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AN ANTHROPOLOGICAL PROJECT ON FRENCH CANADIAN INDUSTRIAL WORKERS  
**F. AUGER**, Université de Montréal

A reorientation towards worker's health and safety is needed and it means that the health, strength and longevity of the workers be one of the conditions for the efficiency of their work.

For our project we have an ecological approach emphasizing the importance of multiple and complex environmental influences in disease causation to establish an health index for individual workers and for the population and to evaluate how those factors might affect biological ageing.

Data are obtained through a medical questionnaire (323 questions), a clinical investigation, anthropometry dynamometry and some physiological tests (blood pressure, vision test, audiometer, spirometry). Socio-demographic data and behavioral factors come from the questionnaire (income, education, place of residence, housing, family size, religion, smoking habits, alcohol, drugs, etc.). Such data have already been collected for 3,000 individuals.

For the moment, we will only give some preliminary results obtained with the medical questionnaire which is used to evaluate health status.

IMPACT OF SOCIO-ECONOMIC CHANGES ON THE DEMOGRAPHIC AND GENETIC  
STRUCTURE OF BARR'D ISLANDS, NEWFOUNDLAND

**MARIAN BINKLEY**, University of Toronto

The justification for the existence and continuity of settlements in Newfoundland has been a major theme in the island's history. Both economists of today and west country English merchants of the 17th century share the belief that the fewer Newfoundlanders there were the better. Most of the work on the Newfoundland fishery is of an economic and historical nature. These studies have been carried out on a macrolevel based predominantly on census, colonial and dominion records (Alexander, 1974, and other members of the Maritime History Group at MUN). A few focus on the micro-level and these are socio-economic in nature (Faris, 1972; De Witt, 1969; Wadel, 1969). However, no attempt has been made to correlate the historical or present socio-economic conditions directly or indirectly with the biological nature of the population.

The purpose of this paper is to examine possible correlations between the fluctuations in the fishing economy and the biological parameters of fertility and reproductive success of a Newfoundland outport population. The community of Barr'd Islands for the period from 1850-1950 was chosen for this study. Data for this paper were collected in the summer of 1976.

*MACACA SYLVANUS* IN FRANCE: PROBLEMS AND PROCESS.

**F.D. BURTON**, University of Toronto

Two multi-male groups of *Macaca sylvanus* are maintained as tourist attractions in France. Totally provisioned and artificially bounded, they exceed group sizes of their Moroccan parental stock by a factor of ten. The slide presentation reviews the habitat, conditions of study, methodological problems and specific findings concerning socialization patterns.

## SEXUAL BEHAVIOR IN A GROUP OF CAPTIVE YOUNG GORILLAS AT THE METRO TORONTO ZOO

**ROBERT COFFIN**, University of Toronto

A number of field studies have now been carried out on wild gorillas but for the most part these studies are of an ecological, rather than behavioral, nature. Thus, there is still a great deal to be learned about gorilla social behavior, especially sexual behavior. In this study the sexual behavior of a group of captive young gorillas was observed over a twenty-eight month period at the Metro Toronto Zoo.

Data on female menstrual cycles will be presented and the effects of female hormonal levels on sexual behavior will be discussed. Individual differences, partner preferences, and the influence of social organization on sexual behavior will also be examined. Finally, the results of this study will be compared with other research carried out on the behavior of the great apes.

## THE PALEOPATHOLOGY OF A SMALL GROUP OF SKELETONS FROM DODGE ISLAND, BRITISH COLUMBIA

**JEROME S. CYBULSKI**, National Museum of Man

Seven categories of pathology are detailed for a group of skeletons excavated from a northern Northwest Coast shell-midden in 1967. C<sup>14</sup> bone collagen dates place the remains between 1000 B.C. and 400 B.C. The sample consists of 13 variably complete skeletons recovered as burials and the scattered bones of seven other people. Included are six infants, one juvenile, two late adolescents, a subadult or early young adult, and 10 adults, six between 20 and 35 years of age. Degenerative joint disease, trauma, secondary skull infection, dental infection, spondylolysis, Scheuermann's Disease, and craniosynostosis are represented among the adolescents and adults. In part the varied pathology in this small sample reflects the cultural and natural environment on the whole it provides a capsule view of a much broader pattern of frequent bone pathology in northern coast British Columbia archaeological sites.

