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SKULLS FROM THE TOWER-SHAPED TOMBS IN TUMPULLO (PERU)

Introduction

In 1996 – the first season of excavations of the Condensuyos project – we examined bones from archaeological site Tumpullo 2. Considering substantial devastation by plunderers and mixing of burial stuff only skulls in a relatively good state of preservation were scrupulously analysed. The sculls came from three tombs (chullpas): 1, 3 and 7. The stuff from the tomb number 3 was described scientifically and then deposited in the Universidad Catolica de Santa Maria in Arequipa; the bones from other tombs were measured *in situ*. The skulls were described by means of the classical technique by R. Martin; we limited ourselves to the most important distances between characteristic points of a skull. Descriptive characters were measured with the help of cranioscopic scales proposed by Michalski-Wierciński-Piasecki (Piasecki 1992). Indices and cranioscopic characteristics became the basis for typological analysis according to morpho-comparative method of individual typology (Michalski, Henzel 1955). It was necessary to take into account not only the racial elements already distinguished in pre–Hispanic skeletal remains (Wierciński, Piasecki 1986, Piasecki 1994) but also a second white-yellow, cross-racial element. I propose to name it fuegidal element and mark with the letter of (F) (Piasecki; in preparation). Note that the latter is different from the laponoid element.

1. Description of the site

Tumpullo 2 site was discovered in 1996 by a the Polish-Peruvian research team, which worked in the Condensuyos project. Tumpullo 2 site is close to the already known Tumpullo 1 site which was discovered by

Max Neira, but was never described in any publication. The site is located in the Andas in Arequipa department, Chequibamba province, ten kilometres north from that town, on the northen slope of Cora Cora hill, in Pampa area, about 4000 ppm. The site comprises two sets of stone constructions of different state of preservation, and the rectangular layout 3 meters by 2, originally 3 meters high.

The human remains found in tombs were incomplete and mixed. It remained only some skulls and some bones of limbs. The rest of fragments of skeletons were probably robbed of a cloth covering them (fordos), because in the tombs there were no funeral pottery or cloth remainings, which usually preserve perfectly in the Andean sewerne climate. Pottery found on the surface was of the precolonial period (200 A.D. – 1534 A.B.). The organisation of the settlement indicates that it was probably constructed mostly during the Inca period.

2. Description of the material

Only three tomb-towers contained bones, which were suitable for a survey, the rest of the tombs contained only fragments of human bones which were either destroyed or unsuitable for a diagnosis. Because the stuff was mixed and postcranial skeletons were absent, only well-preserved skulls were analysed. Due to these conditions only in a few cases we were able to attach jaws to their respective calvariums. Because the stuff included many jaws, it is probable that plunderers had taken some of the skulls.

Chullpa number 1

11 skulls of male adults and 7 detached adult male jaws (*adultus-maturus*) were found in a plundered tomb).

Moreover, one skull of a child *(infans)* and fragments of three skulls of young people *(iuvenis P)* were excavated. So the minimal number of burials rose to 17.

Chullpa number 3

A part of the dome of that tomb-tower collapsed. That is why we explored only the skulls from the surface of the tomb. Besides the items

mentioned below, in the tomb we found: three jaws detached from cal-variums (two of them belonged to an adult male *adultus-maturus* and one probably to a woman at *maturus* age), cranial remains represent two individuals at *juvenis* age, two at *infans* II age and from five to seven at *infans* I age. There are probably other skulls left under the fallen stone slabs. The minimal number of people buried in that tomb is 21.

Chullpa number 7

Most of the bones found in that tomb are crania while postcranial skeletons include mostly long bones of limbs. Repeated pieces of some of anatomical parts allow us to estimate the minimal number of buried bodies.

