

THE SOMATOLOGY OF ULITHI ATOLL

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FOUR FIGURES

The materials which form the basis of this article were collected in 1947 and 1948 by the senior author as a participant in the project known as the Coördinated Investigation of Micronesian Anthropology (CIMA), sponsored by the Pacific Science Board of the National Research Council. Because they constitute a small sample they are merely offered as a modest contribution to the growing body of data on Micronesian physical anthropology, which until recently has been lamentably meager. Speculations as to racial history and affinities have been avoided as being outside the scope of this study, but the interested reader may refer to such works as those of Hunt ('50) and Simmons et al. ('52).

Ulithi Atoll lies 10° north of the equator in the western Caroline Islands. While it is but 85 nautical miles northeast of Yap, it is linguistically and culturally closer to a whole string of islands between it and Truk over 750 nautical miles to the east (Lessa, '50). On January 1, 1949, it had a population of 421 persons, one or two of whom appear to be of recent hybridization. The present sample however is probably "pure."

Fifty-nine males were measured. The mean age is 38, and there are 4 subjects 18 years old or less, these being discarded in such instances where it is felt that measurements or observations would be affected. The youngest subject is 16 and the oldest 69 years of age.

A comparison of measurements from Ulithi with those of other series from this area of the Pacific indicates that the men of this atoll group are substantially within the general Micronesian range. Such differences as do appear show a tendency toward the upper extremes of the real averages. In stature, the Ulithi mean exceeds the over-all Micronesian standard to some extent, but remains within the range of medium height. Absolute head lengths tend to be somewhat greater in Ulithi (with the exception of one series from Pingelap), and thus influence a relatively low cephalic index. Ulithi and Yap share in the characteristic of broader faces and lower facial indices. The only trait, however, in which the Ulithians appear at all divergent from other Micronesians is the absolute breadth of the nose. In this respect they exceed all other groups by from 1 to 4.2 mm. Combined with a relatively small nose height, the greater mean breadth yields a nasal index of 82 compared with the total Micronesian average of 75.5.

It is quite probable that a fair proportion of the differences recorded in face heights, nose heights and their respective indices would be reduced by the observation of larger series, and, especially, the standardization of methods for locating nasion.

An examination of the Micronesian data compiled by Hunt ('50) fails to reveal the existence of any linear gradient for metrical traits in these islands. The paucity of material, together with the numerous exceptional cases, throws doubt upon the significance of any pattern which may at this time be observed. In a relatively homogeneous area such as this the use of anthropometry to discriminate local somatological differences is a questionable procedure, though its value may in the future be considerably enhanced by combination with serological and other data for the purpose of genetic linkage analysis.

Table 1 records the means and standard deviations for the various gross measurements and indices of Ulithi males.

Table 2, adapted from Hunt ('50), shows the means for a west to east sequence of Micronesian Islands and includes the

TABLE 1
Measurements and indices: Ulithi males

MEASUREMENTS ¹	N	MEAN	S.D.
Head length	56	19.5	.736
Head breadth	56	14.5	.477
Head height	55	13.2	.418
Cephalic index	56	74.6	3.286
Length-height index	55	67.9	2.679
Breadth-height index	55	91.1	3.576
Cranial module	55	15.8	.405
Minimum frontal	56	10.7	.362
Fronto-parietal index	56	73.6	2.493
Bizygomatic	56	14.3	.630
Cephalo-facial index	56	98.1	3.140
Zygomatic-frontal index	56	75.1	2.916
Bigonial	55	10.6	.540
Zygomatic-gonial index	55	74.5	3.476
Total face height	55	12.2	.720
Total face index	55	85.9	4.951
Upper face height	52	7.2	.442
Upper face index	52	50.4	2.859
Forehead height	41	7.0	... ²
Nose height	56	5.5	.376
Nose breadth	56	4.5	.292
Nasal index	56	82.0	5.987
Nose length	56	5.1	.354
Nose salient	56	2.0	.216
Bi-ocular breadth	55	9.4	.457
Inter-ocular breadth	55	3.6	.357
Stature	56	163.5	4.232
Sitting height	56	88.3	2.701
Rel. sitting height	56	54.0	1.173
Trunk height	56	56.7	1.884
Rel. trunk height	56	34.7	1.083
Chest breadth	56	26.9	1.489
Chest depth	56	21.8	2.389
Thoracic index	56	81.2	4.385
Biaeromion	55	37.3	1.407
Rel. shoulder breadth	55	22.8	.849
Bi-iliac	56	28.4	1.699
Rel. hip breadth	56	17.3	.902
Shoulder-hip index	55	76.2	4.082
Upper arm length	56	31.6	1.497
Lower arm length	56	24.8	1.193
Brachial index	56	78.5	3.095
Lower leg length	55	37.1	3.254
Weight	56	144.4	17.558

