

# The Melanesian Dwarf Tribe of Aiome, New Guinea

R. Ruggles Gates

Having obtained permission of the Australian Government to visit New Guinea for scientific study of the native inhabitants, my wife and I flew from Sydney to Port Moresby, an overnight flight almost due north across the Coral Sea. All communication with the interior of New Guinea is by air. After several days in Port Moresby, during which we received much assistance from Mr. J. Keith McCarthy, Director of Native Affairs, we flew to Mount Hagen in a valley in the jungle highlands. An account of the work done there will be published elsewhere. We afterwards flew to Madang, on the north coast of New Guinea on September 16, 1958. While in Madang, which is practically at sea-level and very humid, arrangements were made with Mr. Ronald Galloway, Acting District Commissioner, for flying to Aiome in a small two-seater Government plane.

After obtaining a stock of provisions, we flew over the jungle and winding rivers (Fig. 1)<sup>1</sup>, with small clearings and groups of food-gardens (Fig. 2) and coconut trees often on hillsides at intervals, and landed at Aiome air-strip. This is a small rectangular open field, covered with native grass cut as necessary; workers are often in the field filling in small holes and simply rolling it to smoothness. The field is enclosed by low hedges of Croton bushes (Fig. 3). The Papuans are inordinately fond of colour and ornamentation and make abundant use of these Croton bushes whose foliage, in various shades of green, yellow and red is very effective. Native footpaths frequently run along the top of a ridge or along a clearing and then are lost in the jungle (Fig. 4).

In Aiome we stayed for a week at the local Government House, the home of the Patrol Officer, Mr. J. B. Battersby. He was away with a party of natives on patrol but his wife received us in their house. The house is built in native style and very appropriate for the hot climate. The walls are made of plaited split bamboo (Fig. 5) in attractive patterns. Some walls, which also serve as windows, are hung from hinges below the roof so they can be opened outwards from below, providing views and ventilation. The roof was thatched with palm leaves and from the front or the

<sup>1</sup> The coloured photographs were all taken by my wife.

open end of the house several steps led down to the ground; the house being built on stilts about four feet high. It overlooked a vast stretch of dense jungle growth and faced a high, long slope of the Schrader Mountains about 2500 feet high, on which was the small native village of Toogum. Several natives from here came to be studied and measured. Others came from the Asai and Simbai valley areas, these rivers being tributaries of the Ramu (see map in Champness et al. 1960).

The authorities arranged with Mr. Battersby to have a large party of the Aiome dwarfs sent on a trek three days through the jungle to this locality where they could be studied. One afternoon we saw them in the distance, trailing in single file through a path in the forest to our rendezvous in front of this house (Fig. 6), which stands adjacent to the air-strip and on the rim of a deep, heavily wooded chasm.

Details of the geography of the Aiome area, with a map, are given by Champness, Kooptzoff and Walsh (1960), who have blood-grouped these people. It is about 70 miles west of Madang, on the southern side of the Ramu river and its tributaries, the Asai, Simbai and Jimmi; but the population, who number 8000 to 10,000, differ from those of the Ramu Valley in stature, language and dress. Their stature is "normal" not dwarf. Champness et al. (1960) give a short account of these dwarf<sup>2</sup> people as they live in the mountains, but there is no clear statement as to how the dwarfs and tall are demarkated. Are they in touch or to some extent intermingled, or are the dwarfs in the mountains isolated entirely from the tall at lower levels? Those sent through the forest to be measured by me were all of dwarf stature, constituting a homogeneous population, 15 males and 6 females, all apparently adult. They came from different localities. Three men and five women came from Toogum village of 40 inhabitants, on the mountain slope, within sight of Aiome. Four men were from the Asai Valley area and five came from the Simbai Valley through a pass in the Schrader Mountains. Although from several sources, there is no evidence of a lack of homogeneity in this population.

### Observations

The measurements, observations and many of the photographs were made at the open end of the house (Fig. 6) where the group were assembled; this provided air current combined with shade from the sun. The Rev. Mr. Peter Robin, in charge of the local Anglican Mission, did a great service by acting as interpreter. He had established a fairly large and flourishing Mission School for the (tall) natives in this vicinity and he was in the process of establishing another Mission Center farther inland beyond the distant mountains. There were only two other white residents here; one was a gold-pro prospector and the other was director of education for various age groups. In the entire district were about 20 to 25 thousand natives. The local native population was considerable and these had their villages not far from the air-

---

<sup>2</sup> As pointed out (Gates 1958), it seems best to confine the term Pygmies to the Congo dwarf race.

strip. They were markedly taller than the dwarfs but were nevertheless rather short as racial statures go (see Table 2 of Champness et al. 1960).

In Table 1 are collected the measurements and observations made of 15 males and 5 females of this dwarf-tribe. In addition, one woman who was photographed, with her husband and my wife, was only 125.5cm in stature (Fig. 7). She ran away before her other measurements could be taken. The ages given are all more or less uncertain and a matter of judgement. The two whose ages are given as 16 and 17 were both well above the minimum height for men. The eye colours were compared with Martin's *Augenfarbentafel* kindly loaned by Prof. L. S. Penrose. They show little variation. The skin colours were compared with the Gates skin colour chart and were found to be close to No. 3 in the males and No. 4 in the females, showing that the latter were a shade lighter. Many differed from No. 3 in being more brown or less red. The face is sometimes lighter than the rest of the body. As regards the head measurements, all the men wore a heavy wig over their own (uncut) hair. This wig consisted of human hair with many layers of tapa cloth ornamented with red clay, the whole enclosed in a helmet-shaped covering (Fig. 8). To remove this wig before taking measurements was often a difficult operation, and even then the masses of hair, often heavily greased, made it impossible in three cases to get an exact measurement of the maximum length or breadth of the head. The cephalic index ranged from 71-83.4 in the men and from 73.1-77.3 in the five women. The mean index was 78.5 in the ♂ and 75.4 in the ♀, thus mesocephalic. Six of the 15 men were brachycephalic, while the five women were symmetrically grouped around 75.

The ears are consistently smaller than in Europeans, the lobe being generally very small or absent. In stature, the males ranged from 139-155cm with a mean at 147.9cm, while in the females the range was 134-146cm with mean at 140.6cm. They are thus well within the limit for a dwarf race, with over 7cm difference in the height of the sexes. Fig. 9 shows an Aiome dwarf whose stature was 142.5cm, his features typical. It was taken on the aerodrome at Madang where he was employed. His other measurements were not obtained. His chest shows a small amount of curly hair, nasal root much depressed, nostrils very broad, orbits sunken, lips not everted. This is the shortest dwarf tribe yet measured in New Guinea.

Relatively heavy brow ridges were only seen in two men. The nasal root was generally half-depressed, several having quite a marked nasal notch. Unfortunately the breadth of the nostrils was not measured but they were generally very broad and generally with the characteristic overhang of the Papuan or Semitic nose, but the overhang-tip was less marked than in the Mt. Hagen natives. See, e.g. Figs. 8, 9, 18, 24). The *alae nasi* are retreating, so that the septum projects far in advance, overhung by the nasal tip. It is thus easily pierced, and the Papuans take full advantage of this to wear an ornamental nose plug, of sticks, feathers, bone or shell. The lips are generally protruding and  $\pm$  everted. In two men the heels were  $\pm$  projecting, but whether this condition is significant is uncertain.

The skull differs from that of the Australian aborigines in being more lightly built, generally without marked brow ridges, and mesati— or brachycephalic instead

Table I. Aiome Dwarfs

	Age	Eyes	Skin	Haed		C.I.	Ears		Lobe	Height	Brow ridges	Nose
				L	B		L	B				
♂	1	26	3 face lighter	182?	138?	75.82	60	32.0	very small	149	—	½ depressed
	2	30+	3 more brown	174	137	78.73	57.2	31.6	very small	145.5	heavy	depressed
	3	27	3 3-4	177	144	81.35	59.3	37.0	no	—	—	½ depressed
	4	24	3-	172	137	79.35	57.1	31.2	no	146	brows	depr.
	5	23	3 3-	195	138	70.77	58.1	39.9	lobe	155	—	± notch
	6	27	3 3 more brown	175	146	83.43	58.0	34.0	V. sm.	148.5	brows	notch
	7	18	3 3 more brown	182	135?	74.17	55.3	31.9	V. sm.	139.	no brows	± depr.
	8	25	3 3 close	186	137?	73.66	57.6	32.2	V. sm.	146.	—	½ depr.
	9	21	3 3-	171?	138	80.76?	55.3	31.7	no	147	marked	notch
	10	21	4 3 near	177	142	80.23	59.0	31.9	lobe	155	brows	½ depr.
	11	18	2 3-	176	139	78.98	60.0	38.3	no	151	no brows	½ depr.
	12	28	3 3 more brown	179	142	79.33	57.4	38.8	no	151	brows	½ notch
	13	16	3 3-	173	141	81.50	60.0	40.2	no	149	no brows	½ depr.
	14	17	3 3 less red	177	145	81.92	59.8	35.0	V. sm.	147	no brows	¼ depr.
	15	23	3 3 less red	181	141	77.73	60.6	33.5	no	141.5	slight brows	notch
Means (15)												
				178.4	140.0	78.51	58.3	34.6		147.9		
♀	16	21	4 near 3	172	132	76.74	55.2	32	no	134	—	depr.
	17	18	4 near	172	133	77.32	53.	28	no	137	—	—
	18	28	2 4 near	175	128	73.14	52.2	28.3	no	144	—	½ depr.
	19	18	3 5 near	177	133	75.14	56.6	34.7	no	146	—	¾ depr.
	20	18	5 near	178	133	74.72	51.	32.	no	142	—	—
Means (5)												
				174.8	133	75.41	53.6	31.0		140.6		

Range ♂ L 171-195 B 135-146 C.I. 70.97-83.43 Ears L 55.3-60.6 B 31.2-40.2 Ht. 139-155

Range ♀ L 172-178 B 128-133 C.I. 73.14-77.32 Ears L 51.0-56.6 B 28. -34.7 Ht. 134-146

of dolichocephalic. The rounder head is generally believed to be connected with the dwarf stature, but the nature of that connection is not yet apparent. The brachycephaly appears to be due generally, but not always, to a broader rather than a shorter head.

