

Seminole Physiognomy and Beady Cerumen : Two Afterthoughts from a Field Study

Howard H. HIRSCHHORN

1215 Pizarro Street Coral Gables, Florida 33134

Physical, chemical and genetic speculation upon the nature of the beady cerumen in Florida Seminole Indians is accompanied by portraits of Seminole children. Possible correlation of cerumen type and physiognomy is suggested. (Received March 9, 1982 and accepted October 4, 1982)

1 Introduction

A decade ago, in a field study of the Florida Seminole Indians, I described a beady type of cerumen¹⁾. Also at that time I photographed a series of Seminole children on the Dania Reservation near Miami. Subsequent analysis of the "leftover" observations and of the portraits prompted at least two questions that may warrant further investigation: 1. Is beady cerumen an intermediate type? and 2. Does physiognomy correlate with cerumen type?

Could the "beady" form found in 10% of 100 Florida Seminole Indians¹⁾ represent an intermediate or other form? Transition or intermediate forms of cerumen between the wet and dry types have already been reported in other groups^{2,3)}.

It is also of interest to know if and how specific traits correlate with "looks" or features, despite, of course, the fact that racial or ethnic features are sometimes a statistical rather than an individual phenomenon.

This paper speculates upon "leftover" findings from my original field study¹⁾.

2 Subjects and Methods

In 100 Florida Seminoles residing at the Big cypress, Brighton and Dania Reservations, cerumen was observed bilaterally with a battery-powdered otoscope and described as *wet* when it was dark brown, glistening, sticky and lava-like, conforming to the contours of the canal. It was described as *dry* when it was granular or flaky, and yellow or tan. Cerumen was called *beady* when it resembled brownish lacquered globules.

Full-face and profile photographs were taken of 19 Seminole children at Dania incidental to this field study of cerumen and phenylthiocarbamide-tasting ability.

3 Results

The pedigrees of the Seminoles with beady cerumen are presented in Fig. 1, 2 and 3. All the persons in these figures are full bloods, that is, at least full Indian if not full Seminole, according to oral statements verified by tribal rolls. Both wet and dry cerumen was seen in each family.

Of the 19 children photographed, 14 (full Indian) had dry cerumen and 5 (Caucasian+Indian) had wet cerumen. See photographs 1-20.

4 Discussion and Conclusion

Physically, the beady form cannot be ruled out as a transition between wet and dry forms: thick, sticky \longleftrightarrow globule \longleftrightarrow granular or flaky.

Further, could the beady form be considered other than as *between* wet and dry, that is, could it be a proto or a deteriorated form, physically or chemically?

Chemically, curretted samples of beady cerumen should be analyzed in the light of the following solubility findings by Ueda *et al.*⁴⁾: dry cerumen has much less of the insoluble (in ethanol) subfraction of an ethanol-ether insoluble fraction, and the wet cerumen has much more of the insoluble (in hexane) subfraction of an ethanol-ether soluble fraction. That is, the wet type contains more insoluble constituents.

Also, the chemical composition of the beady form, if different from the wet and dry forms, might be elucidated by comparison of curretted samples with the values found for linoleic and stearic acids (higher in

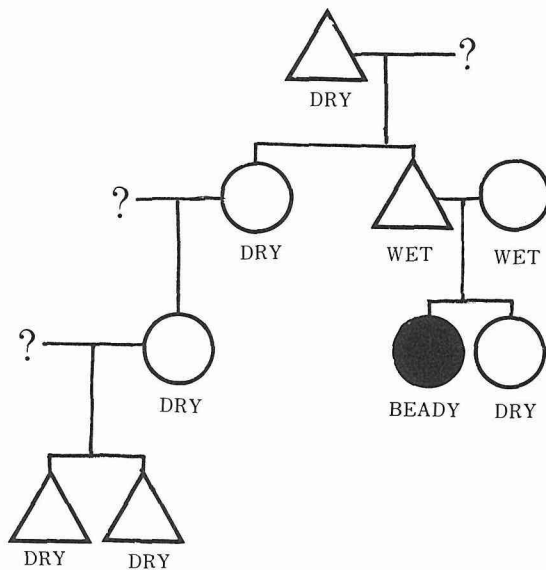


Fig. 1 Cerumen types of the relatives of a subject with the beady form.
 Δ = male, ○ = female, ● = propositus

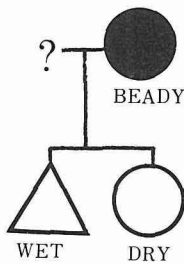


Fig. 2 Wet and dry cerumen in the children of a mother with the beady form.
 Δ = male, ○ = female, ● = propositus

