three are spined. (See also "Remarks" under *A. platensis* and *A. prado.*)

Distribution.—This species seems to be widely distributed on both sides of the River Plate, definitely eastward as far as Punta del Este, Uruguay; south and westward to Buenos Aires, Isla Flores, Belgrano, and Lujan, Province of Buenos Aires, Argentina; north and westward to Paysandu, Uruguay; and Concordia and Paraná, Entre Rios, Argentina. One specimen, a small male, one of the Aeglas examined by Nobili, from San Luis, Argentina, received from the Turin Museum, seems to be near, if not identical with, this species. It is, however, rather far removed from the above indicated range of *A. uruguayana.* This may be due to the lack of collections from the intervening region, or perhaps even to the lack of development of the specific characters in this small specimen.

I have seen specimens from the above-mentioned range-determining localities and also from Paso de la Arena, Arroyo Miguelete (very

[16] A somewhat similar condition occurs in *A. affinis*, p. 495.

small specimen, determination doubtful), St. Lucia, River San José, Rosario, from near Carmelo, Nueva Palmira, and Frey Bentos, Uruguay; and Arroyo El Gato, Guateguaychú, Entre Rios, Argentina. One small lot examined (M. C. Z. No. 10478) was labeled Maldonado, Brazil (I believe that this should be Maldonado, Uruguay).

AEGLA PRADO, new species

FIGURES 48, 49; PLATE 26, A, B

Description.—A small to moderate-sized species. One of the largest specimens I have seen measures about 25.5 mm. in length of carapace and rostrum taken together.

Carapace usually very convex, more so than in any nearly related species; front fairly wide, narrower than in *A. platensis.* Rostrum sharp, spinelike, ridge-roofed, exceeding eyes by at least twice the length of the cornea; the rostral carina is furnished with several longitudinal rows of irregularly placed, tiny corneous scales; the carina is continued backward past the anterior margins of the protogastric lobes, at the level of which it widens out to form a low, blunt ridge that may be more or less readily traced to the posterior margin of the carapace; it is interrupted only by the cervical groove; this ridging or transverse angling of the median line is not so prominently developed in all the specimens at hand, yet it is a conspicuous feature in a very considerable number of the larger representatives of the species. Though otherwise quite distinct this was the first species I personally encountered in South America that had any real resemblance to Nicolet's prominently keeled Chilean *A. denticulata.*

Epigastric prominences are low to obsolescent swellings; anterior margins of protogastric lobes sharply acute-angled, apex raised up and almost small-tuberculiform, more prominently so in the smaller than in the larger specimens.

Orbits of good size, much larger than extra-orbital sinuses, which are relatively moderate to small in size; orbital spine small, standing fairly close to anterolateral spine.

Anterolateral spines well-developed, reaching not quite to middle of cornea. All three hepatic lobes well marked and corneous spined, and each well set off from the others, so that the lateral margin of the anterior portion of the carapace narrows stepwise from the cervical groove to the anterolateral spine.

Hands very swollen looking, more or less broadly ovate. Movable finger with a plainly marked, generally small-spined lobe on outer margin near base. No particular crest developed on inner margin of palm, and no such posterior angle or "heel" as in *A. platensis;* however, there is a noticeable spine or two (sometimes more, and then

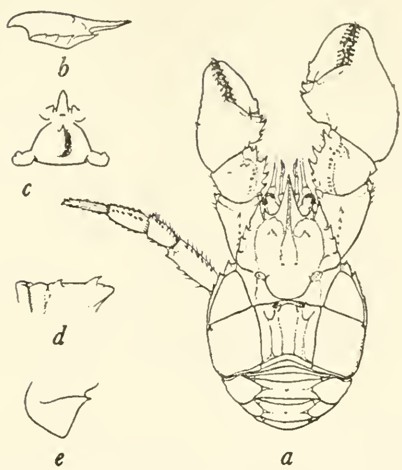

FIGURE 48.—*Aegla prado*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

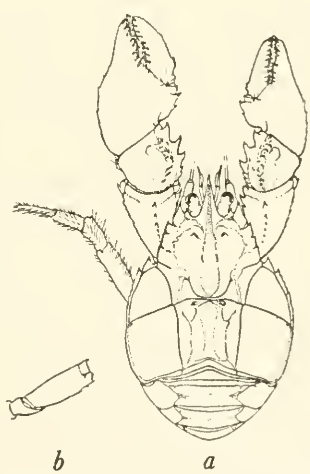

FIGURE 49.—*Aegla prado*, new species, male paratype: *a*, Dorsal view; *b*, merus of first right ambulatory leg. This specimen has a very prominently ridged carapace. The hands are less typical, the larger has perhaps been recently regenerated; likewise, the first left ambulatory leg is certainly relatively feebler than the other legs of this same specimen and lacks the ventral meral spines present on the first right ambulatory leg and both of the first pair of ambulatories of the type. *a*, natural size; *b*, twice natural size.

smaller spines) in line on the inner margin of the palm a little behind its anterior border; outer margin of hand somewhat small-spinulose, occasionally with a larger spinule or spine.

Anterior internal lobe or angle of carpus of cheliped forming a stout, acute, conical spine. Upper margin of merus with a straight, longitudinal row of sharp spines, no inward turn at anterior end as in *A. uruguayana;* anterior margin of merus scabrous or small denticulate. Ischium below on inner margin armed with a well-developed sharp spine at anterior end, a prominent feature even in quite small specimens; at posterior end a low conical tubercle or nodule, often with acute corneous tip (in only one of well-developed males was there a fairly sharp spine at the posterior end of the ischial border in addition to the much stronger spine at the anterior end).

The first ambulatory merus has a spine of fair size developed on the posterior ventral margin at about the level of the proximal margin of the articulating membrane, besides the smaller spine at the distal end of this same margin. With respect to this ventral meral spine, *A. prado* reveals kinship to *A. parana* and *A. sanlorenzo*, though quite different from them in a number of other respects, particularly in its smaller extraorbital sinuses, and therefore only moderately wide front.

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite spined, anteroventral border almost straight to very slightly concave, ventral angle rounded off.

Sternal plate between chelipeds carries a median, corneous, spine-tipped, conical tubercle; even in very small specimens this sternal spine is of good size, well formed, and sharply acuminate.

Holotype.—One of the larger males of a sizeable lot of specimens, U.S.N.M. No. 80017, collected in a small tributary of the Arroyo Miguelete in the Prado, Montevideo, by the late Dr. Juan Tremoleras and myself, December 1, 1925. This specimen, the second largest male, is 25 mm. in length of carapace and rostrum taken together; the largest male, is 25.5 mm., the largest female 21 mm. long; included in the material are a considerable number of juveniles between 10 and 15 mm. long. These Aeglas were plentiful under the grass and vegetable debris that carpeted this very shallow stream, perhaps because of the numerous fragments of picnic lunch, bits of bread and meat scraps, that had been thrown into the water. The water temperature was between 28° and 29° C.

Remarks.—This species and *A. uruguayana* are much alike in general appearance, though very probably not in color in life. Most specimens of the latter that I have seen are very light colored in alcohol; *A. prado*, on the other hand, is quite dark, even the specimens that I collected 17 years ago.

The stepwise arrangement of the well-marked hepatic lobes and the frequently strongly ridged carapace tend to set this species apart from those that are most closely related to it. As in *A. uruguayana*, there is a sharp to spinous tipped tubercle on the anterior sternite, but in the present species it is larger, usually sharper, and more erect, forming roughly an angle of about 45° with the general surface of the sternite. The ventral inner ischial borders of the chelipeds are similarly armed in the two species, but in *A. prado* the posterior tubercle is more prominent, larger, higher, and more pointed, occasionally quite spinelike; in small specimens it is already sharp-pointed and readily hooks or engages a needle drawn backward along the ischial border; in small as well as large *A. uruguayana* posteriorly there is but a small low tuberclelike swelling or small nodulation which often is relatively inconspicuous.

Distribution.—*A. prado*, so far as at present known, has been found only in watercourses in and about the city of Montevideo. Dr. Florentino Felippone, long a valued correspondent of the United States National Museum, collected 2 males and 2 females of this species in the Miguelete on December 6, 1922, along with four smaller specimens of *A. platensis*. More recently, Alberto Tremoleras, son of the late Dr. Juan Tremoleras, of Montevideo, Uruguay, kindly collected for us a lot of 19 females in Arroyo Malvin, January 21, 1936, about 2 kilometers from its mouth. Of these, 16 were ovigerous specimens. He noted on the label, "fresh water, partly stagnant."

AEGLA CASTRO, new species

Figure 50; Plate 26, F

Description.—A small species of which the largest specimen I have seen measures 28.5 mm. in length of carapace and rostrum together.

Carapace moderately convex. Rostrum an elongate, triangular, ridge-roofed spine, exceeding eyestalks by about 1½ times the length of the cornea; rostral carina well defined, furnished with about two rows of more or less alternating, often closely set, small, corneous scales; the rostral carina posteriorly merges with the general surface of the carapace on a level with the protogastric lobes.

Epigastric prominences somewhat rounded, blunt tuberclelike; anterior margin of protogastric lobes forms a conspicuous obtusely angled ridge or elevation which at its apex may be slightly scabrous.

Orbit wide, orbital spines well set off from anterolateral spines by a small to moderately wide extraorbital sinus.

Anterolateral spine of carapace fairly slender, reaching to middle of cornea or beyond. All three hepatic lobes usually plainly indicated; only the first has its anterolateral angle spined, and forms an offset in the general trend of the anterolateral margin of the anterior portion of the carapace.

Large hand moderately inflated, somewhat elongated. Movable finger carries a well-formed, often small spiny lobe on outer margin near base. Palmar crest fairly large, conspicuous, somewhat subdisciform, distinctly shallowly impressed or excavate with upturned, more or less serrate, and definitely sharply spinulose margins; outer margin of hand finely spinulose.

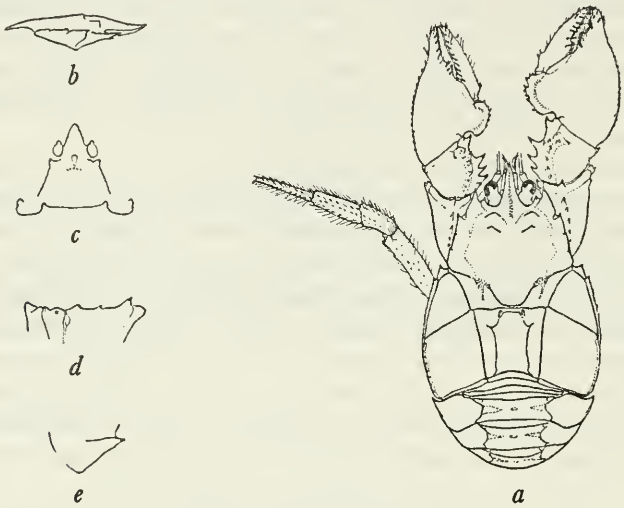

Figure 50.—*Aegla castro*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

Ridge above inner spined margin of carpus armed with conical tubercles, of which the greater part are more properly acute conical spines; the anterior internal lobe or angle of the carpus is broadly conical and tipped with a small sharp corneous spine; upper margin of merus armed with slender spines, of which the most anterior and sometimes the largest is situated directly on the anterior margin of the merus, the next spine may be slightly larger or slightly smaller than the anteriormost spine. Inner margin of ventral surface of ischium also has a strong conical spine at anterior end, and generally, in addition, a smaller one of variable size and acuity at the posterior end, and a much smaller one or two in between.

Meri of ambulatory legs with a small spinule or two near anterior end of lower outer margin on level with posterior portion of articular membrane or behind it, perhaps to some degree comparable to the similarly placed but relatively ever so much larger, conspicuous spines in *A. parana* and *A. sanlorenzo*, and not quite so prominent one in *A. prado*.

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite produced and well spined, anteroventral margin about straight; the ventral angle is rounded off.

Holotype.—The largest and best-developed male of a lot of nearly 200 specimens about equally divided between males and females taken from the Rio Iapó in the State of Paraná, Brazil, October 1925. The type, U.S.N.M. No. 80020, measures 28.5 mm. in length of carapace and rostrum.

Remarks.—The somewhat subdisciform palmar crest of this species is so strongly reminiscent of that of *A. odebrechtii* (p. 487) that when I first found this species in the field I thought I had found the species described by Fritz Müller, but the spined dorsal anterior epimeral angles of our species at once set it apart from his *odebrechtii*, in which these angles are rounded off and not spined. Moreover, the rostral carina and the spined carpal ridge of *A. castro* are very different. The palmar crest is also very similar to that of *A. odebrechtii paulensis*, from which, however, our species may be distinguished by the same characters that separate it from *A. odebrechtii*.

In the primarily 2-spined inner ischial margin the present species has something in common with *A. parana*, *sanlorenzo*, and *prado*, and also, as suggested above, in the armature of the ventral margin of the first ambulatory merus. In the first two of these species the posterior of the two ischial spines is about or nearly equal to the anterior one; the first and third species appear to have no intervening conical spines or nodules. On the other hand, in *A. castro* and in *A. sanlorenzo* there usually seems to be an intervening nodule, or small spine or two. In both *A. prado* and *castro* the posterior ischial spine, even if well developed, is noticeably smaller than, often only a fraction of the size of, the anterior one.

Color.—In life, a rather uniform very dark olive all over, with occasional suggestion of olive-green; suture lines a little muddy or grayish owing to dirt held there; antennae colored like carapace; antennules brownish gray, in part clay color. Prehensile margins of fingers of chelae dark orange-chrome, lighter below flushing the movable finger with color, with a bright spot at the articulation. Distal half of ambulatory dactyls saturn red to light orange-chrome suffusing the dark greenish basal half of the dactyls at the juncture of the two colors. Under parts generally dirty white, central portion of sternum sometimes with a faint touch of blue (?cerulean blue), under side of ambulatory propodi and carpi and outer margin of hands and maxillipeds dirty chromium green (for colors see Ridgway, 1886).

When turned over these specimens righted themselves very handily, a faculty not so apparent in the larger *parana* specimens collected at Rio Negro, Parana, Brazil. Small specimens would "freeze" when taken hold of by one leg, but not the larger individuals.

Distribution.—So far collected only in the general region about the town of Castró, Paraná, Brazil, chiefly in the Rio Iapó near the town, and for some distance up and down stream. In obtaining the considerable series of specimens I brought back with me, I was most helpfully assisted by the Harry Preston Midkiffs, of the Instituto Christão, by Camille Cunha and several of his nephews, and by Werner Nickol, Conrado Pusch, Amacleto Baptista, and a friend of theirs who took me on an all-day automobile trip to the Hacienda Marumby, where we obtained additional material. Air and water temperatures there were about 68° F. At Castró on October 20 at about 9:30 a. m. the air was 72° F., water 66° F.

AEGLA FRANCA, new species

FIGURE 51; PLATE 26, D

Aeglea laevis (especie duvidosa) LUEDERWALDT, Rev. Mus. Paulista, vol. 11, p. 431 (sep., p. 5), 1919.

Description.—A small species; the largest so far seen attains a length of carapace and rostrum together of 24 mm.

