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POSSIBLE CLUES TO THE EAST POLYNESIAN HOMELAND: PAPER MULBERRY, SWEET POTATO AND RED-FLOWERED HIBISCUS

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ABSTRACT: Several words designating economically important plants and objects in East Polynesian languages show a peculiar sound change: the loss of a labial consonant (**p*, **m* or **f*) in contact with both a rounded vowel (**o* or **u*) and an unrounded one (**i*, **e* or **a*), in polymoraic words more than two morae long. Such words seem to originate from a hypothetical East Polynesian language whose speakers were responsible for introducing 'paper mulberry', 'sweet potato', 'girdles plaited from banana leaves', 'bowls for pounding food' and 'cultivated red-flowered hibiscus' to their neighbours. The language may have been spoken in the Southern Cook Islands, where the highest number of words with lost labial consonants is found. One of the words under discussion, 'red-flowered hibiscus', is also attested in the languages of West Polynesia, Fiji, Rotuma, Anuta, Tikopia and the Central Northern Polynesian Outliers. This distribution indicates that the Southern Cook Islands were a locus of interaction between speakers of West and East Polynesian languages before the settlement of Remote East Polynesia, that is to say, a place where East Polynesians maintained their ancestral connections. This implies that the Southern Cooks may have been the East Polynesian homeland.

Keywords: settlement of Polynesia, East Polynesian homeland, linguistic borrowings, paper mulberry, hibiscus, sweet potato

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In memory of Robert Blust

Historical linguists are haunted by the ghosts of regular sound correspondences: "Every sound change, inasmuch as it occurs mechanically, takes place according to laws that admit no exception" (Osthoff and Brugmann 1878: XIII). It is not always easy to see the regularities that govern the linguistic facts of distant communities, but when such a regularity is found it allows us to grasp reality through a considerable depth of time. Thus historical linguists are compelled to look for regular sound correspondences, as this is our only means of accessing the linguistic past.

In a very interesting paper, Lex Thomson, Paul Geraghty and Pila Wilson (2020) proposed that the Polynesian words **kau-mafute* 'paper mulberry stick stripped of its bark', **aut*e 'paper mulberry' and **kaute* 'a red-flowered

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hibiscus' are etymologically related (see also Churchill 1912: 227). The authors contend that **kaute* referred to an endemic East Polynesian species that was domesticated in high islands of Central East Polynesia and dispersed westward in pre-European times. Indeed, the relationship between the three words, which share much in shape and meaning, is undeniable. Thomson *et al*. (2020: 431) offered a number of explanations to disentangle the complex relationship between the three reconstructed words but were led to posit several irregular phonetic developments such as *m > *$ʔ$ (replacement of bilabial nasals with glottal stops), *$ʔ$ > *s (replacement of glottal stops with alveolar sibilants) and *s > zero and *f > zero (loss of bilabial fricatives and alveolar sibilants). My purpose here is to present an observation that brings more regularity into the picture and to derive some if its historical implications.

I begin by delineating some basic principles that allow us to trace word etymologies and recover the linguistic past. Then I present a conservative, widely accepted classification of Polynesian languages and discuss cognate sets designating names for 'paper mulberry' and 'red-flowered hibiscus'. I then consider Polynesian words with lost labial consonants and suggest that they all originate from a language once spoken in the Southern Cook Islands. I conclude by suggesting that the Southern Cook Islands were a locus of interaction between West and East Polynesia before the settlement of Remote East Polynesia.

BASIC PRINCIPLES

The basic principles of historical linguistics allow us to interpret recurrent phonological and semantic correspondences between two or more languages and can be briefly delineated as follows (see, e.g., Campbell 2004).

Regular Phonetic Correspondences

Comparing two languages, a significant number of cases can be observed in which words with similar phonetic shapes bear similar meanings, and a specific sound in the words of one language recurrently corresponds to a specific different sound in the similar words of the other, without or almost without exception. Such phonetic correspondences are called regular. An example can be seen in the following set: *ϕā* 'four' (Māori)[1] and *hā* 'four' (Hawaiian), *ϕē* 'caterpillar' (Māori) and *hē* 'caterpillar' (Hawaiian), *ϕiϕi* 'entangled' (Māori) and *hihi* 'entangle' (Hawaiian), etc. (see examples in POLLEX, Greenhill and Clark 2011; on Polynesian historical phonology see Biggs 1978 and Marck 2000). The only possible way to explain the observed regularity is via three assumptions.

First, the members of each set where the regular phonetic correspondence between *ϕ* (Māori) and *h* (Hawaiian) is observed are genetically related and

descend from ancestral words: ‘four’, ‘caterpillar’, ‘entangled’, etc. We call words with regular phonetic correspondences cognates.

Second, a regular sound change took place in the history of either Māori (**h* > *ɸ*) or Hawaiian (**ɸ* > *h*) or both (**ʔ* > *ɸ* in Māori and **ʔ* > *h* in Hawaiian).

Third, Māori and Hawaiian are genetically related and descend from an ancestral language spoken in the past. We call this language Proto-East Polynesian.

Hawaiian does not possess labial fricatives *f* and *ɸ* in its phonological inventory, and many East Polynesian languages show voiceless labial fricatives *f* in the corresponding sets. Thanks to this, it is possible to deduce that in Hawaiian **f* was replaced with *h* at some point in time and to reconstruct Proto-East Polynesian words where the phonetic correspondence in question is observed: **fā* ‘four’, **fē* ‘caterpillar’, **fifi* ‘entangled’, etc. The asterisk (*) is used to indicate words and sounds that are not documented but rather reconstructed, interpreting regular sound correspondences between several related languages, and the greater-than sign (>) shows the direction of the reconstructed sound change. The interpretation of the regular sound correspondence in question is supported by the fact that the sound change **h* > *f* is undocumented but that **f* > *h* is observed in the reconstructed histories of various languages and therefore can be considered natural. It is also possible to bring other members of the Polynesian family into the comparison and show that all the languages of East Polynesia, except Pukapukan, are more closely related among themselves than with the rest of the family because they display a higher number of shared phonetic developments and cognate words of which the ancestry is confirmed by regular sound correspondences (Fig. 1).

Regular sound correspondences can be observed between reconstructed languages too, and therefore sound changes could have taken place on reconstructed levels. Regular sound correspondences between the Polynesian languages can be found in the Appendix.