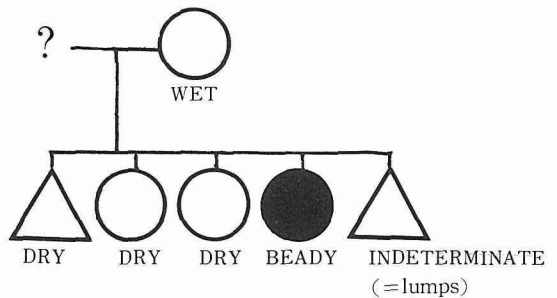


Fig. 3 Cerumen types of the siblings and the mother of a subject with the beady form.
 Δ = male, ○ = female, ● = propositus

dry⁵⁾, nitrogen (higher in dry⁶⁾), free amino acids (higher in dry⁷⁾), palmitoleic acid (lower in dry⁵⁾), and the presence of palmitic acid in wet⁸⁾. See Table. 1

Table. 1 *Reported composition of cerumen*

Reference No.	Constituents of Cerumen		Differences between types	
			Wet	Dry
5 (K. Kataura)	Cholesterol	8 -10 %		Linoleic and stearic acids higher. Palmitoleic acid Tower Triglyceride fraction
	"Lipid A "	5.2- 5.5 %		
	Triglyceride	1.4- 1.8 %		
	FFA	1.2- 2.2 %		
	etc.			
8 (A. Kataura, K. Kataura)	Total Cholesterol	8 -10 %	Palmitic acid	Linoleic and stearic acids higher
	Triglyceride	1.4- 1.8 %		
	FFA	1.2- 2.2 %		
	Unidentified polar lipid	5.2- 5.5 %		
4 (S. Ueda, A. Kataura, E. Matsunaga)	Fraction A (ethanol-ether soluble)		Much more A-2	Much less B-4
	Fraction A-1 (hexane soluble)			
	Fraction A-2 (insoluble)			
	Fraction B (ethanol-ether insoluble)			
	Fraction B-3 (80%ethanol-soluble)			
	Fraction B-4 (80%insoluble)			
6 (A. Kataura)	with organic solvents	Fraction I (phospholipids cholesterol, etc.)	20 %	23 %
		Fraction II	32 %	8 %
		Fraction III	9 %	11 %
		Fraction IV	38 %	57 %
		Nitrogen	4.5%	7 %
7 (A. Kataura, K. Kataura)	Fraction I	} lipiids, substance X, free AA, protein	Free AA 4 %	Free AA 15 %
	Fraction II			
	Fraction III			
	Fraction IV			

Genetically, would incomplete dominance account for the beady form as an intermediate? Is cerumen type a metric type, that is, does it exhibit wide variation in degree of expression, such as is the case for the fat or oil content of the body, and for the composition of milk? In such a case, the beady form might be a variant of wet or dry, but not necessarily a definite interphase between them. Does the beady form occur in any homogeneously wet or dry family? Do any mixed wet and dry families *not* exhibit the beady form? These questions may be investigated by accumulation of more instances of the beady type of cerumen, preferably followed by chemical analysis.

The small number of children photographed does not permit any correlations, such as of cerumen type and physiognomy, that is, Indian "looks" or Caucasian "looks." A larger series of photographs, objectivized by means of skin reflectance values, hair type, etc., may be of interest for further investigation. The photographs are presented here not only to suggest further study, but also for their archival value in recording a rapidly acculturating people⁹⁾.

References

1. Hirschhorn, H.: Cerumen types and PTC-tasting in the Seminole Indians of Florida. *Am. J. Phys. Anthropol.* **33**, 107-108 (1970).
2. Cheng, R.: Studies on ear-wax types and lack of taste sensitivity in Chinese subjects (In Japanese with English summary). *Nagasaki Med. J.* **35**, 1900-1904 (1960).
3. Matsunaga, E.: The dimorphism in human normal cerumen. *Ann. Hum. Genet.* **25**, 273-286 (1962).
4. Ueda, S., Kataura, A. and Matsunaga E.: Studies on the chemical composition of human normal cerumen. 1. Preliminary studies on solvent fractionation of dry and wet cerumen (In Japanese with English summary). *Sapporo Med. J.* **22**, 1-4 (1962).
5. Kataura, K.: Studies on the chemical composition of human normal cerumen. 4. Separation of lipid fraction by silicic acid column chromatography and fatty acid composition (In Japanese with English summary). *Sapporo Med. J.* **28**, 315-319 (1965).
6. Kataura, A.: Studies on the chemical composition of human normal cerumen. 2. On lipids and amino acids (In Japanese with English summary). *Sapporo Med. J.* **22**, 5-10 (1962).
7. Kataura, A. and Kataura K.: The comparison of free and bound amino acids between dry and wet types of cerumen. *Tohoku J. Exp. Med.* **91**, 215-225 (1967).
8. Kataura, A. and Kataura, K.: The comparison of lipids between dry and wet types of cerumen. *Tohoku J. Exp. Med.* **91**, 227-237 (1967).
9. Hirschhorn, H.: Ethnomedical acculturation of Florida Seminole Indians 1919-1952. *Ethnomedicine VII*, 1-4. (1981/1982).

