

Papuan pasts: Cultural, linguistic and biological histories of Papuan-speakin peoples

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Andrew Pawley, Robert Attenborough, Jack Golson, and Robin Hide, eds. 2005. *Papuan pasts: Cultural, linguistic and biological histories of Papuan-speaking peoples*. PL 572. Canberra: Pacific Linguistics. xxiii + 817 pp. ISBN 0-85883-562-2. Aus\$135.00, paper.

With more language families than the whole of Africa, and a settlement date of more than 40,000 years, Melanesia is a treasure chest for linguists, archaeologists, geneticists, and others seeking to encounter and explain the massive diversity characteristic of the region. This volume arose out of a conference held at the Australian National University in November 2000. A principal aim of the book is to correct the imbalance that has existed for most of the twentieth century in favoring research on Austronesian languages and the Lapita archaeological culture at the expense of the Papuan-speaking peoples of the Pacific: "it is probably fair to say that more manpower has been devoted to investigating the archaeology of the last 3500 years in Near Oceania than to the entire preceding 40,000 years" (xiii). The book also aims to strengthen the often weak ties between different disciplines, which have sometimes made it possible for out-of-date work that is rejected in one discipline to be cited by scholars in other disciplines as though it were current.

The book consists of 28 chapters, divided into four sections: six linguistics papers (with an introduction by Andrew Pawley); seven archaeology papers (with an introduction by Jack Golson); five environment papers (with an introduction by Robin Hide); and six human biology papers (with an introduction by Robert Attenborough). Authors of the contributions were asked to consider three claims: 1. that the Trans-New Guinea phylum (a proposed genetic grouping with about 400 members) can be taken as given; 2. that the linguistic diversity of northwest and central-north New Guinea—still an area of extreme diversity—may have been even greater prior to the arrival of Trans New Guinea (TNG) languages; and 3. that the Papuan languages of island Melanesia (the Bismarcks and the Solomon Islands) are only distantly related to one another, if at all, and show no clear evidence of relationship with the Papuan languages of New Guinea.

Each section begins with an interpretive essay that highlights the main findings and draws links between papers within and outside that section. These essays are important—in an interdisciplinary volume such as this—as an aid to understanding the background, aims, assumptions, and achievements of each discipline.

I. Linguistics. Andrew Pawley's introduction sets the stage for the linguistic contributions, describing the history of ideas on Papuan languages, including false starts such as Greenberg's and Wurm's classifications, and outlining the only generally acceptable method for classifying languages, the Comparative Method.

Major concerns common to all the linguistics papers include the role of diffusion versus bifurcation in language development over time. Some of the studies address directly the question of what features can diffuse versus those that are more likely to be retained through inheritance. The Papuan languages have long been the scene for big-picture claims, but while the major advances have resulted from top-down comparison, more recent caution is tending toward a much more fine-grained and bottom-up approach. Data in the form of grammatical descriptions are building up slowly. In addition, with the increasing use of quantitative methods, such as statistical methods used by Malcolm Ross in evaluating chance similarities in pronoun paradigms and radical approaches like Dunn et al. (2005), we are in a better position than ever before to understand the nature of the relationships between the Papuan languages. Ross has a brief discussion of the use of Bayesian statistics, more as a promissory note than a feature of his analysis, but quantitative methods are becoming more widespread, and since this book was published, Bayesian and other statistical methods are increasingly being used in questions of historical linguistics.

Malcolm Ross's paper "Pronouns as a preliminary diagnostic for grouping Papuan languages" is an ambitious attempt to classify New Guinea languages based on their pronoun paradigms. The paper classifies Papuan languages into 23 unrelated families and 9– 10 isolates. Ross contrasts mainland New Guinea (NG), where languages of the TNG phylum dominate the Austronesian languages, with island Melanesia, where many small "Papuan" families or isolates are surrounded by an Austronesian majority. Ross argues that the different linguistic geography reflects different population histories.