## ORIGINS OF CERCOPITHECUS AETHIOPS ON THE CARIBBEAN ISLANDS OF BARBADOS, ST. KITTS AND NEVIS

**WOODROW W. DENHAM**, McMaster University

Feral populations of African green monkeys live on the Caribbean islands of Barbados, St. Kitts and Nevis. Where did they come from? When did they arrive? How isolated have they been? Answers to these questions have important implications for social, ecological, and genetic research, but currently accepted reconstructions of the monkeys' history are unconvincing. This paper summarizes 17th to 20<sup>th</sup> century sources that bear on the history of the West Indian populations; reviews data that suggest heterogeneous origins of the monkeys of St. Kitts; examines a disagreement concerning the genus of which 17th to 19th century Barbadian monkeys belonged; and examines the origins, species, and likely numbers of monkeys that went from Africa to the Caribbean as sailors' pets and as cargo aboard slave ships. Several competing testable hypotheses are proposed concerning the origins and isolation of the West Indian monkey populations.

## THE USE OF NON-HUMAN PRIMATES IN CLEFT PALATE RESEARCH

W.J. DOYLE<sup>1,2</sup>, K. KIMES<sup>1</sup>, D. SADLER<sup>1</sup>, and M.I. SIEGEL<sup>1,2</sup>, <sup>1</sup>University of Pittsburgh  
<sup>2</sup>Children's Hospital of Pittsburgh.

The cleft palate population exhibits a nearly universal presence of otitis media with effusion. Anatomic radiographic and manometric studies evidence a functional obstruction of the Eustachian tube to be causal in the pathogenesis of these diseases. Abolition of the disease is not necessarily a consequence of palatal closure and restoration of velopharyngeal adequacy, however. Additionally, during reconstructive surgery, manipulation of the cartilagenous nasal septum has been avoided resulting in septal deviation and airway obstruction.

Preliminary data from a study on middle ear status in rhesus monkeys with surgically produced clefts have been collected. They suggest that a middle ear effusion which is sterile for bacteria results, though this is an inconsistent finding and probably dependent on the preoperative status of the eustachian tube as well as the degree of clefting. Changes noted in the manometric eustachian tube function tests include: (1) a decrease in the forced opening pressure; (2) a decrease in the passive resistance to air flow; (3) a decrease or abolition of the ability to reduce positive or negative middle ear pressures with native swallowing; and (4) a relative increase in tubal compliance. These results are consistent with those reported for the cleft palate child and allow for the testing of new reconstructive surgical procedures.

In our earliest study of septo-maxillary relationships, baboons were used as models. The results of this study (Siegel 1971, 1974, 1976), indicated that growth retardation varies as a consequence of varying the age at surgery and the amount of nasal septum resected. While these results suggest alterations in surgical techniques, it was felt that differences in anterior facial growth between baboons and humans precluded a direct application to humans. Chimpanzees, however, exhibit a downward pattern of growth which more clearly approximates that of man. In our current study of septo-maxillary relationships, the nasal septum is resected in 2-4 month old chimpanzees. Data obtained through the use of lateral cephalograms with metallic implants and dental casts indicate no significant differences between control and operated animals in the linear regression equations ( $y=a+bx$ ) which describe the anterior facial growth. This suggests that some manipulation of the cartilagenous nasal septum may be tolerated during human reconstructive surgery.

## VEGETABLE PROTEIN IN THE DIET OF INDIANS IN THE NORTH-WESTERN AMAZON

**DARNA DUFOUR**, State University of New York at Binghamton.

In recent years a number of investigators have suggested that protein is a limiting resource in the American tropics and influences the size, distribution and permanency of aboriginal populations pursuing traditional subsistence strategies. This is seen as the result of a dependence on animal protein in an ecosystem where animal species are both thinly distributed and generally small in biomass. There is, however, little quantitative information on non-animal protein sources or their role in meeting the calorie-protein requirements of indigenous groups.

The question of non-animal protein sources is addressed here by a discussion of the exploitation of high protein plant foods which are an integral part of the diet of Tatuyo Indians in the northwestern Amazon. Fieldwork with the Tatuyo was conducted during a 16-month period. Production of wild and cultivated food resources was monitored. The composition of wild foods was determined through the use of standardized tables and through biochemical

analysis. Four 24-hour weighed dietary surveys were used to measure protein-calorie intake.