Observations of the hair of Melanesians seem to show that it is fundamentally the same as the woolly hair of the African Negro. The only important difference appears to be in the treatment it receives. In Papuans the male frequently lets his hair grow long and encloses it in a wig, as in the Aiome dwarfs, or combs it out into long crinkled strands, lying parallel, not interwoven, whereas the females always wear it short. The combing may make it crinkly or frizzly rather than woolly. In African Negroes the hair of the males is generally short, the shafts spiral (due to sickle-shaped hair follicle) and intertwisted into a woolly mat, whereas in the female it may be allowed to grow and may be moulded into forms like those of a topiary artist. Fig. 8 is a photo of Tibuniunk (No. 12 in Table 1, C.I. 79.33). Besides his heavy helmet, his face is heavily painted with black and red paint and his pierced nostrils hold strands (sometimes as many as nine) which stick out like cat's whiskers. He has curly hair on his chest and his bow reaches above his head.

These people are very fond of decorating themselves with croton leaves, which give a very artistic effect, Figs. 10-18. In Fig. 16 two individuals of normal stature are on the right. Fig. 17 shows a "dance" in progress. They move in a circle to the sound of a drum (shown in Fig. 15) and a curious kind of harmonious grunt. This dance and song continued for hours without marked noticeable variation. Fig. 18 shows their features well, and the nose plugs in two, for which the Papuan nose is particularly well shaped. The whole party were gay and jolly, regarding their expedition to Aiome as a great lark. In this they contrasted markedly with the people of Mount Hagen, who generally stood stolidly and stared but were not ill-tempered, merely satisfying their inexhaustible curiosity. Photographs published of several dwarfs from the Ramu river district by Weule (1902) show the same jolly disposition. The five are all smiling, whereas the natives of Goroka and Mount Hagen are more solemn and yet they have an agreeable and cooperative disposition; it is very easy to work with them. Ivinskis et al. (1956) have similarly observed that the Chimbu people are gay while those of Goroka are sullen and appear unhappy. So the gaiety is not confined to the dwarfs.

The photographs in black and white include No. 2 in table 1 (name Gaurump) in front view (Fig. 19) and side view (Fig. 20) showing the special headdress and a hornbill at the back of the neck (also in Fig. 12). Fig. 21 is of No. 9 (Dangariwa from the Simbai Valley) showing "cat's whiskers", facial tattoo and helmet containing masses of hair surmounted by feathers. Around his neck is a crescent shell. Fig. 22 shows No. 10 (Angunt) with "helmet" and tattoo stripes on face and shoulders. The lower lip is everted. In Fig. 23 (Bevna) No. 14) the hair covers the ears in masses and a necklace of lizard claws is around his neck. His nostrils had eight holes. Fig. 24 shows Oriniep (No. 15) with a more flared headdress. He came from Toogum village. Fig. 25 represents Dungup (No. 17) from Imungi village. Her skin was scaly,

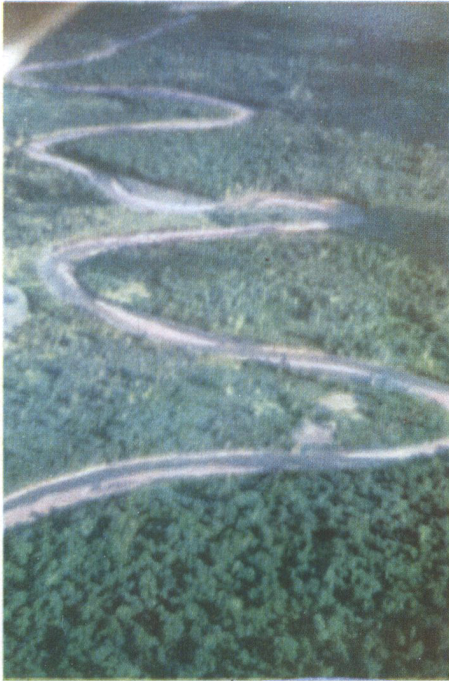
like several others, with *tinea imbricata*. The hair in all the women was short and woolly. Some of the young women wore many necklaces of beads.

During the three days of festivities of the Aiome dwarfs there were continuous "sing-sings" and dances. On the second day a wild pig was shot by a Government employee as a special treat for the dwarf's "sing-sing". To prepare the pig for this feast a hole was dug in the ground and lined with banana leaves and hot stones. On these were laid pieces of the raw meat and sweet potatoes; these layers were repeated until the hole was filled and the whole was again covered with leaves and earth. After an interval of about two hours the potatoes and the half-raw meat were removed and eagerly devoured. This feast was followed by another unchanging but enthusiastic song and dance (Fig. 17). This "sing-sing" continued unabated far into the night, another expression of their feeling for timelessness.

#### Skin colour variation

The first patrols to enter the western highlands of New Guinea in the 1930's noticed that some natives had a relatively light skin colour. We also noticed variation in skin colour. Macintosh (1960) has made a study of this condition at Mount Hagen. He shows that the natives recognize these shades and have names for them, with slightly different names at Wabag, fifty miles further west. The skin is darkest on the coast. Among 600 examined by Macintosh at Wabag, 35% were classed as dark, 52% medium and 13% light. There was no case of a dark child from two light parents. A dark father and a light mother produced four dark children in one family and one dark, one medium and three light children in another. In 40 families with 140 children, 20% were dark, 57.8% medium and 22.1% light, indicating a balance between light and dark skin. The results are in harmony with, and would suggest, a single recessive gene for light skin colour. There is some difficulty in classification, as the adults never wash and the skin becomes darker with dirt. They also anoint their skin with pig fat. Fifty light skins selected by Macintosh in 3000 showed no significant difference in blood group frequencies, so there is no reason to suspect linkage.

While at Mount Hagen, four biopsy specimens of skin were obtained by me, one dark, one light and two medium. Three of these individuals, one of each shade, were photographed (Figs. 26, 27, 28) with bandaged arm where the specimen was removed at the local hospital by Dr. Leo Petraskas. These specimens were the ones investigated by Dr. Macintosh. They contain less melanin than the two biopsy specimens obtained by me in Darwin from Australian aborigines and also studied by Prof. Macintosh (1960) in comparison with the Papuans. These results agree with the impressions one received in examining Australians and Papuans, namely that the Australian skin has more pigmentation than the Papuan. The occurrence of albinos at Mount Hagen has been recorded elsewhere (Gates 1960a), and Macintosh records a near-albino. A very significant feature of the work of Macintosh on skin colour is his discovery that the natives recognize the three shades and have names for them. They



**Fig. 1.** View from the air, between Madang and Aiome



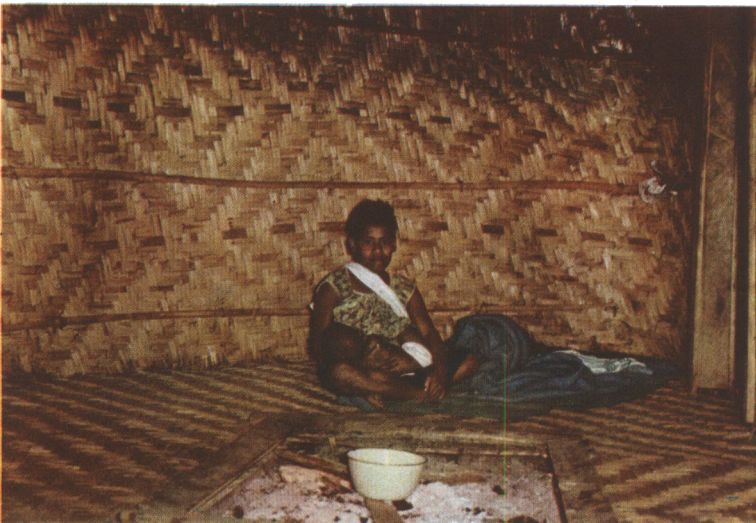
**Fig. 2.** Air view showing native gardens, near Mount Hagen



**Fig. 3.** A party of Aiome dwarfs, with Croton hedges by the airstrip



**Fig. 4.** Air view showing footpaths along top of ridges, near Goroka



**Fig. 5.** Wall of native house plaited from palm leaves



**Fig. 6.** The party of dwarfs outside the Patrol Officer's house





Fig. 7. My wife, with Aiome dwarf woman only 125.5 cm high and her husband



Fig. 8. Tibuniunk, No. 12 in Table 1. with bow, showing helmet-like head-covering (made of tapa cloth), small sticks in nostrils and curly hair on chest

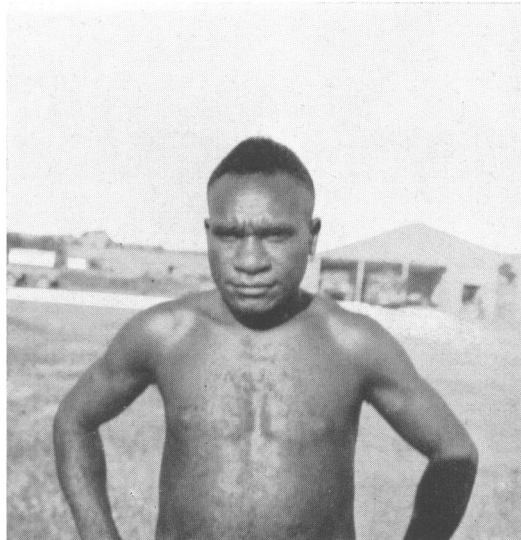


Fig. 9. A dwarf working on the airstrip at Madang



Fig. 10. My wife with four dwarfs. Note Croton leaf decorations



Fig. 11. A group of the dwarfs



Fig. 12. Rear view of dwarf men

**Fig. 13.** Group of dwarfs,  
with the author and his wife



**Fig. 14.** At the sing-sing,  
with native Papuan children  
seated in front



**Fig. 15.** Dwarfs in formation  
for a circular dance showing  
the leader with the drum





Fig. 16. Another dwarf group, two tall Papuans on the right



Fig. 17. Showing the dance formation, in a circle



Fig. 18. Closer view of six dwarfs, two with nose plugs



Fig. 19. Gaurump, No. 2 in Table 1, front view

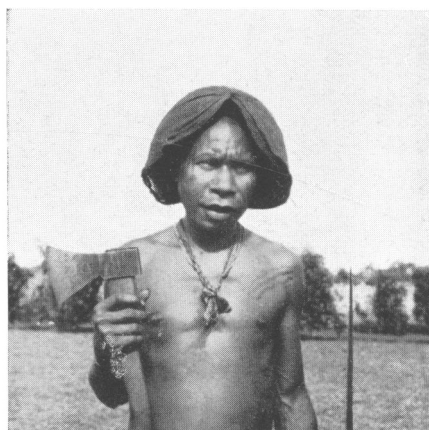


Fig. 22. Angunt (No. 10) with "helmet", necklace and axe. Lower lip everted



Fig. 20. Gaurump in side view. Hornbill at back of neck



Fig. 21. Dangariwa (No. 9) showing "helmet" with feather decorations, "cat's whiskers" in nostrils, and crescent shell around neck



Fig. 23. Bevna (No. 14) Masses of hair cover the ears, surrounded by headdress. Necklace of lizard claws, 8 holes in nostrils



Fig. 24. Oriniép (No. 15), from Toogum village. More flaring headdress.