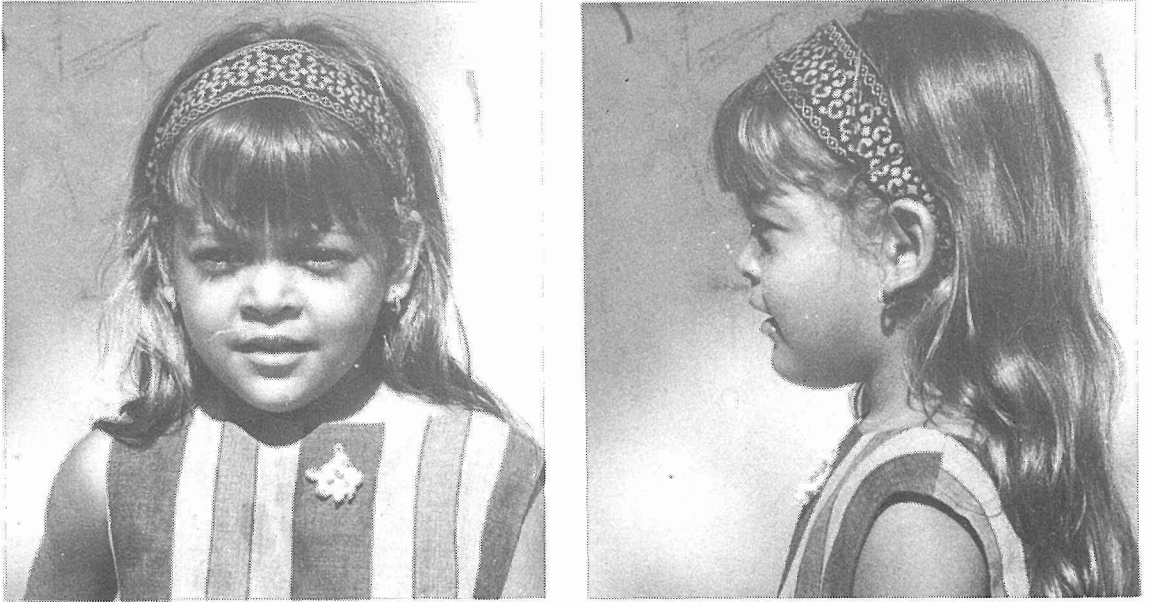


Photo. 1 June Baker (Sister of No. 2),
half-Seminole and half-Caucasian,
Miccosuki-speaking, age 4,
dry yellow cerumen

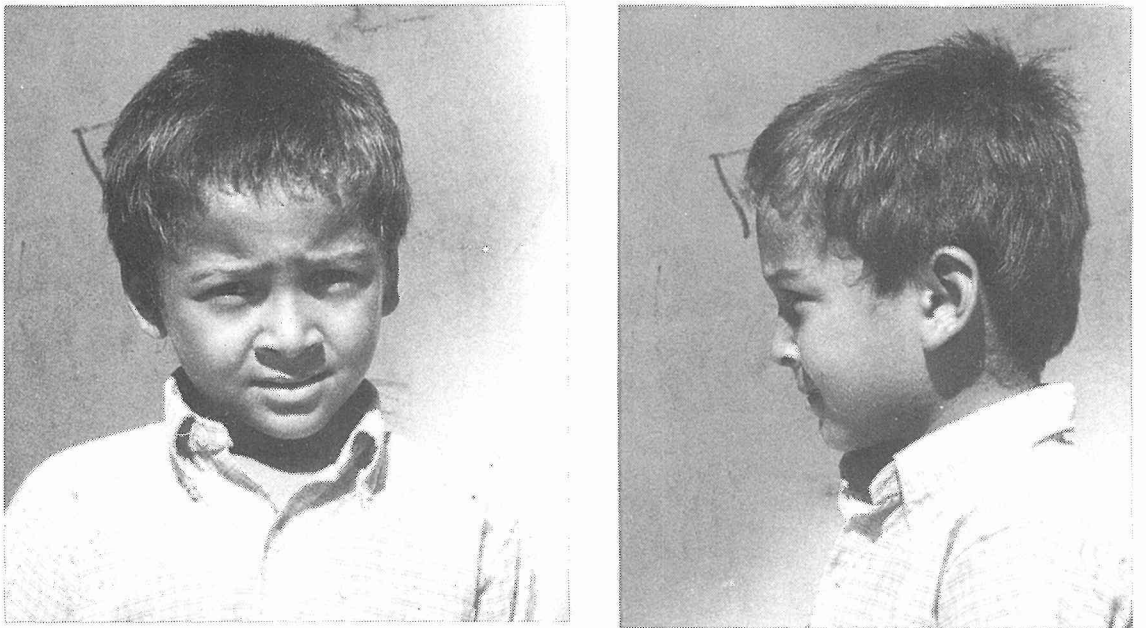


Photo. 2 Gustavus Adolphus ("Pete") Baker (Brother of No. 1)
half-Seminole and half-Caucasian, age 5,
Miccosuki-speaking,
dry yellow cerumen