Carapace moderately convex, front relatively narrow. Rostrum moderately broad, ridge-roofed, lateral slopes of "roof" may be slightly concave; exceeds eyes by very little more than the length of the cornea; carinated to tip, carina furnished with a few irregular, fairly closely set rows of small corneous scales; posteriorly the dorsal margin or carina of the rostrum ends in a depression between and appreciably below the general level of the protogastric lobes of the carapace; front relatively narrow.

Epigastric prominences not at all well marked, obsolescent; anterior margins of protogastric lobes, on the other hand, are very prominent, acute angled, and almost tuberculiform apically (somewhat as in *A. prado*).

Orbital sinus of moderate size; orbital spine small and set close to anterolateral spine, making extraorbital sinus appear very small, more a small U-shaped notch than a sinus.

Anterolateral spine appears to be fairly short, yet it reaches at least to level of middle of cornea, often beyond. Anterolateral angle of first hepatic lobe acute, corneous-spine tipped, second and third lobes fairly well marked, scabrous or minutely spinulated, but not spined.

Large hand only moderately inflated, moderately broad. Movable finger has a small but definite spined lobe on outer margin near base.

Palmar crest low, narrow; obscurely and irregularly serrate, spinulose or small spined, margin very slightly upturned. Ridge on carpus of cheliped above spined, inner margin furnished with small, more or less transverse scabrous ridges; anterior internal lobe of carpus subacute with several spinules on its margins besides the small apical one; upper longitudinal margin of merus with a single row of sharp spines of which the first is much the longer; on the anterior margin of the joint in line with the upper marginal row of meral spines is a low scabrous tubercle. Inner margin of ischium beneath with a sharp conical spine at anterior end, another usually slightly smaller one near the posterior end, and one or two much smaller ones in the interval between the first two.

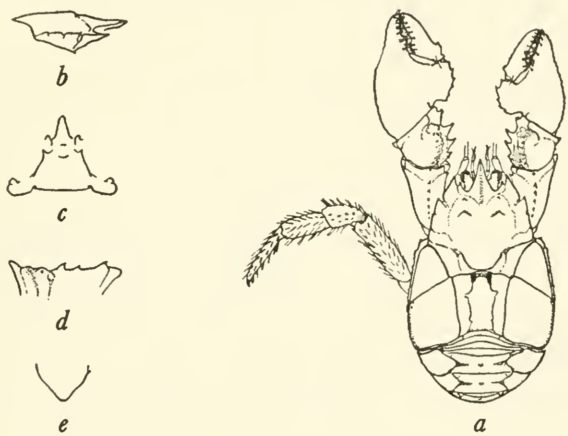

Figure 51.—*Aegla franca*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c-e*, twice natural size.

Anterior dorsal angle of epimeron of second abdominal somite more or less blunt-angled; usually, but not always, with one or more tiny hyaline or corneous spinules or granules at apex of angle; anterior margin below angle about straight.

Holotype.—The largest of 10 males from Franca, State of São Paulo, Brazil, collected in October 1910, by E. Garbe (No. 622), received some years ago as a gift from the late Dr. Hermann von Ihering. The type, U.S.N.M. No. 80019, measures 24 mm. long (carapace and rostrum).

Remarks.—This species and the one following have relatively narrow fronts as compared with the several preceding species (A^1 section of diagnostic key). This character and the reduced extraorbital sinuses are suggestive of the species that follow (A^2 section of key), yet, in general, the more or less ridge-roofed type of rostrum and the fact that the rostral carina goes straight through to the tip of the rostrum seem to identify this species with the A^1 rather than the A^2 group.

In a measure, perhaps, *A. franca* and *A. jujuyana* are to be regarded as transition forms lying between those having a ridge-roofed rostrum and those in which the rostrum is longitudinally more or less troughed or excavate either side of the median carina.

Certainly *A. jujuyana*, next dealt with, is very closely related to *A. humachuaca*, with which it might have been grouped except for its sharply carinated rostrum, which for this reason appears to be more or less definitely ridge-roofed, as the broader, flatter, blunt-ridged rostrum of *A. humachuaca* decidedly is not. Moreover, the latter possesses a definite palmar crest of which there is no trace in *A. jujuyana.*

Distribution.—So far known only from the type locality.

AEGLA JUJUYANA, new species

FIGURE 52; PLATE 26, E

Description.—A species of moderate size, attaining a length of carapace and rostrum together of about 29 mm. Otherwise I have seen but two small specimens of 18 and 18.5 mm., respectively.

Carapace moderately convex. Rostrum fairly wide-triangular, scarcely exceeding eyes by the length of the cornea; median carina sharply crested to the anterior extremity, giving rostrum a definitely ridge-roofed appearance, particularly in the anterior half or third of its free portion, even though the lateral slopes of the dorsal surface of the rostrum toward the base of the rostrum are somewhat concave; rostral carina for whole or greater part of its extent with a single row of good-sized corneous scales, at least on that portion of the rostrum lying anterior to the posterior margins of the orbits; posteriorly the carina scarcely runs back to the anterior margin of the protogastric lobes; these are low, anteriorly blunt and scarcely marked except for the few corneous scales outlining them anteriorly. Epigastric prominences also low, scarcely better developed than the anterior margin of the protogastric lobes.

Orbital sinus of moderate width; orbital spine small, placed well up on inner margin or slope of anterolateral spine and set off from it by a small blunted-V-shaped sinus.

Anterolateral spines, though fairly short, appear moderately slender, reaching at least to middle of cornea or beyond. Anterolateral angle of first hepatic lobe acute and tipped with a small, sometimes acute corneous scale; second and third lobes indicated, somewhat scabrous, second usually a little better marked than the third.

Large hand short, stout, inflated, and smooth appearing; short fingers gaping, without the usual characteristic lobular tooth of an *Aegla* on prehensile margins (there is perhaps a very faint indication of an obsolescent lobular tooth on the movable finger of the minor chela); no lobe or trace of one on outer margin of movable finger near base; no trace of a ridge, however faint, on upper surface of palm. No palmar crest, dorsal margin of palm broad, thick and rounded off. Ridge on carpus of cheliped above spined inner margin

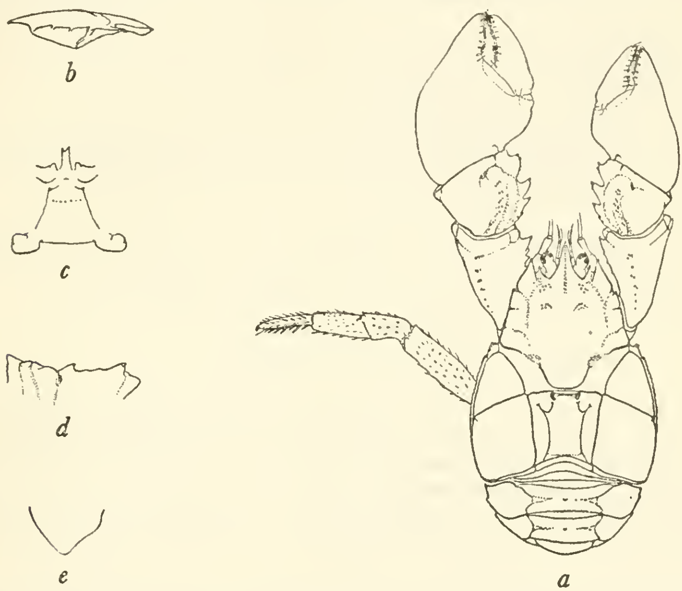

FIGURE 52.—*Aegla jujuyana*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

low and more or less obsolescent (it may be faintly traced for about two-thirds the length of the carpus), at most only slightly scabrous; anterior internal lobe of carpus subacute, flattened-conical, armed with two or three small corneous scales, of which the apical one is the larger; dorsal ridge of merus of cheliped furnished only with a longitudinal row of small, low, not very conspicuous, scabrous swellings; anterior margin merely slightly scabrous. Inner margin of ischium armed with two stout, low, conical, corneous scale-tipped tubercles, one anterior, one posterior; there may be one or two irregularities, obsolescent tubercles, or nodules on the inner margin between these spines.

First ambulatory legs with a small sharp spine or acutely pointed tubercle near anterior end of ventral margin of merus about opposite

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the middle of the length of the articular membrane and a stouter low-conical one on inner side of ischium near "apex" of ventral face of this joint.

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite may be blunt or rounded off, or armed with a tiny corneous spinule; the anterior margin below the anterior angle or spinule is very slightly concave. In the largest of three specimens, the male type, there is a definite small spine on the left side and none on the right; the other two specimens are quite small, the larger of these has a corneous spine on the right side and an almost imperceptible corneous scale or tiny granule on the left; the smaller has neither scale nor spine on either side.

Holotype.—The largest of three male specimens measuring about 29 mm. in length of carapace and rostrum together, collected by Antonio Pozzi and Angel Gatta, Rio Chico, Jujuy, 1925 (M.A.C.N. No. 16237).

Remarks.—See under *A. franca*, above, and *A. humahuaca*, below.

Distribution.—Known only from the type locality.

AEGLA DENTICULATA Nicolet

FIGURE 53; PLATE 26, C

Aeglea denticulata NICOLET, *in* Gay, Historia fisica y politica de Chile, Zool., vol. 3, p. 200, 1849; Atlas, Crustaceos, pl. 2, fig. 1, 1854.—GIRARD, Report of the U. S. Naval Astronomical Expedition to the Southern Hemisphere, vol. 2, p. 255, 1855 (listed only).

Aegla denticulata RATHBUN, Proc. U. S. Nat. Mus., vol. 38, p. 602, 1910 (listed only).

Description.—A distinctive, well-marked species of good size when fully grown, attaining a length of carapace and rostrum together of at least 31 mm. (based on the estimated length of a large specimen with broken rostrum); smallest specimen seen, also a male, 14.5 mm.

Carapace prominently and boldly, but bluntly, keeled for practically the full length of its median line, interrupted only by the cervical groove; carapace more ridge-roofed than convex; lateral margin of posterior portion of carapace behind cervical groove conspicuously serrate, first of these saw-teeth just behind cervical groove larger and broader than anterolateral tooth of carapace, second nearly equal to first; following teeth of lateral margin decreasing in size posteriorly to transverse suture line separating the anterior portion of the branchial region from the posterior; behind this suture line the margin is scarcely more than small denticulate, almost crenulate in appearance; the larger teeth or serrations of the lateral margin are often secondarily toothed or spined on their posterior borders. Front narrow. Rostrum moderately broad-triangular, scarcely if at all exceeding eyestalks by as much as the length of the cornea; anteriorly the median carina fades out in the distal third of free portion of rostrum, to become merged in the thickened tip of the rostrum; there is definite groove or depression either side of the medially raised portion of the rostrum and its somewhat thickened lateral margins; the rostral carina, though prominent, has a bluntly rounded-off crest on which there is a scattering of very fine, almost microscopic scabrosities. Epigastric prominences low, obsolescent, protogastric lobes equally poorly developed, causing scarcely more than a break in reflected light.

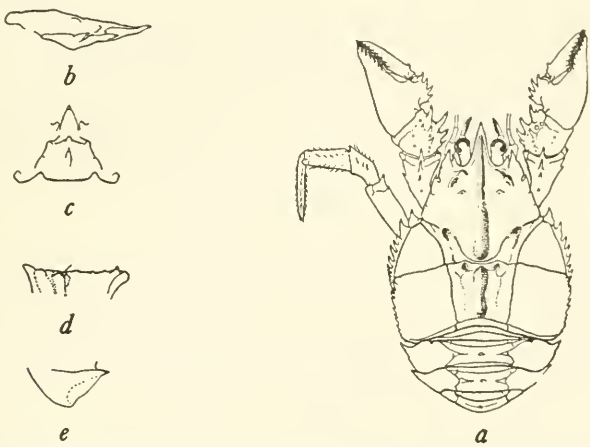

Figure 53.—*Aegla denticulata* Nicolet, male neotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size

Orbital sinus fairly narrow, an obtuse-angled V; orbital spine spiniform, rather high up on inner slope of anterolateral spine; extraorbital sinus small, a narrow V-shaped notch. Anterolateral spines moderately slender-conical, sharply acute, reaching about to or a little past middle of cornea. Anterolateral angle of first hepatic lobe a stout, somewhat exserted spine; second and third lobes well marked by sizable notches, although their anterolateral angles are neither sharp nor particularly well developed, at most a little scabrous.

Hands, compared with most Aeglas, relatively feeble and underdeveloped, small and only lightly convex; prehensile margins of fingers fitting closely together; movable finger with a sharp spinous lobe on outer margin near base (in the largest specimen this lobe takes the form of a stout, sharply pointed, conical spine). Upper margin of palm forming a thick crest conspicuously spined, spines fairly slender and of good size, usually four spines; sometimes there is an additional smaller spine inserted near the base of one of the larger ones.

Ridge of carpus of cheliped above inner spined margin armed with four to five sharp spines, occasionally with a few very much smaller ones in between, sometimes, as in one of the females, these spines may not be fully developed, for they seem to be represented by scabrous-tipped tubercles; the spines arming the inner margin of the carpus are very prominent, long, very strong, particularly the more anterior, very sharp, and two in number not counting the almost equally strong spine, which appears to be more properly a part of the lobe at the upper anterointernal angle of the carpus; in advance of this particular spine the lobe carries a small, low, but sharp, conical, and relatively inconspicuous spine. Dorsal margin of merus of chelipeds armed at anterior end with a large, strong, sharply pointed spine, followed by perhaps two or three very much smaller ones; a spine similar to the large spine on the dorsal margin of the merus but of even larger size arms the anterior margin of the joint; often this spine has a little sharp spine or spinule on the inner or outer side of its base.

Inner margin of ventral surface of ischium with a very low, subacute, corneous-tipped cone at anterior end, scarcely developed enough to be called a spine, followed by three or four more or less equally spaced little bumps or small nodules which in some cases apically carry tiny, almost imperceptible, corneous scales.

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite markedly produced, forming an acute corneous tipped spine which is strongly buttressed behind by a prominent ridge or carina; anterior lateral margin below approximately straight.

Neotype.—Second largest male measuring slightly over 27 mm. in length of carapace and rostrum, one of a lot of 10 ♂ 2 ♀ from Orsono, Chile, collected by the late Dr. C. H. Eigenmann, March 14, 1919 (U. S. N. M. No. 80021).

Remarks.—On the basis of the general character and appearance of the other species of *Aegla* described in this paper, Nicolet's original description and figure of *denticulata* scarcely appeared credible; the rather feeble hands led one to believe he had figured a female; the dorsal longitudinal keel or ridge running the full length of the carapace seemed an exaggeration; while the large prominent saw-teeth along the distal moiety of the lateral margin of the posterior portion of the carapace immediately behind the cervical groove gave the impression that they were a figment of the imagination. But after seeing the specimens of *A. denticulata* collected by Dr. Eigenmann, here redescribed, I am willing to believe that almost anything in the way of ornamentation and spining may be possible in the Aeglas.

Nicolet's apparently crude figure has proved to be a surprisingly accurate portrayal of the salient characters in nearly every particular, including the sharply spined epimeral angle and the stout meral spines of the cheliped, as well as the row of spines on the carpus above the spined inner margin of this joint; only the middorsal row of scabrosities of the carpus are a little too prominent in his figure.