Andrew Pawley's paper "The chequered career of the Trans New Guinea hypothesis" discusses the largest family of Papuan languages, the TNG phylum (the latest version of which is called TNG IV). This family is supported by 200 lexical items and a nearly complete pronoun paradigm, displaying sound correspondences leading to reconstructable protoforms, as well as a certain number of grammatical forms. Crucially, Pawley publishes the data with the reconstructed protoforms, the first time that I am aware of that these data have appeared in a single place. Pawley dates the dispersal of TNG between 6,000 and 10,000 years ago, that is, older than either Indo-European or Austronesian, with the center of dispersal in the area of greatest diversity, the highlands of PNG between the Strickland River and the Huon Peninsula. The question of whether the TNG expansion was fueled by agriculture is a difficult one, as the only relevant reconstructable term is **ma* 'taro'; there are no other terms reconstructed for cultivation techniques or plant parts. Thus the linguistic evidence associating agriculture and the TNG expansion remains circumstantial.

William A. Foley in his chapter "Linguistic prehistory in the Sepik-Ramu basin" argues that this putative group consists of several genetic groups that are not mutually related: the Sepik-Ramu phylum itself is at this stage only a hypothesis. Foley identifies two families: Lower Sepik-Ramu and Sepik, and argues that there is not enough evidence to connect these into a larger family group.

Bert Voorhoeve's paper "Asmat-Kamoro, Awyu-Dumut and Ok: An enquiry into their linguistic relationships" concerns three families within the TNG phylum. As an example of the traditional comparative method of reconstruction, it serves an important role in a multidisciplinary volume like this one. He finds only meager evidence for an Asmat-Kamoro vs. Awyu-Dumut grouping, and better evidence for Awyu-Dumut vs. Ok. For Asmat-Kamoro versus Ok, he finds evidence of borrowing rather genetic relationship. Sound correspondences are in general rather lacking; for instance, between Asmat-Kamoro and Awyu-Dumut the only regular sound correspondences are with the nasals (154). His contribution makes explicit links between oral history of some of the languages he deals with, and earlier geographical or sociolinguistic correlations.

Mark Donohue and Melissa Crowther in their paper "Meeting in the middle: Interaction in north-central New Guinea" are also concerned with the effects of recent linguistic diffusion in north-central New Guinea, using oral history as a central tool. Their account of the Bewani expansion is extremely detailed, yet entirely speculative. However, it can, at the very least, be treated as programmatic: speculative scenarios like this are useful for generating hypotheses that can be tested by other disciplines. Ger Reesink's paper "West Papuan languages: Roots and development" discusses diffusion among the West Papuan languages, which include five small families (Timor-Alor-Pantar, North Halmahera, West Bird's Head, Meyah-Sougb, and Hatam-Mansim) and four isolates (Maybrat, Abun, Mpur, and Yawa). Reconstructing earlier linguistic situations is made difficult by lack of lexical cognates between languages, and the presence of Austronesian loanwords and grammatical features in all of the languages to varying degrees. Instead, linking archaeology, genetics, and linguistics, Reesink makes a broad claim for long-term patterns of interaction, culminating in a patchwork of shared typological features through Austronesian and Papuan populations.

The linguistics papers show a wide range of methods for getting at past linguistic and social situations. The Comparative Method (on lexical items, pronouns, and grammatical constructions) stands out as the only accepted method for determining genealogical relationships between languages, and reconstructing their detailed history. But we also see other methods that can supplement it, such as statistical tests to determine the probability of chance cooccurrence of features, comparison of typological features, and oral history. Common concerns of the linguistics papers include the thorny problem of distinguishing borrowing from inheritance, and of eliminating chance similarities. The linguistics chapters in this book are, in fact, a microcosm of the state of the art of historical linguistics today. What is special about the linguistic contributions is that they each, in different ways, speak directly to the issues that are of core concern to the other disciplines represented in the book, such as geography and genetics, and their relative roles in the spread of languages and populations. This book sets the threshold high for historical linguistics: in the future it is surely this type of interdisciplinary work that will be most used and most useful.