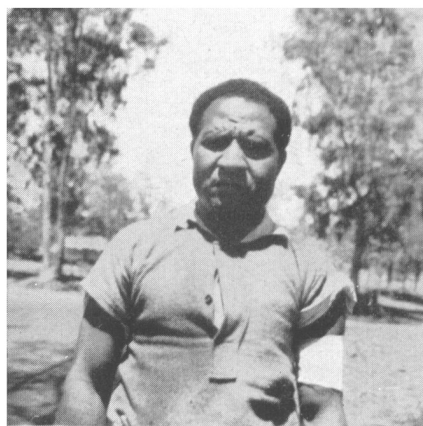


Fig. 27. Mount Hagen Papuan, intermediate type, arm bandaged after skin biopsy

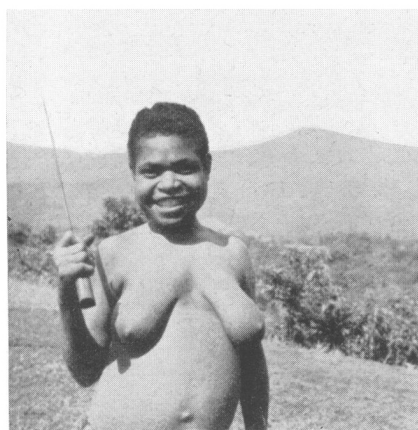


Fig. 25. Dungup (No. 17) from Imungi village. Note short woolly hair. She holds a long knife for identification

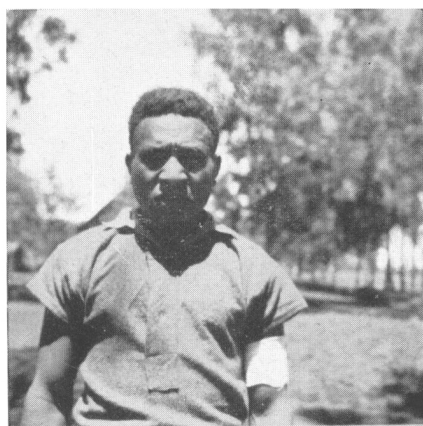


Fig. 26. Mount Hagen Papuan, dark type; hair short, arm bandaged for skin biopsy specimen.

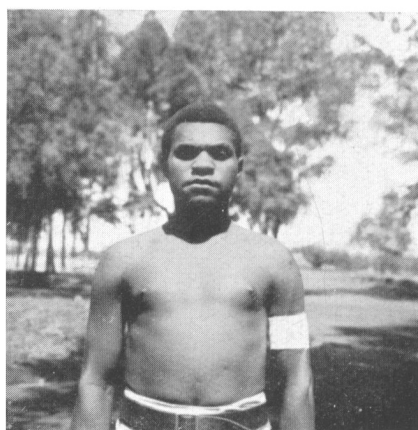


Fig. 28. Mount Hagen Papuan, light type. Arm bandaged after biopsy specimen

are thus not subjective but definite things, showing that the genes for skin colour are not infinitesimal, as some have tended to assume.

Champness et al. (1960) find that the mean height of 139 Aiome dwarf males was 148.6cm and of 45 women 137.1cm (transposed by me from inches to cm). This agrees closely with my results (147.9cm for 14 males and 138cm for 6 females). They also find that the frequencies of the genes A, B, M, S, R<sub>1</sub> and R<sub>2</sub> do not differ significantly from those of the taller people in nearby areas at Wabag and Chimbu. This strongly confirms my conclusion that the dwarfs were derived locally by unitary mutations from tall ancestors. On the other hand, the Wissel Lakes dwarf people in Dutch New Guinea differ greatly except in the B and R<sub>1</sub> blood groups, as shown below.

	A	B	M	S	R <sub>1</sub> CDe	R <sub>2</sub> cDE
Aiome	0.3128	0.1386	0.0133	0.1487	0.9400	0.0159
Wissel	0.075	0.139	0.102	0.007	0.850	0.119

In reporting the Wissel Lake's results, Graydon et al. (1958) say that the separate pygmy groups are very different from each other yet are similar to those of tribes inhabiting nearby areas.

#### Origin of dwarf races

The literature regarding human racial dwarfism is enormous and can only be briefly reviewed here. Many views regarding the nature of dwarf human races have been expressed in the last half century, but most of them are now excluded by the increase in biological and especially in genetical knowledge. Formerly dwarfing was frequently attributed to unfavorable living conditions, but that explanation is now of very doubtful application in any particular case. Kollmann (1905) put forward the view that the dwarf races existing in many parts of the world represented an earlier stratum in human evolution, the idea being that they were directly descended from anthropoid ancestry and had given rise in turn to the modern races as their taller descendants. Every existing race would thus have a dwarf race which preceded and produced it. This appears now to be putting the cart before the horse. Evidence existed, not only of dwarf Africans and dwarf Asiatics but that incipient dwarf races also existed formerly in Europe.

P. W. Schmidt (1910) elaborated this thesis into a full study of the pygmy problem. Having combatted the view that pygmy races are a product of "degeneration", he pointed out that they are frequently found on mountains and islands and in other forms of isolation. We would now recognize that isolation is one of the essential conditions in the formation of a pygmy race. Schmidt adopted the view that pygmy races are among the oldest on earth, perhaps even older than Neandertal man; not secondary in origin but representing a primary *Urrasse*, as postulated by Kollmann. Belonging to the childhood of mankind, they are older than the Tasmanians or Australians. They were also primitive in their dwellings and weapons, whether in Africa (Pygmies, Bushmen) or Asia (Negritos in the inclusive sense), even

“pre-Palaeolithic” in that they used implements of wood, shell or bone rather than of stone<sup>3</sup>.

Fuller information now renders illusory the idea that the Pygmy races formed a unit in any cultural sense, and physically they are obviously diverse except in being of dwarf stature. Also the Tasmanians, for example, did have a crude stone culture. Schmidt suggests that a dwarf race invented the bow and arrow, but it is probably of Paleolithic origin in Europe.

Kollmann (1894), believing that dwarf races were antecedent to tall races in all parts of the world, found ancient dwarf races not only in Africa and Eastern Asia, but attempted to show that a dwarf race formerly existed in Europe. The evidence from Neolithic Switzerland indicates a dwarf gene rather than a dwarf race. He points out that in modern Bavaria, among 45431 recruits were 35 with stature of 115 to 139cm.

Sergi (1893), in an earlier and fuller study of dwarf skulls and dwarf statures in Europe, found evidence of many dwarfs in prehistoric Europe. He examined in Moscow 1400 skulls excavated from kurgans of southern Russia, also from churches in Moscow (16th century) and from the Crimea (first centuries A.D.). From kurgans he found 124 microcephalic (capacity less than 1150 cc) and in all Russia 192 microcephalic and 93 elatterocephalic (capacity 1150-1300 cc). He assumed that a small head goes with a small body. His later total of micro- and elatterocephalic crania in Russia, South Italy, Sicily and Sardinia was 391. The short-statured element in southern Italy is well known. In Sicily and Sardinia 3.6% of the recruits were under 146cm in height. Sergi concluded that a prehistoric emigration of pigmies had taken place from Africa across the Mediterranean into southern Europe and across the Black Sea into central Russia; their stature in southern Italy was only 125-145cm.

Reed (1904) estimated the Negrito population of the Philippines to be not over 25,000 (Nippold 1936 estimated 40,000), the Zambales mountains in western Luzon having the largest number and the purest type. Photographs show woolly hair, brow ridges, broad nostrils, the nasal root depressed or high, some having thick lips but generally small ears. The Negritos were formerly regarded as aborigines in Luzon, driven inwards to the mountain forests by Malay invaders. Definite evidence of the age of the Negritos in the Philippines is highly desirable. They seem at any rate to be an early element in the population, and it is probable that they may have reached the Philippines via Borneo when the sea-level was lowered during the last ice age, before the chain of connecting islands was submerged. No traces of Negritos in Celebes are known, but Weidenreich examined skulls from East Flores which agreed with Negrito skulls from the Philippines. Negroid dwarfs are also known from Annam, West Cambodia and Lower Cochin-China. Reports of Negritos in China and Hainan are doubtful. Measurements of 43 ♂ Aetas gave a mean height of 147.2 cm (range

---

<sup>3</sup> Dart (1959) has shown that the Australopithecines had a bone, tooth and horn culture in early Pleistocene, which must have persisted in the genus *Homo* long after the manufacture of stone artifacts began, and indeed persists to the present time.



134.2-160 cm) and of 29 ♀ 138.1 cm (range 126.5-150.2 cm). The mean ear length of 41 ♂ was 58.3 mm and of 28 ♀ 57.8 mm.

Nippold (1936) cites many measurements of stature in the three "branches" of the Negritos. He finds an absence of lanugo in all three, but differences in facial features. The Aetas in North Luzon often have a strong beard and thick hair on arms, legs and chest. The Orang Akit in Central Sumatra are mixed. The height ranges from 144-159 cm (mean 150.6) and the C.I. 79.7-91, cases of woolly Negroid hair being rare. Nippold also cited the little island Alor, north of Timor, as having 7-8% of the inhabitants in some villages with stature less than 150 cm, but showing no difference in face or hair. This would indicate a local dwarf mutation.

The application of genetical conceptions to mankind leads to the conception (Gates 1958) that the Congo Pygmies arose as an achondroplastic dwarf mutation from a tall race having mahogany (not black) skin and therefore older than the Negro race of Africa. In that paper are cited many cases of dwarf species or varieties of animals; also both recent and fossil examples of "dwarf faunas" in certain areas.

The Negritos have been more discussed than any other dwarf race except the Congo Pygmies. The Aetas of the Philippines, Semang of Malaya (See Schebesta, N.D.) and the Andamanese<sup>4</sup> are generally regarded as three branches of a Negrito race. It is now very doubtful if the Andamanese should be regarded as Negritos. Some of them show peppercorn hair and steatopygy (Gates 1961), first seen by Mollsworth (1893). Some writers (Guha 1928, 1929), find a Negrito remnant surviving in the jungles of Southern India and in Assam (Hutton 1927), but others (Eickstedt 1939, Sarkar 1954, Sarkar et al. 1959) dispute this interpretation.