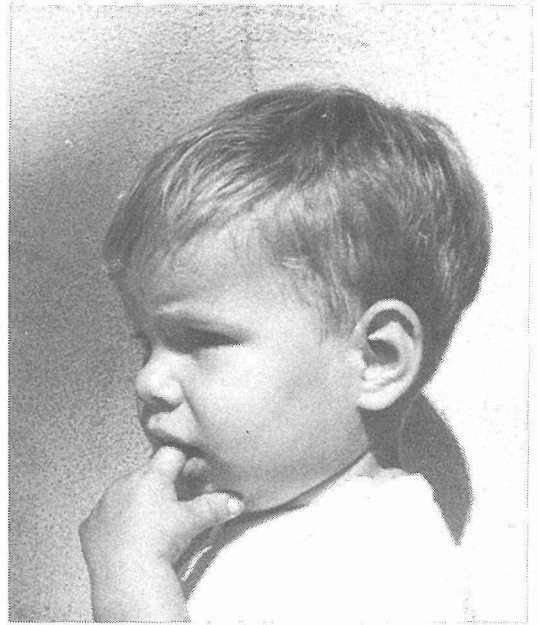


Photo. 3 Norman Gopher
half-Creek and half-Caucasian,
Creek-speaking, age 2 1/2,
wet yellow lumps

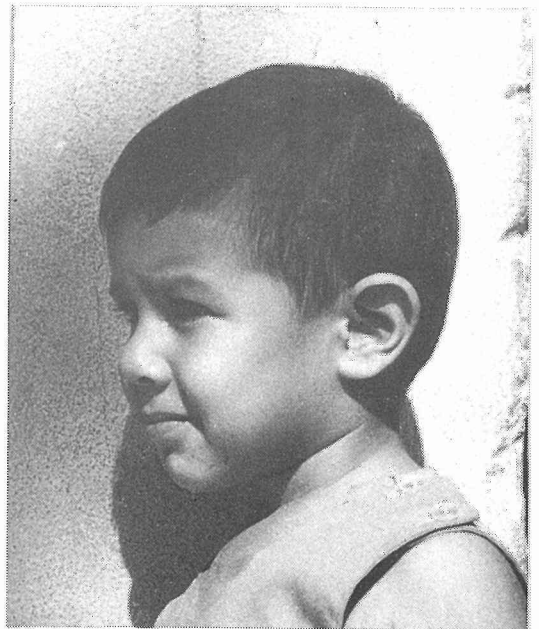


Photo. 4 Larry Gann Jr.
half-Seminole (Miccosuki) and half-Caucasian,
Miccosuki-speaking, age 2 1/2,
wet tan cerumen

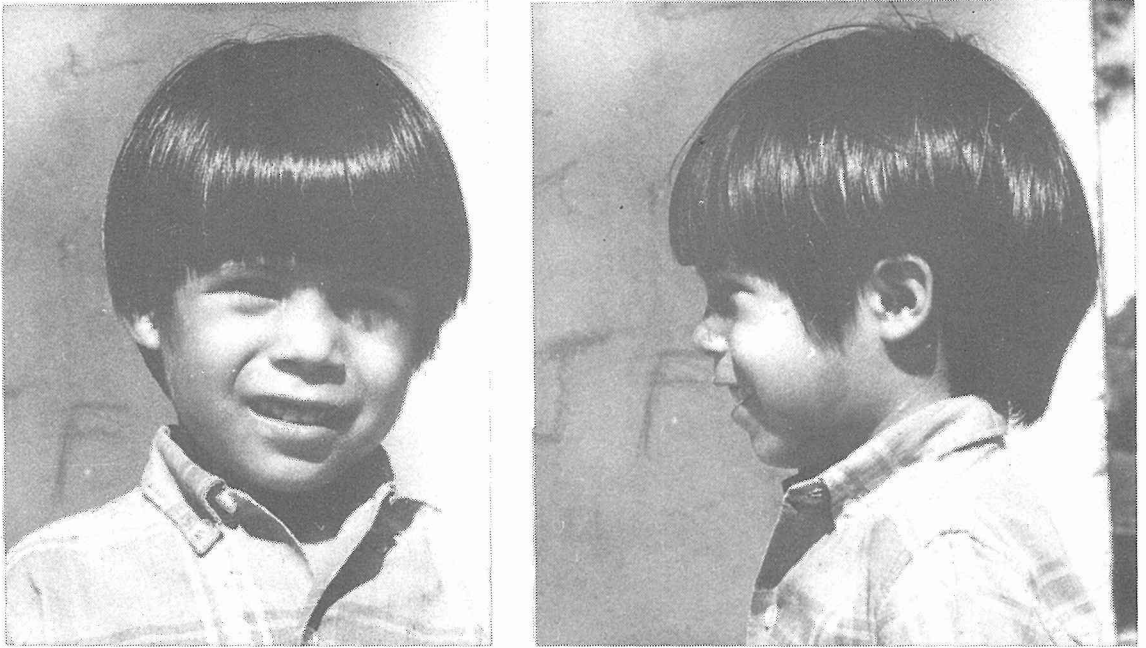


Photo. 5 Brian Osceola
3/4 Seminole and 1/4 Caucasian,
Creek and Miccosuki-speaking, age 4,
wet brown cerumen