A. denticulata is virtually in a class or group apart from all other Aeglas; only *A. prado*, which I discovered and described before I came upon this *denticulata* material, at all approaches it, and then only in the keeling of its carapace in certain specimens, and also, to a slight degree, in the spining of the palmar crest and the inner margin of the carpus of the chelipeds.

Distribution.—As Nicolet says, "found in the republic" of Chile, but, so far as I know, the only specimens that have been seen since his time, 1849, are those from Osorno redescribed here.

AEGLA PAPUDO, new species

FIGURE 54; PLATE 27, C

Description.—A species of moderate size, attaining a length of carapace and rostrum of at least 26 mm.

Carapace very convex, perhaps more so than any other species of *Aegla*, especially across the gastric region. Rostrum more or less elongate-triangular yet along the middle of its length, in small part at least, with its lateral margins approximately subparallel; basally the rostrum is transversely fairly flattened and depressed either side of rostral carina; the rostrum has a strong downward trend, but its distal portion is markedly recurved; rostrum extends at least the length of the cornea or a little more in front of the eyestalk; either side of its median carina the rostrum is a little troughed or excavate; the carina extends forward only from one-half to not more than two-thirds the length of the free portion of the rostrum; beyond the anterior end of the carina the dorsal surface of the rostrum is generally for the most part gently concave from side to side and usually, but not always, without any but a slight trace of the carina or any corneous scaling in line with that on the carina itself; the corneous scales on the carina are very dark brown, thick, and almost beadlike; the carina runs posteriorly almost to the anterior margin of the protogastric lobes, its dorsal beading, however, extending back only to about halfway between the epigastric prominences and the anterior margins of the protogastric lobes; the carinal beading forms a single, virtually straight, at times slightly wavy row of scales.

The epigastric prominences are subacute-tubercular and topped with 2 to 6 beadlike scales like those on the rostral carina; one or two similar beads likewise mark the apices of the acute-angled anterior margins of the protogastric lobes. Areola wide, appearing very squat.

An orbital spine may be characteristic of this species; the evidence is not conclusive; the spine is often represented by a small spinule or acute corneous scale scarcely to be recognized as an orbital "spine"; about a third of the specimens examined, mostly small, had no spinule on either side, one-third had a definite spinule present on one or the other side, while the remaining third had a spinule or correspondingly sharp-pointed scale at the outer end of each orbit; whether

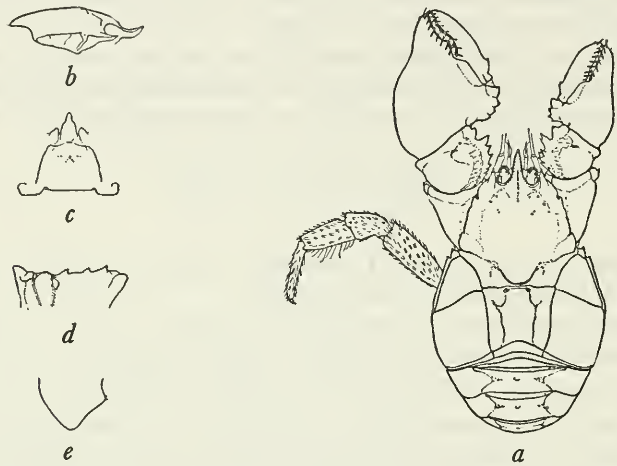

Figure 54.—*Aegla papudo*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size. The rostrum is more lingulate than is apparent in *a* (cf. pl. 27, C).

armed with a spinule, scale, or granule or not, there is nearly always a slight, sometimes abrupt but narrow, often lightly notched or incised offset, usually no wider than the thickened border of the orbit, between the outer end of the orbital margin and the inner slope or margin of the anterolateral spine. Each of the three specimens belonging to the Philadelphia Academy, referred to in the remarks appended to the "Distribution" of this species below, shows a definite though small orbital spine on each side, separated from the corresponding anterolateral spine by a narrow notch.

Anterolateral angle of carapace forming a sharply acute, fairly slender conical spine, which reaches to and a little past the posterior border of the cornea, in some cases about to the middle of the cornea.

Anterolateral angle of first hepatic lobe thick, lumpy, and blunted, with a few corneous, scalelike projections, scarcely to be called spinules; second and third hepatic lobes evident, but poorly marked.

Large hand stubby, palm thick and heavy looking, much swollen, almost subglobular in appearance in some specimens, scabrous. Movable finger with a low swelling or rather a small, more or less obsolescent spinulose lobe on outer margin near base. Palmar crest low, outer margin thick and blunt-tubercular; the almost tuberclelike serrations are furnished with short, more or less transverse rows of small, pointed, corneous scales, few in number. Carpus rough-scabrous, the only longitudinal ridge being the one above the inner marginal row of spines; this ridge appears doubled, as it carries two longitudinal series of more or less transverse rows of small, pointed, almost spinulelike corneous scales. Anterior internal lobe or angle of carpus, though at times subacute, more usually blunt, generally furnished with several scattered, more or less subequal, almost spinuliform, corneous scales; occasionally the apical one is a little larger than the others. Merus armed above with a longitudinal series of blunt tubercles topped with one, two, three, or more small, pointed, corneous scales; anterior margin fine denticulate, without lobe or swelling. Inner margin of ventral surface of ischium armed with three to four more or less subequal, more or less equispaced, low, but definite and well formed, conical tubercles or spines with subacute to acute corneous tips, one anterior, one posterior, and one or two in the interspace between the first two.

Dorsal anterior angle of epimeron of second abdominal somite normally and usually rounded off and unarmed; very rarely does one find a corneous scale or denticle or two, or even a small spinule here and there usually on the epimeron of one side only. The specimen selected as the type is, in this respect only, perhaps one of the most atypical specimens in the entire type lot. It is the largest specimen and has two little scales or tiny denticles on the right epimeron and one tiny "cornule" on the left; the next largest specimen has nothing of the sort on either dorsal epimeral angle; otherwise. only four specimens out of the original lot of 20 have any trace of spinule, denticle, or scale on the right or left epimeron. In about its middle third the sternite between the bases of the chelipeds of the type and one other specimen is somewhat swollen or raised up along the median line, more so anteriorly, where it carries a perhaps adventitious, tiny, corneous prickle or spinule, than posteriorly. In the next largest specimen this swelling is much less marked. Also, it is unarmed, as it is in the rest of the specimens at hand. Most of these have the median elevation more or less obsolescent, yet have an appreciable, though not very noticeable, convexity of the underside of the sternite; in a few of the smaller specimens it is not evident at all.

Holotype.—The largest male out of a lot of 14 males and 6 females (1 ovig.), measuring 26 mm. in length of carapace and rostrum, collected by J. A. Wolfsohn at Papudo, Chile, and received at the Field Museum on February 3, 1925 (Field Museum No. 2285; paratypes, 2286).

Remarks.—This species, because of its very strongly reflexed, anteriorly concave, or excavated rostrum, very convex carapace, and much-swollen hands with low thick palmar crest, stands quite apart from the other species of *Aegla.*

Although the dorsal anterior angle of the epimeron of the second abdominal somite may rarely, and I believe only adventitiously, carry a small, corneous scale or two, or even a tiny spinule, it does seem that *A. papudo* is properly one of the group of species with a rounded, unarmed dorsal anterior epimeral angle which includes *A. odebrechtii*, *A. o. paulensis*, *A. neuquensis*, and *A. affinis.* In certain other respects *A. papudo* seems to stand not far from *A. concepcionensis.*

The several suture lines that meet to form the anterolateral angles of the cardiac area of the carapace combine to form a short, quite longitudinally oriented bar (fig. 54). It holds for every specimen of *A. papudo.* Otherwise, I have noticed this state of affairs only in the unique holotype of *A. affinis* (p. 496, fig. 58, *a*). In all other species this short "bar" is, in contrast to *A. papudo* and *A. affinis*, oriented so as to be very nearly transverse, or at least obliquely transverse.

Distribution.—So far known only from the 20 specimens (14 males, 6 females) of the type lot from Papudo, Chile; 3 males and 1 female from Talcahuano, Chile (M. C. Z. No. 10480) and 1 male (about 24 mm. long) with only the indication Chile on the label, belonging to the Museu Paulista, São Paulo, Brazil (M. P. No. 1306). I have also seen a not altogether satisfactorily determinable female specimen from the Rio Mapocho, near Talaganti, Province of Santiago, Chile, collected by my good friend Dr. Carlos E. Porter, March 17, 1940, that seems to be this species.

Recently I had the opportunity of examining the Aeglas belonging to the Academy of Natural Sciences of Philadelphia. Included in that collection were three dried female specimens between 30 and 31 mm. in length of carapace and rostrum together, labeled "*Aeglea laevis*, Chili, Dr. Wilson" (Acad. Nat. Sci. Phila., no. 484, pt.). All showed the more or less longitudinal suture lines of *A. papudo* (and *A. affinis*). Their anterior dorsal epimeral angles are rounded off and show no trace of either corneous scale or spinule. The rostral carina seems a little more prominent for a greater extent of the rostrum than is the case in most of the representatives of the species I have seen so far, the carina having perhaps become accentuated as a result of the drying out of the specimens. Orbital spines, separated from the anterolateral spines by narrow notches or incisions, are definitely present. The palmar crest is typical, low and appearing lumpy.

AEGLA ODEBRECHTII Müller

FIGURE 55; PLATE 27, A

Aeglea Odebrechtii FRITZ MÜLLER, Jen. Zeitschr. Naturw., vol. 10 (new ser., vol. 3), p. 13, pl. 1, figs. 1–10, 1876.

Aeglea intermedia MOREIRA, Arch. Mus. Nac. Rio de Janeiro, vol. 11, pp. 21, 84, 1901.

Description.—A species of moderate size, attaining at least 28 mm. in length of carapace and rostrum taken together.

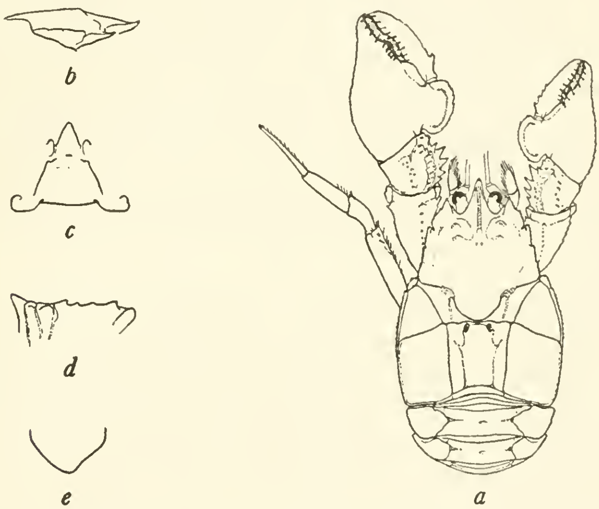

FIGURE 55.—*Aegla odebrechtii* Müller, male neotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

Carapace with gastric region quite convex. Rostrum relatively short, not exceeding eyes by more than the length of the cornea, fairly flat, broadly triangular, and appreciably widely grooved or excavate either side of the well-marked median carina; distally the carina tends to fade out before reaching the anterior extremity of the rostrum; on the carina are two rows of small, more or less alternating, corneous scales fairly close together, so much so that close to the distal end of the carina the two rows merge to form one irregular row.

Protogastric lobes not well marked, because of the very appreciable convexity of the gastric region; epigastric prominences blunt swellings.

Orbital sinus moderately wide but shallow, orbital spine a small, acute, corneous projection set close to the anterolateral spine and separated from it by a much-reduced extraorbital sinus, a small V-shaped incision or notch. Anterolateral spine relatively short, flattened triangular in the largest specimen, more slender and elongate appearing in the smaller ones, may reach a little past the level of the posterior margin of the cornea.

First hepatic lobe, though separated from the anterolateral one by a conspicuous notch, has its anterolateral angle bluntly rounded off and its lateral margin small scabrous, as are the margins of the second and third hepatic lobes, which are only poorly indicated; in smaller specimens the first hepatic lobe is subacute and tipped with a corneous scale larger than those elsewhere on the lateral margin.

Hands broadly ovate, more or less flattened, yet gently convex. Movable finger with a definite lobe on the outer margin near the base; lobe tipped or furnished with one or more acutely conical corneous scales (almost very small, short, conical, corneous spines). Palmar crest the most distinctive feature of this species, large, subdisciform, and noticeably excavate, much as if it had been impressed or pinched out while soft with the ball of one's thumb; margin of crest noticeably upturned, more or less obscurely serrate, scabrous to small-spinulose.

Ridge of carpus of cheliped above spined inner margin well developed, raised above general level of carpus, and marked with nodular swellings carrying transverse rows of corneous scales; anterior internal lobe or angle of carpus low, conical, and furnished with small corneous scales apically and on its slopes. If one regards the largest spine of those arming the inner margin of the carpus as the most anterior of that particular series, we find then in this species on the inner anterior slope of the base of that first spine a smaller, yet conspicuous, strong spine located in more or less of a triangular area delimited by that first spine, the carpal ridge, and the anterior internal lobe of the carpus. This "inserted" spine may sometimes be closer to, but not normally fused with, the large first spine of the series arming the inner margin of the carpus than it is to either the carpal lobe or the carpal ridge. This spine seems to be represented in the closely related *A. odebrechtii paulensis*, immediately following, by a similar one also placed on the anterior slope of the first spine of the series arming the inner carpal margin; unlike the independent, distinct spine of the species proper (*s. s.*), it is always much fused with the first spine (of the inner marginal series), so that usually only its tip is distinguishable; sometimes it is wholly fused with the first spine, which, in either case, is a very much thickened spine. In *A. odebrechtii*, between the "inserted" spine as it may be designated and the carpal ridge there may be, also in the larger specimens of the species, an acute little tubercle armed apically with two or three sharp, dark-colored corneous scales. Inner margin of ventral surface of ischium armed with four more or less subequal, at times more or less equispaced, low, but definite and well-formed, conical tubercles or spines with subacute to acute corneous tips, the anteriormost the largest, the most posterior second in size, the anterior of the two in between the first two named, third, and the posterior fourth in size (this describes the margin of the left ischium of the neotype; the right is armed like the left except that the two spines in the interspace between the anterior and posterior spines are just about equal in size and placed quite close together in the middle of the interspace); in the specimen next in size (25 mm.) the anterior spine is quite appreciably larger than any of the others on this margin of the ischium.

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite broadly rounded off, not spined.

Neotype.—The largest male I have seen (U.S.N.M. No. 80022), 28 mm. in length of carapace and rostrum, was collected by Dr. Carlos Moreira in 1904 in Santa Catharina, Brazil, and later generously presented by him to the United States National Museum.

Remarks.—More intuitively than he realized, Fritz Müller (1876) exclaimed, when his first specimen of *Aegla odebrechtii* came to hand, "How is it that we find this Pacific crustacean [from the western slopes of the Andes] in our mountains [here on the Atlantic coast of Brazil]?" So far as he knew at that time, no representative of the genus had been discovered outside of Chile, and, in spite of the wide distribution of the Aeglas here described, his species is the one east South American form that seems most to resemble those inhabiting the slopes of the Andes.