Results indicate that gathered seeds of certain species of Euphorbiaceae, Caryocaraceae and Calsalpinaceae are relatively high in protein. Further, these seeds seasonally provide significant amounts of dietary protein. Of particular importance is a legume of the family Caesalpinaceae which is collected and consumed in large quantities during the first part of the rainy season when animal protein is particularly difficult to obtain. The role of this legume is discussed within the framework of the satisfaction of dietary protein requirements.

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#### PRELIMINARY ANALYSIS OF THE VOCAL REPERTOIRE OF A GROUP OF BONNET MACAQUES (*MACACA RADIATA*).

**GEORGE ELLIS**, University of Western Ontario

This paper describes the vocal repertoire of a group of forest living bonnet macaques. The wide range of vocal signals is categorized into a small number of sound categories. These acoustic categories are loosely correlated with various emotional states, ontogenetic variables and behavior situations. Precise understanding of the "meaning" of vocal signals comes from an analysis of (1) patterns of variation in the signals due to grading within and between categories, (2) the simultaneous combination of vocal signals with other modes of communication (visual, olfactory, tactile), and (3) the context in which the vocal signal (or its multimodal manifestation) occurs. The emphasis in this paper is on understanding the first of the above three pragmatic considerations.

#### TEA INTAKE AMONG NORTHERN CANADIAN INDIAN POPULATIONS: CONSIDERATION OF POTENTIAL HEALTH IMPLICATIONS.

**CAROL SPINDELL FARKAS**, University of Waterloo

Information on methods of tea preparation and consumption of tea by northern Canadian Indian people was obtained as part of a larger work which surveyed dietary intake patterns and food intake of this segment of the population.

Seventy-seven useful responses were obtained from a survey of the observations of professional workers in northern Canadian Indian communities in regard to food intake and dietary patterns: 48% of the responses were from medical/health workers, 21% educators, 18% Hudson Bay Company managers, 12% anthropologists, and one church worker. Of these responses 21% were either answered by or had contribution from Indian people. Responses were received from 10 provinces: 26 Ontario, 10 Saskatchewan, 10 Quebec, 10 Manitoba, 7 Alberta, 6 British Columbia, 3 New Brunswick, 3 Yukon, 1 Nova Scotia, 1 Northwest Territories.

Attention will be given in this paper to the health implications of tea ingestion by various age groups of northern Canadian Indian populations. Special attention will be given to caffeine, tannin and manganese in tea; also discussed will be the importance of steeping time, cup size, proportion of tea to water, seasonal variation of intake and sugar.

Needs for further research in these areas will be cited.

#### THE HOOD SITE: LONGHOUSE BURIALS IN AN HISTORIC NEUTRAL VILLAGE

**BILL FITZGERALD**, McMaster University

Excavations at the historic Neutral Hood site produced the first occurrence of burials within Neutral longhouses, and despite a relatively small sample size, certain inhumation patterns have been interpreted. A dichotomy between temporary and permanent burials has been

proposed, based on the location within the longhouse, the presence or absence of grave goods, the performance of sacrifice and associated ceremonialism, and the physical state of the individual.

Utilizing the Jesuit Relations and the osteological data as aids in the interpretation of the interments it has been suggested that certain age groups may have been permanently interred within the longhouse. This is based on the belief that the souls of both the very young and the very old, among which I have included the chronically ill, remained near the village after death, instead of proceeding to the land of the souls.

#### THE STUDY OF HEALTH LEVEL VARIATIONS AMONG NORTHEASTERN SWITZERLAND INDUSTRIAL WORKERS: AN ANTHROPOLOGICAL APPROACH

**FRANCIS FOREST**, Université de Montréal.

More than 1,000 workers of 44 different firms have been examined with the intention of studying the multiple relations which can exist between the socio-cultural environment and the variation of different health aspects. The socio-cultural environment has been studied with the help of 35 indicators and health was evaluated according to approximately sixty variables. Multiple variance analyses, based on multiple regression, have then enabled us to bring out the adjusted effects of each of the environmental factors studied, that is to say effects calculated by maintaining constant the effects of 34 other independent variables studied simultaneously. A particular interest for environmental and socio-professional factors of differential ageing has emerged from these analyses.