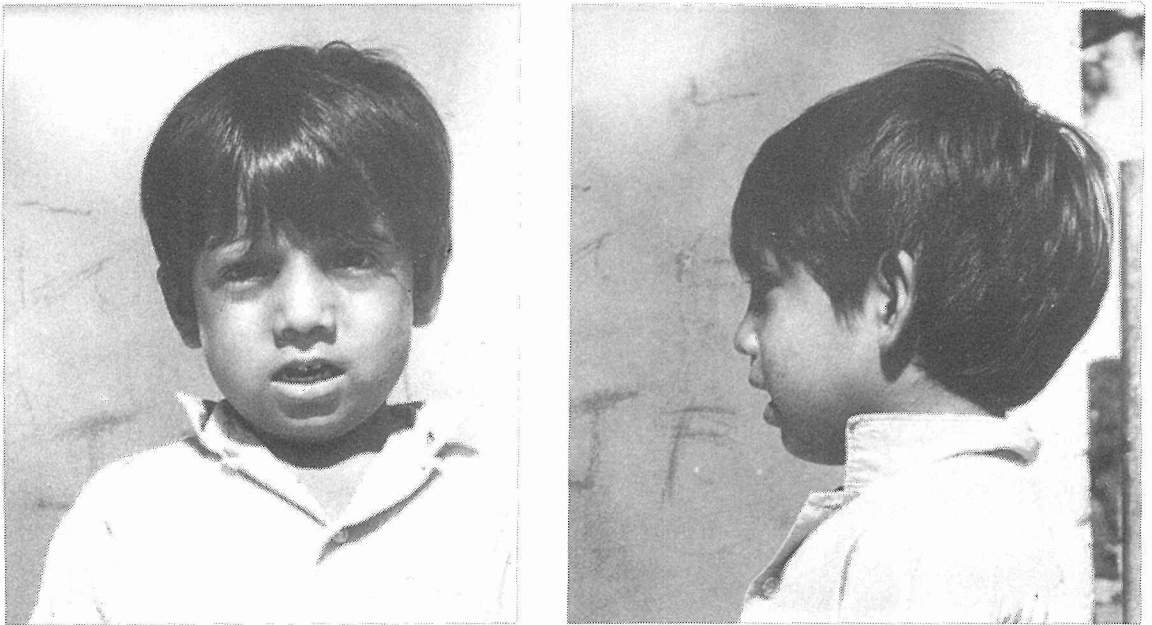


Photo. 6 Eric Lee Osceola (Brother of No. 7).
full Seminole,
Miccosuki-speaking, age 4,
dry yellow cerumen

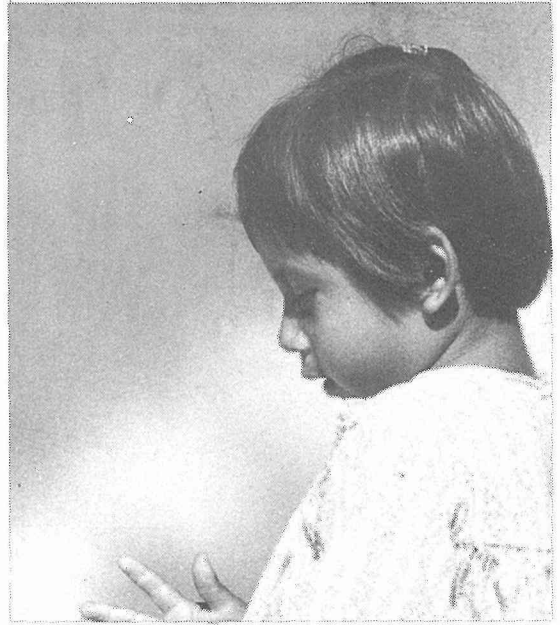


Photo. 7 Leslie Osceola (Sister of No. 6),
full Seminole,
Miccosuki-speaking, age 3,
dry yellow cerumen

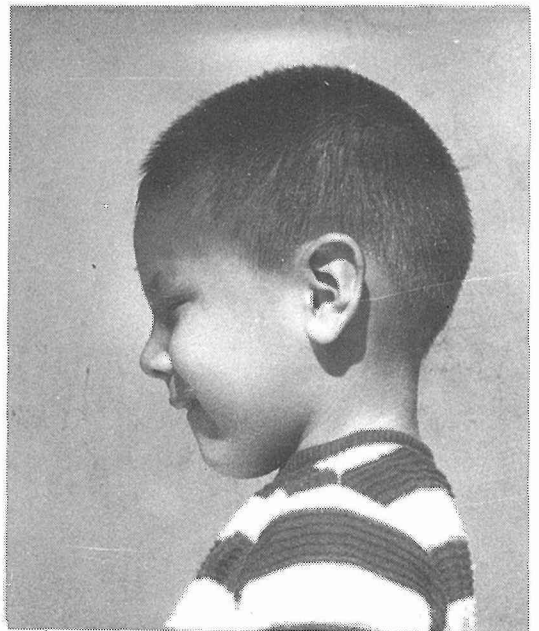
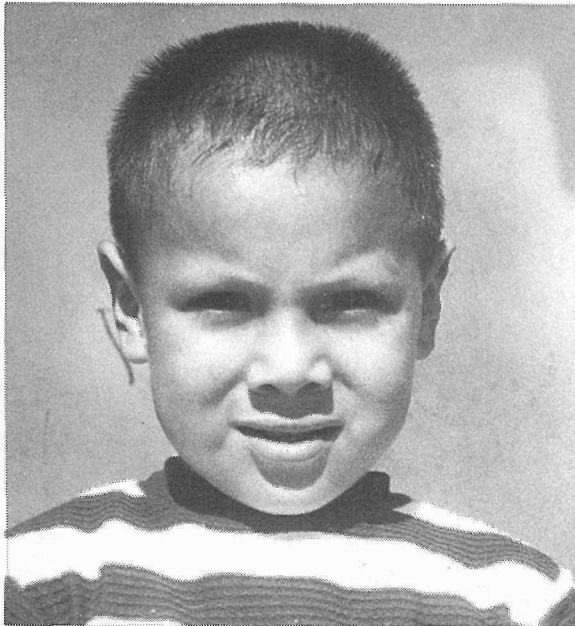