Distribution.—Aside from the neotype, I have seen just 8 other specimens, 6 males, of which the largest measured 25 mm. in length of carapace and rostrum, the next in size 14, and the smallest 13½ mm., and 2 females of 15 and 14 mm., respectively. These specimens were kindly obtained for me by Dr. Carlos Moreira through the kind offices of his good friend Dr. G. Kuhlmann, Blumenau, Santa Catharina, Brazil. I am very grateful to both of these estimable gentlemen for their interest and help in this matter.

An additional, quite typical male belonging to the Academy of Natural Sciences of Philadelphia (no. 484, pt.), 26 mm. long, carapace including rostrum, and labeled "du Brésil. Donni par M. M. Derreaux," has lately come to my attention. It has the characteristic "inserted" spine easily observable in the neotype (fig. 55, *a*, and pl. 27, A); the ventral inner margin of the ischium of the right cheliped is likewise armed as in this figured specimen.

AEGLA ODEBRECHTII PAULENSIS, new subspecies

FIGURE 56; PLATE 27, B

Aeglea intermedia LUEDERWALDT, Rev. Mus. Paulista, vol. 11, p. 431 (sep., p. 5), 1919.

Description.—Perhaps only a small species; my material of this form is limited; the largest specimen at hand, a male, in length of carapace and rostrum together measures 20 mm.; the male holotype is just 1 mm. shorter.

Carapace moderately convex, front of moderate width. Rostrum broad and somewhat stubbily triangular; bluntly carinated nearly to the anterior extremity, noticeably troughed or excavate either side of carina, which broadens out and becomes more or less lost in the general surface of the carapace at a level about halfway between the level of the epigastric prominences and the anterior borders of the protogastric lobes, these last take the form of a low, somewhat arcuate, blunt elevation or obsolescent ridge; the epigastric prominences are fairly well developed and nodular or near rounded-tubercular.

Orbital sinus moderately wide, only moderately deep, fairly deep as compared to *A. odebrechtii;* orbital spine small; extraorbital sinus is quite shallow and, though small, is relatively moderately wide as compared with *A. odebrechtii.*

Anterolateral spines small, stubby, and only moderately advanced beyond the orbital spines (in some apparently more or less worn individuals the orbital spines are nearly on a level with anterolateral ones). First hepatic lobe set off from anterolateral lobe by a fairly wide, relatively good-sized notch; anterolateral angle of the first hepatic lobes a little produced and subacute, carrying a small corneous granule or denticle, lateral margin of lobe scabrous; second and third hepatic lobes, though not much more so, are a little better marked than in *A. odebrechtii.*

Large hand relatively of good size, broadly oval, stockily built, with palm rather thick and swollen toward outer margin. Movable finger with a small, definite, though not particularly conspicuous, scabrous lobe on outer margin near base.

Inner margin of palm with a well-developed, impressed or excavate crest, having its outer margin somewhat parallel to the dorsal margin of the palm proper, not nearly so subdisciform as in *A. odebrechtii;* margin of this palmar crest more or less definitely serrate, serrations marginally scabrous or fine denticulate or corneous granuled, perhaps even small spinulate at or on apices of serrations.

Ridge of carpus of cheliped above spined inner margin more or less well developed, scabrous-nodular; large anterior spine of series arming inner margin of carpus may be as large and thick as if it were formed by the merging of two spines of normal size to form one; usually most traces of the double nature of this large anterior spine are lost except as evidenced by its noticeable breadth as in the case of the spine on the right carpus of the type, which is only most obscurely 2-pointed; nevertheless, there are instances, as on the left carpus of the type, that reveal very clearly the double nature of this thickened first spine with a distinctly twinned or 2-spined extremity; in the interval between the base of this thickened first spine, the base of the carpal lobe, and the anterior portion of the carpal ridge,

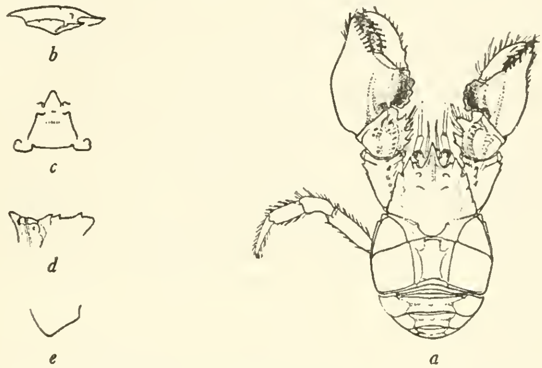

FIGURE 56.—*Aegla odebrechtii paulensis*, new subspecies, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

there may be two or three very small, slightly tubercular scabrosities; the carpal lobe itself is scabrous, bluntly rounded to subacute. Upper longitudinal margin of merus armed with at least two strong spines of good size followed by several smaller ones; in advance of the anteriormost, the largest spine, on the actual anterior margin of the merus is a low, lobular, subrectangular ridge, longitudinally oriented. Armature of the inner margin of the ventral surface of the ischium very like that of *A. odebrechtii*, a fair-sized, stout, conical spine at anterior end with usually two subequal, somewhat smaller ones close together at posterior end, often a fourth still smaller spine in the interval between the posterior pair and the anterior spine; only exceptionally is there only an anterior and one posterior spine or only one intervening one (as in fig. 56, *d*).

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite in general more or less rounded off, as in *A. odebrechtii*.

Holotype.—The next to largest male, U.S.N.M. No. 80023, of a lot of 4 males and 3 females collected by Dr. Doris M. Cochran at Alto da Serra do Cubatão, between Santos and São Paulo, Brazil, April 26, 1935.

Remarks.—Although this subspecies is decidedly similar to *A. odebrechtii* Fritz Müller, I do not have at hand enough well-developed specimens to prove either their specific distinctness or identity. Therefore the specimens I do have have been given subspecific ranking.

In relation to the eye, the rostrum of the species proper appears a little longer; also it seems to be relatively a little more recurved distally; the rostrum is more nearly straight in the subspecies. The orbits of the subspecies are definitely wider than in the species proper and represent perhaps the most noticeable difference between the two forms. Though not affording a very clear-cut difference, the anterolateral spines seem a little longer in the species proper, appearing to reach a little past the posterior margin of the cornea, while in the subspecies the anterolateral spine scarcely reaches the cornea. The anterior margins of the protogastric lobes are definitely elevated in the subspecies and the epigastric prominences, though low, are conspicuously tuberculiform; the reverse is true in the species proper on both counts.

Next to the orbits, the chelae of the two forms seem to be most definitely different. In the subspecies they are relatively heavier, stouter (chunkier, more swollen, or inflated), with appreciably shorter, broader (stubbier) fixed fingers; the outer margin of the palm of either hand has a comparatively greater convexity; while the palmar crest is generally more (more or less) subparallel-sided trough-shaped than impressed or excavate-subdisciform, and certainly more definitely serrate in nearly every specimen of the subspecies than in the species proper.

Ordinarily, the female Aeglas do not exhibit the pronounced asymmetry found in the male major and minor chelae, but in this subspecies at least there is such asymmetry that at first glance the two females with both chelae present (of the three females seen) were taken to be males.

It is possible that I have set up one form too many in naming this subspecies.

Distribution.—Other than the specimens from the type locality, I have seen only a few small individuals, of which the largest was about 15.5 mm. in length of carapace and rostrum together, which may represent this subspecies, but I do not feel that I can make more than tentative determinations of small specimens of forms as closely related as the two here designated as *A. odebrechtii* and *A. o. paulensis.* One lot of four small specimens received from Dr. Hermann von Ihering a number of years ago is from the "Rio Juquery, Perus, Estado São Paulo"; another small female, also from Dr. von Ihering, is labeled simply Alto da Serra, São Paulo (Coll. J. Lima, 1908). A third lot of seven small specimens collected by E. Garbe, from Castro, Est. Paraná, is even more of a puzzle than either of the preceding lots; the rostra do not seem to be quite typical of *paulensis*, yet the specimens cannot be identified with the species *A. castro*, which I found so common in the Rio Iapó at Castro, for their unarmed dorsal epimeral angle precludes the possibility; even much smaller Castro specimens of my own collecting have this angle unmistakably spined.

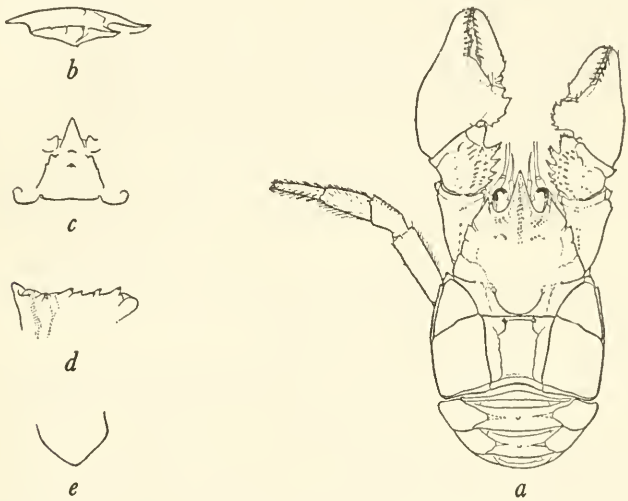

Figure 57.—*Aegla neuquensis*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

AEGLA NEUQUENSIS, new species

Figure 57; Plate 27, E

Description.—A species of moderately to fairly large size, exceeding a length of carapace and rostrum together of at least 30 mm. (based on the largest specimen seen, a "soft" male with regenerated but not yet fully developed rostrum).

Carapace moderately convex, front moderate; rostrum flattened triangular and deeply grooved or excavate either side of median carina, which tends to fade out toward tip of rostrum which is appreciably reflexed or upturned; rostrum exceeds the eyestalks from about 1½ (in the type) to about 2 times the length of the cornea; the rostral carina is furnished with a more or less double row (on occasion in places apparently three rows) of closely set corneous scales for at least half the length of the free portion of the rostrum, beyond the midpoint there is but a single row of the scales, which, like the carina, tends to fade out or disappear before reaching the distal extremity of the rostrum (sometimes there is an odd grouping of a few scales on the dorsum of the extreme tip of the rostrum); the rostral carina is plainly marked backward to the level of the anterior margins of the protogastric lobes, and in at least the larger of the specimens at hand, faintly to be seen if only as an interruption to reflected light halfway back to the cervical groove.

Protogastric lobes poorly indicated; epigastric prominences not very prominent, obliquely elongated, scabrous swellings.

Orbital sinus moderately wide, in dorsal view appearing not much wider than deep; orbital spine always present, small but well formed; extraorbital sinus narrow, a V-shaped notch. Anterolateral spines relatively small, yet reaching past posterior border of cornea often about or nearly to middle of its length. Anterolateral angle of first hepatic lobe produced but not spined, though scabrous or small spinulated as on lateral margin of lobe; second and third lobes no more than plainly indicated by shallow emarginations in lateral margin of anterior portion of carapace.

Asymmetry of hands not very pronounced; large hand of moderate size, more or less subovoid, only moderately inflated; the hands are coarsely scabrous, almost tuberculated. Movable finger in the type does not seem to have a real lobe developed on outer margin near base, yet there are a few larger spinules on a very slight elevation at the site of the lobe found in other species; however, in other specimens smaller than the type a slight lobe armed with several sharp spinules seems definitely present. Palmar crest more or less narrowly subrectangular, fairly thin-edged, serrate or notched, and spinulose; dorsal surface of crest at most only very slightly concave, margin of crest not noticeably or appreciably, if at all, bent upward.

Ridge of carpus above spined inner margin carrying practically a double row of scabrous elevations; between anterior spine, the largest of the series arming the inner margin of the carpus, and the carpal ridge there is a short, acute, conical spine nearly subequal in elevation with the scabrosities of the carpal ridge (this spine seems to be present in the specimens from the type locality, Arroyo, but not at all, or only almost imperceptibly indicated in the specimens from Covunco); anterior internal lobe or angle of carpus flattened-conical, or triangular, armed with one larger, sharp-pointed corneous denticle, with a smaller one close behind on the posterior slope, and usually one or more still smaller spiniform scales. Upper longitudinal margin of merus of cheliped with a series of small, more or less subequal scabrous tubercles, except the first which is quite the largest; anterior margin of joint medially produced, forming a denticulated lobe; these denticulations are usually carried outward along the anterior margin of the merus, scarcely ever and perhaps only adventitiously along anterior margin inside the lobe itself. Inner margin of ventral surface of ischium armed with from four to six conical corneous-tipped tubercles or spines, of which the most anterior and posterior are more or less subequal and the largest; often the first spine is twinned (the twin being smaller and on the posterior slope of the anterior spine proper and included in the four to six count); more rarely is the posterior, or one of the intermediate and always smaller spines twinned (as in left ischium of type, fig. 57, *d*).

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite evenly rounded off, anterior margin below angle straight.

Sternite between bases of chelipeds with anterolateral angles produced, tuberculiform; on median line near anterior margin of this sternite there is a low conical elevation topped by a small, usually acute corneous spinule.

Holotype.—The second largest male, U.S.N.M. No. 80024, of a lot of 4 males and 1 female, measures 29 mm. in length of carapace and rostrum; the female measures 20.5 mm.; the smallest male, 17.5. All were collected at Arroyo, Territory of Neuquen, Argentina, by John W. Titcomb, November 12, 1903, while conducting a fisheries survey in that vicinity for the Argentine Government.

Remarks.—This species is certainly closely related to the following, yet differs from it in several important points. The separate description of the latter seems fully warranted.

Distribution.—In addition to the type lot, I have examined a second lot of material, 5 males and 1 female, ranging from 18 to 24 mm. in length of carapace and rostrum together. These specimens were collected the same day as the type lot, November 12, 1903, by Mr. Titcomb at Covunco [?] or in the [Rio] Covunco; the original label is somewhat rubbed and partly illegible, but the date and "Neuquen" [Territory ?] are unmistakable.

AEGLA AFFINIS, new species

FIGURE 58; PLATE 27, F

Description.—I have seen but one specimen of this species, the unique holotype, a male of fairly large size, measuring in length of carapace and rostrum 31 mm. Most of its legs are broken, and the chelipeds are detached; in addition there is another loose cheliped of a specimen of probably the same size.