Table 1a. Skulls from tower-tombs in Tumpullo 2 – skull indices
(* symbol denotes approximate measurements and indices calculated according to them)

	Tomb number	1						
	Skull number	2	4	7	8	9	13	14
	sex	m	m	m	m	m	m	m
1	2	3	4	5	6	7	8	9
1	the lines: g-op	188*	174	161	172	172	177	178
2	eu-op	137	131	123	131	133	138	136
3	b-ba	135	127	129	131	130	135	142*
4	au-au	130	124	124	125	134	132	127
5	zy-zy	144	131	134	135	141	146	139
6	zm-zm	105	101	105	104	102	112	108
7	ft-ft	91	81	88	92	89	99	90
8	n-ns	60	54	56	54	55	55	53
9	n-pr	72	68	75	74	74	81	76
10	mf-ek	40.5	39	38	27.5	28.5	40	37.5
11	orbital height	36	39	33.5	33.5	35	37	33
12	Apt-apt	27	35	24	24.5	23.5	27	26*
13	n-gn	–	121*	119	116	130	130	120*
14	go-go	–	90	102	102	97	110	95
15	kdl-kdl	–	119	121	120	130	129	125

cont. tab. 1a

1	2	3	4	5	6	7	8	9
I	size modulus	162.5	125.2	142.0	151.5	152.5	157.7	157.0
II	width. length	72.9	75.3	76.4	76.2	77.3	78.0	76.4
III	heigh. length	71.8	73.0	80.1	76.2	75.5	76.3	79.8
IV	heigh. width	98.5	96.9	104.9	100.0	97.7	97.8	104.4
V	fronto-parietal	66.4	61.8	71.5	70.2	66.9	71.7	66.2
VI	total facial	--	92.4	88.8	85.9	92.2	89.0	86.3
VII	Kollman	54.9	51.9	56.0	54.8	52.5	55.5	54.7
VIII	Virchow	75.2	67.3	71.4	71.2	72.5	72.3	70.4
IX	orbital	88.9	89.7	88.2	89.3	90.9	92.5	88.0
X	nasal	45.0	50.9	42.9	45.4	42.7	49.1	49.1*

Table 1b.

	1				2				
	33	6	12	15	2	8	16	1	4
	f	f	f	f	m	m	m	f	f
1	179	172	149	149	181	184	–	161	162
2	126	130*	131	125	128	138	–	128	130
3	131	123	127	123	130	122	–	132	122
4	130	125*	118	114	124	130	–	116*	117
5	137	130*	130	123*	134	143*	136*	122*	121
6	106	100*	90*	93	99	89*	101	90	90
7	101	87	80	84	88	–	–	90	91
8	54	52	48	51	52	–	51	48	47
9	76	72	65*	70	71	–	72	64	63
10	44	41	37.5	36	40	–	41.5	38	37
11	37	37	34.5	33	33	–	35.5	34	33
12	25	24.5	28***	23.5	24	–	23	21	24
13	–	–	–	–	120*	–	–	117	105
14	–	–	–	–	110	–	–	102	86
15	–	–	–	–	127	–	–	104*	118
I	152.5	151.0*	145.0	137.0	154.5	161.0	–	144.5	146.0
II	70.4	75.6*	82.4	83.9	70.7	75.0	–	79.5	80.2
III	73.2	71.5	79.9	82.6	71.8	66.3	–	82.0	75.2
IV	104.0	94.6*	96.9	98.4	101.6	88.4	–	103.1	93.8
V	80.2	6.9	61.1	68.3	68.8	64.5*	–	70.3	70.0
VI	–	–	–	–	89.6	–	–	95.9	86.8
VII	55.5	55.4	50.0*	56.9	53.0	–	52.9	52.5	52.1
VIII	71.7	72.0*	72.2*	75.3	71.7	–	71.3	71.1	70.0
IX	84.1	90.2	92.0	91.7	82.5	–	85.5	89.5	89.2
X	46.3	47.1	58.3*	46.2	46.2	–	45.1	43.8	51.1

Table 1c.