Conditioned Sound Correspondences

Regular correspondences can be observed only in certain contexts, specifically where they reflect sound changes dependent upon neighbouring sounds or upon the changing sound’s position within words. Such phonetic changes are called conditioned. Comparing Māori, Tahitian and South Marquesan with Samoan, it is possible to deduce that Proto-East Polynesian replaced **f* with **h* before the rounded vowels **o* and **u*: *hōu* ‘new’ (Māori) and *fōu* ‘new’ (Samoan), *huhuti* ‘pull up and out’ (Māori) and *fufuti* ‘to haul in a fishing line’ (Samoan), as contrasted with *ɸitu* ‘seven’ (Māori) and *fitu* ‘seven’ (Samoan), *ɸeke* ‘octopus’ (Māori) and *feɔe* ‘octopus’ (Samoan), *ɸaŋa*

'bay' (Māori) and *faŋa* 'bay' (Samoan), etc. This sound change is attested across the world and phonetically motivated because the sounds *f*, *o* and *u* are all labial, and sequences of two identical phonetic features in adjacent segments can be simplified.

Conditioned regular sound changes can be also used for reconstructing the linguistic past.

Irregular Phonetic Correspondences

Comparing two languages, a number of cases may be observed in which words with similar phonetic shapes bear similar meanings and a specific sound in the words of one language corresponds to two different specific sounds in the words of the other. Such phonetic correspondences are called irregular if no complementary distribution is observed, i.e., the realisation is not conditioned by neighbouring sounds. Irregular phonetic correspondences can be explained by the borrowing of lexical items from a related language or dialect.

The regular reflex of the Proto-Polynesian fricatives **f* and **s* in Rapanui is *h* (Bergmann 1963), but a few Rapanui words show irregular glottal stops or zeros (see entries in Englert 1978; Greenhill and Clark 2011; Weber and Weber 1995): *ʔaŋa* 'work' (from Proto-Polynesian **saŋa*), *akaue* 'lever' (<**faka*- 'causative prefix', **sue* 'uproot'), *ʔaruke* 'remove lice' (<**sākule*), *hakaʔou* 'again' (<**faka*- 'causative prefix', **foʔou* 'new'), *ʔoka* 'plant, stab' (<**soka* 'stab, pierce') and *tītaʔa* 'demarcation, boundary, limits' (<**tafa* 'side'). Similar words are found in Mangarevan where the glottal stop *ʔ* is a regular reflex of both Proto-Polynesian **f* and **s*: *ʔaŋa* 'work', *ʔaka*- 'causative prefix', *ʔue* 'lift up with a lever', *ʔākure* 'hunt for lice', *ʔakaʔou* 'again', *ʔoka* 'stick used as digging tool, extract with a tool or instrument, spear' and *titaʔa* 'to be on the side of, said of things' (Rensch 1991; Tregear 1899). A few other unexpected matches between Rapanui and Mangarevan can be added to this list: *urumanu* 'commoners' and *ʔurumanu* 'common people, herd, poor' (<Proto-Polynesian **fulu* 'nature, sort'), *kurī* 'cat' and *kurī* 'dog, cat' (<**kurī* 'dog'). We can assume that the Rapanui words with irregular reflexes of **f* and **s* are post-contact borrowings from Mangarevan because such realities as 'lever' and 'cat' were unknown in Polynesia before the arrival of Europeans. Father Hippolyte Roussel and three Mangarevan converts who stayed on Rapa Nui from 1866 to 1871 were likely to have been responsible for introducing Mangarevan borrowings into Rapanui (Fischer 2005: 97, 113).

The sound correspondence Mangarevan *ʔ* versus Rapanui *ʔ* is attested in a minor portion of lexicon. The correspondence *ʔ* versus zero can be explained by the fact that the glottal stop is systematically, but with exceptions, lost in Rapanui words three or more morae long (Davletshin 2016). Borrowings are

frequently restricted to certain semantic domains that reflect the nature of the contact between speakers of two languages: five of the words discussed above ('work', 'lever', 'again', 'plant', 'demarcation of fields') have to do with communal works, and two ('remove lice', 'commoner') might be perceived as derogatory. None of them belong to basic, noncultural vocabulary, which is known to be more resistant to borrowing. Borrowings from related languages may result in etymological doublets, that is, words similar but not identical in form and meaning that descend from the same source in the ancestral language, one directly inherited and the other borrowed from a linguistic relative (each with characteristic sound changes). Here are two examples: Proto-Polynesian **foʔou* is reflected differently in Rapanui *hoʔou* 'new' and *haka-ʔou* 'again', and Nuclear Polynesian **kiole* 'rat' is attested in two variants, *kioɾe* and *kioʔe*, in today's Rapanui, suggesting that two dialects were spoken on the island before the arrival of Europeans (for more on this see Davletshin 2016).

Irregular sound correspondences can be observed between reconstructed languages too, and thus lexical borrowings can take place on reconstructed levels.

Sporadic Replacements

Comparing two languages, a sound replacement may be observed that is restricted to one or very few words, in contrast with many examples where the sound remains intact in identical phonetic environments. We call such replacements sporadic. Their nature is not phonetic but lexical: a new lexeme is created on the basis of the old one and then the latter falls out of usage. They can be explained by analogy when a word shifts to match a pattern found in other words, especially from a rare pattern to a more common pattern, by etymological reanalysis and by different kinds of word taboos.

The Proto-East Polynesian passive form of the verb **roŋo* 'to hear' is reconstructed as **raŋo-na*, with the vowel alternation in the stem unattested in other passives; both the regular *roŋona* and irregular *raŋona* are used in Māori, and some Polynesian languages replaced the irregular form with the regular one (Greenhill and Clark 2011). Some examples of sporadic replacements in Rapanui might have been explained by the avoidance of words related to bodily excretions, illness or death: *takituɾi* 'earwax' (<**taɾe-tuli* 'ear wax, lit. deafening excrement'), *takatea* 'semen' (<**taɾe* 'excrements' and **tea* 'white'), *tehi* 'sneeze' (<**tise*), *tumu* 'cough' (<**tuŋu*), *tiŋaʔi* 'kill, destroy, murder' (<**tinaʔi* 'destroy'), etc. (Englert 1978; Weber and Weber 1995).

Sporadic replacements can be also observed in borrowings because the speakers of the recipient language can misinterpret and reanalyse the words of the donor language.

Methodological Issues

It can be seen from the discussion above that identical words in two related languages cannot be proven to descend from their common ancestor because a borrowing scenario is always possible. The regularity of a sound correspondence must be observed in a fair number of lexical sets for a sound change to be securely reconstructed. Naturalness and possible phonetic motivation of a postulated sound change can help, although typologically rare, unnatural and unmotivated sound changes are known (Blust 2005). Thus, statistical considerations and regularity are of primary importance in reconstruction.