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In general appearance it is much like *A. neuquensis;* carapace and rostrum very similar, but front seemingly narrower, extraorbital sinuses and orbital spines wanting. Rostrum exceeds eyes by not quite twice the length of cornea; the blunt carina more or less continued to distal extremity, more nearly approaching the ridge-roofed condition of rostrum than any of the Aeglas of the A^2 division of the diagnostic key; the rostrum otherwise appears quite flat, particularly basally, and fairly well troughed or excavate either side of median carina; the latter is bluntly rounded off and scabrous, with rather numerous, closely set, partly imbricate-appearing corneous

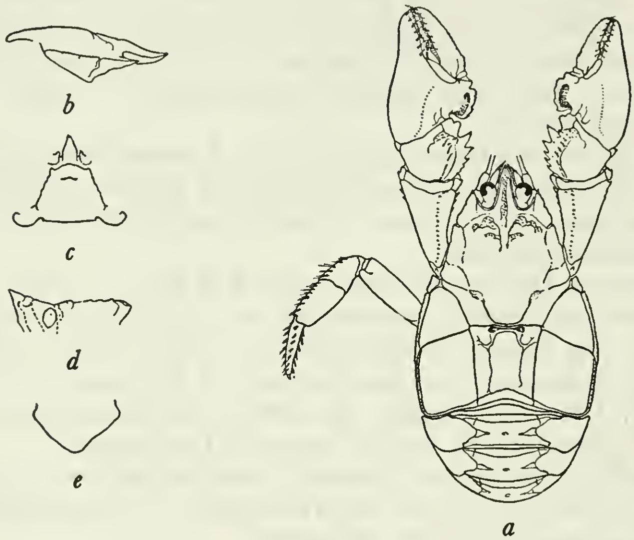

FIGURE 58.—*Aegla affinis*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

scales not at all arranged in rows as in *A. neuquensis*; rostral carina most imperceptibly if at all suggested posterior to obsolescent anterior marginal indications of protogastric lobes.

Anterolateral spines flattened-triangular in dorsal view, reaching on the left side nearly to middle of cornea, on right well past middle of cornea; anterolateral angle of first hepatic lobe somewhat produced, subacute or rounded off, small spinulose or scabrous; second and third lobes poorly, obsolescently indicated.

Hands more elongate-subrectangular than subovoid as in *A. neuquensis*, and more coarsely scabrous. Movable finger seems to be without trace of lobe on outer margin near base, except on minor chela, where there is a very small corneous spinule or denticle larger than the scabrosities of the surface of the finger otherwise in the position normally occupied by the lobe in other species. (Having so little material, it is impossible to tell whether the lobe is in evidence in small individuals of the species. There is no trace of it on the movable finger of the loose cheliped.) Palmar crest more or less subrectangular, thicker appearing than in *A. neuquensis* and certainly with thicker, blunter, obscurely crenulate, coarsely scabrous margin; dorsal surface of crest decidedly more concave (more or less longitudinally troughed) than in *A. neuquensis*, but without giving the margin of the crest any noticeable bent-up appearance. Carpal ridge fairly broad and blunt, more or less obscurely scabrous, and only obscurely double-rowed as in *A. neuquensis*; spines of inner margin of carpus thickened and scabrous, between anterior spine (very much the largest and stoutest of this inner marginal series) and the carpal ridge is a tuberculiform, scabrous elevation corresponding to the similarly placed spine in typical *A. neuquensis;* lobe at anterior inner angle of carpus quite rounded off in general outline, margined with small, denticuliform, corneous scales. Upper longitudinal margin of merus of cheliped armed with a series of small scabrous tubercles; this row or series at its anterior end makes practically a right-angled bend one or two tubercles long, toward the inside, more or less paralleling anterior margin proper of joint[17]; this is very evident in the meri of the type but not in the additional loose claw (No. 4186) of this species. No indication, or scarcely any, of this state of affairs exists in *A. neuquensis;* there may be a bare suggestion of it in some specimens in which a tiny, well nigh microscopic corneous scale or prickle may appear on the inner side of the anterior spine or tubercle of the upper longitudinal margin of the merus of the cheliped. The anterior margin of the merus of *A. affinis*, though scabrous or fine denticulate, shows no median lobular development as is present in *A. neuquensis.*

Inner margin of ventral surface of ischium armed much as in *A. neuquensis*, only cones are smaller, mostly blunter, and on the whole more nearly subequal throughout, four on right ischium, six on left, because of a twinning of the posterior spine, and also the one just anterior to it.

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite rounded off; anterior margin below angle straight, or very slightly concave.

Anterolateral angles of sternite between bases of chelipeds produced, tuberculiform; on median line near anterior margin a low swelling, but with no trace of a corneous spine or denticle arming it.

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[17] A similar condition is found in *A. uruguayana*, p. 467.

Holotype.—A single male carrying M.A.C.N. tag No. 9817, contained in a bottle with an unattached left cheliped surely the same species with an M.A.C.N. tag, No. 4186, affixed, together with a specimen of each of two other species without tags. Of these last, one is a female of *A. humahuaca*, 22.0 mm. in length of carapace and rostrum together, the other a male of *A. abtao*, of 28.0 mm. In the catalogs of the Museo Argentino Ciencias Naturales entry No. 4186 reads simply, "Neuquen, Mayo 16, 1898; Sr. Carlos Burmeister"; entry No. 9817 concerns specimens of *Mytilus chorus* Molina received in exchange from Dr. Carlos S. Reed, 21–V, 1919. As a result, it is impossible to determine satisfactorily the type locality for the species, and there is no locality at all for the other, untagged, specimens in the same bottle. It is a mixed lot of material, or else a case of misattached label or labels.

Remarks.—As pointed out under *A. papudo* above, this is the only other species in which the several suture lines that meet to form the anterolateral angles of the cardiac area of the carapace combine to form a short, quite longitudinally oriented bar (fig. 58). In all other species except these two this short "bar" is oriented so as to be very nearly transverse, or at least obliquely so.

AEGLA HUMAHUACA, new species

FIGURE 59; PLATE 27, D

Description.—A species of moderate size. The largest of five specimens seen measures about 28 mm. in length of carapace and rostrum taken together.

Carapace moderately convex, front relatively narrow. Rostrum rather thick looking, proximally more or less broadly flattened-triangular, noticeably depressed anteriorly, bent downward, so much so that in lateral view the rostral extremity is about on or even slightly below the level of the anterolateral spines; distally the rostrum becomes somewhat lingulate, slightly parallel sided, low, and broadly blunt-ridged, scarcely to be called carinated; only very shallowly excavate either side of median carina; carina marked in basal half with three or four very irregularly intermingled rows of corneous scales, becoming distally more or less a single scattered row, which near tip of rostrum tends to disappear, scarcely or not distinguishable from the few scattered corneous scales on the dorsum of the apical portion of the rostrum. Epigastric prominences and anterior margins of protogastric lobes poorly developed.

Orbital sinus fairly narrow, more or less V-shaped; orbital spine small, placed well up on inner slope or margin of anterolateral spine and separated from it by only a small notch. Anterolateral spine relatively small, short, and flattened-conical. Anterolateral angle of first hepatic lobe low, scabrous-tubercular; second and third lobes very poorly marked.

Hands large, oval, moderately inflated, and without usual lobular tooth on prehensile margin of immovable finger; movable finger likewise without such a tooth; there is no lobe on the outer margin of the movable finger, and the palmar crest, though not prominent, is distinctly present, thick, low, and in cross section broadly triangular; dorsal surface of crest faintly, shallowly, or more or less obscurely excavate; the crest is scabrous with an outline that is more slightly irregular than obscurely serrate; serrations may be spinule tipped.

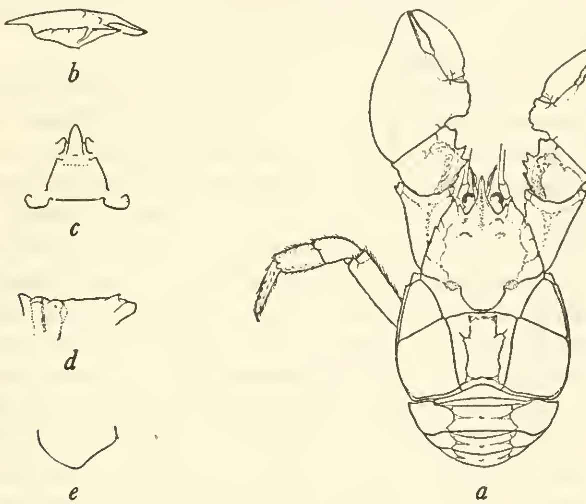

Figure 59.—*Aegla humahuaca*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

Ridge of carpus of cheliped above inner spined margin not very prominent, low and broad and in small part only slightly scabrous; the armature of the inner margin of the carpus is not so definitely spinelike as in most other Aeglas; here it consists more of spinelike tubercles, perhaps only the most anterior of the series may be so designated, as the next three or four are more or less tuberclelike in appearance; the posterior one or two of these are indeed very low, blunt, and scabrous; anterior internal lobe or angle of carpus scarcely more than obtuse angled; this angle is armed with one or more small, low-conical but more or less sharp-pointed corneous scales; upper longitudinal margin of merus blunt angled, hardly more than a scabrous ridge marked or armed with a row of fairly well separated, short, subacute, corneous scales; the anterior margin of the merus is finely denticulate, but no lobe or forwardly directed projection is developed there. Inner margin of ventral surface of ischium with an anteriorly corneous spine- or pointed-scale-tipped tubercle at anterior end, and a lower, likewise corneous spine-tipped tubercle at posterior end; two slight, at times almost imperceptible undulations, or slight low swellings, may occupy the interspace.

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite rounded off, yet armed on its anterior margin, to the right, with two corneous spinules or denticles set quite close together, to the left with one.

Holotype.—The largest of four males from Humahuaca, Jujuy, Argentina (M. A. C. N. No. 8837) measuring about 28 mm. in length of carapace and rostrum together; the other three males of the type lot measure respectively 25.0, 24.5, and 17.5 mm.

Remarks.—This species and *A. jujuyana* so resemble each other in general appearance that one cannot escape the conviction that they may be very closely related in spite of the fact that *A. humahuaca* possesses a palmar crest and has a very bluntly ridged rostrum, characters definitely differentiating the two. Geographically in the Province of Jujuy these species are found scarcely more than 70 miles apart, but environmentally, or at least climatologically, they are far removed one from the other. At Humahuaca the annual rainfall totals only 6.11 inches[18]; five months, May to September, are without any precipitation whatsoever, while January, the wettest month, has a rainfall of but 3.27 inches. At Juiuy, on the other hand, the total is 29.26 inches; no month is wholly without some precipitation, although this may fall as low as 0.12 inches in August; the wettest month, January, marks a high of 6.65 inches, more in one month than Humahuaca receives in a year.

Distribution.—Other than the holotype and three paratypes from Humahuaca, Province of Jujuy, Argentina, I have seen but one other specimen, a female of 22.0 mm. in length of carapace and rostrum taken together. This particular specimen was found in a bottle containing two other specimens specifically different, together with a detached cheliped. One of these specimens was selected as the type of *A. affinis* (M. A. C. N. tag No. 9817), the loose cheliped (M. A. C. N. tag No. 4186) represents the same species; the remaining specimen proved to be a male *Aegla abtao* (28.0 mm. in length of carapace and rostrum). This lot of material certainly contains a mixture or else one or both of the labels may be misattached. In the catalogs of the Museo Argentino Ciencias Naturales entry No. 4186 reads simply

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[18] The figures on precipitation given in this paragraph were taken from W. W. Reed's undated, bound, typewritten manuscript, "Distribution of Precipitation over the Earth," lent me by the Library of the United States Weather Bureau, through the kindness of Miss Rose Vickers, librarian.

"Neuquen, Mayo 16, 1898; Sr. Carlos Burmeister"; entry No. 9817 concerns specimens of *Mytilus chorus* Molina from Chile received in exchange from Dr. Carlos S. Reed, "21–V, 1919." There is no telling whence comes this unlabeled specimen of *A. humahuaca.*

AEGLA CONCEPCIONENSIS Schmitt

FIGURE 60; PLATE 28, A

Aeglea concepcionensis SCHMITT, Rev. Chilena Hist. Nat., vol. 44 (1940), p. 26, pl. 5, fig. 1, 1942.

Description.—A fairly large species attaining a length of carapace and rostrum together of at least 33 mm.

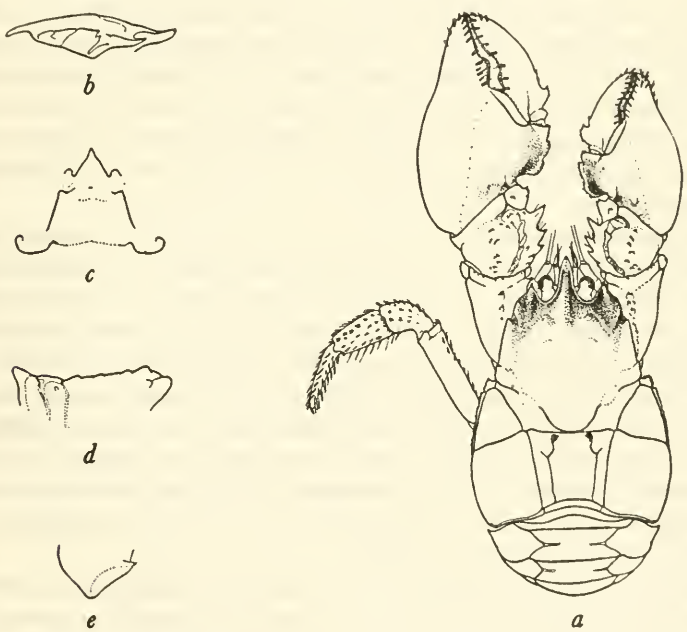

FIGURE 60.—*Aegla concepcionensis*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a, b,* natural size; *c–e,* twice natural size.

Carapace moderately convex. Rostrum somewhat elongate-triangular tongue-shaped, exceeding the eyestalks by not quite twice the length of the cornea, inclined downward, but anteriorly recurved, transversely flattened, excavate either side of median carina. Crest of rostral carina furnished with two rows of tiny corneous scales situated fairly close together behind the level of the posterior margin of the orbit and very closely juxtaposed, or at times even intermingled or imbricated anterior to that level, and in the anterior half of the free portion of the rostrum apparently becoming a somewhat broken or irregular single line of scales; the more prominently raised portion of the carina extends backward about to the level of the epigastric prominences of the carapace, posterior to these the carina is less prominently marked to between the anterior margins of the protogastric lobes where the carina fades out. Epigastric prominences blunt-nodular, anterior margins of protogastric lobes scarcely or poorly marked, obsolescent and not scaled. Areola short and wide, squat looking.

Orbits of good size, fairly deep, typically without an orbital spine, and usually with scarcely any or only (rarely) a very slight interruption or offset in the outward sweep of the orbital margin at the point where it passes over into the inner margin or slope of the anterolateral spine of the carapace; in the very largest specimens, such as the type, there is more of an offset than in any other specimens of the species that I have seen; there may be one or a few tiny spinules along the outermost portion of the orbital margin, but in no sense is any of them of sufficient consequence to be considered as representing an orbital spine.

Anterolateral spine of good size, anterior extremity reaching nearly or about to the level of the middle of the cornea; the dorsal surface of the anterolateral lobes is much flattened, almost or slightly excavate, giving the impression that the anterolateral spines are inclined upward to a greater extent than in any other species of *Aegla*. Anterolateral angle of first hepatic lobe slightly scabrous and more or less rounded off; just within and below the angle of the right first hepatic lobe of the type is a low projection or tubercle, which is occasionally present in other specimens on one or the other side or sometimes on both sides; second and third hepatic lobes slightly indicated, in some specimens scarcely so.