#### THE ASSESSMENT AND CONSEQUENCES OF INTRA- AND INTER-OBSERVER ERROR IN CRANIOMETRY

**GARY M. HEATHCOTE**, University of Toronto

Thirty-eight craniometric measures were taken on 25 crania by three observers. Since two of the observers triplicated their measurements, the data base allows for an investigation of craniometric precision (reproducibility) at both the intra- and inter-observer levels. Both ANOVA and Pearsonian correlation statistical procedures are employed in assessing the type and magnitude of measurement error for each variable. On the basis of these and other analyses, recommendations are offered regarding the selection of craniometric variables for use in descriptive and/or comparative skeletal studies. The effect of measurement error on a multivariate assessment of biological distance will also be explored by way of Penrose's phenetic distances. Attention will also be given to the identification of the material sources of measurement error, such as landmark ambiguities and mechanical difficulties in the usage of standard calipers.

#### ANTHROPOLOGY: WAMPETERS, FOMA AND GRANFALLOONS.

**MIMA KAPCHES** and **JOHN T. MAYHALL**, University of Toronto.

(Complete paper published in Vol. 1, No. 1)

\*Abstract unavailable, although the abstract from the resulting publication is as follows:

Kapches, Mima, and Mayhall, John T. (1979). Anthropology: Wampeters, Foma and Granfallons. *Canadian Review of Physical Anthropology* 1(1):1-4.

## MODELLING TAPHONOMIC PROCESSES IN THE OLD CROW BASIN, YUKON TERRITORY

**C.P. KOCH**, University of Toronto.

A theoretical model for the interpretation of the taphonomic history of an Upper Pleistocene vertebrate assemblage from Old Crow Basin is presented. Taphonomy is viewed as a sequence of interacting dynamic processes within the framework of Palaeoecology. The depositional history of Old Crow Basin is reviewed, as relevant to the origin and distribution of the assemblage. The approach presented to taphonomic processes is drawn from general systems theory and communications theory.

## CRANIAL MORPHOLOGY, CHARACTER ANALYSIS, AND AFFINITIES OF TREE SHREWS (*MAMMALIA SCANDENTIA*)

R.D.E. MACPHEE<sup>1</sup> and MATT CARTMILL<sup>2</sup>, <sup>1</sup>University of Manitoba, <sup>2</sup>Duke University

Although tree shrews are the best known of all contemporary mammalian insectivores, their systematic position within Eutheria is not substantially clearer than it was a century and a half ago, when scandentians first became known to Western science. At various times within this period they have been allied with one or more of the orders Insectivora, Macroscelidea, Primates, Dermoptera and Chiroptera. This study provides a re-analysis of a number of the cranial features that have been used to support these hypotheses of scandentian affinities, with specific emphasis on traits of the carotid system, basi-cranium and orbital region. There are three major findings. (1) Of the supposedly homologous shared derived traits linking tree shrews and primates, most appear to be either not homologous, not shared or not derived. (2) Most of the traits that do not fall into the first category are either of indeterminate primitiveness or derivedness, or, if they are indeed primate-tupaiid synapomorphies, force the troublesome conclusion that plesiadipoids (which lack these same character states) cannot be retained in a monophyletic order Primates. (3) The cranial morphology of the other possible sister groups of scandentians, to the extent it is known, does not support hypotheses of their proximate relationship with tree shrews. Because we do not find a paraphyletic order Insectivora abhorrent, we prefer to leave the tree shrews at their old address - the insectivore dustbin.

## CURRENT REVIEW OF DERMATOGLYPHICS AT THE GLOBAL LEVEL: THE LAST FIFTY YEARS

**JAMSHED MAVALWALA**, University of Toronto

First used in the 19th century, dermatoglyphics becomes a part of the sciences of the western world only in the early 20th century and since the 30's has been used to describe populational variability among primates, both human and non-human, and to aid diagnosis in those patients whose dermatoglyphics are affected by disturbances in early foetal life. This review concentrates on work done by anthropologists and geneticists in the last fifty years.

The review covers work done in printing and automation, secondary ridges, metacarpophalangeal creases, palmar flexion creases, proximal and midphalangeal configurations, finger and palm prints, quantitative analyses, dermatoglyphics in medicine, and dermatoglyphics in non-human primates.

**A PRELIMINARY INVESTIGATION OF HISTOLOGICAL AGING OF OSSUARY BONE**  
**GERRY MULLIGAN**, McMaster University

Chronological age determination of archaeological skeletal material has posed a problem for physical anthropologists. Techniques which are currently used for dating skeletal material require observation of dental eruption, sutural closure and obliteration, epiphyseal fusion, and appearance of the pubic symphysis. The difficulty in using any or all of these approaches to determine age at death, particularly, is well known.