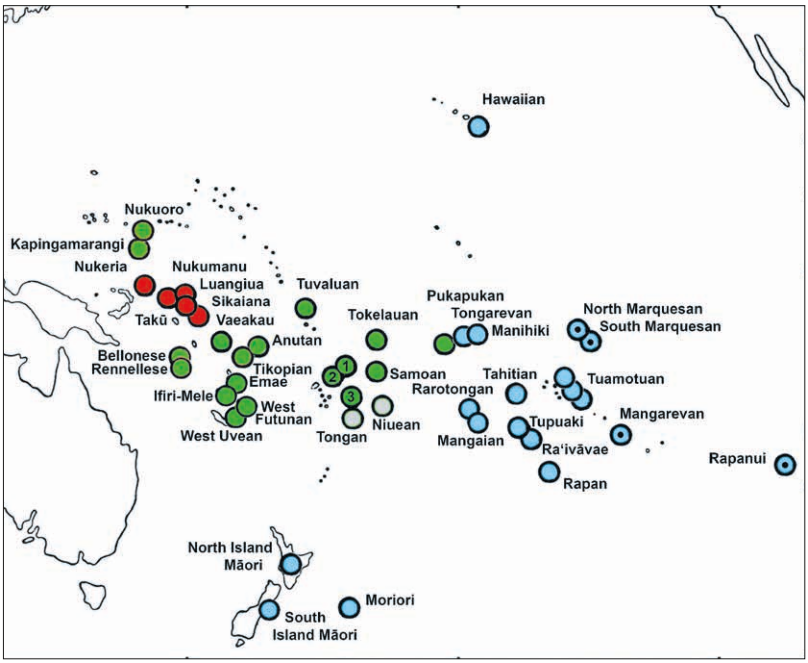

Figure 1. Polynesian language subgroups. Tongic languages (marked grey) are contrasted with Nuclear Polynesian languages, including Central Northern Outlier languages (red), East Polynesian languages (blue) and unclassified Nuclear Polynesian languages (green). Far East languages are marked blue with black dots. Numbers 1, 2 and 3 stand for East Futunan, East Uvean and Niuafo'ou.

Similar and even identical sound changes can take place in the history of related languages, as can be observed in the case of Luangiua in Solomon Islands and Hawaiian and Tahitian in East Polynesia. These languages reflect Proto-Polynesian velar stops **k* as glottal stops *ʔ*. However, they show different reflexes of dental stops **t* (*k*, *k* and *t*) and velar nasals **ŋ* (*ŋ*, *n* and *ʔ*), suggesting different phonetic scenarios and histories.[2] Enormous geographic distances and the absence of other shared innovations in phonology, lexicon and grammar point to the replacement of velar stops with glottals as independent developments in these languages.

Sound changes can spread by contact between related languages, as can be inferred from the fact that the Proto-Polynesian glottal stop **ʔ* was preserved in a few languages spoken on the margins of Polynesia and belonging to three different subgroups: Rennellese-Bellonese, East Futunan, East Uvean, Tongan and Rapanui. Once again, statistical, distributional and geographical considerations are of help, because borrowing can take place only between languages in contact. Distant migrations of people and languages are well known, including in Oceania, but all things being equal, the greater the distances, the less likely the migration.

Languages descend from languages spoken by a linguistic community in a certain time and place. It is not surprising that related languages tended to be spoken in geographically adjacent areas, at least until relatively recently.

To sum up, when recurrent phonological and semantic correspondences between two or more languages are observed, they can be used to recover linguistic and populational histories such as common ancestry and contacts if the proposed scenarios are statistically, distributionally and geographically plausible.

CLASSIFICATION OF POLYNESIAN LANGUAGES

These are some 40 Polynesian languages spoken in Oceania (Fig. 1). They form an easily recognisable genealogical group (Biggs 1971; Elbert 1953) that is itself part of the Oceanic branch of the Austronesian family (Blust 2013; Dempwolff 1934–1938), specifically related to Tokelau–Fijian (Geraghty 1983; Hockett 1976). Today's Polynesian languages derive from the first colonists in West Polynesia, who populated the region of Fiji, Tonga and Sāmoa around 800 BP (Burley *et al.* 2015). Polynesian languages are relatively well documented for a language group outside of the Indo-European family. Proto-Polynesian is relatively well reconstructed (Biggs 1978; Clark 1976; Greenhill and Clark 2011; Kirch and Green 2001). Here I provide an uncontroversial conservative classification of Polynesian languages (Elbert 1953; Pawley 1966) incorporating recent proposals about the specific relationship between Mangarevan, North Marquesan, South Marquesan and Rapanui (Davletshin 2019; Wilson 2021).[3]

Polynesian (a member of the Tokelau-Fijian subgroup):

1. *Tongic*: Tongan, Niuean
2. *Nuclear Polynesian*:
   Unclassified: Anutan, East Futunan, East Uvean, Emae, Ifira-Mele, Kapingamarangi, Nukuoro, Niuafo'ou, Pukapukan, Rennellese-Bellonese, Samoan, Tikopian, Tokelauan, Tuvaluan, Vaeakau-Taumako, West Futunan-Aniwan, West Uvean
   2.1. *Central Northern Outliers*: Nukeria, Takū, Nukumanu, Luangiua, Sikaiana
   2.2. *East Polynesian*:
      Unclassified: Hawaiian; North Island Māori, South Island Māori, Moriori; Mangaian, Manihiki-Rakahanga, Rapan, Rarotongan, Tahitian, Tongarevan, Tuamotuan, Tupuaki, Ra'ivāvae
      2.2.1. *Far East Polynesian*: Mangarevan; North Marquesan, South Marquesan; Rapanui

More detailed subgroupings may be worked out in the future.[4] I consider the Northern Outliers hypothesis and the Futunic hypothesis as plausible proposals (Clark 1978, 1986; Davletshin 2015; Pawley 1967; Wilson 2012, 2018). The Northern Outliers hypothesis groups together the Northern Outliers (Kapingamarangi, Nukuoro) and the Central Northern Outliers (Nukeria,[5] Takū, Nukumanu, Luangiua, Sikaiana). The Futunic hypothesis groups together East Futunan, Tikopia, Vaeakau-Taumako, Emae, Ifira-Mele, West Futunan-Aniwan and West Uvean. Any further subgrouping would not affect the conclusions presented in this paper.

Subgroups of the structure "several unclassified languages" plus "a well-defined lower subgroup" are suggestive of migrations. Thus, geographic projections of the Polynesian classification strongly indicate three major migration events: (i) the settlement of East Polynesia, (ii) the settlement of Far East Polynesia and (iii) the settlement of the Central Northern Outliers. This agrees with a much later dispersal of humans into East Polynesia, from around 1100 BP (Ioannidis *et al*. 2021; Sear *et al*. 2020). It is worth mentioning that a large number of Polynesian languages and the long distances separating Polynesian speech communities provide opportunities for developing detailed, step-by-step linguistic reconstructions based on statistical, distributional and geographical considerations.

Having presented the classification of Polynesian languages and basic principles of historical linguists, we can proceed with the analysis of the words designating 'paper mulberry' and 'red-flowered hibiscus'.