The larger hand is of good size, moderately inflated or swollen; on the upper surface of either palm there is a faint, obsolescent, yet plainly discernible, low, obliquely longitudinal, narrow swelling running from near the outer posterolateral angle of the palm to the posterior margin of the sinus between the fingers; this ridge is scabrous like the rest of the hand, and is more evident in the smaller specimens than in the very largest ones. On the outer margin of the movable finger of either hand, near its posterior end, there is a well-defined lobe or projection, anteriorly angled and carrying there a small spine or spinule; lobe otherwise scabrous, or very small-spinulose. What there is of a palmar crest (on inner margin of palm) is broadly and shallowly serrate, fairly thin-edged and furnished with a scattering of small spinules; the crest runs back from below the movable finger to form a higher crest at the posterior end than at the anterior end; posteriorly the crest is somewhat troughed or excavate with slightly upturned margin which stands well away, almost at a right angle, from the inner margin of the palm proper just in advance of the articulation with the carpus.

Carpus of either cheliped carries two longitudinal ridges, the first is the usual somewhat nodulated ridge with more or less transverse short rows of small corneous scales, situated above the spines arming the inner margin of the carpus; the second, scarcely to be called a ridge, is on the middorsal surface of the carpus. It consists of an irregular, scattered row of slight elevations anteriorly scabrous. Anterointernal angle of carpus of cheliped fairly blunt, scarcely subacute, sparsely small-spinulated. Dorsal longitudinal margin of merus armed with a row of corneous tipped or blunted, somewhat conical tubercles which become more conically spinelike as they approach the distal margin of the joint; the anterior margin of the merus at its middorsal point shows but a very faint indication of what might have been an obsolecent swelling with one (on right merus) or two (on left) small corneous denticles; in smaller specimens there is more of an evident lobe or small nodular swelling at this point with finely denticulate anterior margin; outward from this lobe the anterior margin of the merus is in part more or less denticulated. Inner margin of ventral surface of ischium with four, five, or six low swellings or nodulations, of which the anteriormost is usually the largest, and in occasional specimens somewhat blunt tuberculiform; in some others this ischial margin appears no more than a little wavy behind the anterior nodule or tubercle; only rarely does this seem to be tipped with a tiny corneous scale.

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite produced to form an acute corneous spinule-tipped angle.

Holotype.—A large male measuring 33 mm. in length to carapace and rostrum, U.S.N.M. No. 79078.

In all, I have examined about 30 specimens of this species. Several are of good size; the majority, however, are of medium or small size. All of them I collected January 13 and 14, 1927, near Concepcion, Chile, in company with Dr. Carlos Oliver Schneider and Carl Junge.

Remarks.—*A. concepcionensis* keys out near *A. laevis;* in the "Remarks" under the latter (p. 507) the two are compared.

In its lack of an orbital spine, *A. concepcionensis* stands near *A. papudo*, in which such a spine is often not properly or truly developed, and *A. affinis*, in which it is lacking (in the unique holotype). Of these three species, only *A. concepcionensis* has the anterior epimeral angle definitely acutely produced and spined; in *A. affinis* it is rounded off and unarmed; in *A. papudo* likewise rounded off and generally unarmed, though the angle may carry a tiny adventitious corneous scale, spinule, or "cornule." The hands of *A. papudo* and *A. concepcionensis* are more or less ovoid and swollen or inflated, more so in the former than in the latter, while in *A. affinis* they are more or less subrectangular, and less swollen, though rougher, more scabrous, than in either of the others. *A. papudo* has the most convex carapace, *A. affinis* the least, the convexity of the carapace of *A. concepcionensis* being intermediate. Further, the several suture lines which meet to form the anterolateral angles of the cardiac area of the carapace run together to form a short, transverse or obliquely transverse bar in *A. concepcionensis*, and a more or less longitudinally oriented bar in *A. papudo* and *A. affinis.*

Distribution.—In addition to the type material, I have seen three, not altogether typical males, between 15.5 and 24.5 mm. in length of carapace and rostrum together, from Corral, Chile, collected by Dr. Thomas Barbour (M.C.Z. No. 10481), and two males of 25.5 and 26.5 mm. respectively, collected by Dr. A. Santa-Cruz in the vicinity of Concepcion, Chile, and presented to the United States National Museum by our good friend Dr. Carlos E. Porter, of Santiago.

AEGLA LAEVIS (Latreille)

FIGURE 61; PLATE 28, D

Galathea laevis LATREILLE, Tableau encyclopédique et méthodique . . ., pt. 24, pl. 308, fig. 2, 1818.

Aegla laevis LEACH, Dictionnaire des sciences naturelles, vol. 18, p. 49, 1821.

Aeglea laevis DESMAREST,[19] Considérations générales sur la classe des Crustacés, p. 178, pl. 33, fig. 2, 1825.

Aegla laevis RATHBUN, Proc. U. S. Nat. Mus., vol. 38, p. 602, 1910 (neither synonymy, except first two entries, nor distribution, except Chile, applies).

Description.—A species of small to moderate size, the largest specimen seen measuring 24.5 mm. in length of carapace and rostrum taken together.

Carapace moderately or a little better than moderately convex. Rostrum more or less lingulate (more tongue-shaped than sharply triangular), lateral margins more or less subparallel in the midsection of the free portion, exceeding eyes by 1½ times to nearly twice

[19] Inasmuch as nearly all authors since Desmarest (with the exception of Nicolet, Girard, Fritz Müller, and Moreira) have considered the genus monotypic and so have failed to give specifically recognizable descriptions and illustrations of their material, it is impossible to assign correctly the many specimens that have in the past been determined as *Aegla laevis* to the species to which they properly belong. What I take to be true *Aegla laevis* was never well enough characterized to distinguish it from the now known Chilean species, or, in fact, from any species of *Aegla* other than Nicolet's *A. denticulata.*

the length of the cornea; in lateral view the rostrum inclines downward, although the distal extremity is again lightly but definitely recurved; rostral carina very blunt, often somewhat lumpy and sometimes a bit twisted looking, with an irregular row or two of, at most, microscopically cornified punctae; otherwise, the carina is in general quite smooth appearing; distally the carina tends to fade out or disappear, inasmuch as it becomes indistinguishably merged with the thickened distal, recurved portion of the rostrum which may take in as much as or sometimes even slightly more than the distal third of the free portion of the rostrum; either side of the carina, the dorsal surface of the rostrum is lightly troughed or excavate; at about the

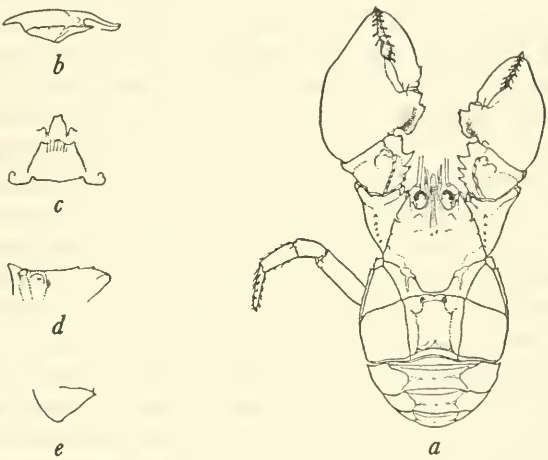

Figure 61.—*Aegla laevis* (Latreille), male neotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

level of the posterior margin of the orbits the rostral carina attains its greatest elevation, posteriorly it merges in the general surface of the carapace before reaching the level of the anterior margins of the protogastric lobes. The rostrum of this species is more or less amorphous-looking, much as if in the course of the formative processes it had congealed or become hardened before taking on a truly definitive form.

Protogastric lobes but poorly indicated; except for the gastric region, anterior portion of the carapace is very coarsely and closely punctate, the gastric region is smooth appearing, the punctae being small and relatively widely separated and in part obsolescent; anteriorly the line of demarcation between the two types of punctae defines the anterior margins of the protogastric lobes, at which level the carapace also begins to slope down toward the orbits; epigastric prominences coarsely punctate, not very conspicuous, low swellings.

Extraorbital sinus very small, at times obsolescent and represented by no more than a definite, usually abrupt, often nearly right-angled offset between the outer end of the orbital margin and the inner slope or margin of the anterolateral spine; an orbital spine, or rather spinule, generally present, usually much reduced in size.

Anterolateral spines relatively small, moderately slender, reaching at least to middle of cornea and often beyond. Anterolateral angle of first hepatic lobe fairly well marked, little produced, subacute appearing, though scabrous, and tipped with a corneous scale or two of about the size of, or very slightly larger than, the scattering of similar scales on the lateral margin of this lobe; second and third lobes set off from the preceding and each other by a short, though plainly marked and nearly closed, notch or incision.

Larger hand relatively of good size, moderately thick and swollen, finely scabrous, though appearing smooth and evenly rounded. Movable finger with a small but evident, anteriorly spined lobe on outer margin near base; outer margin of palmar crest more or less subparallel to upper margin of palm proper, cut into three or four scabrous-margined shallow serrations; with rare exceptions the anterior end of upper margin of palmar crest ends abruptly a little distance behind dorsal anterior margin of palm posterior to the base of the movable finger, so that a more or less sharply right angled notch is formed between anterior end of palmar crest and anterior dorsal margin of palm (a somewhat similar, though less noticeably and less well developed notch occurs in the subspecies of *A. laevis* described below, in *A. neuquensis*, perhaps also in *A. affinis*, in *A. riolimayana*, and to some degree in *A. abtao* though in most if not all other species of *Aegla* any comparable notch is scarcely to be distinguished from the toothing or serration of the palmar crest itself). The palmar crest of *A. laevis* is fairly thin, and slightly excavate or troughed adjacent to the margin of the palm proper.

Ridge of carpus of cheliped above spined, inner margin more or less obsolescently nodulated (on the carpus of the minor cheliped of one male the anterior "nodulations" have taken on a distinctly tubercular form; ordinarily the nodulations on this ridge are low and little scabrous); anterior internal lobe or angle of carpus obtusely triangular, apically carrying two or three stout, pointed, conical, corneous scales; spines of inner margin stout, conical, and acutely corneous tipped. Upper longitudinal margin of merus furnished with series of apically scabrous, raised tuberculiform elevations, of which the anteriormost is the largest; middorsal point of anterior margin of merus without node or swelling and otherwise unarmed or unornamented. Inner margin of ventral surface of ischium may have as many as three or four low swellings, the anteriormost of which is the larger and somewhat conical tuberculiform with tiny corneous tip; sometimes second and third swellings, though considerably smaller, are similarly developed; in the neotype only the ultimate and penultimate of these swellings are developed; though small, each is corneous tipped; the ischia of most specimens seem to be armed as in the neotype.

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite acutely produced and corneous tipped; anterior margin below acute anterior dorsal angle straight, or at most only slightly concave.

Neotype.—A male of 24 mm. in length of carapace and rostrum taken together, one of a lot of 14 males and 17 females (12 ovig.) contained in the collections of the Museum of Comparative Zoology (M. C. Z. No. 10478) collected "dans une rivière près de St. Iago-de-Chile," collector and date unknown.

Remarks.—This species in some respects seems to be very much like *A. concepcionensis*, though, so far as I am aware, never attaining so large a size, but throughout its several characters lack the definiteness and distinctness of that species. *A. concepcionensis*, except in very rare and obviously not typical instances, lacks anything remotely resembling the usually abrupt offset between the orbit proper and the anterolateral spine of *A. laevis;* moreover, the anterolateral spine of its carapace is stouter and more flattened triangular and the anterolateral lobe is more of an alate expansion in comparison to the more slender, more conically circular (in cross section) spine and more triangular anterolateral lobe of the carapace of *A. laevis.* The second and third hepatic lobes of *A. laevis* are the better marked. Its rostrum is the more truly lingulate of the two, and is more bluntly carinated. The rostrum of *A. concepcionensis* is the nearer an elongate isosceles triangle in shape. The palmar crest of *A. concepcionensis* has nothing like the right-angled notch intervening between the anterior end of the crest and the anterior margin of the palm in advance of the crest as in *A. laevis;* moreover, the palmar crest of *A. concepcionensis* is not at all longitudinally troughed or excavate in any manner suggestive of that state of affairs in *A. laevis.*

A. laevis talcahuano, which follows, differs from both *A. laevis* and *A. concepcionensis* in that the movable finger is wholly without a trace of a lobe, spined or not, on its outer margin near the base.

Distribution.—Besides the lot of material from which the neotype has been selected, I have seen two small ovigerous specimens (19 and 21 mm. long) from the Rio Maipo (M. C. Z. No. 1417) collected by

Lieutenant Gilliss, of the United States Naval Astronomical Expedition of 1849–52, and determined by William Stimpson; three small males (15 to 21 mm. long) and one female (17.5 mm.) from near Melipilla, Province of Sanitago, Chile, which were collected for me by Dr. Carlos E. Porter; and two lots of two ovigerous females each, both belonging to the Museo Argentino and carrying the same catalog number (M. A. C. N. No. 4673) but with no indication other than that they were collected by F. Silvestri in Chile.

Since the foregoing was first written I have seen three additional specimens of *A. laevis*. The most interesting of these is one of Dana's original specimens, already referred to (pp. 433, 436). Beyond the remarks there it is to be noted that the right-angled notch formed between the anterior end of the palmar crest and the anterior dorsal margin of the palm is no better developed than in the subspecies *talcahuano* below, and that the armature of the ventral inner margin of the ischium of the right cheliped closely approximates that of the figured neotype. The specimen in question is 21 mm. in length, carapace and rostrum taken together, and carries Acad. Nat. Sci. Phila. no. 486.

The other two (Acad. Nat. Sci. Phila. no. 1243) are both females, 18 and 22 mm. in length of carapace and rostrum, respectively. In the smaller specimen a small extraorbital sinus and a tiny orbital spinule are present on the right side; on the left side the offset usually found on the inner margin of the anterolateral spine in the absence of an orbital spine or spinule is wanting. The larger specimen has no orbital spinule on either side, but there is instead an appreciable offset to the inner slope or margin of each of the anterolateral spines, a more abrupt offset on the left than on the right side. The hepatic lobes are rather well marked for *A. laevis;* the anterior dorsal epimeral angles in both specimens are furnished with a small corneous spinule or sharp scale. In the larger specimen only, the sternal plate between the chelipeds carries a low, acute, conical, corneous scale, probably adventitious.

AEGLA LAEVIS TALCAHUANO, new subspecies

FIGURE 62; PLATE 28, B, C

Description.—Very near *A. laevis* in all particulars except that the movable finger is wholly without trace of a lobe, whether spined or not, on its outer margin near the base; the palmar crest, though low and very remotely suggestive of the subdisciform crest of *odebrechtii* and its subspecies, is much narrower than in either of those forms; margin of the crest, as compared to *A. laevis*, is scarcely to be described as obsolescently serrate; the notch corresponding to the sharply defined, approximately right-angled one at the anterior end of the palmar crest of *A. laevis* is only obscurely and shallowly present as a slight emargination at the anterior end of the crest in the type of our subspecies and to an even less degree in the largest of the *Hassler* specimens without locality data; in the latter the crest, though somewhat scabrous, is virtually entire-margined.