Within the last decade histological methods have been used to determine chronological age. Three major articles have been published, each claiming success with the approaches used. Singh and Gunberg's (1970) method was applied to two mandibles from the Donaldson site, carbon dated at approximately A.D. 75, to determine whether the approach is likely to be useful in aging archaeological bone. The results showed that age determination was impossible principally because of deterioration of the osteons and the surrounding cortex.

**A THEORETICAL ARGUMENT FOR THE USE OF TOTAL SIDE FREQUENCIES OF BILATERAL DISCRETE TRAITS IN POPULATION DISTANCE ANALYSIS.**

**S. OSSENBERG**, Queen's University

In the controversy concerning whether discrete skeletal traits used in population studies should be scored in sides or in individuals, it has been argued that side scoring introduces redundant information deriving from the strong positive left-right correlation in trait occurrence. On the other hand, I argue, through consideration of actual patterns of trait distribution, that bilateral correlation is meaningful in quantifying the liability for the trait in the population; hence side scoring is the preferable method.

Analysis of two independent mandibular features, mylohyoid bridge and suppressed third molar, in Indian and Eskimo population samples (total  $N \approx 1200$ ) reveals a statistically significant pattern of increasing bilateral occurrence with increasing population incidence. This pattern is consistent with the theory that trait liability for a "quasi-continuous" variant is normally distributed with constant increment between thresholds on an underlying scale. According to theory, phenotypes with more pronounced expression (bilateral occurrence) have greater liability than those with less pronounced expression (unilateral occurrence). Therefore, scoring traits in total left and right sides, by giving greater weight to bilaterally affected individuals, may provide a better estimate of the liability for the trait in the population.

**ASSIGNMENT OF PUTATIVE SEX TO ADULT FEMORA FROM THE KLEINBURG OSSUARY: A RESEARCH REPORT.**

**SUSAN PFEIFFER**, University of Guelph.

\*Abstract unavailable, although the abstract from the resulting publication is as follows: Pfeiffer, Susan. (1979). Assignment of sex to adult femora from an ossuary population. *Canadian Review of Physical Anthropology* 1(2):55-62,

**A MICRO-HABITAT STUDY OF HOWLER MONKEYS (*ALOUATTA VILLOSA*) IN VERACRUZ, MEXICO**

**WAYNE RHODES**, University of Toronto.

This research is part of a three-month study of howler monkeys (*A. villosa*) in a tropical rainforest in Tuxtla, Veracruz, Mexico. The study area is located in an isolated tract of rainforest near the Gulf coast and is contained in the 700 hectare Field Station for Tropical Biological

Research belonging to the Universidad Nacional Autonoma de Mexico. The data pertaining to the present paper were collected during the last five weeks of the study. The focus of this research was on micro-habitat utilization by one howler group which is now being investigated by the U. N. A. M. research team headed by Dr. A. Estrada, with respect to overall ecological parameters and detailed behavioral study. Therefore, micro-habitat data complements the more extensive work being carried out by this research team. Major variables examined and analyzed by this microstudy include tree shape, size, and species; location of howler individuals in these trees during particular activities; and temperature and humidity measurements occurring during these activities, in addition to general climatic conditions at the time. The study was undertaken to provide preliminary information for a longer study to be carried out in the near future.

#### **CHILDLESSNESS AMONG THE SEPHARDIC JEWS OF GIBRALTAR: INSIGHTS INTO POPULATION STRUCTURE**

**L. SAWCHUK and L. FLANAGAN**, University of Toronto.

The analysis of secular trends in differential reproductive success of the Sephardic Jews of Gibraltar reveals that the infertility of married couples and celibacy are a major source of demographic loss to the local breeding unit. Recent field research has clarified in part the high rate of infertility observed among spatially exogamous matings and to a lesser extent factors responsible for the high rate of celibacy observed among the Jews. Biological implications of this source of demographic loss are discussed.

#### **A MONTH WITH THE KALAHARI BUSHMEN, MAZANE REGION, KWENING DISTRICT, BOTSWANA: A PILOT STUDY**

**B.A. SIGMON**, University of Toronto

During the summer of 1978, the author spent a month with a group of Kalahari Bushmen. The purpose of the visit (made possible by the assistance of Helga Vierich) was to carry out the initial footwork necessary before planning a future research project there. This involved (a) meeting the people and understanding the conditions under which future work could or could not be pursued, and (b) establishing contact with representatives of the government in order to obtain relevant information concerning policies on research by foreigners, and specifically the research that I was proposing.