II. Archaeology and Ethnology. Jack Golson's introduction to this section neatly summarizes each paper. Jim Specht's "Revisiting the Bismarcks: Some alternative views" divides Bismarcks history into time-slices of 2,000 years each, surveying the accumulated knowledge of human presence in these islands while concentrating on environment and subsistence history. A fascinating finding is that from the arrival of the grey cuscus (*Phalanger orientalis*) in the Bismarcks some 20,000–24,000 years ago, there were no other new introductions into the area for 10,000 years. Obsidian sourcing studies show continuing contact between New Britain (NB) and New Ireland (NI), and appearances of new animals show contact between NG and Manus, but there is no evidence of contact between Manus and NI until the middle or late Holocene.

Pamela Swadling and Robin Hide's beautifully illustrated paper "Changing landscape and social interaction: Looking at agricultural history from a Sepik-Ramu perspective" on the Sepik-Ramu inland sea shows finds of obsidian from New Britain, "the first evidence for the backward movement of material from the islands to the mainland, in contrast to the one-way nature of the infrequent and/or restricted contact that ... is indicated by earlier relocations of animals, plants and obsidian" (Golson, p. 225). They describe early (Pleistocene) movements of flora and fauna between NB, NI, Manus, and the mainland of NG at different times. They also show a series of other natural events along the north coast of NG and NB that might have relevance for Reesink's linguistic picture of a North NG linguistic grouping (206).

Tim Denham's paper "Agricultural origins and the emergence of rectilinear ditch networks in the highlands of New Guinea" presents the case for the development of agriculture in the Highlands, with the later date of 6,500–7,000 years ago marking practices unmistakably agricultural. As Golson notes, this dovetails with Pawley's hypothesis of the TNG expansion. Benjamin Evans and Mary-Jane Mountain's paper "*Pasin bilong tumbuna*: Archaeological evidence for early human activity in the highlands of Papua New Guinea" deals with a specific site, Nombe, in the central highlands of NG, which, inhabited from 30,000 years ago until the recent past has "the longest occupation sequence yet recovered from a single site in highland NG" (363). From arguments based on the changing assemblages of flaked stones, they are able to build up a picture of changing subsistence types over time in this location. Susan Bulmer's chapter "Reflections in stone: Axes and the beginnings of agriculture in the Central Highlands of New Guinea" looks at the use of axes in agriculture in this area of NG. Golson makes the fascinating observation in his chapter "The middle reaches of New Guinea history" that shell adzes might have been used to make seagoing vehicles, an ability that is reflected in the late Pleistocene movement of obsidian from West NB and the Bismarck Sea. Barry Craig's study of material culture "What can material culture studies tell us about the past in New Guinea?" calls for the development of a taxonomic methodology that would enable classification according to various aspects of material cultures.

III. Environment. Robin Hide writes the introduction to the environment and social sciences papers. John Chappell's paper "Geographic changes of coastal lowlands in the Papuan past" includes some interesting maps of the shoreline of Sahul from 21,000 years ago (The Last Glacial Maximum) through to 6,000 years ago, which show, among other things, that the major islands of the Bismarcks were always separate from the mainland of Sahul. He divides the geographic history of the Sahul region into two parts during the last 21,000 years: "the period of rising sea level and drowning of the Sahul-Arafura Shelf, and the period of stable sea level and coastal adjustment, which includes the reclamation by isostatic adjustments and sedimentation of the inundated regions of the Fly-Digul Platform and of the Sepik-Ramu inland sea" (536).

Geoffrey S. Hope and Simon G. Haberle's paper "The history of the human landscapes of New Guinea" discusses three time periods of the history of human-environment interactions: preagriculture (55,000–20,000 years ago); the spread of agriculture (20,000–5,000 years ago); and post-Austronesian changes (5,000 years ago to the present) (541). They use evidence from tools, fire, geomorphology (i.e., human-caused changes to the geographical environment, e.g., through erosion), and palaeoecology, in which pollen and other vegetation and fauna can be reconstructed from fossils; this type of analysis can show vegetation changes, charcoal (evidence of fire), and sediments from bodies of water. Hope and Haberle note that while some large mammals became extinct after the earliest settlement of NG, there is no direct evidence of the extinction being caused by human agency. However, the existence of mammals on the larger of the islands (e.g., NI) shows human agency. Interestingly, they note that the Austronesian arrival is not concurrent with any major environmental event.