RELATED WORDS DESIGNATING PAPER MULBERRY AND HIBISCUS

Table 1. Polynesian names for ‘red-flowered hibiscus’ and their cognates (based on data from Greenhill and Clark 2011; Thomson *et al*. 2020).

Language	Paper mulberry stick	Paper mulberry	A kind of paper mulberry	Barkcloth	Hibiscus	Flower
West Polynesia:						
Tongan	mokofute				kaute	
Niuean					kaute	
Niuafo‘ou					kaute	
East Uvean					kaute	
East Futunan	kaumafute				kaute	
Samoan	ʔaumafute				ʔaute	
Tokelauan					aute	
Tuvaluan					aute	
Outliers:						
Nukeria					kaute	
Takū					kaute	
Nukumanu					kaute[†]	kaute
Luangiua						aʔuke, uke[‡]
Tikopian[§]					kaute	
Anutan					kaute	
East Polynesia:						
Rapanui		mahute				
North Marquesan		ute	kouhauti		koute, kōute	
South Marquesan					koute, kōute, ʔoute, ʔōute	
Mangarevan		eute	ute[‖]	moʔute[#]	koute	

– *Table 1. continued over the page*

Language	Paper mulberry stick	Paper mulberry	A kind of paper mulberry	Barkcloth	Hibiscus	Flower
Hawaiian		wauke				
Tahitian		aute			ʔaute	
Tuamotuan					ʔaute, kaute	
Tupuaki		aute				
Ra‘ivāvae			aute			
Rapan		aute				
Tongarevan		aute			kaute	
Rarotongan		ʔaute			kaute	
Mangaian		ʔaute			kaute	
Māori				aute		

* Other etymologically unrelated names for hibiscus species have been collected and discussed by Thomson *et al*. (2020: 416–19).

† Nukumanu *kaute* means both ‘red hibiscus’ and ‘flower (generic)’ (Richard Feinberg, pers. comm., 2023).

‡ Two documentations of Luangiua ‘flower’—*aʔuke* (Tryon and Hackmann 1983: 198) and *uke* (Salmond 1975)—are irregular and might be mistranscribed; the expected shape is *ʔauke*.

§ Tikopian *kaumafuta* ‘tripod of poles as a filter stand for turmeric extraction’ is not included in the table because of the uncertain semantic connection and irregular final vowel (cf. Thomson *et al.* 2020: 429).

‖ Mangarevan *ute* is attested in only one source and might be mistranscribed (Tregear 1899).

Mangarevan *moʔute* means ‘piece of cloth offered to the gods in priest initiation rites’ (French: pièce d’étoffe offerte aux dieux au cours de la cérémonie de l’initiation des prêtres) (Rensch 1991).

Related Polynesian names for ‘paper mulberry’ and their cognates are presented in Table 1. Several regular phonetic correspondences from the Appendix can be observed: **t*>*k* (Luangiua, Hawaiian), **k*>*ʔ* (Samoan, Hawaiian, Tahitian, South Marquesan) and **f*>*ʔ* (Mangarevan). Thomson *et al*. (2020: 421) discuss that in Tongan and Niuean an antepenultimate **a* in **-aCu-* sequences normally changes to *-oCu-*, where C stands for any consonant or zero (cf. Marck 2000: 76–78) and, thus, identify Tongan and Niuean *kaute*, unaffected by the sound change, as borrowings that postdate the sound change in question. They also discuss a similar development, **-aCu-* > *-ou-* in Marquesan and Mangarevan (Fischer 2001: 116–18;

Marck 2000: 79–81). Thomson *et al.* (2020: 422) note that the Tuvaluan and Tokelauan terms *aute* show irregular reflexes of initial velar stops *k* and, thus, likely derive from the Samoan *ʔaute*, the source of many post-European borrowings in these two languages.

East Polynesian reflexes for the Proto-Polynesian word for 'paper mulberry' **siapo* do not denote 'paper mulberry' (Greenhill and Clark 2011). On this basis, Thomson *et al.* (2020: 428) infer that the original settlers of East Polynesia did not take paper mulberry with them but rather introduced it later from West Polynesia and borrowed Proto-Polynesian **kaumafute* 'paper mulberry stick stripped of its bark' as a designation for paper mulberry. They show that East Polynesian names for 'paper mulberry' **aute* can be derived from **kau-mafute* by the loss of the morpheme **kau-* 'stick' and deletion of the consonants **m* and **f*, which remain preserved only in Rapanui *mahute*. They further suggest that Marquesan *kouhauti* derives from **kaumafute* by a series of sound changes **m* > **ʔ* > **s* > *h* after the loss of **f* (p. 430). According to them, the form **ʔaute* was borrowed into Rarotongan as *ʔaute*, Hawaiian as **waute* and other languages as **aute*, and, thereafter, developed into Mangarevan *eute* and Marquesan *ute*. Thomson *et al*. (2020: 432) consider that the variety in the related terms attested on the Marquesas indicate that these islands were the original area of East Polynesia where paper mulberry was introduced from the west and cultivated.

Thomson *et al*. (2020: 432–33) further propose that a variant pronunciation **kaute*, irregularly derived by the replacement of **ʔ* with *k*, was developed and increasingly used for the newly cultivated hibiscus species originating in the mountains of the Marquesas. They indicate that the red hibiscus is endemic to East Polynesia and, thus, explain why it had the name transferred to it from the paper mulberry. According to them, red hibiscus with its name **kaute* was later spread all over East Polynesia, reaching the Southern Cook Islands and taken further to Sāmoa, Tonga, Fiji and Rotuma. For Rotuman, the term *kauta* meets the criteria established by Biggs (1965) for identifying Polynesian borrowings, and the distribution of the Fijian name, *ʔaute*, is suggestive of a Polynesian borrowing too (Thomson *et al*. 2020: 421). Thomson *et al*. (p. 420) emphasise that Tikopia has strong cultural ties to the Central Northern Outliers through seasonal voyages undertaken between these islands from ancient times and propose that the plant and the name were spread from West Polynesia to Tikopia and afterwards to the Central Northern Outliers.

Table 2 presents a summary of the relations among the forms as proposed by Thomson *et al*. (2020).

Table 2. Summary of the developments proposed by Thomson *et al.* (2020)

***kau-mafute** 'paper mulberry stick' Tongan *mokofute*, etc.	→	***mafute (loss of *kau-)** 'paper mulberry' Rapanui *mahute*				
	→	***kau-ʔaute (*m > ʔ, *f > zero)** →	***kau-haute (*ʔ > *s > h)** Marquesan *kouhauti*			
			→	***ʔaute (loss of *kau-)** 'paper mulberry' Hawaiian *wauke*, Tahitian *aute*, etc.	→	***kaute (*ʔ > k)** 'red hibiscus' Tongan *kaute*, Nukeria *kaute*, Samoan *ʔaute*, etc.
					→	***eute (*a > e)** 'paper mulberry' Mangarevan *eute*, Marquesan *ute*

I will discuss these cognates organising them into seven subsets, six of which I consider etymologically related; their geographic distribution can be seen in Figure 2.