		3				7			
	9	10	11	14	1	5	8	2	3
	f	f	f	f	m	m	m	f	f
1	169	165	169	169	168	181	179	162	161
2	134	134	122	122	135	127	131	121	127
3	126	120	120	120	–	125	128	125*	125
4	126	116	116	116	–	123	123	114	113
5	132	120	121*	121*	125*	134	129	120*	120
6	95	88	87	87	92	96	93*	86	90
7	87	86	84	84	83	93	89	87	89
8	49	46	45	45	47	51	46	47	47
9	73	66	63*	63*	65*	69	65*	66*	63
10	39	37	34	34	39	36.6	40	36.5	36
11	37	33	33.5	33.5	34	34.5	32	35.5	31
12	24	19.5	23	23	24.5	24	24	33.5	22
13	–	115	–	–	–	116	115*	–	106
14	–	91	–	–	–	103	100*	–	89
15	–	103	–	–	–	121	100*	–	107
I	151.5	145.5	145.5	145.5	151.1	154.0	155.0	141.5	144.0
II	79.3	72.2	72.2	72.22	80.4	70.2	73.2	74.7	78.9
III	74.6	75.1	75.1	71.0	74.4	69.1	71.5	77.2	77.6
IV	94.0	104.1	104.1	98.4	92.6	98.4	97.7	103.3	98.4
V	64.9	67.2	67.2	68.9	61.5	73.2	67.9	71.9	70.1
VI	–	–	–	–	–	86.6	89.1	–	88.3
VII	55.3	55.7	55.7	52.1	52.0	51.5	50.4	55.0	52.5
VIII	76.8	73.9	73.9	72.4	70.7	71.9	69.9	76.7	70.0
IX	94.9	94.6	94.6	98.5	87.2	95.4	80.0	97.3	86.1
X	49.0	49.0	49.0	51.1	52.1	47.1	47.9	47.9	46.8

Table 2a. Skulls from tower-tombs in Tumpullo 2 – cranioscopic traits (scales of Michalski-Wierciński-Piasecki)

	chullpa nr 1										ch. nr 3	
nr	2	4	7	8	9	13	14	3	12	15	2	16
sex	m	m	m	m	m	m	m	f	f	f	m	m
1	2	3	4	5	6	7	8	9	10	11	12	13
1	5	8	10	8	9	8	3	9	6	5	8	–
2	3	4	8	8	12	8	3	6	7	4	2	–
3	4	2	1	4	1	2	4	5	4	5	4	–
4	3	2	1	2	1	2	2	3	3	3	1	–
5	6	2	7	6	3	2	7	4	3	4	5	–
6	3	4	3	3	3	3	2	3	1	1	3	–
7	2	4	8	2	5	5	2	1	4	4	1	–
8	2	2	2	3	2	3	3	2	2	2	1	–
9	3	2	4	3	3	3	3	3	2	1	3	3

cont. tab. 2a

1	2	3	4	5	6	7	8	9	10	11	12	13
10	3	4	4	5	3	4	2	7	6	6	4	4
11	4	4	4	5	4	4	4	7	7	7	3	3
12	2	2	2	2	2	2	2	3	3	3	2	3
13	10	10	2	11	12	10	8	8	10	11	1	9
14	4	7	10	5	10	5	4	6	3	3	3	3
15	2	2	2	2	2	1	2	2	3	2	3	2
16	3	3	7	3	7	3	4	3	–	13	3	3
17	2	2	2	2	3	2	3	2	–	6	2	3
18	5	4	6	4	6	5	5	3	4	3	4	6
19	4	5	5	6	5	5	4	5	5	5	4	4
20	4	3	3	4	4	4	3	2	3	3	6	4
21	4	4	5	5	5	6	4	4	2	4	4	4
22	3	4	3	3	3	3	3	5	4	4	3	3
23	4	6	5	5	6	6	5	4	–	5	3	–
24	–	8	6	8	9	10	8	–	–	8	8	–
25	4	4	4	4	44	4	3	–	–	3	3	5
26	2	4	3	2	3	3	3	–	–	3	2	1
27	–	5	2	2	5	3	4	–	–	–	4	–
28	–	5	4	4	4	3	4	–	–	–	4	–