Paul Roscoe, in his paper "Foraging, ethnographic analogy, and Papuan pasts: Contemporary models for the Sepik-Ramu past," uses knowledge from the ethnographic record about subsistence strategies of current PNG peoples, and their distribution, to address questions of how people coped with environmental change in the prehistoric past. This approach allows him to find significant correlations between subsistence type and demographic and sociological aspects of ethnographic groups. Bryant J. Allen's paper "The place of agricultural intensification in Sepik foothills prehistory" is concerned with the interplay between linguistic, environmental, and agricultural distributions in the Sepik, making an account that ties in current population distributions with linguistics and agriculture in the Sepik foothills. He questions the militaristic tone of some views of population movements around the Sepik River that talk of invasions, pushes, and seizure of land. In place of this type of thinking, Allen suggests more complex processes of "agricultural intensification, and increasing social, cultural and economic complexity" occurring after the Abelam, the largest Ndu family group, had moved in small numbers from the lower Screw Valley into the Amogu floodplains (585). He also suggests that "it is also likely that Abelam and Arapesh language speaking groups intensified their agriculture and increased in size and social and cultural complexity *together* as a result of close ritual, trade, exchange and conflict relationships with each other" (585). Ultimately, Allen argues that the Abelam did not "push back" their Arapesh and Kwanga neighbors, but rather adjacent groups adopted the Abelam's yam-growing technology and other complex forms of social organization— technologies that are now spread much wider.

Although not in the linguistics section, Terence E. Hays's paper "Vernacular names for tubers in Irian Jaya: Implications for agricultural prehistory" is largely linguistic. In it he looks for cognate words referring to tubers in order to provide evidence for various agricultural practices in particular linguistic groups. His database of crop-related terminology contains 248 of the 326 known languages of Irian Jaya, plus 15 protolanguages and 48 non-Irian Jaya languages. He hypothesizes that the root crops diffused throughout NG, and using the terms for each root crop, tries to capture their temporal and spatial movement across the region, assuming that actual crops adopted will "at least often" carry their names with them. He also assumes that retention of a crop term that comes originally with the crop itself, in any given language, is likely to be attenuated over time, as normal processes of linguistic replacement take place. Therefore, more recent crops (e.g., manioc, potato, and sweet potato) are more likely to have names from Indonesian languages, whereas older crops (e.g., taro and yam) may well have replaced these older names over time (assuming that crops have come, together with their names, from the west). Also, the older crops might not have names in large cognate sets, due once again to natural processes of change in languages. Newer crops have had less time to acquire new labels and therefore might be expected to belong in large cognate sets (633). These expectations are largely met with the recent terms for manioc, potato, and sweet potato. Taro, however, runs counter to expectation, with more major than minor sets. Tobacco strongly supports the hypotheses, with most terms falling into a major cognate set.

IV. Human biology. Robert Attenborough's introduction outlines the history of anthropological genetics, with a particularly useful explanation of DNA analysis. As population genetics is probably the most opaque discipline for linguists, this introduction is very welcome. Most of the contributions in this section concern attempts to correlate genetic and linguistic diversity. Some directly compare Papuan-speaking and non–Papuan-speaking populations, hoping to find identifying genetic material at this level, whereas other papers try to identify genetic differences between Papuan populations.