The Kadars in South India, regarded as Negrito because of their short stature and curly (or woolly) hair, numbered only 267 in 1931 (Sarkar 1954, p. 70), but 272 were seen by Sarkar et al. (1958) in four localities. Sarkar et al. (1959) measured 80 adult Kadar (43 ♂ 37♀) in the Chalakudi river valley of Kerala and examined many more. Sarkar et al. (1958) report their mean stature, ♂ 155.6 cm (range 143.5-168.6), ♀ 143.5 cm (130.7-155.3), "pygmy" stature in 19.5% of males and 25% of females. The dwarf type has here apparently crossed with tall. Means, C.I. ♂ 74.6, ♀ 73.3. Hyperdolichocephaly is present in 16% of both sexes and hyperbrachycephaly in 9.3% of males. This great range of head form can hardly represent a uniform type. The Negritos were formerly regarded as brachycephalic whereas the Kadars were dolichocephalic. Blood samples of 142 Kadars from the four localities showed 39.4% O, 16.2% A, 37.3% B and 7% AB.

Of 140 hair samples only three (grandmother, mother and son) were strictly frizzly, the rest "narrowly wavy". Two forms of hair were shown on the mother's head, a condition which sometimes occurs in other crosses. Two brothers showed thick, everted lips, frontal bosses and broad nostrils. The ancestry thus indicated was probably derived from Negro slaves of the 14th-15th centuries. Sarkar (1953) sug-

---

<sup>4</sup> It is not without interest that *Sus andamanensis*, a dwarf of the pig, *Sus scrofa*, also occurs in the Andamans and is given specific rank.

gests that frizzly hair may arise in India (as in Europe) through mutation from wavy. Banerjee (1957) found the peppercorn hair of the Onges in the Andamans extremely short (perhaps from shaving the head) and of very fine texture, the strands only 84-87  $\mu$  in diameter. A medulla was absent in 68.4% of male hairs and in 78.5% of female hairs. In three individuals, only 41-43% of the hairs had no medulla. This is a hereditary difference. Duggins and Trotter (1959) studied the hair of a Kadar woman, collected by Professor Coon at Ittianai, Kerala. She had tried without success to "dekink" her hair with oil. The 50 hairs measured had a mean index of 69.74 (range 54-95). By comparison, the index of Negroid hair is 59.5 and of Mongoloid hair 80.9. This hair was nearest in index to that of a woman who was  $\frac{3}{4}$  Hindu and  $\frac{1}{4}$  Zulu. A medulla was absent in 68% of hairs. In Negroid hair the percentage with medulla is lower. Coon found about 500 Kadar living as gatherers in the Cardamon Hills of Cochin. He (1958) has a photo of one with woolly hair, and noted both Negrito and Australoid types, the latter presumably derived from crosses with jungle tribes in the same area. In a metrical study of the Urali in the higher ranges of Northern Travancore, Chatterjee and Kumar (1956) point out their relation to other forest tribes such as the Paliyan, Kadar and Kanikar. Their hair characters vary widely, from frizzly to wavy and (in one case) the very curly hair typical of the Kadar.

In Ehrenfels' (1952) account of the Kadar culture many of the photos show non-curly or only slightly wavy hair. He found evidence of some crossing with Hindus from the plains. They belong with the food gathering hill-tribes of South India like the Malapantaran, Paliyar, Paniyar, Irula and Chenchu, but they have only the digging stick, no bow and arrow although the boys have the pellet bow. Being non-agricultural, they represent a very early stratum of the Indian population. Hutton, in the 1931 Census of India p. 397, says the Negritos appear to have formed the earliest population of India. A wooden comb made from bamboo with incised ornamental designs is similar to the combs of Negritos of Malaya and of the Philippines. If this similarity is significant it would indicate very ancient cultural connections and perhaps a common early origin of these three dwarf peoples after all.

Ehrenfels observed a man 20 years old who was a dwarf among Kadars, his height being only 144 cm. The nature of this gene for dwarfing can only be interpreted after fuller information.

It has been denied that a Negrito race exists (von Bonin 1931). Probably it would be best to confine the term to the dwarf race in the Philippines, but there is also the dwarf element in Queensland (Gates 1960b) with curly to frizzy hair, which will be referred to later. The Semang (Schebesta) in Malaya numbered about 2000 in 1925. Their trunk is stated to be relatively short and the legs long (but cf. below), the average male stature ca 150 cm. The heads range from dolicho- to brachycephalic and there is evidence of strong admixture with other types. The nose is triangular, with very broad nostrils, and the root is narrow and much depressed. The iris is said to be usually reddish yellow, the skin dark brown<sup>5</sup>. In Upper Perak there

<sup>5</sup> Some Semang have very thick lips, and two Aeta photos show the top Mongolian eye-fold.

has been much mixture with the short, wavy-haired Sakai of Malayan type. The primitive Malayan Jukudn have mixed with Semang in Johore. Evans (1937) in an extended account of "Negritos" in Malaya, says they should not be called Semang.

von Bonin (1931), from a study of 41 skulls, found that the Andamanese were a branch of the Malay race, with very similar skull form but of smaller proportions, the three "branches" of the Negritos being thus probably of independent origin. They would be remnants of an old Malacca race belonging to an earlier south Asiatic racial stratum. The Andamanese and Aeta thus probably came as independent dwarf mutations from a common root which was ancestral also to the Burmese and Javanese and also tall. The mean heights are given as 148.4 cm for the Andamanese and 147 cm for the Aetas, the latter having a bigger head.

In another study of East Asian crania, Woo and Morant (1932) examined 26 series of skulls. From the Southern Oriental group were excluded the Andamanese. Their skull was found to be very similar in shape to that of the Burmese and Javanese, but smaller. They draw the conclusion that the "stock degenerated after reaching the islands and there becoming isolated". They also find the Aetas closely associated with peoples of the Orient, Burmese and Javanese, and they agree with von Bonin that the Negrito hypothesis is "entirely fallacious".

Eickstedt (1928) found the type of the Andamanese by no means uniform. He recognized distinct types on Great and Little Andaman, the latter stronger with a coarser, round face. One may conclude that the Kadars may be Negrito but the Andamanese clearly are not. Chatterjee (1955) has made a metrical study of the Onges of Little Andaman.

In a more recent very detailed craniometric study, Cappieri (1953) measured 96 Andamanese skulls, mostly in British collections. He finds them the most characteristic nucleus of a Negrito race and most homogeneous, but could only examine four of the more primitive Jarawa crania. The census of 1901 gave only 625 natives, a number which was reduced to 62 in 1941.

Genet-Varcin (1951) has made a very detailed metrical study of about 36 Negrito skeletons from the island of Luzon, Philippines, now in the Musée de l'Homme, Paris, in comparison with various other Negrito remains. He concludes that the mean stature for both sexes was 146.8 cm. Some of the skeletal indices correspond with those of Upper Paleolithic man, notably from Afalou, in showing certain primitive characters. They may therefore be early in origin, reaching the Philippines from the Asiatic mainland when the ocean was down during the last glaciation. A Neolithic skull found in Indochina is believed to be Negrito. Comparison of the three geographic races (p. 200) shows that they agree only in upper facial width and in mesognathism, whereas the Semang differ from the other two (brachycephalic) types in C.I. (76.4) and other features, probably as a result of outcrossing with Indonesians. The Andamanese have a short humerus, the Semang a short femur and the Aeta a short radius. Similar metric comparisons are made with the African Pygmies, which are evidently of independent origin (Gates 1958).

---

The Veddas <sup>6</sup>, Genet-Varcin shows, are outside the Negrito grouping in stature (males 153.3 cm), dolichocephaly (♂ C.I. 71.6) and leptorrhine nose. Similar comparisons are made with Neandertal and other fossil types. The dwarf types in New Britain and New Guinea are recognized as different from the Negritos and resembling their tall neighbors. Genet-Varcin concludes that these dwarf races are not infantile but have arisen as mutations. Schebesta (1952), in a full ethnographic study of the Luzon Aeta, finds that in the east and north of the island the Negritos have some Melanesian and Indonesian mixture. In other Philippine islands there are mixed Negrito remnants which may be of other origin. At lower sea-level the Negritos could have reached Luzon via the chain of islands from Borneo.

Early writers on the dwarfs of New Guinea also regarded them as Negritos, but they can now be excluded since they appear to be clearly local derivatives from the taller New Guinea population. The situation regarding the Queensland semi-dwarfs is quite different. They are obviously not Papuans, nor are they mere Australian variations. Tindale and Birdsell (1941) bring good evidence of their Tasmanoid affinities. Birdsell (1949) has considered the origin of the Tasmanians and points out that their origin from Australia is now generally accepted. When one surveys the Pleistocene as well as the modern geographic conditions, and recognizes that the Bass Strait was for long almost an isthmus, there is no need to consider bringing the Tasmanians in frail craft over sea routes of 1700 miles or more from New Caledonia or New Hebrides. Any unbiassed view must conclude that the Tasmanians almost certainly reached their island home from the adjacent mainland of Australia.

In a notable discussion of sea routes in this part of the world, based on his wide personal sea-going experience and the prevailing winds and sea currents, Macintosh (1949) considers all the possibilities. He concludes that a direct voyage from New Caledonia to Tasmania is probably impossible while one from the New Hebrides to the coast of Queensland appears possible. Of course the winds and currents would probably be different during the Fourth Glacial, and the presence of a partial or complete peninsula instead of the present strait with islands would have a great effect on the currents, which would therefore be different from what they are now.

The Australian element in the Tasmanians is thus easily accounted for whether the Queensland dwarfs are regarded as a Negrito remnant or not. This all dovetails with the conception that an early Negrito race entered Eastern Australia through the York Peninsula when the sea-level had been reduced by glaciation (or from the New Hebrides if it contained Melanesian dwarfs). This would be before the Papuans had spread in New Guinea, so that the present dwarf Papuans would be of much later origin. Then when the Australians crossed New Guinea and entered North-Eastern Australia some 10,000 years ago their expansion would have driven the Negrito remnant (with some Australian admixture) down the Bass peninsula into Tasmania, leaving behind only remnants, now more or less mixed. This hypothesis gives

---

<sup>6</sup> We may suppose that the Veddas, who are Australoid but small, migrated from South India to Ceylon at a time when the accumulation of land-ice reduced the sea-level.

a reasonable picture of events. Any other ignores many facts and flies in the face of many others.

Whether the "Negrito" strain in the Tasmanians is to be classed with the Negritos in Malaya and the Philippines is now largely a matter of semantics. It can only be said that both were dwarfs with closely curly to crinkly hair. The only relatively certain conclusion is that they reached Tasmania via Australia. It is now equally clear that the present dwarf mountain tribes of New Guinea are derived as relatively modern local mutations from taller Papuan ancestors<sup>7</sup>. They belong to New Guinea and have no relations with dwarf tribes in Malaya or elsewhere.