*Set 1: *kau-mafute* 'paper mulberry stick stripped of its bark'. The reflexes are regular apart from the Tongan *mokofute* with a coalescence of the vowels *a* and *u* and a metathesis of two first consonants, and, thus, the term can be formally reconstructed to Proto-Polynesian. Its restricted geographical distribution in the vicinity of Tonga, however, suggests that the term postdates Proto-Polynesian times, because East Futunan, East Uvean, Niuean, Samoan and Tongan significantly influenced each other's lexicons in pre-contact times (Tsukamoto 1994: 55). The term may have derived from the morpheme **kau-* 'prefix of tree names and wooden artefacts' and the stative verb **ma-futi* 'pulled out, plucked'; see also **futi* 'pluck hair or feathers, pull up weeds, pull on a line'. The vowel is, however, irregular.[6]

*Set 2: *mahute* 'paper mulberry'. The term can be reconstructed to Proto-Mangarevan-Marquesan-Rapanui, although it is unattested in Marquesan. The distribution suggests that it is not inherited from Proto-East Polynesian but independently borrowed from West Polynesia. The term derives from **kau-mahute* by simplification of the prefix **kau-* 'stick' as semantically redundant in the name of the plant.

Set 3: kou-hati 'a kind of paper mulberry'. This Marquesan term is found in one dictionary (Dordillon 1904) and is problematic in several respects: (i) no other East Polynesian language shows the reflex of the **kau-* prefix, (ii) the restricted semantics 'a kind of' suggests a borrowing or a neologism, (iii) the word-final high vowel *i* is irregular, as are (iv) *h* instead of *m* and (v) zero instead of *h*. The word may be unrelated to the other sets or, less likely, mistranscribed.[7] It may have derived from the names for *Abelmoschus moschatus*, a hibiscus species: Tahitian *fautiʔa*, lit. 'upright *Hibiscus tiliaceus*', and Rapan *fautiʔa*, *hautiʔa*, *ʔautiʔa*; see also *autia* 'une herbe' (French: a plant) (Fare Vāna'a 2017; Kieviet and Kieviet 2006; Thomson *et al*. 2020: 417).

*Set 4: *aute* 'paper mulberry'. The term can derive from **kau-aute* by simplification of the semantically redundant prefix **kau-* 'stick' (see Set 2). The reconstruction of the initial glottal stop is possible but problematic.

*Set 5: *waute* 'paper mulberry'. The irregular accretion of the initial *w* in Hawaiian is attested in another word longer than two morae, *wākea* 'space deified; first-order anthropomorphic god', although Mangaian and

Tuamotuan cognates *wātea* are also known (Marck 2000: 168). Thomson *et al.* (2020: 430) assume that **ʔ* was borrowed as *w*. I am unaware of similar examples and suspect a simplification of the word **kauaute* by the loss of the first syllable with the reinterpretation of the vowel **u* as the labiovelar approximant *w*, perhaps in the process of borrowing. The prestressed **u* is realised as [w] in several Polynesian languages, e.g., in Samoan (Mosel and Hovdhaugen 1992: 26) and Nukeria (Davletshin 2018: 118).

*Set 6: *ʔaute* 'paper mulberry'. Rarotongan and Mangaian *ʔaute* may be recent borrowings from Tahitian *aute* 'paper mulberry' (Charpentier and François 2015; Fare Vāna'a 2017; see also Lemaître [1973] 1995: *ʔaute* 'hibiscus; paper mulberry'). It is possible that Rarotongan and Mangaian acquired the glottal stop in the process of borrowing because vowel-initial words received non-phonemic glottal stops at the start of a prosodic phrase (Kieviet 2017: 34–37; Kuki 1970: 60). Additional stops are attested in English loans into Hawaiian, Tongan and Rarotongan (Herd 2005: 72) and Spanish loans into Rapanui: *ʔaramā* 'army'<*armada*, *ʔīrea* 'idea'<*idea*, *ʔavione* 'airplane'<*avión*, etc. (see examples in Kieviet 2017: 58–59). For the same reason, glottal stops are usually preserved in Tahitian borrowings into Rapanui, but in a number of words, they are elided (Kieviet 2017: 60).

*Set 7: *(ʔ)e(C)ute* 'paper mulberry'. The term can be either reconstructed to the ancestor of Marquesan and Mangarevan or interpreted as a borrowing from one into another. Initial *e* vowels are sometimes dropped in Marquesan trimoraic words: Marquesan *ʔeʔo* 'tongue' from **eʔeʔo*, *ʔehi* 'coconut' from **eʔehi*, etc. (Thomson *et al.* 2020: 438). In Mangarevan and Marquesan, an antepenultimate **a* in **CaCu* and **CaCi* sequences can developed into **e*: Mangarevan *erero* 'tongue' (Proto-Polynesian **ʔalelo*), *etua* 'god' (<**ʔatua*), *eture* 'big-eyed scad fish' (<**ʔatule*), *eriri* 'a kind of sea snail' (<**ʔalili* 'turbo shell', cf. Thomson *et al.* 2020: 438). Thus, *eute* and *ute* can be explained as Marquesan and Mangarevan developments of **(ʔ)a(C)ute*.[8] The four words above where **a>e* is attested are reconstructed with a glottal stop **ʔ* to Proto-Polynesian and, thus, justify the reconstruction of **ʔ* for Proto-Marquesan-Mangarevan. The rule stated implies the original form **ʔeCute*, where C is an unknown consonant. The otherwise unattested segment **C* makes this interpretation problematic. Mangarevan *ute* may be mistranscribed as it is attested in only one source (Tregear 1899); if not it must be a loan from Marquesan.

*Set 8: *kaute* 'red hibiscus'. The term can derive from **kauaute* but not **kauʔaute* by simplification of the tautological sequence *auau*, because the shape of the word goes against reduplication rules (Davletshin 2016:

353–55).[9] The sound change *ʔ>k is unnatural and unmotivated, although sporadic replacement of *ʔ with *k* due to hypercorrection can be found in the situation where one dialect of the language shifts *r>ʔ but the other *k>ʔ and interdialectal borrowings are observed (Tryon 1987: 675; cf. Thomson *et al.* 2020: 430, 432).

*Set 9: *kaute* 'flower'. Nukumanu and Luangiua are quite different phonetically but very close lexically (Davletshin 2015). There are not many species of flower on Northern Outlier atolls, and of these the most prominent is red hibiscus; this explains why the term developed into the generic 'flower' semantically (Fig. 3).