Jonathan Friedlaender, Fred Gentz, Françoise Friedlaender, Frederika Kaestle, Theodore Schurr, George Koki, Moses Schanfield, John McDonough, Lydia Smith, Sal Cerchio, Charles Mgone, and D. Andrew Merriwether report in their paper "Mitochondrial genetic diversity and its determinants in Island Melanesia" on mitochondrial DNA (mtDNA) variation, DNA that is inherited solely along the female line. The sampling is extensive, and patterns of mtDNA variability are extremely complex. Their early surveys in Bougainville suggested just how variable populations within a large island might be, and this is amplified in this survey, which extends intensive coverage to New Ireland, New Britain, as well as New Guinea and other sections of Island Melanesia. Although haplogroups P and Q—which predominate (and likely arose) in New Guinea—are wide-spread in Island Melanesia, Friedlaender et al. report a number of other apparently extremely old mtDNA haplogroups that are totally unknown elsewhere, even in New Guinea, and seem to have arisen in specific islands, most notably New Britain and Bougainville. These have not spread back to the west, and only somewhat to the east. Island size seems to have been the major determinant in retaining the ancient variation, so that the islands beyond Bougainville appear far less internally diverse.

Simon Easteal, Belinda Whittle, Andrea Mettenmeyer, Robert Attenborough, Kuldeep Bhatia, and Michael P. Alpers in their paper "Mitochondrial genome diversity among Papuan-speaking people of Papua New Guinea" are also working with mtDNA, and also find extreme diversity in the PNG populations they study, 11 from mainland NG and one from East New Britain. They created sequence lineages, then mapped them onto networks. The networks consist of two hubs, identified as haplogroups P and Q, with lineages radiating out. These are both quite deep and separate subdivisions of a single mtDNA lineage that is ubiquitous outside Africa. Interestingly, Q does not appear in Australian lineages, and P appears only to a minor extent. This suggests that there is a great deal more isolation between Australian and PNG populations than hitherto thought.

Nerida Harley, Robert Attenborough, Michael P. Alpers, Charles Mgone, Kuldeep Bhatia, and Simon Easteal in their paper "The importance of social structure for patterns of human genetic diversity: Y-chromosome and mitochondrial genome variation in Papuan-speaking people of mainland Papua New Guinea" are working with Y-chromosome DNA (the DNA inherited through the paternal line) as well as mtDNA. They compare their outcomes with Easteal et al., and find, strikingly, that the mtDNA patterns quite differently from the Y-chromosome DNA. While Y-chromosome DNA patterns strongly with linguistic and cultural/village groupings, the mtDNA shows such correlations only to a limited degree. A possible explanation given is that the systems of social organization, being virilocal, require that women move to the men's villages, thus keeping Y-chromosome DNA together and distributing mtDNA over the region. Attenborough (683) asks the pertinent (and so far unanswered) question, of how long a virilocal system would have to operate before the observed genetic pattern could begin to emerge.

Penelope Main, Robert Attenborough, and Xiaojiang Gao in "The origins of the Papuans: the HLA story" analyzed HLA (human leucocyte antigen) and, working with Papuan-speaking populations (some of the same populations as the previous two chapters plus some additional populations), found similarities between some NG populations (e.g., Goroka) and Australian aboriginal groups. They suggest that at least four major population movements may have taken place before the Austronesian arrival. Highland NG populations appear to represent the earliest arrivals, with Sepik and northern highlanders arriving later. The southern highlands appear to have a separate origin, and the mainland coast and Bismarcks populations show further diversity, perhaps connecting them with a coastal route from southeast and mainland Asia that did not penetrate inland.

Rosalind M. Harding and Yan-tat Liu in their paper "Time scales for genetic diversity found in New Guinea Highlanders: A look at some evidence for estimates of 100,000 years or more" study the β -globin gene, a gene that—being more stable than other types of biological evidence presented in this volume—has a far greater time scale. In fact, one part of this gene has been found in Melanesian and Australian populations but not in Africans. Intriguingly, Harding and Liu find that some of the diversity in the NG sample appears to be ancestral to the diversity found in Africa, lending credence to an "into Africa" model rather than an "out of Africa" model.