### Dwarf tribes in Papua

Gusinde (1957) made an expedition to the Aiome dwarfs, in the Schrader Mountains and the Ramu river district, in 1956, but his measurements are not yet published. He says they were formerly at war with the "Kanakas"<sup>8</sup>. "Only under exceptional circumstances are mountain women wedded to Kanakas", but hybrids are met with in the foothill areas. "In the highlands the natives have to a greater or lesser degree preserved their purity of blood" but limited hybridization was noted between the mountain dwarfs and the Ramu Kanakas. At the headwaters of the Asai, Simbai and Jimmi each tribe has its own language. The females were kept concealed. The people subsist as gatherers and hunters with bow and arrow, but they also make gardens, planting taro, manioc, sweet potatoes, yams, bananas and tobacco in forest clearings. Some 260 were measured, the stature being below 160 cm.

Gusinde forms the hypothesis that the dwarfs were the first inhabitants of New Guinea. When the area was invaded by the taller people they withdrew to the mountains, but some stayed behind in the valley, becoming mixed with them and gradually absorbed. Gusinde agrees that the dwarfs were not environmentally produced. They are all very hairy, with broad head, short legs, long arms and full beards. He concludes that "their racial type is decidedly different from that of all Kanakas", representing a separate and distinctive race. From a narrowly anatomical point of view this may well be the case; but from a genetical and serological point of view they represent a unitary change (mutation), in which many alterations besides that of stature arise. But the indications are that they are all the effects of a single gene for dwarfing.

The German Ramu Expedition in 1896 was probably the first to see the Aiome dwarfs. They made three photographs of them, and two men which were measured had statures of 142 and 140 cm respectively (Weule 1902). Kirschbaum (1927), on a missionary journey, made observations of the Ramu and Ayom people and noted that the skin colour of the dwarfs was the same as that of the tall people. The stature of 18 dwarfs ranged from 134.7 to 157.5 cm, mean 143 cm. The two men who were

---

<sup>7</sup> One must also demur at the conception (Birdsell 1949) that the African dwarfs and the Asiatic Negritos had a common origin.

<sup>8</sup> Kanaka is an unanthropological term for Melanesian people used widely in the South Pacific.

over 150 cm quite likely had some tall ancestry. Lord Moyne visited the Ramu in his yacht and collected ethnographic material of the Aiome dwarfs, but he made no measurements (Moyne and Haddon 1936). The dwarfs wore bark-cloth caps and used bow and arrow and small shields in warfare. The view was favoured that they are not Negrito. Differences were pointed out between the Aiome and the Tapiro and Pesegem dwarfs of Dutch New Guinea some 400 miles away. In the Aiome people two types were recognized: 1. Hairy, with moustache and beard, suggesting the pre-Dravidians of India. These are substantiated by photograph but do not appear to have been noticed since. 2. A less hairy type (the majority) with flatter, broader face, wide mouth, receding chin and convex upper lip. This is the type represented in the present paper.

The first dwarfs in New Guinea to be studied in detail were the Tapiro in the interior Snow Mountains of Dutch New Guinea (Wollaston 1912). His expedition moved up the Mimika River in 1910. The taller natives on the lower Mimika make regular migrations to the coast, while those near the foothills never go to the coast, a wide uninhabited zone remaining between them; both are of the same type, while the dwarfs remain in the mountains. The Tapiro had primitive huts made of sticks, roofed with leaves and leaning against the hillside. Other houses were on piles and superior to those of the Mimika people. They came to the expedition's camp at Parimau. The men wore a bamboo or gourd penis-case and were on friendly terms with the Papuans. Forty adult males had a mean stature of 144.9 cm and a range from 132.6 cm to 152.9 cm. One or two of the tallest were regarded as probable crosses with the taller Papuans. The Tapiro had thicker calves and paler skin (some near yellow), very wide nostrils and a long upper lip. The hair is short, black (2 or 3 appeared brown) woolly, showing early frontal recession. Beards were black. The photographs show heavy brows, lips  $\pm$  everted, depressed nose. Wollaston's measurements for 22 male Tapiro are shown in Table 2.

Table 2

	N	Height	Range	L	Range	B	Range	C. I.	Range	N. I.	Range
Wollaston, Tapiro	22 40	148.9 144.9	132.6-152.9	177	162-185	140.4	115-148	79.4	66.9-85.1	81.4	65.5-94.1
Williamson, Mafulu	20	155.1	147-163	185	174-197	148	140-154	80.0	74.7-86.8	84.3	71.4-100

In an appendix to Wollaston's account, Haddon compares the three geographical branches of the "Negritos" as follows:

	N	Height	Range	Cr. I.	Ceph. I.	Range
Andamanese	48	149.2 cm <sup>9</sup>	136.5-163.2	81	83	
Semang	17	152.8	137.2-160.4		78-79	74-84
Acta	48	146.3	128.2-160		82	78.8-92.3

<sup>9</sup> Sarkar 1954 (p. 81) 1498 mm.

Williamson (1912) studied the Mafulu at about the same time as Wollaston investigated the Tapiro. They were near the head of St. Joseph river the mouth of which is west of Port Moresby. Measurements of 20 Mafulu men yielded results shown in Table 2. They are thus of about the same stature as the Timorini in Dutch New Guinea but have a higher N.I.

In early observations, Reche (1910) saw dwarfs living near the Augusta river. Pöch (1907), passing along the north coast to the mouth of this river, saw some with lighter skin and in the Kai district, among 300 men 9 (3%) who were less than 140 cm tall, the mean height being 152.5 cm and the shortest 133 cm. Dwarfs were often seen on the north coast of British New Guinea and on Normanby Island. Other German records of dwarfs were in the Sattelbergs and near Finschaafen and the Gogol river in Eastern New Guinea. On the other hand, the Tugeri on the borders of Dutch and British New Guinea were tall, generally over 170 cm and reaching 188 cm in height.

For a further understanding of stature in New Guinea, Champness et al. (1960) compiled a Table 3 of heights of various groups and localities in inches, which I have

**Table 3**

Statures				Statures	
	cm	N		cm	N
Australian	175.8		Wissel Lakes <sup>10</sup>	151.9	
Chimbu	155.7			142.1	
	147.3		Aiome <sup>11</sup>	148.6	
Chimbu	159.9			137.1	
Chimbu 1956	150.1		Aiome <sup>12</sup>	147.9	15
Kikori	162.4			140.6	5
	152.3		Mafulu	155.1	20
Goilala	154.7		Highlands	156.4	101 <sup>13</sup>
	145.1			147.0	66
Goroka	154.4	1147	South Coast	163.0	79 <sup>13</sup>
	145.7	756		153.4	53
Bougainville	161.3				
	151.2				

transposed into cm. It is to be hoped that all future measurements will be taken in cm, for easier comparison. The numbers involved are generally not given.

The means for males in different localities in British New Guinea range from 162.4 to 154.7 cm, and for females from 152.3 to 147.3. In the last three lines of this Table the Wissel Lakes (Tapiro and Pania) of Dutch New Guinea are seen to be definitely taller than the Aiome people. In the first line, the mean stature of the Australian aborigines is much greater than in any New Guinea population.

<sup>10</sup> This is the area of the Tapiro and Pania dwarfs in Dutch New Guinea.

<sup>11</sup> Champness et al. (1960).

<sup>12</sup> In this paper.

<sup>13</sup> In British New Guinea.

## Statistical

In the extensive monograph of Bijlmer (1939) on the dwarfs of Dutch New Guinea many statistical records of different populations or tribes are given. Other records cited from different parts of New Guinea show a series of mean statures from tall to dwarf in different localities. In particular, the full records of height measurements by Bijlmer are given for the males of six tribes in Dutch New Guinea, also for nasal measurements and cephalic index of four tribes. To Dr. J. A. Fraser Roberts I am indebted for consultations and advice regarding the statistical treatment of these data. And he has very kindly undertaken the labour of determining the significance of the differences involved, which are set forth in the adjoining Tables 4, 5 and 6.

**Table 4**

Stature	N	Mean	$\sigma$	Coeff. of Var.
1. Tiri (Kapaukoe)	20	152.9	3.9	2.55
2. Oeroemoka	45	153.6	2.86	1.86
3. Timorini	64	154.7	5.26	3.40
4. Pania (Kapaukoe)	300	152.8	5.14	3.36
5. Tapiro	49	148.9	5.67	3.81
6. Mimika	200	164.9	4.86	2.95

## Differences

	Diff. in Means	Sig.	Diff. in C. o. V.	Sig.
1 & 2	0.7	—	0.69	—
1 & 3	1.8	—	0.85	—
1 & 4	0.1	—	0.81	—
1 & 5	4.0	+ +	1.26	+
1 & 6	12.0	+ +	0.40	—
2 & 3	1.1	—	1.54	+ +
2 & 4	0.8	—	1.50	+ +
2 & 5	4.7	+ +	1.95	+ +
2 & 6	11.3	+ +	1.09	+ +
3 & 4	1.9	+ +	0.04	—
3 & 5	5.8	+ +	0.41	—
3 & 6	10.2	+ +	0.45	—
4 & 5	3.9	+ +	0.45	—
4 & 6	12.1	+ +	0.41	+
5 & 6	16.0	+ +	0.86	+

Significance of differences.

— Not significant at 5% level.

+ Significant at 5% level.

+ + Significant at 1% level.