Photo. 8 Bill Eddie Johns,
half-Seminole and half-Cherokee,
Creek-speaking, age 4,
dry tan cerumen

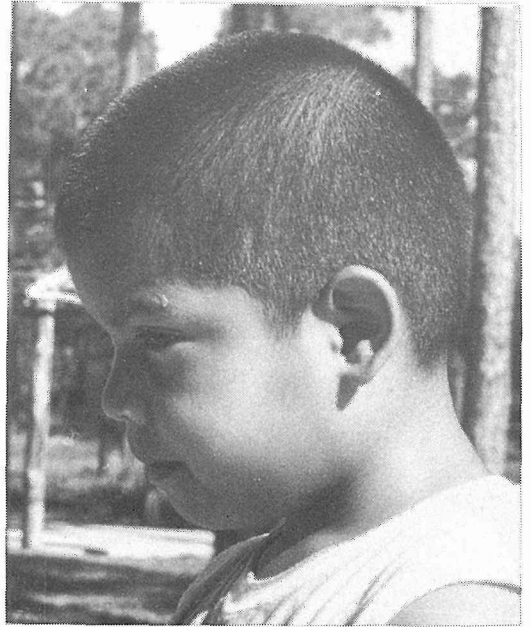
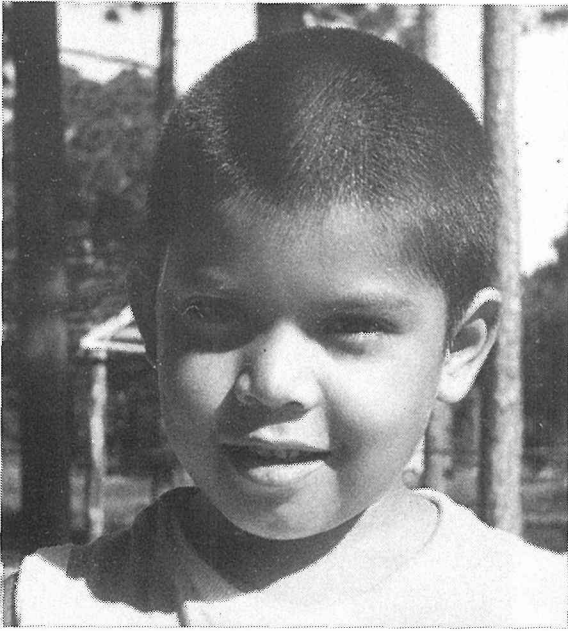


Photo. 9 Jim Hyde Gopher,
full Seminole,
Creek and Miccosuki-speaking,
age 6, dry yellow/tan cerumen

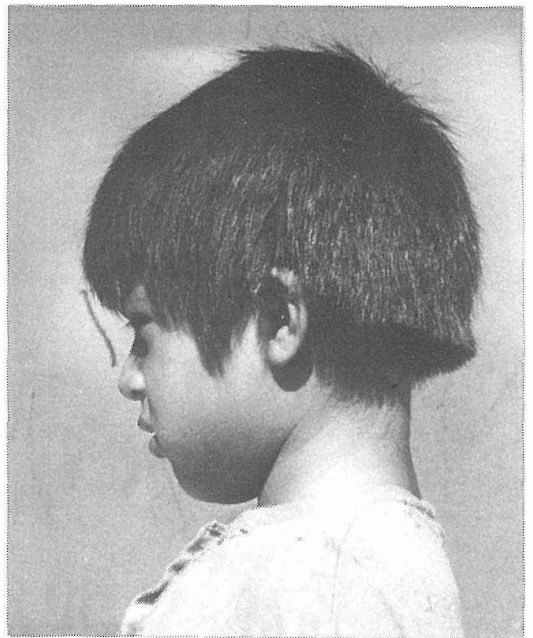
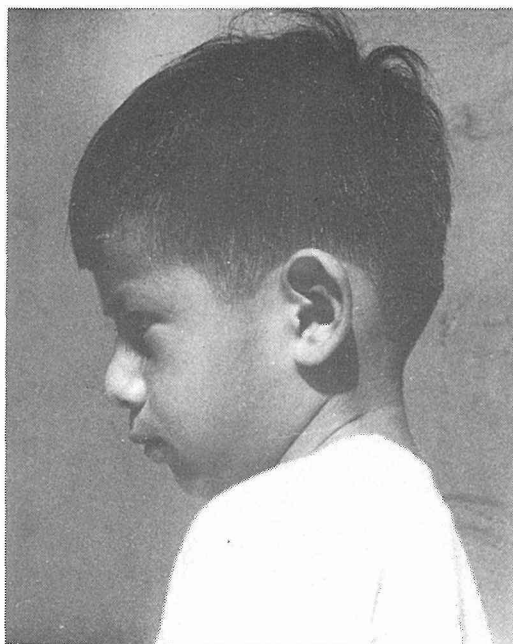