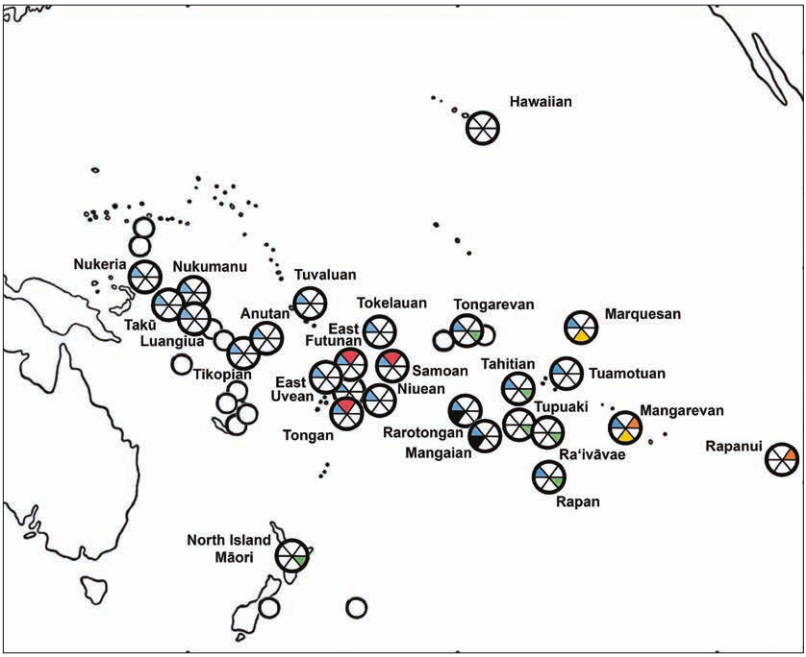

Figure 2. Distribution of the etymologically related words for 'paper mulberry' and 'red-flowered hibiscus' in Polynesian languages: reflexes of **kau-mafute* are marked red (12 o'clock), **mafute* orange (2 o'clock), **aute* green (4 o'clock), **(ʔ)eute* yellow (6 o'clock), **ʔaute* black (8 o'clock) and **kaute* blue (10 o'clock). Hawaiian *wauke* is left unmarked.

Table 3. Summary of the developments proposed.

kau-mafute ‘paper mulberry stick’	→	***mafute* (loss of *kau-)** ‘paper mulberry’				
	→	***kauaute* (loss of *m and *f)** ‘paper mulberry’	→	***aute* (loss of *kau-)** ‘paper mulberry’	→	**ʔaute (glottal stop accretion in borrowing)** ‘paper mulberry’
					→	***(ʔ)eute (*e > a)** ‘paper mulberry’
			→	***waute* (loss of *ka-)** ‘paper mulberry’		
			→	***kaute* (loss of *-au-)** ‘red hibiscus’		

The relationships among the forms as proposed are summarised in Table 3. Mapping of the sets attested in more than one language reveal clear geographical patterns, all but Sets 2, 4 and 7 crossing the limits of the established subgroups (Fig. 3). Such distributions are indicative of borrowing events.

To sum up, the complex relationship between the cognates, the irregularities discussed above and geographic patterns imply multiple borrowing events, which can be attributed to the economic importance of paper mulberry and hibiscus in Polynesian cultures. Most details of this complex relationship can be explained and understood, despite some uncertainties and alternative explanations, but the irregular loss of **m* and **f* in **kauaute* and, therefore, its relation to the word **kaumafute* remain unjustified.

Figure 3. A Nukeria boy adorned with red hibiscus flowers on the lagoon side of Puhuria Island. Nukuria Atoll, Papua New Guinea, 2013. Author's photo.

LOSS OF LABIAL CONSONANTS IN POLYNESIAN LANGUAGES

The loss of **m* and **f* is the key point in relating the cognate sets **kaumafute*, **kaute* and **aute*. Thomson *et al*. (2020: 430) suggested a scenario where **f* was lost and **m* was later replaced with **ʔ*, which shifted to **s* and consequently was lost. This scenario is unattractive for three reasons. First, the sound changes **m>ʔ* and **ʔ>s* are unnatural, being undocumented in the world's languages to the best of my knowledge. Second, they are unmotivated because it is difficult to see any phonetic or acoustic reasons for such developments. Third, the four posited sound changes are unique to one word and make the proposed etymology questionable. We can, however, find six other cognate sets where labial consonants **p*, **f* or **m* are lost in East Polynesian dictionaries (Table 3), with the higher number of

Table 4. Loss of **p*, **f* or **m* in East Polynesian languages.

Proto-East Polynesian		Mangaian*	Elsewhere
banana leaf	**rau-maika*†	*rauaika*	*rouaika* 'leaves of the banana', *roamaika* 'green leaves of the banana' (Mangarevan)
banana stem	**puʔu-maika*	*pūaika* 'stem of the banana, fibre made of it'	–
crab spp.	**kōfiti*	*kōiti* 'small black and white marsh crab with red claws'	–
stopper	**kō-pani*	*kōani* 'cork, plug'; *kōmani*, *kōpani* 'stopper, plug'	–
sweet potato	**kūmala*	*kūara*, *ʔūara*, *kūmara*	*ʔuala* (Hawaiian); *uara*‡ 'Hawaiian species of sweet potato', *ʔumara* 'sweet potato' (Tahitian)
wooden bowl	**kumete*	*kuete*, *ʔuete* 'wooden mortar'; *kumete* 'trophy'	–

* Five of the six Mangaian words show etymological doublets, some of which can be explained as borrowings from Rarotongan or Tahitian.

† Proto-East Polynesian **maika* is reconstructed as 'banana, *Musa* sp. (generic)', **puʔu* as 'base of a tree', **pani* as 'block up, stop' and **rau* as 'leaf' (Greenhill and Clark 2011).

‡ Tahitian *uara* 'Hawaiian species of sweet potato' looks like a post-contact borrowing from Hawaiian because of its specific semantics. The dictionary where the word is attested (Davies 1851) does not indicate glottal stops; as such the pronunciation may have been *ʔuara*.

attestations in Mangaian (Christian 1924; Clerk 1981; Davies 1851; Shibata 1999; Te Rangi Hiroa 1934; Tregear 1899). There are eight instances of lost labial consonants in total because the two labial consonants **m* and **f* in **kaumafute* are absent in **kaute* and **aute* (Table 4).[10]

In his vocabulary of Mangaian (1924: 3), F.W. Christian writes that "as a medial letter, *m* is sometimes dropped", and gives three examples—"*ko'ani*", "*ku'ara*" and "*ku'ete*". I assume that Christian used the apostrophe to indicate not glottal stops but elided consonants, which was common practice in European orthographic traditions. This agrees with Te Rangi Hiroa (1934: 7), who states that "the *m* sound has been dropped in two words, *kuara* and *uete*, but there is no glottal closure".