Nicola van Dijk's paper "Biological relationships amongst New Guinea populations and between New Guinean and Australian populations" concerns osteology, using skeletal forms (i.e., the nonmetric traits of the skull) to detect population relationships. In what is by now a common pattern, van Dijk finds high levels of diversity in the NG populations sampled, in particular finding that north and south coastal regions have more internal homogeneity than either has with the highlands or islands. However, even taking into consideration their internal diversity, the NG samples are still more similar to each other than to populations in Australia. Thus, again, we find evidence that the populations of Australia and NG were separated for longer than just the period since the land bridge between them was severed.

Conclusions. Finally, Robert Attenborough's chapter, while serving as an introduction to the human biology section, also serves as a useful conclusion, highlighting with a series of questions the issues raised in the other papers in the book. For instance, he asks to what extent biological diversity maps onto linguistic diversity, and how the mismatches are to be explained. Are there relic populations from the earliest to arrive in NG? And if so, what is their relationship to the earliest populations to have arrived in Australia? If it is true that relationships between lowland NG people and Australian aboriginals are not as close as one might expect, does this imply some barrier to communication even before the rising sea levels? Is there evidence for major population movements postdating the earliest incursions into NG and predating the Austronesian population movement (the period during which the Papuan linguistic diversity may have developed)? Is there a biological reflex of the TNG phylum language distribution? How have major environmental changes (e.g., malaria, the inland Sepik-Ramu sea, volcanoes, etc.) affected human diversity and population movements in Near Oceania? And what has been the biological impact on the Papuan speakers of the Austronesian arrival?

While there has been a strong tradition of cooperation between archaeologists and linguists working on various aspects of the Austronesian expansion (e.g., Kirch and Green 2001, whose authors based their work on Biggs's POLLEX), the questions raised by genetics, which often relate to a greater time depth, have been largely unanswerable by linguistics. For too long, linguists have seen their data used and sometimes misused by geneticists wanting a big-picture linguistic tree on which to map their genetic data. Both disciplines seem, however, to be approaching a point where geneticists are aware that a language family tree is not always cut-and-dried, and particularly at greater time scales, there is likely to be major controversy about linguistic methods and results. The present volume goes a long way toward bridging the gap between the disciplines represented, and it is certain to stimulate further interdisciplinary work in the future.

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Alexandre François. 2003. *La Sémantique du prédicat en Mwotlap (Vanuatu)*. Collection Linguistique, Société de Linguistique de Paris LXXIV. Leuven-Paris: Peeters. 388pp.

Mwotlap (better known as Motlav) is an Austronesian language spoken by some 1,800 people on the island of Motalava in the Banks Islands, northern Vanuatu. It was first described by Codrington in *The Melanesian languages* (1885:310–22), where the neighboring language Mota, the lingua franca of the Anglican Church in the southeast Solomons and northeast Vanuatu until 1931, is the focus of attention (253–310). Mwotlap is also mentioned briefly in Ray (1926:427–40). François discovered Motalava for the first time in 1997 and has worked constantly on the language ever since, producing, *inter alia*, a series of children's books in Mwotlap.

In this book, François has developed and considerably expanded chapter seven of his huge doctoral dissertation (*Le Mwotlap*, University of Paris IV-Sorbonne, 2001, 1,078 pages). He himself admits to a fascination with the semantics of predicates, and particularly the mechanics of tense-aspect-mode marking, influenced by the theoretical orientation instilled in him by Antoine Culioli. Chapter 1 (1–26) describes Mwotlap structures in summary form, sufficient to follow the analysis that follows in chapters 3 to 8, which constitute the bulk of the book. Chapter 1 presents the basic phonology and morphology of Mwotlap, and the morphosyntax of simple and complex sentences.

In chapter 2 (27–43) François discusses the general mechanics of the TAM (tenseaspect-modal) system in Mwotlap, stating (28) that he will adopt an empirical approach rather than presenting his data in the framework of any particular linguistic theory. As he sees it, there are both single and discontinuous TAM markers. In addition he decides that it is necessary to set up a zero morpheme to cover the case of the aorist. François lists the twenty-six TAM markers in the language as shown in table I overleaf.