Holotype and material examined.—Of this subspecies I have but two reasonably well developed specimens. The first to come to my attention was included in a small lot of *A. papudo* taken by the *Hassler* at Talcahuano, Chile (M. C. Z. No. 10480). This specimen has been made the type of the subspecies; it measures 23.0 mm. in

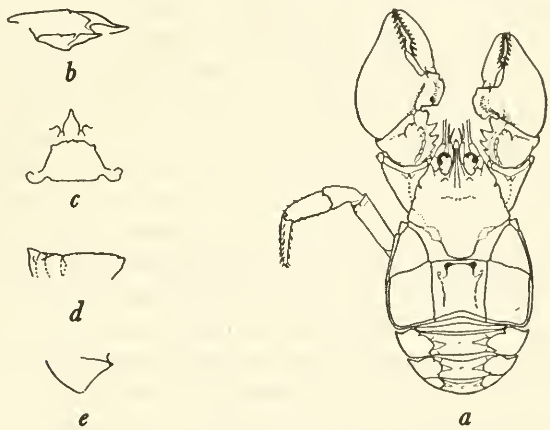

FIGURE 62.—*Aegla laevis talcahuano*, new subspecies, male holotype: *a*, Dorsal view (the rostrum is actually slightly distorted, compare pl. 28, B; it has been symmetrically rendered here by the artist); *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

length of carapace and rostrum taken together. The second specimen (a shade more than 23.0 mm. long) is the largest of three males also secured by the *Hassler* Expedition (M. C. Z. No. 10483). It lacks locality data; the second and third specimens of this lot are respectively 17 and 14 mm. long.

Remarks.—It is with some hesitation that I have here proposed this subspecies of *Aegla laevis*, for, in the light of my studies on the several forms of *Aegla* occurring east of the Andes, those from their western slopes do not seem to be either as well marked or as sharply defined, except of course *A. denticulata* and *A. papudo*. More and better material from Chile, especially from the vicinity of Santiago, Talcahuano, and Corral, is much needed to properly evaluate *A. laevis* and the forms that stand nearest to it.

Distribution.—Known only from the type locality, Talcahuano, Chile, and the one small lot of *Hassler* specimens without locality data.

AEGLA ABTAO Schmitt

FIGURE 63; PLATE 28, F, G

Aeglea abtao SCHMITT, Rev. Chilena Nat., vol. 44 (1940), p. 30, pl. 5, fig. 2, 1942.

Description.—A species of moderate size, attaining a length of carapace and rostrum together of at least 26 mm.

Carapace moderately convex. Rostrum elongate-triangular, but not particuarly long, exceeding eyestalks by less than the length of the cornea, sometimes by no more than half the length of the cornea, fairly straight, not anteriorly reflexed, sharply triangular, transversely flattened and only moderately troughed or excavate either side of the median carina. Crest of rostral carina almost fades out near the distal end of the rostrum, which is scaled much as in *A. concepcionensis;* the carina behind the level of the posterior margins of the orbits furnished with two rows of corneous scales set fairly close together; a little anterior to the orbital margin the two rows become somewhat intermingled and even imbricated, so much so in part that in the anterior half of the free portion they form what may be described as an irregular single row of scales; in distal third of free portion this row, like the carina itself, tends to fade out, only suggested by a few scattered scales; raised portion of carina becomes broader and blunter posteriorly, extending backward about to the anterior margin of the protogastric lobes. Epigastric prominences low and blunt; anterior margins of protogastric lobes not particularly set off from the rest of the carapace, but nevertheless well marked by a row of thick, closely set corneous scales much larger than the tiny scales seated in most of the punctae of the anterior portion of the carapace. Areola moderately broad.

Orbits fairly shallow, orbital sinus set off from the distinct and well formed though small extraorbital sinus by a not large but well-developed orbital spine.

Anterior extremity of relatively small anterolateral spine scarcely falling short of, or scarcely reaching, the posterior margin of the cornea; anterolateral lobes of carapace not particularly flattened; the anterolateral spines of this species are among the most reduced in size of any species of *Aegla.* First hepatic lobe like rest of lateral margin of anterior portion of carapace minutely spinulated, a slightly larger corneous spinule tips the subacute anterolateral angle of this lobe; second and third lobes indicated by slight notchings of the lateral margin.

Larger hand of good size, swollen, no low ridge as in *A. concepcionensis* apparent. There is an evident, though reduced lobe on the outer margin of the movable finger near its base; anteriorly the lobe is small spined. Palmar crest well formed but not high, sharply serrate, serrations spinulated, small spine-tipped; in thickness crest tapers more or less evenly from base to margin, dorsal surface not impressed or excavate. No evident ridging on dorsal surface of carpus other than the usual transversely scabrous, somewhat nodulated ridge above the spined inner margin of the joint. Antero-internal angle or lobe of carpus armed with an acute, corneous spine of good size, almost invariably accompanied by a smaller spine lying immediately against the posterior border of the larger spine; one or two additional still smaller spines or spinules may be inserted on the posterior margin of the carpal lobe. Dorsal longitudinal margin

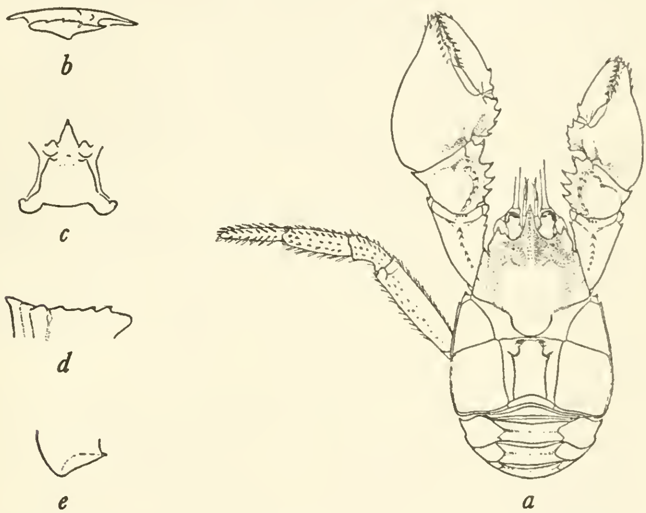

Figure 63.—*Aegla abtao*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

of merus of cheliped armed with a row of conical tubercles tipped with several or a few closely juxtaposed pointed corneous scales; at middle of anterior margin of merus there is a low but evident anteriorly convex and fine denticulate swelling. Inner margin of ventral surface of ischium with a prominent, stout, conical, acutely corneous tipped spine at anterior end, a very much lower (squat) and perhaps a little broader one, also with acute corneous tip, at posterior end; at anterior third of margin there is a similar about subequal swelling of the same sort as the posterior one, and between these two sometimes a very slight or merely suggested swelling or nodulation.

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite somewhat produced and armed with an acute, flattened, corneous spine; anterior margin below spine about straight; ventral angle rounded off.

Holotype.—The largest of seven specimens (5 males and 2 females), a male measuring 26.6 mm. in median length of carapace and rostrum together, U.S.N.M. No. 79079. The smallest specimen is also a male and measures about 11 mm. in median length of carapace and rostrum. The specimens were collected by Dr. C. H. Eigenmann at Abtao, Chile, February 22, 1919.

Remarks.—See under *A. riolimayana*, "Remarks," p. 515.

Distribution.—With certainty at present known only from the type locality, Abtao, Chile. An unmistakable representative of the species, an untagged male of 28.0 mm. in length of carapace and rostrum, was found along with several other specimens in a bottle of material borrowed from the Buenos Aires Museum. One was the type of *A. affinis* (M.A.C.N. No. 9817), another an unattached cheliped of the same species (tagged M.A.C.N. No. 4186), and an untagged female of *A. humahuaca* (22.0 mm. long). In the catalogs of the Museo Argentino Ciencias Naturales entry No. 4186 reads simply, "Neuquen, Mayo 16, 1898; Sr. Carlos Burmeister"; entry No. 9187 concerns specimens of *Mytilus chorus* Molina received in exchange from Dr. Carlos S. Reed, 21–V, 1919. The bottle contains a mixture of things, or else a misattached label or labels, and to the untagged specimens no locality at all may be safely attached.

Further, I have before me a small male of 19.5 mm. in length of carapace and rostrum together, also collected by Dr. Eigenmann in Chile, "Falls of Petrohue," March 8, 1919. Although this particular specimen has been only tentatively placed with *A. abtao*, it is probably correctly determined; the rostrum seems a bit more slender than typical *A. abtao*, the areola perhaps a bit narrower and the ventral inner margin of the ischium somewhat smoother.

Almost too late for mention, I received a very fine, dried example of this species from Dr. Carlos A. Porter. It measures 26 mm. in length of carapace and rostrum and was collected by Dr. Porter himself, in December 1941, near "El Valean," Santiago, Chile. The rostrum fits the description of the type almost exactly; indeed this specimen is a very close counterpart of the type. The lobular tooth on the fixed finger of the minor right cheliped is no more in evidence than in the type (fig. 63, *a*). However, the conical tubercles on the dorsal longitudinal margin of the merus of the cheliped appear single-spined or spinule-tipped; the inner ventral margin of the ischium is as in the type on the right cheliped; on the left one there are two small elevations of which the anterior is the larger and small spinule-tipped between the anterior and posterior spines. The anterior dorsal angle of the epimeron of the second abdominal somite is armed with two small spines or spinules on the left side, with one only on the right.

AEGLA RIOLIMAYANA, new species

FIGURE 64; PLATE 28, E

Description.—A species of perhaps moderate size, the largest specimen so far seen does not exceed 24.0 mm. in length of carapace and rostrum together. Stands near the preceding species, *A. abtao.*

Like *A. abtao*, our species has the carapace moderately convex; the rostrum, though basally broad and flattened, distally is narrowly and sharply triangular, almost stilletolike, straight, and more or less sharply carinated to the tip (*A. riolimayana* has the most sharply acuminate and distally narrowed rostrum of all species included in the A^2 section of our diagnostic key); the tip of the rostrum extends beyond the eyestalks by about one-half the length of the cornea; the rostral carina is armed with a somewhat wavering, virtually single line of small tiny corneous scales, which get a little larger anteriorly; toward the tip these scales sometimes, for a very brief interval, may form an irregular double row; the dorsal surface of the rostrum is noticeably depressed or excavate either side between the rostral carina and the seemingly elevated lateral margins of the rostrum; the rostral carina runs back about to the level of the anterior margins of the protogastric lobes which, like the epigastric prominences, are not particularly well marked.

Orbital sinus relatively wide, orbital spine but a spinule, extra-orbital sinus small, at times scarcely more than a notch at the base of the inner slope or margin of the anterolateral spine; the latter small, conical, scarcely reaching the posterior margin of the cornea.

Anterolateral angle of the first hepatic lobe well marked, though no more than scabrous with corneous scales no larger than the others with which the lateral margins of the hepatic lobes are armed; second and third hepatic lobes scarcely more than sinuosities in the lateral margin of the forepart of the carapace.

Hand of moderate size, moderately inflated; lobular tooth on fixed finger relatively small but plainly marked; a definite, though small, spined lobe on outer margin of movable finger near base. Palmar crest resembling that of *A. laevis*, outer margin of crest more or less subparallel to upper margin of palm proper, and cut into three or four scabrous-margined shallow serrations, anterior angles or apices of serrations, however, armed with a sharp-pointed scale or spinule; as in *A. laevis* there is a more or less definitely right-angled notch between anterior end of the palmar crest and the anterior dorsal margin of palm.

Ridge of carpus of cheliped above spined inner margin not prominent, low and obsolescently nodulated: armed on these low swellings with a few small corneous denticles or scales; spined inner margin armed with slender, conical, clean-cut spines, of which the anteriormost is longest and most slender; anterior internal lobes of carpus armed with a single, well-developed, smooth, clean-cut, spine; all carpal spines with acute corneous tips. Upper longitudinal margin of merus with a series of sharp corneous spines, of which the anteriormost is the larger and elevated on a small conical tubercle above the level of the rest; anterior margin of merus in front of this anterior spine has a very slightly marked, minutely denticulate lobe; a few other tiny denticles may also occur along the anterior margin of the merus. Inner margin of ventral surface of ischium with low, broadly conical, corneous scale-tipped tubercle at anterior end and a relatively insignificant, low, nodular swelling at posterior end, margin of ischium between these two low elevations virtually straight, at most only very slightly sinuous.

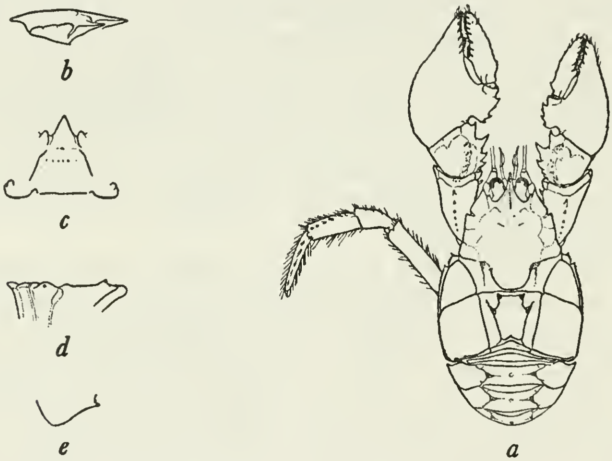

FIGURE 64.—*Aegla riolimayana*, new species, male holotype: *a*, Dorsal view; *b*, lateral view of anterior portion; *c*, sternum of third and fourth thoracic somites; *d*, inner ventral margin of ischium of left cheliped; *e*, lateral view of second abdominal epimeron. *a*, *b*, natural size; *c–e*, twice natural size.

Anterior dorsal angle of epimeron of second (in lateral view, apparent first) abdominal somite produced to form an acute corneous tipped spine; anterior margin below this spine more or less straight.

Holotype.—The largest of five males taken by John W. Titcomb, November 19, 1903, in the Rio Limay, which forms the boundary line between the territories of Rio Negro and Neuquen, Argentina. These specimens were taken not far from the outlet of Lago Nahuel Huapi, where Mr. Titcomb had obtained other specimens of this species a few days before. The holotype, U.S.N.M. No. 80025, measures 23.5 mm. in length of carapace and rostrum together.

Remarks.—This species and *A. abtao* are related. They are very similar in appearance and in common have noticeably short anterolateral spines, relatively shorter than in other Aeglas, yet on close examination there appear constant differences in the general shape of the rostrum, its relative degree of flatness and excavation, and distal attenuation. The anterolateral angle of the first hepatic lobe of *A. abtao* seems always to be acutely armed with a small spinule or sharply pointed scale, larger than those generally arming the lateral margin of the forepart of the carapace; in *riolimayana* this angle is more or less rounded off, at most subacute, and scabrous with scales no different from those generally arming the lateral margins of the hepatic lobes. The anterior internal lobe of the carpus of the chelipeds seems to be differently armed or spined in the two species; there seems to be less nodulation of the inner ventral border of the ischium of the chelipeds in *A. riolimayana* than in *A. abtao.* The posterior more or less straight portion of the lateral grooves or furrows of the areola are subparallel in *A. abtao;* in *A. riolimayana* they exhibit a decided convergence posteriorly; the straight sections of the lateral boundaries of the areola are farther removed from the lateral suture lines of the cardiac area at their posterior than at their anterior ends (fig. 64) ; in *A. abtao* the reverse is true (fig. 63).