How Can the Sound Change Under Discussion Be Described and Explained? We can see from Table 4 that the loss of labial consonants is restricted by two conditions that are also satisfied in the case of **kaute* and **aute* derived from **kaumafute*. First, all the words under discussion are more than two morae long. This restriction plays its part in several sound changes in Rapanui and some other languages of the family (Davletshin 2016: 359–67). Second, the lost labial consonants (**p*, **f* or **m*) are found at contact with both a rounded vowel (**o*, **u*) and an unrounded one (**i*, **e*, **a*). Thus, the sound change is conditioned.

The conditions defined allow us to propose a likely phonetic mechanism for the sound change under discussion. We can posit that the labial consonants **m*, **p* and **f* became labialised between rounded and unrounded vowels as **mw*, **pw* and **fw*, which were later simplified as **w* and then lost; the resulting **w* was consequently lost at contact with the rounded vowels **u* and **o* because *w* is non-phonemic in this position in at least some Polynesian languages (Elbert and Pukui 1979: 12–13). Two typological parallels to this development can be mentioned: (i) the intervocalic **m* is lost after **a* and before an unstressed **u* in words longer than two morae in Waidina Fijian, Rotuman and Proto-Polynesian (cf. Geraghty 1983: 178–79; 1986: 292), and (ii) both **m* and **k*^{w} can be lenited as *w* in the Uto-Aztecan languages (Langacker 1976). We can alternatively reconstruct the intermediate form **kauʔaʔute* with the labial consonants **p*, **f* and **m* shifted to glottal stops **ʔ*, but in this case we need to admit an unusual and unmotivated phonetic development. Moreover, the form **kauʔaʔute* violates the constraint against co-occurrence of two glottal stops reconstructed for Proto-Polynesian and Proto-East Polynesian (Davletshin 2016: 353).

From a probabilistic point of view, one conditional sound change (the loss of **f* and **m*) is more likely to have occurred than the five previously suggested unique phonetic developments (loss of **f*; **m* > **ʔ*; **ʔ* > **s*; **s* > **h*; loss of **h*).

What Can Be Said About the Language That Underwent the Loss of Labial Consonants?

Mangaian has the highest score of items with lost labial consonants, but there are four reasons for thinking that these words were borrowed into Mangaian. Firstly, the loss of labial consonants is attested in only a few lexical items out of the many that meet the conditions specified for the sound change under consideration.[11] Secondly, three of these items show etymological doublets where labial consonants are preserved ('stopper', 'sweet potato' and 'wooden bowl'). Thirdly, all of them designate economically important objects: paper mulberry used for manufacturing barkcloth, large wooden bowls for pounding food, banana leaves for plaiting heralds' girdles and for serving food (Te Rangi Hiroa 1934: 139; Tregear 1899: 8), stoppers for plugging coconut-shell vessels, sand crabs for bait (Clerk 1981: 239; Elders from Atafu Atoll 2012: 29, 33), and one of the Polynesian staple foods, sweet potato (*Ipomoea batatas*). Fourthly, none of the items where the sound change is observed belong to basic noncultural vocabulary. Therefore, we can conclude that the words with lost labial consonants are borrowings in Mangaian as well as in other East Polynesian languages.

The language where the sound change took place is hypothetical because no Polynesian languages are documented where the change is complete and covers items that belong to the basic noncultural vocabulary. We can identify this hypothetical language as a member of the East Polynesian subgroup because of three lexical innovations: (i) Proto-East Polynesian **maika* 'banana', which replaced Proto-Polynesian **futi*, (ii) **kōpani* 'lid, cover', which is undocumented outside of East Polynesia, and (iii) **kōfiti* 'crab spp.', which replaced **kaviti* (see Greenhill and Clark 2011).[12] It is significant that reflexes of **kōpani* and **kōfiti* are not attested in Marquesan, Mangarevan and Rapanui (Wilson 2012: 304).

Mangaian is the language with the largest number of the words affected by the sound change. The island where it is spoken is the most southerly of the Cook Islands and the second largest of them, after Rarotonga. We are forced to propose that the hypothetical language was spoken somewhere in the vicinity, donated loans for culturally important items to its neighbours and then disappeared. Thomson *et al*. (2020: 427) consider the Marquesas the likely source of the *kaute* plant and its name. This proposal, however, implies that Marquesan either underwent the same sound change independently in only one word or lost the other words where the sound change took place; it also implies multiple independent borrowings of the word westwards to Mangaia, against the main direction of migration. A more economical solution is to locate the hypothetical language on the Southern Cook Islands, situated at the geographic centre of the islands where reflexes of **kaute* are attested because of the large distances involved.

How Can We Account for the Rather Unusual and Varied Distribution of Forms Showing This Sound Change?

We can suggest three supplementary scenarios in order to account for the distribution of **m*-less reflexes in Polynesia. Firstly, the word **kaute* 'red-flowered hibiscus' had reached West Polynesia before the ancestors of the people of Anuta, Tikopia, Nukeria, Takū and Nukumanu left West Polynesia for their new homes. It is possible but less likely that the ancestors of populations in the Central Northern Outliers acquired the plant in their present locations. Secondly, the ancestors of the Hawaiians had borrowed the words **kuala* 'sweet potato' and **kauaute* 'paper mulberry' from the hypothetical language before they started to move northwards but after people had started to cultivate the sweet potato and red hibiscus in East Polynesia (Muñoz-Rodríguez *et al*. 2018). Alternatively and less likely, they were introduced to Hawai'i after the archipelago had been settled. Thirdly, either the ancestors of the Rapanui lost the words **kaute* and **aute* on their way to Rapa Nui, or Proto-Mangarevan-Marquesan-Rapanui speakers had left the East Polynesian homeland before the words *kaute* and *aute* started to spread and only later were these borrowed into Marquesan and Mangarevan. All three scenarios together suggest that the hypothetical language was spoken in the place where the interaction between the people of West and East Polynesia in prehistoric times occurred.

Importantly, the loss of **f* in **kaumafute* and the borrowing of the word from West Polynesia must have occurred relatively early because none of today's East Polynesian languages preserve **f* in the position before the rounded vowels **u* and **o*.

CONCLUSION

To conclude, the restricted geographic distribution of the set **kaumafute* in West Polynesia suggests the word was borrowed into some Proto-East Polynesian dialects, after the East Polynesian homeland had been settled. The restriction of the conditioned loss of labial consonants to several cultural words and their geographic distribution in East Polynesia suggest that these words were borrowed from a language spoken in the Southern Cooks. One of these words is **kaute* 'red hibiscus', whose reflexes are restricted in geographic distribution outside of East Polynesia, suggesting that it was borrowed further to the west. These three observations together suggest that the Southern Cooks were a locus of interaction between speakers of West and East Polynesian languages, that is to say, a place where East Polynesians maintained their ancestral connections. This implies that the Southern Cooks may have been the East Polynesian homeland. This scenario is in accordance with recent archaeological and genomic studies indicating that the Southern Cooks served as a gateway to East Polynesia (Ioannidis *et al*. 2021; Sear *et al*.