Breadth of Nose

Table 5

	N	Mean	$\sigma$	C. o. V.
1. Timorini	63	43.95	2.41	5.48
2. Tapiro & Pania	245	43.5	2.84	6.53
3. Mimika	199	44.4	2.8	6.31

Differences

	Diff. in Mean	Sig.	Diff. in C. o. V.	Sig.
1 & 2	0.45	—	1.05	—
1 & 3	0.45	—	0.83	—
2 & 3	0.9	+ +	0.22	—

Height of Nose

Differences

	N	Mean	$\sigma$	C. o. V.		Diff. in Mean	Sig.	Diff. in C. o. V.	Sig.
1. Timorini	64	48	4.0	8.33	1 & 2	1.0	—	0.66	—
2. Tapiro & Pania	245	49	3.76	7.67	1 & 3	7.9	+ +	1.19	—
3. Mimika	199	55.9	3.99	7.14	2 & 3	6.9	+ +	0.53	—

Nasal Index

Differences

	N	Mean	$\sigma$	C. o. V.		Diff. in Means	Sig.	Diff. in C. of V.	Sig.
1. Timorini	63	92.5	9.2	9.95	1 & 2	3.2	+	0.06	—
2. Pania & Tapiro	244	89.3	8.83	9.89	1 & 3	12.8	+ +	1.34	—
3. Mimika	199	79.7	6.86	8.61	2 & 3	9.6	+ +	1.28	+

Table 6

Cephalic Index					Differences				
	N	Mean	$\sigma$	C. of V.		Diff. in Means	Sig.	Diff. in C. of V.	Sig.
1. Pania (Kapaukos)	300	79.9	3.51	4.39	1 & 2	1.0	+ +	1.65	+ +
2. Tapiro	49	78.9	2.16	2.74	1 & 3	7.0	+ +	1.04	+ +
3. Mimika	200	72.9	3.96	5.43	2 & 3	6.0	+ +	2.69	+ +

It will be seen that the mean male statures of the six localities range from 148.9 cm in the Tapiro dwarfs in the mountains of the interior to 164.9 cm in the Mimika on the south coast, other interior tribes being intermediate in various degrees. This is in accord with recent results of Champness, Kooptzoff and Walsh (1960) who find

similarly in British New Guinea that the tallest are on the south coast, the shortest are the Aiome dwarfs in the higher mountains, while populations from the region of Mount Hagen, Chimbu and Goroka are not so tall as on the coast<sup>14</sup>.

This range of statures Bijlmer (1939) naturally found very difficult to explain. With a further background knowledge of the genetics of dwarfing we may now advance the explanation a step, but a much fuller analysis of statures in New Guinea will be necessary in the future. In the second part of Table 4 are shown the differences between the mean statures of the six groups, and the differences in the coefficient of variation thereof. It will be seen that No. 1 (the Tiri) are significantly different from both No. 5 (Tapiro dwarfs) and No. 6 (Mimika, tall). Similarly No. 2 is significantly different from 5 and 6; No. 3 differs significantly not only from 5 and 6 but also from 4. No. 4 also differs from both 5 and 6, and of course 5 (the shortest) differs significantly from 6 (the tallest). The possible origin of these tribal differences will be considered later. Champness et al. (1960) took weights as well as heights and found that the Aiome dwarfs were underweight in proportion to height when compared with the taller local populations. Bijlmer regarded the Kapauko dwarfs as a "small mountain people all along the Mimika coast". At Oemar, one day's journey inland, on a hill, Father Tillemans measured 11 men in 1931, the mean stature being 156.3 cm. In another Kapaukoe tribe 11 men had a mean stature of 151.2 cm. Pospisil (1960) finds that the Kapauko tribe number ca 60,000 in the high mountains and deep valleys of Southwest Dutch New Guinea. They resemble the lowland Papuans but are much shorter and brachycephalic. On the Kapare river, which arises near the Tapiro dwarfs, 14 men had a mean height of 150.9 cm. The Jabi tribe in the mountains behind Geelvink Bay measured "150-160 cm". These with the Oemar were considered "an anthropological link between the tall and the pygmoid variety of Papuans".

In considering the nature of the dwarfing, Bijlmer found (p. 175) the dwarfs and tall "children of the same race". But (p. 176) he concludes that smallness is due to "slowly acting influences of the environment", and he (p. 179) finds "no sufficient reason for maintaining a fundamental difference in stature" between the dwarfs and tall. He concludes that the "pygmies" are a local variety of an essentially Papuan race, but he suggests (p. 182) that "a dolichocephalic Coast Papuan after several centuries in the mountains of his island might become a mesocephalic and small Mountain Papuan without any admixture of foreign blood", the Papuan race being autochthonous in New Guinea.

Among the 20 Tiri measured, the stature of their chief was 166.3 cm, and among the Timorini one man (no chief) measured 171.5 cm. The chief of the Pania was the

<sup>14</sup> This distribution of statures may be a matter of isolation of the dwarfs in the mountains, without any element of climatic causation. Field (1939), in a study of the anthropology of Iran, found on the contrary, that the basically Mediterranean population was taller in the mountainous regions of west and northwestern Iran than in the central Southern area. Here too, there may be no causal relation of climate or altitude to tallness, the differences being racial. Again, Field (1956) finds that the mountain Osetes in the Caucasus tend to be taller than those dwelling on the plains below.

tallest, measuring 169 cm, which is tall even for the coast. East of the Tapiro, 24 men measured 147.5 cm, while 24 male Oemipapego near them averaged 150.6 cm. These were all included by Wollaston (1912) in the Tapiro. It will thus be seen that occasional taller men occur as exceptions in the more homogeneous body of each group. There is then no doubt that occasional intermingling and intercrossing of tall and dwarfs has taken place in all the areas.

For comparison of nasal breadth and nasal height (Table 4) four of these populations are available, Timorini, Mimika and the two dwarf tribes, Tapiro and Pania, the last two owing to their similarity in height being considered as one. It will be seen that the Tapiro-Pania differ significantly from the Mimika in nasal breadth and nasal height, while all three groups differ in nasal index, the coastal Mimika having relatively higher and narrower noses. The Tapiro ranged from extreme platyrrhine to markedly leptorrhine. One of Bijlmer's photos (Fig. 5) is leptorrhine and bearded. He evidently corresponds with Lord Moyne's hairy type.

For cephalic index the Pania are a part of the larger group, the Kapaukos. The three groups thus constituted all differ significantly from each other, the Mimika (tallest) being most dolichocephalic while the others approach brachycephaly.

In Bijlmer's statistics the 49 Tapiro dwarfs range in stature from 135-160 cm, while in nasal index 224 Tapiro and Pania show an extreme range from 63-120. This suggests a relatively homozygous condition for stature but a highly mixed one for N. I. But strangely enough the range for nasal breadth is only from 36-54, and for nasal height 40-61. This seems to confirm what I have long suspected, namely that N. I. can be a misleading value, as it includes bones and cartilages in one index.

### Discussion

The Aiome dwarfs are the smallest known in New Guinea, but the Ituri Pygmies of the Congo (Gates 1958) are equally short. The blood groups of the Aiome dwarfs are similar to those of the taller people in Wabag and Chimbu (Champness, Kooptzoff and Walsh 1960, Table 6), thus confirming my conclusion that they differ by a single gene dwarf mutation. In the same Table the African Pygmies are shown to have closely similar frequencies of the blood group genes A, B, M, R<sub>1</sub>, R<sub>2</sub> to those of the Bantu, again confirming that the Pygmies are a derived dwarf mutation, as concluded in Gates (1958). The Wissel Lakes (Tapiro-Pania) dwarfs in Dutch New Guinea differ greatly from the Aiome dwarfs in the frequency of the genes A, M, S and R<sub>2</sub> (cDE) while agreeing closely as regards B and R<sub>1</sub> (CDE). Whatever this may mean, one may conclude that the mutation for dwarfing has originated independently not only in the African Pygmies and the New Guinea dwarfs but also in the two localities in New Guinea, one in the Dutch, the other in the British area.

Regarding the Papuans as a whole, the tallest are on the coast, the full dwarfs in the higher mountains, those in other highland areas being intermediate but nearer the tall. The mean statures for different parts of New Guinea are shown in Table 3.

Most of the statistical results in the monograph of Bijlmer (1939) are analyzed in Table 4, 5 and 6 (see p. 16) including besides stature the cephalic index and nasal index in some groups. It will be seen that stature differences in general are accompanied by significant differences in cephalic and nasal indices.

We believe the stature differences to be mainly genetical, environmental factors playing little if any part. However, it is recognized that in the present state of knowledge the possibility of environmental effects cannot be excluded and must always play some part. In Table 4 the mean statures of six groups in Dutch New Guinea, most of them geographically near together, range from 148.9 to 154.7 cm, many of the differences being statistically significant. It is probable, as Walsh suggests (*in litt.*) that assortative mating for similar stature has played a part in producing these results. But we have seen that certain markedly taller men are sometimes found in a group. They may be newcomers or they may represent recombinations of certain genes or subgenes for stature.

The general principles of stature inheritance were considered elsewhere (Gates 1946, chapter XXIX) and need not be traversed again. What we need now is a genetic analysis of crosses and back-crosses between tall and dwarfs. Pedigree studies of individual families are necessary for this purpose. The  $F_1$  of crosses between Congo Pygmies and Bantu is intermediate in height. The Baamba or Bwamba of Ruwenzori are apparently descended mainly (Gates 1958) from Bambuti Pygmies X forest Negroes. Those around Fort Portal appear to be a uniform type (Gates 1958, Figs. 14-16) while others further west show marked Negroid characters of lips and jaw (Fig. 9-13), apparently the result of genetic segregation.

It was recently suggested (Gates 1960c) that the conception of gene fractionation probably applies widely to human racial crossing.

It is probable that completely *blue* eyes arose directly from brown as a mutation in North Africa, where it still persists in the Berbers. The many intermediate eye colours in modern Europeans appear to be of later origin, the result of crossing accompanied by fractioning of the original gene for blue eyes. This view is strengthened by the fact that in Eskimo X Nordic the  $F_1$  has lighter brown eyes than the Eskimo, while in the back-cross to Nordic some children have pure blue eyes (as well as white skin and fair hair). The intermediates must then arise later, through the formation of cistrons or subgenes. Skull studies (still unpublished) suggest that brachycephaly arose suddenly in the Upper Paleolithic, from dolichocephalic ancestors, skulls with intermediate C.I. arising is part later through intercrossing.

We suggest as a working hypothesis that stature inheritance can be interpreted in a similar way. Abundant evidence seems to show that dwarf races, like dwarf individuals, arise as full mutations and not as cumulative series of small genes. Later crosses between the parental tall and the dwarfs result generally in transmission of the unaltered gene, but *in some cases*, in the production of various intermediates through fractioning of the original "large" gene or through the sorting out of subgenes. The intensive investigation of statures in New Guinea populations would probably be the best possible way to test this hypothesis. Careful pedigree family studies would

be necessary, combined with mass data of populations, environmental effects, etc. It is hoped that someone will seize the unique opportunity offered by statures in New Guinea to make an elaborate genetical and investigation of this problem, with the blood groups as an additional method of control.

### Acknowledgements

I am greatly indebted to the Australian Government authorities for permission to visit New Guinea and for providing various facilities during our stay. The hospitality of the Patrol Officer, Mr. J. B. Battersby and his wife, was much appreciated. The Rev. Peter Robin, in charge of the local Anglican Mission, generously acted as interpreter and his presence helped to keep everything in order.