Table 2b.

nr	chullpa nr 3						chullpa nr 7						
	1	4	9	10	11	14	1	5	8	2	3	7	23
sex	f	f	f	f	f	f	m	m	m	f	f	f	f
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	8	5	9	9	9	8	8	8	8	9	9	8	5
2	4	11	8	7	4	4	4	2	4	4	4	2	11
3	2	2	2	5	4	4	4	4	4	3	6	5	3
4	3	3	2	3	3	4	3	2	2	3	3	3	2
5	7	7	7	3	7	2	2	8	6	2	2	4	6
6	4	2	3	3	3	3	3	1	2	4	2	4	3
7	8	3	3	4	2	2	–	1	1	1	1	2	2
8	2	2	3	3	2	2	–	2	2	3	3	3	2
9	2	2	2	2	2	1	–	3	3	2	2	2	2
10	6	6	6	6	6	6	5	4	2	7	6	6	7
11	7	7	5	7	7	5	5	4	4	8	7	7	6
12	2	3	3	3	3	3	3	3	3	3	2	3	3
13	2	10	11	12	12	12	11	11	2	10	11	10	11
14	5	5	6	3	6	3	3	3	4	3	3	7	6
15	2	3	2	3	3	2	2	2	3	2	2	3	4
16	23	3	7	9	3	3	9	7	3	7	3	3	7
17	6	7	2	6	7	6	8	3	2	2	2	2	8
18	4	4	4	5	3	4	5	5	5	6	4	5	2
19	4	4	7	4	3	5	4	4	4	5	3	5	6

1	2	3	4	5	6	7	8	9	10	11	12	13	14
20	3	4	4	4	3	4	6	3	4	3	4	2	3
21	4	5	4	4	4	4	2	4	4	3	2	3	2
22	4	5	4	4	4	3	4	3	3	5	5	4	4
23	5	5	–	5	5	4	–	4	5	3	3	–	3
24	10	9	–	7	7	8	–	7	8	–	8	–	2
25	3	2	4	4	3	3	4	4	3	5	3	2	–
26	3	4	4	3	3	1	1	2	1	1	1	2	2
27	4	3	–	4	–	–	–	4	5	–	5	–	–
28	4	4	–	4	–	–	–	4	4	–	4	–	–

3. Fuegidal element

Detailed description of the newly distinguished fuegidal element is now being prepared for publication. As neither characters of fuegidal race can be observed in a living man nor the number of measurements is sufficient, the description of cranial morphology will be, by necessity, quite a general and shortened one. It seems that fuegidal race can be identified with Imbelloni's „fuegid" (Imbelloni 1938) so the proposed name.

The skull is quite big, long, shortish, considerably convex forehead is broadish, the face is quite broad and high, broadish jaw. The orbits are very high and the nose–narrow. The actual mean values of cranial indices are shown in the table 3. No range of variability is presented here.

Table 3. The temporal mean values of some fuegidal cranial indices

index	f
width-length	72
height-length	72
height-width	102
forehead-parietal	69
total facial	65
Kollman	52
Virchow	69
orbital	89
nasal	44

4. Typological analysis

In general, there are 26 skulls (from Chullpa No 1:11, Chullpa No 3:8 Chullpa No 7:7), 12 of them are male, the rest (14) are female. We have distinguished 15 typological units (Tab. 4). On the whole there was 1,7 skull found in each unit.