Photo. 10 Amos Billie,
full Seminole,
Miccosuki-speaking, age 6,
dry yellow/tan cerumen



PPhoto. 11 Christopher Buster,
full Seminole,
Miccosuki-speaking, age 5,
dry yellow/tan cerumen

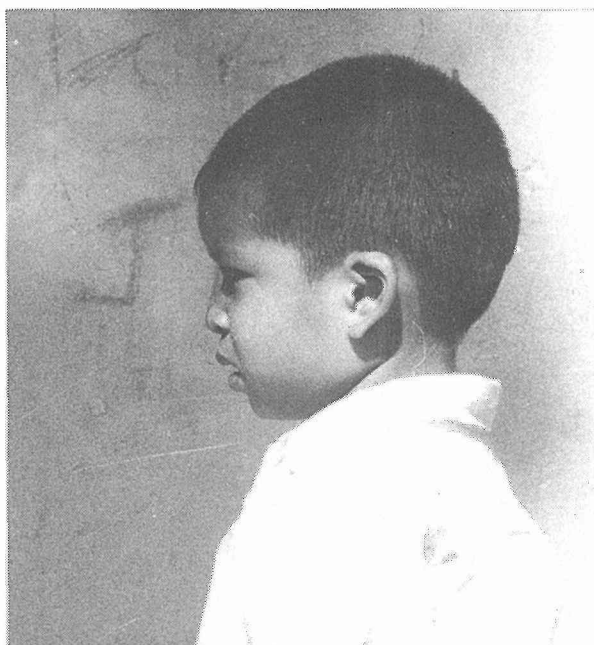
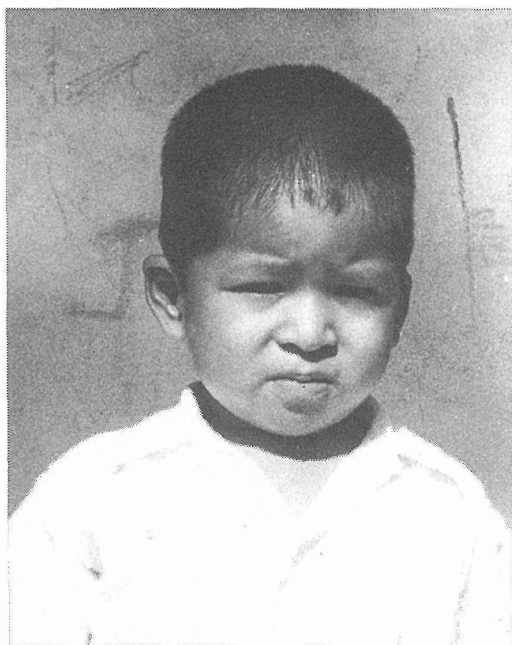


Photo. 12 Rodney Osceola,
full Seminole,
Creek and Miccosuki-speaking, age,
wet brown cerumen



Photo. 13 Trudy Bowers,
full Seminole,
Creek and Miccosuki-speaking, age 2,
wet black/brown cerumen
(See also photograph 20)



Photo. 14 Agnes Billie (Paternal aunt of No. 15),
full Seminole,
Miccosuki-speaking, age 18,
wet brown cerumen

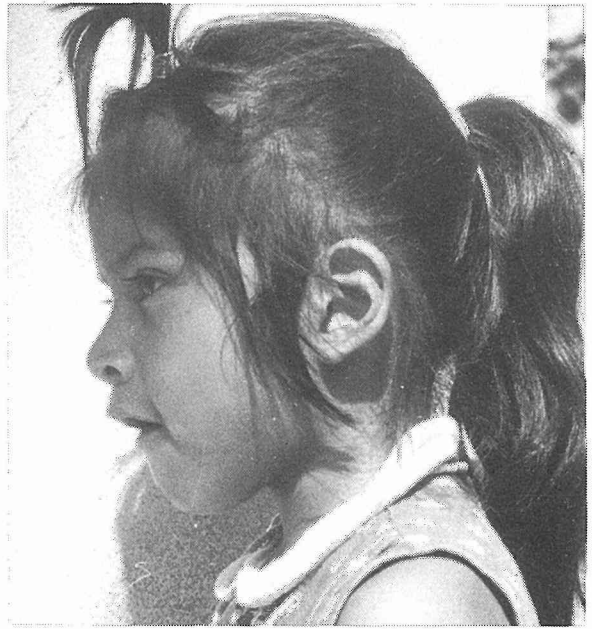


Photo. 15 Denise Billie (Niece of No. 14),
full Seminole,
Miccosuki-speaking, age 5,
dry yellow cerumen