My original research plan was intended to focus on energy expenditure studies. After spending time in Botswana, I saw reasons for redirecting the research program. These reasons were presented and tied in with a consideration of the problems one faces in trying to undertake, research on living peoples in newly developing nations. A new thrust for research possibilities was presented, taking into consideration the policies of the government and the differing life styles and attitudes of the Botswana peoples.

#### **HUMAN FACIAL TEMPERATURES AND FROSTBITE RESISTANCE: FIELD AND LABORATORY OBSERVATIONS**

**A.T. STEEGMANN**, State University of New York at Buffalo

Men of Asian and European origins were subjected to laboratory craniofacial cooling tests (both still and moving air) to determine relative ranking and temperature curves of various facial skin sites. The resulting variation was employed to gauge which conditions most tax capacities for cooling resistance.



Using the foregoing as a base, comparisons were made with samples of facial temperatures gathered from American soldiers and from Canadian Cree and Ojibwa men, all groups working outdoors, under natural winter conditions in the boreal forest.

It is concluded that the human face has great physiological capacity to resist serious frostbite, aided by behavioral adjustments. Some facial cold injury is now being seen, however, as a result of the unique conditions of high wind speed, low exercise, and low temperature experienced during snowmobile driving.

#### **SUBADULT MORTALITY AT THE OSSOSSANÉ OSSUARY**

**N.C. SULLIVAN and F.J. MELBYE, University of Toronto**

The Ossossané ossuary is located in Simcoe County in the Georgian Bay region of Ontario. The estimated 800 individuals in this ossuary were excavated by a Royal Ontario Museum crew under the supervision of Kenneth E. Kidd in 1946. On the basis of site location, artifact associations and other details, Kidd has convincingly argued that this ossuary represents the Feast of the Dead ceremony witnessed by Brebeuf in 1636. The analysis of the skeletal remains is an ongoing research project begun in 1975 at Erindale College under the direction of Dr. Melbye.

An analysis was made of the mortality of the estimated minimum of 132 subadults in the ossuary. Crown and root calcification of the mandibular dentition was observed and ages at death were assigned on the basis of the formation standards of Moorrees, Fanning and Hunt. The resulting mortality and survivorship rates are then compared to the demographic experience of the subadults from the Kleinburg and Grimsby ossuaries. The results suggest that, up to the age of about five years, the Ossossané subadults have a slightly higher mortality rate than Kleinburg or Grimsby subadults. After this age, the mortality rate observed at Ossossané is still higher than that of the Kleinburg series, but lower than the observed rate for the Grimsby subadults.

#### **INDIAN-ESKIMO ADMIXTURE: A CONSIDERATION OF THE EVIDENCE**

**E.J.E. SZATHMARY, McMaster University**

Eskimos and Indians are known to differ in several craniometric dimensions as well as the frequencies of several genetic markers. The disparities have led to the view that great biological differences exist between these branches of the Mongoloid stock. The maintenance of these differences has been attributed to a number of factors, foremost of which was the absence of meaningful amounts of inter-group gene flow. Recently ethnological evidence was presented which indicated extensive culture contact between Indians and Eskimos in specific areas of the north. To determine whether cultural transmission was accompanied by infusion of genes, craniometric, anthropometric and genetic data from relevant populations on the Indian-Eskimo frontier were examined.

It is argued that there is insufficient cranial material to allow the conclusion that observed similarity between Eskimo and a single group of Indians is attributable solely to admixture. Six anthropometric measures of the head, nose and face were also obtained from the literature. Penrose shape distances were calculated and these were subjected to a clustering procedure. The results did not contradict published conclusions dating to the 1930s. Great similarity appears to exist between speakers of Na-Dene languages and west and southwest Alaskan Eskimo, and between Cree and Caribou Eskimo, respectively. Unfortunately, little confidence can be expressed in these findings, for the data on which the analysis was based were gathered by several investigators and are likely systematically biased. The genetic markers indicated that

Indian gene flow had occurred only in Wainwright, Alaska and Ft. Chimo, Quebec. In neither of these two communities could the magnitude of mixture be measured with precision and accuracy. These findings suggest two interpretations: (1) Gene flow has not been extensive between Indians and Eskimos, else more conclusive evidence of this process could be obtained with the genetic markers. (2) If gene flow has been extensive, demonstration of it is difficult even with genetic markers, for the populations are not as divergent genetically as has been commonly assumed.