Table 4. Skulls from the tower-tombs in Tumpullo 2 – typological composition

Anthropological type	Σ	m	f	chullpa nr: 1	3	7
ZF	5	2	3	3	1	1
IF	4	3	1	2	2	–
IM	2	2	–	1	–	1
IL	2	2	–	1	–	1
ZL	2	–	2	1	1	–
ZP	2	1	1	1	–	1
IZ	1	–	1	–	–	1
IQ	1	1	–	–	1	–
IP	1	–	1	1	–	–
ZM	1	–	1	–	1	–
ZQ	1	–	1	–	1	–
MQ	1	–	1	–	–	1
MF	1	–	1	1	–	–
QF	1	1	–	–	–	1
LF	1	–	–	1	–	–
number of skulls:	26	12	14	11	8	7
number of units:	15	7	11	8	7	7

Table 5. Skulls from the tower tombs in Tumpullo 2 – racial structure

element:	Σ	m	f	chullpa nr: 1	3	7
z – pacific	23.1	12.5	32.2	22.7	25.0	21.4
f – fuegidal	23.1	25.0	21.5	27.3	25.0	14.3
a – arctic	21.2	33.3	10.7	22.7	18.8	21.4
m – mongoloid	9.6	8.3	10.7	9.1	6.3	14.3
l – laponoid	9.6	8.89	10.7	9.1	12.5	7.1
q – tibetoid	7.6	8.3	7.1	–	12.5	14.3
p – ainuid	5.8	4.2	7.1	9.1	–	7.1
Σ	100.1	99.9	100.0	100.1	100.1	99.9

Comparison between shares of the listed elements allows to note the following inequalities of racial structure.

total	$z = f > i \gg m = l > q > p$
men	$i > f \ll z > m = l \ q = p$
women	$z \gg f \gg i = m = l > q = p$
Chullpa nr 1	$f > i = z \gg m = l = p$
Chullpa nr 3	$z = f > i > q = l > m$
Chullpa nr 7	$i = z > m = q = f > l = p$

Taking into account the considerably small number of skulls, it is clear, that the evidence of the material is not very representative. However, the observed differences are so large that they should be explained. As at the present state of research the results do not indicate any significant chronological diffences, we must assume that the skulls are of an equal age. Then one can put forward a hypothesis (yet to be verified) that people from different tribes, or ethnic groups were buried in each of the graves. It would be interesting to throw some light on that matter.

It is immensely interesting that the racial structure practically does not differ (Tab. 7) between each series. Even a comparison between the racial structures does not change much in this comparison while for Tumpullo we have :

$$z = f > i \gg m = l > q > p,$$
$$\text{for Acari: } f > z > i = p > m > q + l.$$

However, the different structure of distribution caused that two new typological units and new elements appeared. Though in both series, we

Table 6. Comparison of typological composition of skulls from tower-tombs in Tumpullo 2 and Acari

Anthropological type	Tumpullo 2	Acari
1	2	3
ZZ	–	1
FF	–	3
IZ	1	2
IM	2	3
IQ	2	3
IL	2	–
IF	4	3
IP	1	2
ZM	1	1
ZQ	1	–
ZL	2	2
ZF	5	3
ZP	2	3
MQ	1	1
MF	1	4
MP	–	3
QF	1	1
LF	1	–
PL	–	1
PF	–	2
number of skulls:	27	38

Table 7. Comparison of racial structure of skulls from tower-tombs in Tumpullo 2 and
Acari valley

elements	Tumpullo	Acari
z – pacific	23.1	26.4
f – fuegid	23.1	22.2
a – arctic	21.2	15.3
m – mongoloid	9.6	15.3
l – laponoid	9.6	12.5
q – tibetoid	7.7.	4.2
p – ainuid	5.8	4.2
Σ	100.1	100.1

observe nearly the same proportions of the sum of pacific and fuegid elements which make up nearly a half of the population: Tumpullo – 46.2%, Acari – 48.6%. The presence of the arctic element, which is considered the most archaic (more frequent in Tumpullo population), causes the Tumpullo series look typically *andian* (Wierciński, Piasecki 1986). The shares of the mongoloid and laponoid elements are far greater than the Acain population. But, there is considerably less plain and paleosiberian elements; all that emphasize *coastal* character of the latter.

New comparisons and surveys should explain mutual relations of particular racial elements and enlight the anthropological picture of this area. The model proposed by Wierciński [5] would became more complete and more detailed.

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