¹ All measurements are recorded in centimeters, except for weight, which is in pounds.

² Not calculated since N is below 50.

TABLE 2
Means of measurements and indices: Micronesian males¹

AREA: OBSERVER: NO. IN SERIES:	TOBI HASEBE 6	SONSOROL HASEBE 11	PALAU HASEBE 134	YAP HUNT 347	ULITHI LESSA 55	W. CAR. IS. HASEBE 41	TRUK HASEBE 164	PONAPE HASEBE 150
Stature	156.80	164.40	160.90	160.30	163.50	163.80	161.60	162.10
Chest girth	84.00	88.62	86.08	90.51	88.66	84.03	85.30
Head length	19.11	19.45	18.52	18.85	19.50	19.43	18.97	19.28
Head breadth	13.91	13.85	14.97	15.01	14.53	14.31	13.91	14.21
Cephalic index	72.80	71.30	80.90	79.60	74.60	73.70	73.40	73.70
Face height	12.16	13.08	12.37	11.72	12.21	12.51	12.36	12.67
Face breadth	13.63	13.83	14.12	14.50	14.25	14.06	13.66	13.92
Facial index	85.60	94.50	87.60	81.00	85.90	89.10	90.60	93.30
Nose height	5.20	5.95	5.50	5.48	5.49	5.55	5.57	5.95
Nose breadth	4.40	4.32	4.16	4.17	4.49	4.23	4.31	4.24
Nasal index	84.70	73.10	76.20	6.20	82.10	76.50	77.70	71.60

¹ Adapted from a table compiled by Hunt ('50). All measurements are recorded in centimeters.

Ulithi series for comparative purposes. This represents only a portion of the table used by Hunt, but is felt to be adequate for indicating relationships.

Turning to non-metrical observations, we find that Ulithians are predominantly light brown in skin color, although exposure to the sun produces a medium brown color. The hair is black, with some instances of red brown, dark brown, and various combinations of these. Greyness is infrequent. While children were not included in the sample it should be pointed out that blondness is sometimes present among them. Head hair is predominantly wavy and coarse, with little incidence of baldness; body hair is sparse. The iris of the eye is usually medium or dark brown with a homogeneous distribution of the pigment. Over half the subjects have no eye fold, but when it is present it is usually lateral or epicanthic.

The profile of the nasal bridge, excluding the tip of the nose, shows considerable variation in shape, with no special dominance of one type or another. The bridge and root of the nose are usually low. The axis of the nostrils is transverse. The lips are usually thick and the lip seam medium or marked.

Ulithians have a slight overbite. Median and lateral shovel-shaped incisors are simultaneously present about 45% of the time. It is interesting to note that while this frequency is extremely low as compared with Chinese, Japanese, and Indians, it is somewhat higher than for Whites and is close to the frequency for American Negroes. Compared with Hawaiians the occurrence is much less frequent (cf. Dahlberg, '45). Dental caries is remarkably low and is more apt to be apical than gingival. Even allowing for the fact that the search for caries was a relatively cursory one, substantiation of the excellence of Ulithian dentition is seen in the fact that relatively few teeth are missing and more than half of the subjects are in possession of all their teeth. The greatest incidence of caries is in the youngest age bracket, possibly reflecting the effects of the war or changed diet. Tooth loss appears to be