### Summary

The Aiome dwarf tribe in the mountains near the Ramu river and its southern tributaries was studied. Observations, measurements and photographs were made of 15 men and five women who came in a party to the Aiome airstrip. The measurements are embodied in Table 1 (p. 280). They include eye and skin colour; head length and breadth; ear length and breadth and the presence of a lobe; stature; development of brow ridges and relative depression of the nasal root. Other observations are in the text. The mean male stature was 147.9 cm which is roughly the same as that of the Congo Pygmies. The shortest woman was only 125.5 cm. high. The C.I. of the men was 78.51 and the ears are smaller than in most races.

The head-dress, decorations and "dances" are illustrated in Figs. 1-18.

The skin colour of Papuans is a shade lighter than in the Australian aborigines. In a study of skin colour of Papuans, Macintosh (1960) finds that the natives recognize and have names for three shades of colour. These appear to be due to (1) the homozygous (2) the heterozygous condition, and (3) the absence, of a minor gene for skin colour.

The fact that the blood group genes A, B, M, S, R<sub>1</sub> and R<sub>2</sub> of the Aiome dwarfs are closely similar to those of the tall in the Mount Hagen area justifies the conclusion that a single gene dwarf mutation is involved. The Aiome and Wissel Lake dwarfs (400 miles apart) differ greatly in the frequency of the A, M, S and R<sub>2</sub> (cDE) genes, but agree in the B and R<sub>1</sub> (CDE) frequencies. The blood groups of the Congo Pygmies similarly agree with those of the Bantu, from whose ancestors they may have been derived.

The early literature regarding dwarf races is reviewed and the question of a Negrito race in southeast Asia is discussed. It is concluded that the term Negrito should probably be confined to the dwarf race in the Philippines. They perhaps reached the Philippines from Borneo when the sea-level was down during the last ice age.

On the basis particularly of skull form, the Andamanese were probably derived from the tall population of adjacent Malaya or Burma. The significance of their steatopygy and peppercorn hair is not clear, as these characters are found in the South African Bushmen.

The Semang of Malaya are mixed and of doubtful origin. The dwarf nature and relationships of the Kadar in South India remains uncertain. The incised designs on their wooden combs suggests a possible very ancient cultural connection with the Malayan dwarfs and the Philippine Negritos. A Negrito-like remnant in Queensland may represent in part the source from which the Tasmanian aborigines developed. The Veddas are outside the Negrito grouping. They are probably Australoids of reduced dimensions who migrated to Ceylon during the last ice age.

The various dwarf groups in New Guinea are of local (and probably relatively recent) origin, having no connection with Negritos, who appear to be of much earlier origin, probably before the last ice age. Various localities with populations of different mean stature are listed in Table 3, and others are mentioned in the text.

A statistical treatment of Bijlmer's measurements of stature, nasal and cephalic index, with the aid of Dr. Fraser Roberts, shows that many of the groups in Dutch New Guinea are significantly different. A fuller statistical investigation dealing with both stature and blood groups, is required to elucidate this situation. A tentative hypothesis is put forward, involving the fractionation of the original dwarf gene in the process of back-crossing between tall and dwarfs.

In New Guinea the coastal people are the tallest, those in the higher mountain areas are conspicuous dwarfs, populations in intermediate areas being shorter in different degrees than the coastal tribes. That crossing takes place is shown by the occurrence of occasional men who are much taller than the rest of their group or tribe. Further studies of Papuan statures should also throw light on the origin of multiple genes for stature.

### References

- BANERJEE, A. R. 1957: Further histological studies on Negrito hair: the Onges of the Andaman Islands. *Man in India*, 37: 249-256.
- BIJLMER, H. J. T. 1939: Tapiro Pygmies and Pania Mountain-Papuans. *Nova Guinea, N. S.*, 3: 113-184.
- BIRDSELL, J. B. 1949: The racial origin of the extinct Tasmanians. *Rec. Queen Victoria Mus., Launceston*, 2: 105-122.
- VON BONIN, G. 1931: Beitrag zur Craniologie von Ost-Asien. *Biometrika*, 23: 52-113.
- CAPPIERI, M. 1953: Craniometria degli andamanesi. *Riv. di Antrop.*, 40: 245-303.
- CHAMPNESS, L. T., KOOPZOFF, O., & WALSH, R. J. 1960: A study of the population near Aiome, New Guinea. *Oceania*, 30: 294-304.
- CHATTERJEE, B. K. 1955: A comparative study of the different body proportions of the Onges of Little Andaman. *The Anthropol.*, 2: 12-21.
- KUMAR, G. D. 1956: Somatic characters and the racial affinities of the Urali of Travancore and Cochin states. *The Anthropol.*, 3: 1-22.
- COON, C. S. 1958: Faces of Asia, *Univ. Mus. Bull.*, 22: No. 1., pp. 9, Figs. 41.
- DART, R. A. 1959: Adventures with the Missing Link. London, pp. 251.
- DUGGINS, O. H. & TROTTER, M. 1959: Hair from a Kadar woman of India. *Am. J. Phys. Anthropol., N. S.*, 17: 95-98.
- EHRENFELS, U. R. von 1952: Kadar of Cochin. *Madras University*. Pp. 319.
- EICKSTEDT, E. Frhr. von 1928: Die Negritos der Andamanen. *Anthrop. Anz.*, 259-268.
- EICKSTEDT, E. FRHR. VON. 1939. Introduction to Vol. of Iyer's Travancore Castes and Tribes. Trivandrum.
- EVANS, I. H. N. 1937: The Negritos of Malaya. Cambridge Press. Pp. 323.
- FIELD, HENRY 1939: Contributions to the anthropology of Iran. *Publ. Field Mus. Nat. Hist. Anthropol., Series Vol. 29*: 1-706.
- 1956: Ancient and modern man in Southwestern Asia. *Univ. of Miami Press*. Pp. 342.
- GATES, R. R. 1946: *Human Genetics*, 2 Vols. MacMillan, New York. Pp. 1518.
- 1958: The African Pygmies. *A. Ge. Me. Ge.*, 7: 159-218.
- 1960a: Studies in race crossing. IX. Crosses of Australians and Papuans with Caucasians, Chinese and other races. *A. Ge. Me. Ge.*, 9: 165-184.
- 1960b: Racial elements in the aborigines of Queensland, Australia. *Zeits. Morph. Anthropol.*, 50: 150-166.
- 1960c: Fractionation of genes. *Nature*, 186: 739-740.
- 1961: The origin and genetics of races (in press). in *Gedda, De Genetica Medica*.
- GEIPEL, G. 1958: Die Finger- und Handleisten der Ayom-Pygmäen Neuguineas. *Zeits. Morph. Anthropol.*, 49: 1-21.
- GENET-VARCIN, E. 1951: Les Negritos de l'île de Luçon (Philippines). Paris: Masson. Pp. 259.
- GRAYDON, J. J., SEMPLE, N. M., SIMMONS, R. T. & FRANKEN, S. 1958. Blood groups in pygmies of the Wissel Lakes in Netherlands New Guinea with anthropological notes by H. J. T. Bijlmer. *Am. J. Phys. Anthropol.* 16: 149-172.
- GUHA, B. S. 1928-1929: Negrito racial strain in India. *Nature*, 122: 942, 124: 793.
- GUSINDE, M. 1957: A pygmy group newly discovered in New Guinea. *Anthrop. Quart.*, 30: 18-26.
- HUTTON, J. H. 1927: A Negrito substratum in the population of Assam. *Man in India*, 7: 257-262.
- IVINSKIS, V., KOOPZOFF, O., WALSH, R. J. & DUNN, D. 1956: A medical and anthropological study of the Chimbu natives in the Central Highlands of New Guinea. *Oceania*, 27: 143-157.
- KIRSCHBAUM, F. 1927: Ein neuentdeckter Zwergstamm auf Neu Guinea. *Anthropos*, 22: 202-215.
- KOLLMANN, J. 1894: Das Schweitzersbild bei Schaffhausen und Pygmaen in Europa. *Zeits. f. Ethnol.*, 26: 189-254.
- 1905: Neue Gedanken über das alte Problem von der Abstammung des Menschen. *Globus*, 87: 140-148.
- VON LUSCHAN, F. 1910: Die Pygmäen in Melanesien. *Zeits. f. Ethnol.*, 42: 939-945.
- MACINTOSH, N. W. G. 1949: A survey of possible sea routes available to the Tasmanian aborigines. *Rec. Queen Vict. Mus., Launceston*, 2: 123-143.
-

- 1960: A preliminary note on skin colour in the Western Highland natives of New Guinea. *Oceania*, 30: 279-293.
- MOYNE, LORD and HADDON, K. 1936: The Pygmies of the Aiome Mountains, Mandated Territory of New Guinea. *J. Roy. Anthropol. Inst.*, 66: 269-290. Plz. 4.
- NEUHAUSS, 1911: Ueber die Pygmäen in Deutsch-Neuguinea und über das Haar der Papua. *Zeits. f. Ethnol.*, 43: 280-287.
- NIPPOLD, W. 1936: Rassen- und Kulturgeschichte der Negrito-Völker Südost-Asiens. Leipzig. Pp. 436.
- PLISCHKE, H. 1929: Pygmäen des Stillen Ozeans. In *Memorian Karl Weule*, Leipzig. pp. 241-297.
- PÖCH, R. 1907: Reisen in Neu Guinea in den Jahren 1904-1906. *Zeits. f. Ethnol.*, 39: 384-400.
- RAY, C., CHAKRAVARTI, M. R., BANERJEE, A. R., BHATTACHARJEE & P. POSPISIL, 1960: The Kapauku and their kinship organization. *Oceania*, 30: 188-205.
- RECHE, O. 1910: Eine Bereisung des Kaiserin-Augusta-Fluss (Neuguinea). *Globus*, 97: 285-286.
- REED, W. A. 1904: Negritos of Zambales. Manila. pp. 90.
- SARKAR, S. S. 1953: The Negrito racial strain in India. *Man in India*, 33: 19-30.
- 1954: The Aboriginal Races of India, Calcutta. p. 151.
- 1958: A preliminary note on the Kadars of Kerala. *Sci. & Cult.*, 23: 562-563.
- RAY, G., BHATTACHARJEE, P. & BANERJEE, A. R. 1959: The Kadar of Kerala. *Man of India*, 39: 235-238.
- SCHEBESTA, P. (N. D.): Among the forest dwarfs of Malaya, London. p. 288.
- 1952: Die Negrito Asiens, 3 Vols. Vienna.
- SCHMIDT, P. W. 1910: Die Stellung der Pygmäenvölker in der Entwicklungsgeschichte des Menschen. Stuttgart. p. 315.
- SELIGMAN, C. G. (N. D.): The Melanesians of British New Guinea, Cambridge Press. Pp. 766.
- 1909: A Classification of the natives of British New Guinea. *J. Roy. Anthropol. Inst.*, 39: 246-274, 314-332.
- SERGI, G. 1893: Varietà umane microcefaliche e pigmei di Europa. *Boll. R. Acad. Med. di Roma*, 19: fasc. 2, pp. 42.
- TINDALE, N. B. & BIRDSELL, J. B. 1941: Tasmanoid tribes in North Queensland. *Rec. S. Austr. Mus.*, 7: 1-9.
- THURNWALD, R. 1910: Im Bismarckarchipel und auf den Solomoninseln 1906-1909. *Zeits. f. Ethnol.*, 42: 98-147.
- WEULE, K. 1902: Zwergvölker in Neu-Guinea. *Globus*, 82: 247-253.
- WILLIAMSON, R. W. 1912: The Mafulu Mountain people of British New Guinea. London. Pp. 364.
- WOLLASTON, A. F. R. 1912: Pygmies and Papuans, London. Pp. 352.
- WOO, T. L. and MORANT, G. M. 1932: A preliminary classification of Asiatic races based on cranial measurements. *Biometrika*, 24: 108-134.