Distribution.—All specimens of this species that I have seen are from the Rio Limay in the vicinity of Lago Nahuel Huapi or from the lake itself, or from their immediate tributaries. In addition to the type lot of five males, Mr. Titcomb obtained some 20 specimens, males and females nearly equally divided, from the outlet of the lake, November 15, 1903. Of these the largest and smallest males are, respectively, 24 and about 9 mm. in length of carapace and rostrum taken together, the largest and smallest females 20.5 and 10.0 mm., respectively; two small males (8.5 and 14 mm.) from Arroyo de Jones, tributary to Lake Nahuel Huapi; and another small male (21 mm.) from "Victoria Island, Nahuel Huapi," November 29, 1903. On November 22, 1926, R. C. Shannon collected one small male (16.0 mm.) at Correntoso, north end of Lago Nahuel Huapi, which he presented to the United States National Museum. Otherwise, I have examined three small specimens belonging to the Museo Argentino, two small females (19.0 and 20.0 mm.) from Lago Nahuel Huapi, which had been purchased from Emilio Budin (M.A.C.N. No. 9679), and one male (20.0 mm., M.A.C.N. No. 8388), which appears to be this species and which carries merely the designation "Neuquen" [Territory?].

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INDEX TO DESCRIPTIONS OF AND DIAGNOSTIC NOTES ON THE SPECIES AND SUSPECIES OF AEGLA

NOTE

Unless otherwise stated, the photographs shown in the plates that follow are of the male holotype, approximately natural size.

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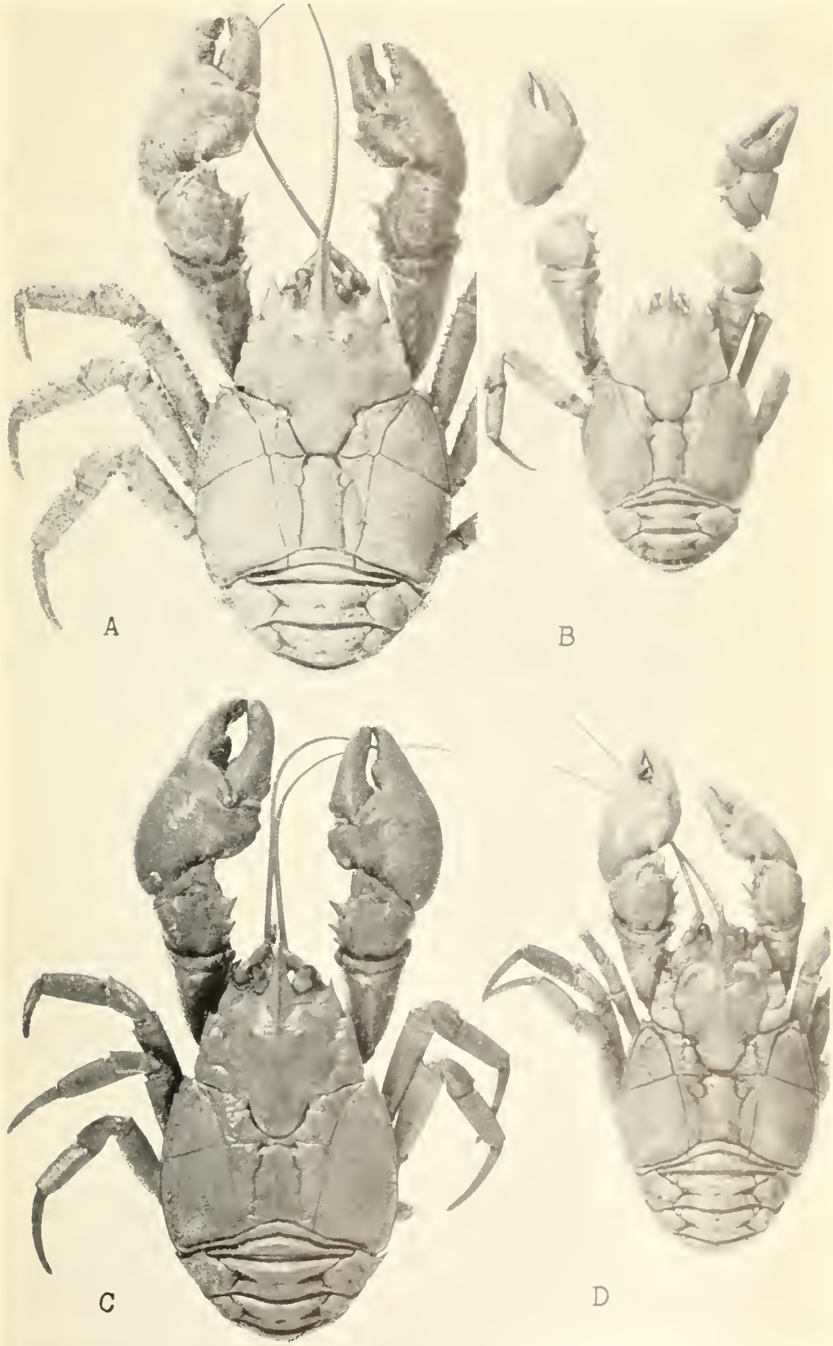
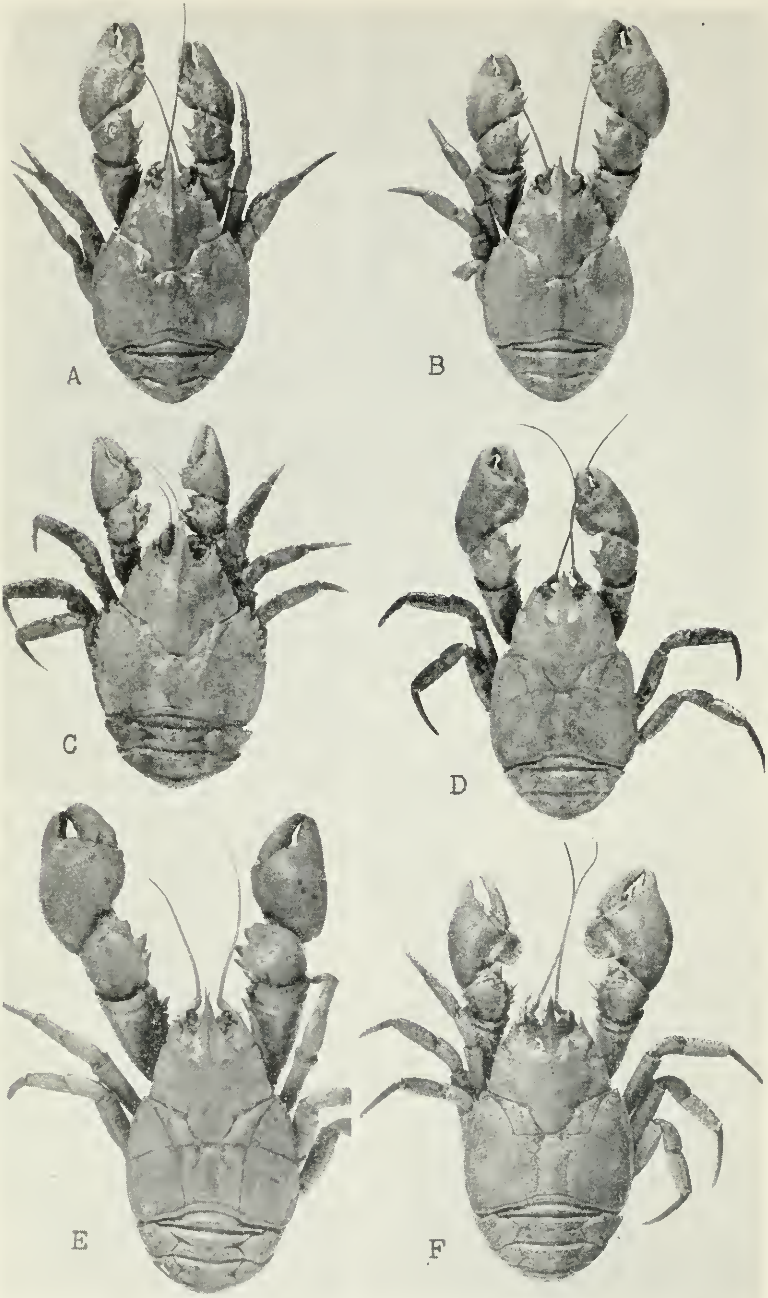
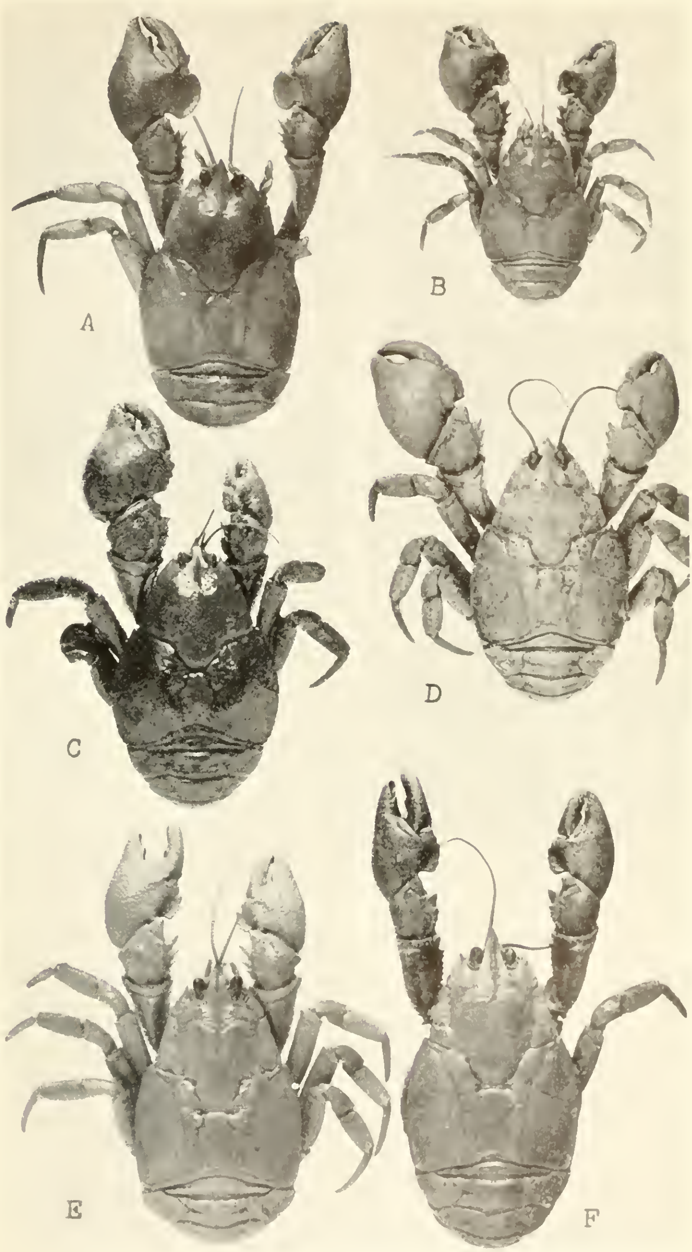


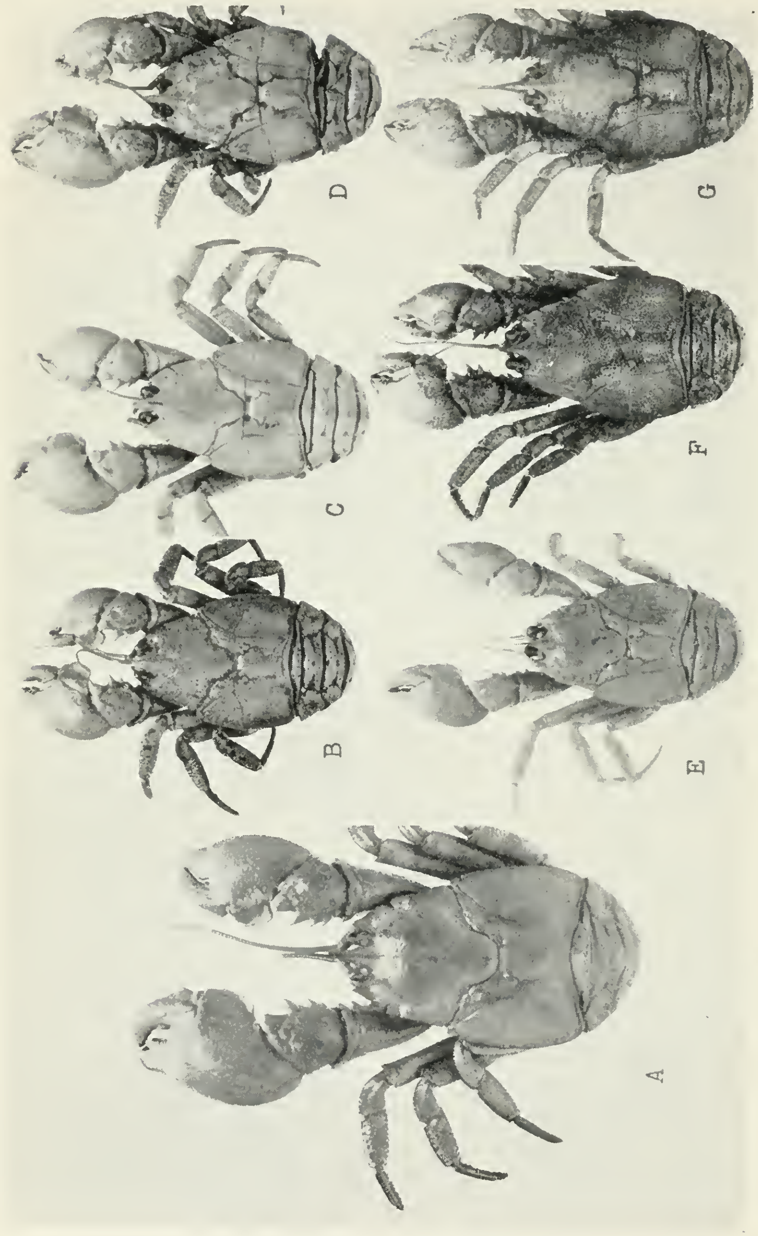
A, *Aegla parana;* B, *A. sanlorenzo;* C, *A. platensis;* D, *A. uruguayana.*



A, *Aegla prado;* B, *A. prado*, male paratype; C, *A. denticulata*, male neotype; D, *A. franco;* E, *A. jujuyana;* F, *A. castro.*



A, *Aegla odebrechtii;* B, *A. o. paulensis;* C, *A. papudo;* D, *A. humahuaca;* E, *A. neuquensis;* F, *A. affinis* (the ambulatory leg shown is the inadvertently reversed left leg of text fig. 58).



A, *Aegla concepcionensis*; B, *A. laevis talcahuano*; C, *A. l. talcahuano*, male paratype; D, *A. laevis*, male neotype; E, *A. riolimayana*; F, *A. abtao*; G, *A. abtao*, male paratype.

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(New genera, species, etc., are printed in *italics*.)