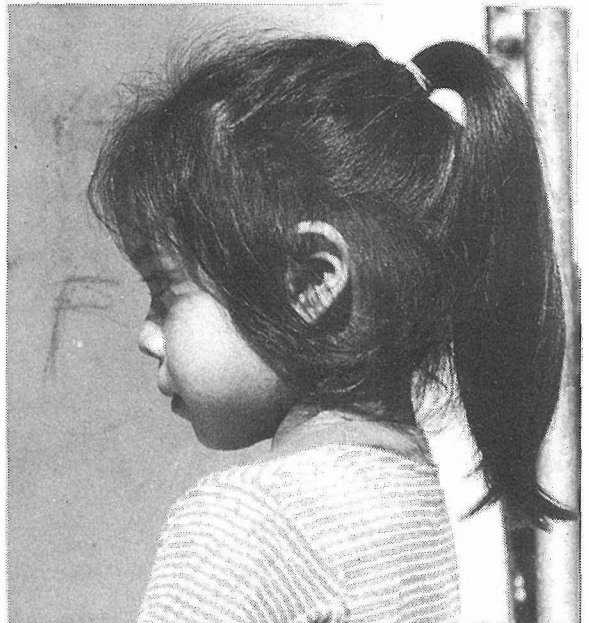


Photo. 16 Annette Tiger,
full Seminole,
Miccosuki-speaking, age 3,
dry yellow cerumen



Photo. 17 Corina Frank (Sister of No. 18),
full Seminole,
Miccosuki-speaking, age 5,
dry brown cerumen



Photo. 18 Sandra Frank (Sister of No. 17),
full Seminole,
Miccosuki-speaking, age 3,
dry? gray? cerumen

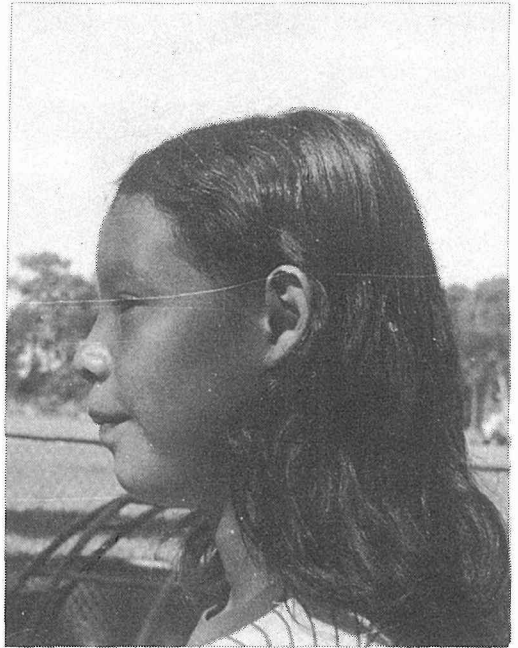
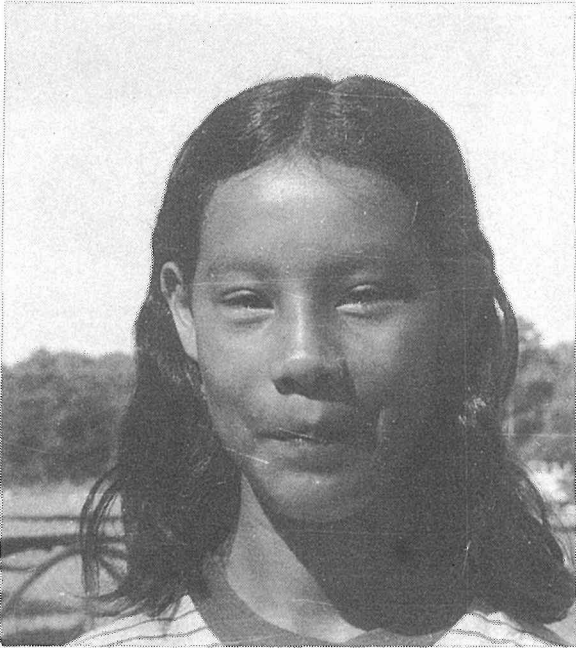


Photo. 19 Janice Martha Osceola (Sister of Cornelia in No. 20), full Seminole, Miccosuki-speaking, age 14, day tan/brown cerumen (see also photograph 20)



Photo. 20

	Martha Osceola		
	┌───────────┴───────────┐		
Cornelia	Bowers née Osceola	Janice M. Osceola (see photograph 19)	
	Trudy Bowers (see photograph 13)		