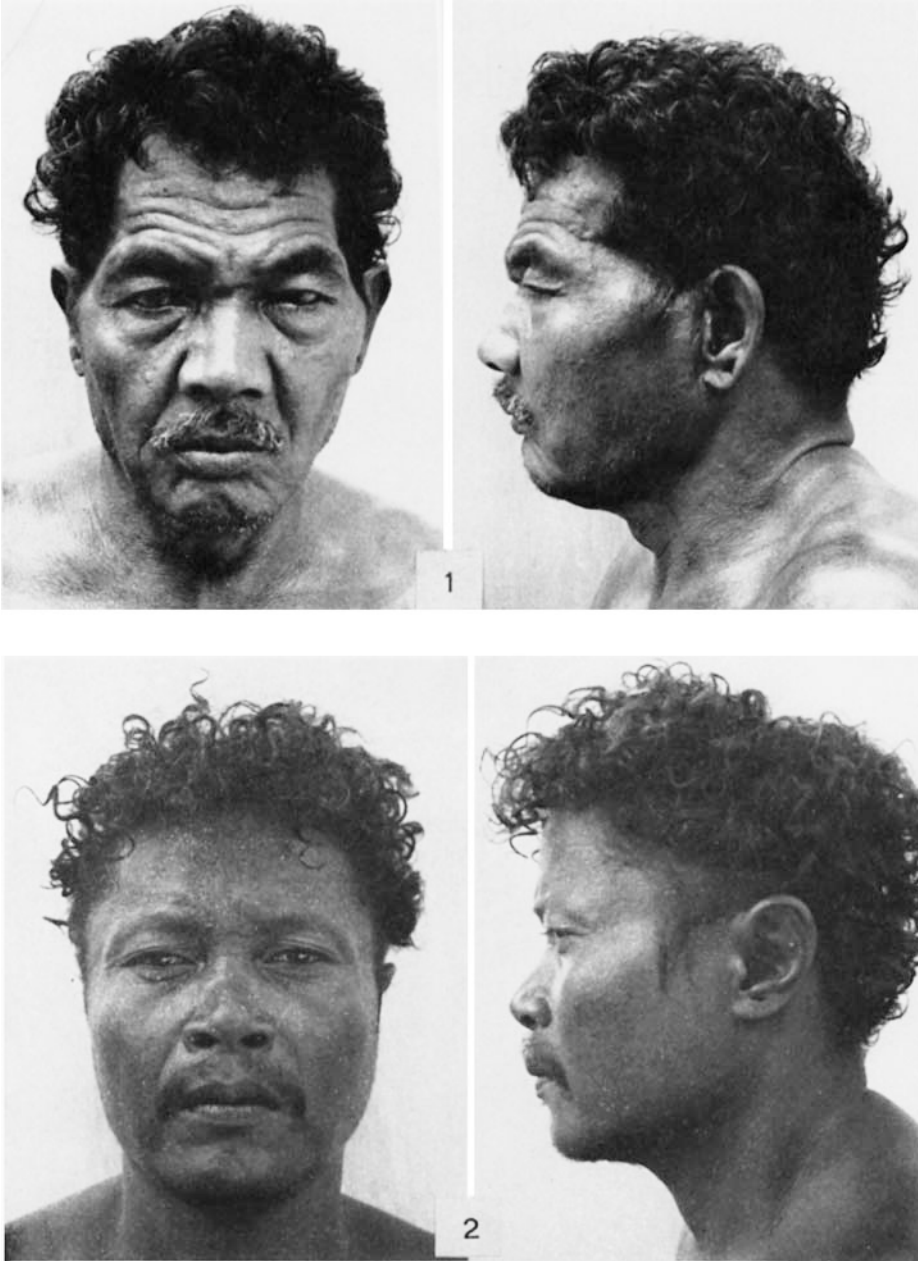
due more to pyorrhea resulting from heavy tartar deposits than to caries, there being an excess of calcium in the food.

In the belief that considerable value adheres to the examination of photographs for gaining an over-all impression of physical type, the reader is referred to the pictures presented in figures 1-4. Obviously, the assurance of homogeneity given by the anthropometric data is misleading. The non-metric data, when analyzed, indicate a diversity confirmed by these photographs, which are fair representations of the kinds of men who live on the atoll. One may feel inclined to recognize features which have variously been labelled "Oceanic Negroid," "Negritoid," "Mongoloid," "Indonesian," "Generalized Micronesian," and the like, by various investigators, but no attempt has here been made to segregate either these or other types, both because the sample is too small and because it would be wise to use serological and other data genetically studied.