### Riassunto

È stata studiata la tribù nana di Aiome, nelle montagne vicino al fiume Ramu ed ai suoi affluenti meridionali. Osservazioni, misurazioni e fotografie sono state fatte per 15 uomini e 5 donne convenuti alla pista aerea di Aiome. Le misurazioni sono presentate nella Tav. 1 (p. 280). Esse comprendono il colore degli occhi e della pelle; lunghezza e larghezza del capo; lunghezza e larghezza delle orecchie e presenza del lobo; statura; sviluppo di rughe frontali e relativa depressione della radice nasale. Nel testo sono contenute altre osservazioni. La statura media maschile era di 147,9 cm., che è più o meno la stessa di quella dei pigmei del Congo. La donna più bassa misurava soltanto 125,5 cm. di altezza. L'Indice del Colore negli uomini è di 78,51 e le orecchie sono più piccole che nella maggior parte delle razze.

L'acconciamento del capo, le decorazioni e le danze sono illustrati nelle Figg. 1-18.

Il colore della pelle dei Papuasi è di una gradazione più chiara degli aborigeni australiani. In uno studio sul colore della pelle dei Papuasi, Macintosh (1960) ha scoperto che i nativi si riconoscono ed hanno nomi diversi in base a tre gradazioni di colore. Queste sembrano essere dovute (1) alla condizione omozigotica, (2) alla condizione eterozigotica e (3) all'assenza di un gene minore per il colore della pelle.

Il fatto che i geni dei gruppi sanguigni A, B, M, S, R<sup>1</sup> e R<sup>2</sup> dei nani di Aiome siano molto simili a quelli delle popolazioni alte della regione del Monte Hagen giustifica la conclusione che il nanismo sia dovuto ad una mutazione di un gene singolo. I nani di Aiome e di Wissel Lake (distanti 400 miglia) presentano forti differenze nella frequenza dei geni A, M, S e R<sup>1</sup> (cDE), ma concordano nelle frequenze di B e R<sup>2</sup> (CDe). I gruppi sanguigni dei pigmei del Congo, allo stesso modo, concordano con quelli dei Bantù, dai cui antenati potrebbero essere derivati.

Vengono passati in rassegna i primi studi sulle razze nane e si discute la questione di

una razza di Negritos nell'Asia sud-orientale. Si conclude che il termine Negrito dovrebbe essere limitato alla razza nana delle Filippine. Essi raggiunsero le Filippine, probabilmente, dal Borneo, quando il livello del mare era basso, durante l'ultima era glaciale. Basandosi in particolare sulla forma del cranio, gli Andamanesi appaiono derivare dalle popolazioni alte delle vicine Malacca o Burma. L'importanza della loro steatopigia e dei capelli a granelli di pepe non è chiaro, dato che tali caratteri vengono riscontrati nei boscimani sudafricani.

I Semang di Malacca sono misti e di dubbia origine. La natura nana e le relazioni dei Kadar nell'India meridionale restano incerte. Le incisioni dei loro pettini di legno suggeriscono la possibilità di un antichissimo rapporto culturale con i nani della Malacca ed i Negritos delle Filippine. Resti, apparentemente Negritos, trovati nel Queensland potrebbero rappresentare, in parte, l'origine da cui si svilupparono gli aborigeni della Tasmania. I Vedda sono al di fuori dei raggruppamenti Negritos. Essi sono, probabilmente, Australoidi di dimensioni ridotte che emigrano a Ceylon durante l'ultima era glaciale.

I diversi gruppi di nani della Nuova Guinea sono di origine locale (e, probabilmente, relativamente recenti) e non hanno alcun rapporto con i Negritos, che appaiono di origine molto più antica, probabilmente precedente all'ultima era glaciale. Diverse località con popolazioni di stature medie diverse sono elencate nella Tav. 3, mentre altre sono menzionate nel testo.

Un trattamento statistico delle misurazioni di Bijlmer della statura, dell'indice nasale e cefalico, eseguito con l'aiuto del dott. Fraser Roberts, indica che molti gruppi della Nuova Guinea Olandese sono notevolmente diversi. Una completa investigazione statistica sia sulla statura che sui gruppi sanguigni sarebbe necessaria per chiarire questa situazione. Viene espressa una ipotesi riguardante l'eventuale frazionamento del gene originale per il nanismo nel

processo di incroci fra alti e nani all'interno di uno stesso gruppo.

Nella Nuova Guinea gli abitanti della costa sono i più alti, quelli delle regioni delle montagne più elevate — notevolmente nani, mentre le popolazioni delle regioni intermedie sono,

in gradi diversi, più basse di quelle della costa. Che l'incrocio abbia luogo lo dimostrano uomini che sono molto più alti del resto della loro tribù. I futuri studi sulla statura dei Papuas dovrebbero anche chiarire l'origine di geni multipli per la statura.

## RÉSUMÉ

La tribu naine de Aiome, dans les montagnes près de la rivière Hamu et de ses tributaires méridionaux, a été étudiée. Des observations, mesurations et photographies ont été faites sur 15 hommes et 5 femmes venus pour une réunion à la piste aérienne de Aiome. Les mesurations sont présentées dans la Table 1 (p. 280). Elles comprennent la couleur des yeux et de la peau; la longueur et la largeur de la tête; la longueur et la largeur des oreilles et la présence de lobes; la stature; le développement des rides frontales et l'enfoncement relatif de la racine du nez. D'autres observations sont indiquées dans le texte. La stature moyenne chez les hommes est de 147, 9 cm, ce qui correspond presque à celle des pygmées du Congo. La femme la plus petite mesurait 125, 5 cm. L'Index de la Couleur chez les hommes est de 78,51 et les oreilles sont plus petites que dans la plupart des autres races.

Dances et décorations sont illustrées par les Fig. 1-18.

La couleur de la peau des Papouas est d'une gradation plus claire que chez les aborigènes australiens.

Dans une étude sur la couleur de la peau des Papouas, Macintosh (1960) a trouvé que les natifs se divisent et ont des noms d'après trois gradations de couleur. Ces dernières semblent être dues (1) à la condition homozygotique, (2) à la condition hétérozygotique, (3) à l'absence d'un gène mineur pour la couleur de la peau.

Le fait que les gènes des groupes sanguins A, B, M, S, R<sup>1</sup> et R<sup>2</sup> des nains de Aiome soient fort semblables à ceux des populations de taille élevée de la région du Mont Hagen, jus-

tifie la conclusion d'après laquelle le nanisme serait causé par la mutation d'un seul gène. Les nains de Aiome et de Wissel Lake (éloignés de 400 milles) ont des fréquences fort différentes pour les gènes A, M, S, et R<sup>2</sup> (cDE), mais pareilles pour B et R<sup>1</sup> (CDE). De même, les groupes sanguins des pygmées du Congo, sont pareilles à ceux des Bantous, des ancêtres desquels ils pourraient avoir tiré leur origine.

L'on passe en revue les premières études sur les races naines et l'on discute la question d'une race de Négritos dans l'Asie sud-orientale. La conclusion est que le terme de Négrito devrait, probablement, être référé rien qu'à la race naine des Philippines. Cette dernière aurait, probablement, atteint les Philippines, provenant du Bornée, quand le niveau de la mer était descendu, pendant la dernière ère glaciaire. En considération surtout de la forme du crâne, les Andamanésiens pourraient dériver des populations grandes des voisines Malacca et Bourma. L'importance de leur stéatopygie et de leurs cheveux crépus n'est pas claire, étant donné que ces caractères sont communs aux Boschimanes sudafricains.

Les Semangs de Malacca sont mêlés et d'origine douteuse. La nature nannique et les relations des Kadars dans le Sud de l'Inde demeurent incertaines. Les incisions de leurs peignes en bois fait penser à une très ancienne relation culturelle avec les nains de Malacca et les Négritos des Philippines. Des fouilles dans le Queensland ont révélé des objets d'aspect Négrito, qui pourraient représenter, en partie, la source de laquelle les aborigènes tasmaniens auraient développé. Les Veddas sont en dehors du groupement Négrito. Ce sont, probablement,

des Australoïdes de dimension réduites, émigrés à Ceylan pendant la dernière ère glaciale.

Les divers groupes de nains de la Nouvelle Guinée ont une origine locale (et, probablement, relativement récente) et n'ont aucun rapport avec les Négritos, qui ont une origine bien plus ancienne, probablement précédente à la dernière ère glaciale. Plusieurs localités avec des populations de diverses statures moyennes sont indiquées par la Table 3, et quelques autres sont mentionnées dans le texte.

Un traitement statistique des mesurations de Bijlmer de la stature, des index nasal et céphalique, accompli avec l'aide du Dr. Fraser Roberts, démontre que bien des groupes de la Nouvelle Guinée Néerlandaise sont remarquablement différents. Pour expliquer cette situa-

tion, une investigation statistique complète concernant la stature et les groupes sanguins serait nécessaire. L'on avance une hypothèse d'après laquelle il-y-aurait eu un fractionnement du gène original pour le nanisme dans le procès de croisement entre grands et nains.

Dans la Nouvelle Guinée, les gens de la côte sont de taille plus élevée, les habitants des régions de montagne sont remarquablement nains, tandis que les habitants des autres régions sont, par divers degrés, plus petits des gens de la côte. Que le croisement ait lieu, c'est démontré par quelques individus de taille plus élevée du reste de leurs groupes ou tribus. Les prochaines études sur la stature des Papouas devraient aussi éclaircir l'origine de gènes multiples pour la stature.