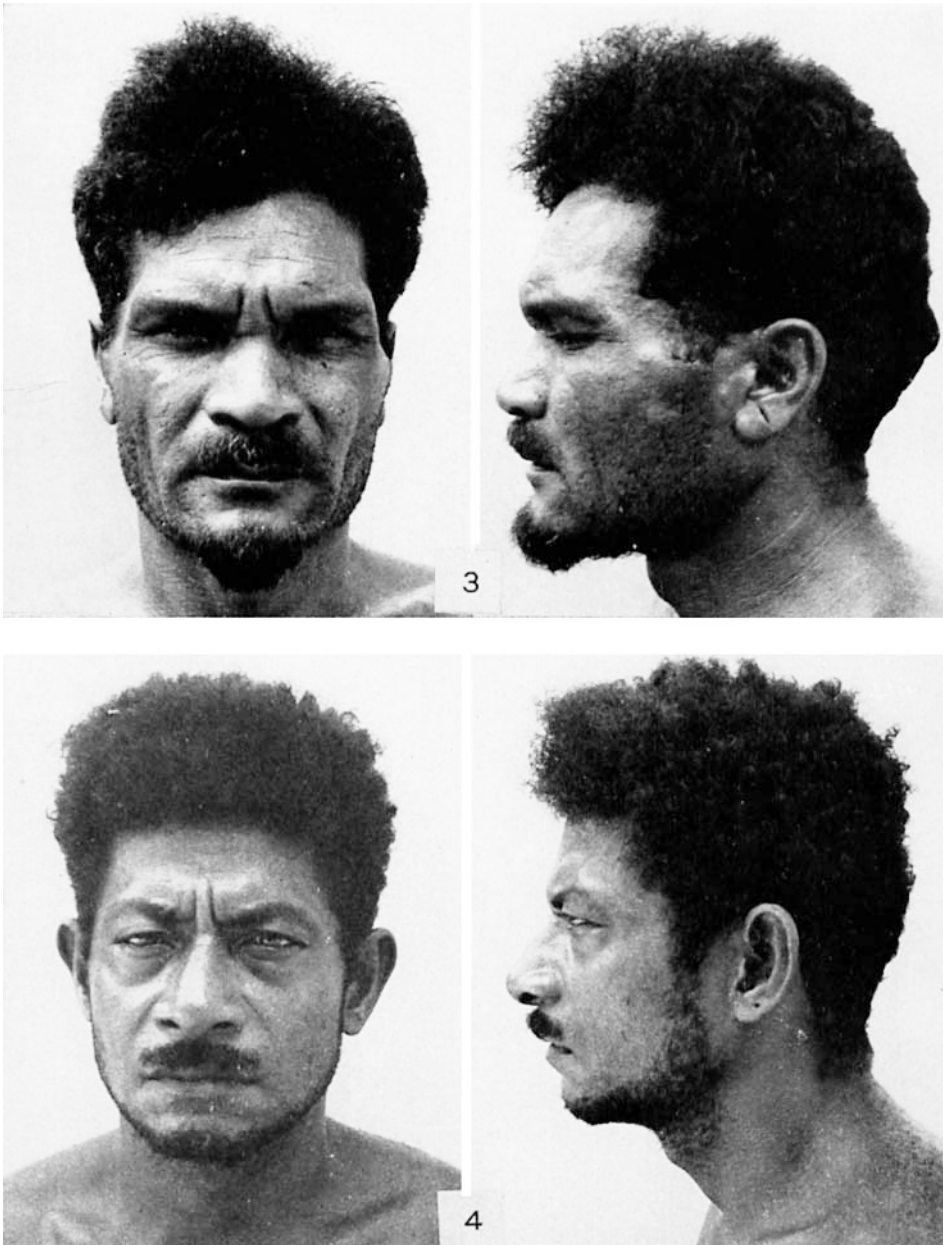
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1 and 2 Representative physical types of Ulithi Atoll.



3 and 4 Representative physical types of Ulithi Atoll.