2020). Indeed, the Southern Cooks are the closest islands of East Polynesia to Niue, Sāmoa and Tonga, at a distance of around 1,000 km, 1,400 km and 1,600 km respectively; a direct voyage from Sāmoa to the larger Society Islands, bypassing the Southern Cooks, would add another 900 km to the journey, and then 1,400 km to the Marquesas or 1,600 km to Mangareva (Allen and Wallace 2007).

The East Polynesian names for another important cultigen, 'sugarcane (*Saccharum officinarum*)', should be mentioned here (Langdon 1989). The word can be reconstructed as Proto-Polynesian **toro* on the basis of the reflexes **tolo* in Nuclear Polynesian languages, on one hand, and, on the other, because of the Tongan and Niuean *tō*, where the Proto-Polynesian rhotic **r* is regularly lost. The Proto-East Polynesian reflexes **tō* are irregular and look like a borrowing from either Tongan or Niuean, suggesting that the original settlers of East Polynesia did not take sugarcane with them and that the plant and its names were introduced later from the west.

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NOTES

1. In this paper "Māori" is used to refer to the North Island dialects of Aotearoa New Zealand.
2. The overall phonetic correspondences are different, and thus different historical scenarios must be proposed, for example, as follows (cf. Blust 2005: 226–27): i) Luangiua belongs to the Central Northern Outliers, where Proto-Polynesian dental and velar nasals **n* and **ŋ* are neutralised as dental **n*; in Luangiua, velar stops shifted to glottal stops (**k* > *ʔ*); dental stops were recruited to fill in the place left by the velar stops (**t* > *k*); this prompted dental nasals to shift to velar ones (**n* > *ŋ*). ii) Proto-Polynesian dental and velar nasals were also neutralised in Hawaiian as dentals (**ŋ* > *n*), but the sound changes **k* > *ʔ* and **t* > *k* did not affect the dental nasals (**n* > *n*). iii) Tahitian shifted velar stops and nasals to glottal stops (**k* > *ʔ*, **ŋ* > *ʔ*), but original dental segments (**t*, **n*) remained unchanged.
3. I concur with William Wilson's proposal that Mangarevan, Marquesan and Rapanui are specifically related and descended from a single speech community, and arrived at that conclusion independently from him (Davletshin 2019; cf. Thomson *et al*. 2020: 435; Wilson 2021: 43; 2022: 285). Nevertheless, I do not agree with his suggestion that Mangarevan and Rapanui are specifically

related as opposed to Marquesan languages because of some innovations shared between Mangarevan and Marquesan, in particular, between Mangarevan and South Marquesan. The evidence will be presented in another publication.

4. Tongan and Niuean may not be specifically related because they share few if any innovations in the basic lexicon.
5. The term Nukeria is used to designate the language and the people, since my consultants insist that it is the correct name and that Nukuria is a word from a local "trade language". The term Nukuria is used as the name of the atoll (Davletshin 2018).
6. In Samoan, word-final mid vowels *e* and *o* are more closed and even rhyme with *i* and *u* (Mosel and Hovdhaugen 1992: 25, 35); in Nukeria and Takū, phrase-final vowels *e* and *o* are realised as [*i*] and [*u*] (author's fieldwork data, 2013). This can explain the irregular vowel *e* instead of *i*, but only if we assume that the term was borrowed from a neighbour language with the final vowel misinterpreted.
7. Ross Clark (pers. comm., 2022) sees *kouhauti* as representing the original compound **kaumafute*, with the loss of **m*, the regular shifts **au* > *ou* and **f* > *h*, further metathesis of *h* and unexplained change **e* > *i*.
8. The form *eute* 'papyrus' (Tregear 1899) may be mistranscribed because several vowel-initial entries in Tregear's dictionary include an accreted article *e*: *eau* '*Hibiscus tileaceus*' (*ʔau* < **fau*), *ereŋa* 'turmeric' (< **reŋa*), etc. (Ross Clark, pers. comm., 2022). Nevertheless, Janeau (1908: 28) also gives *eute* 'nom du papyrus poussant sans culture' (French: name for papyrus growing in the wild).
9. Bimoiraic roots $C_1V_1C_2V_2$ are reduplicated as C_1V_1-$C_1V_1C_2V_2$ and $C_1V_1C_2V_2$-$C_1V_1C_2V_2$, and trimoraic roots $C_1V_1C_2V_2C_3V_3$ as $C_1V_1V_1$-$C_2V_2C_3V_3$ and $C_1V_1V_1$-$C_2V_2C_3V_3$-$C_2V_2C_3V_3$ (C stands for a consonant, V for a vowel and numbers in subscript identify the segments). The word **kute-kute* 'red' (attested in Mangaian, Rarotongan and Tahitian) might be etymologically related to **kaute* 'red-flowered hibiscus', and the loss of **a* can be explained by the fact that Polynesian colour terms tend to be reduplicated, bimoraic roots in Polynesian languages.
10. In East Polynesian languages, **f* shifted to *h* preceding the rounded vowels **o* and **u*. Thus, the labial identity of **f* in this sound change is questionable because the loss of **f* might have taken place before the sound change **f* > *h*.
11. I list several entries where the sound change is expected but not attested in Mangaian: *ʔaumata* 'face', *kaʔumata* 'a place name', *kūʔmaku* 'masticate', *ʔomaʔa* 'urinate', *raupipi* 'young rudderfish (*Kyphosus* sp.)', *tōmata* 'begin', and *raumiʔi* 'a kind of crab' (Christian 1924; Clerk 1981; Shibata 1999).
12. Regular reflexes of **maika* are attested in Hawaiian, Mangarevan, Marquesan, Rapanui, Rarotongan, Tahitian, Tongarevan and Tuamotuan. The irregular reflexes *meia* in Rapan and Tupuaki look like borrowings from Tahitian *meiʔa* because of the irregular loss of the velar stop. The Tuvaluan *maika* might be a borrowing too because of the lexical doublet *futi* 'banana (generic)'.

GLOSSARY

This glossary begins with a list of the main reconstructed forms from Proto-Polynesian discussed in this article, and is followed by a list of individual contemporary words mentioned in the article.

**aute*	paper mulberry (*Broussonetia papyrifera*) used for making barkcloth (Common East Polynesian)
**fau*	hibiscus (*Hibiscus tiliaceus*), its bark used for making cordage and fishing lines (Common Polynesian)
**kaute*	red-flowered hibiscus (*Hibiscus* sp.) (East Polynesian)
**kōfiti*	ghost crab (*Ocypode* spp.), used as bait on some islands (Common East Polynesian)
**kūmara*	sweet potato (*Ipomoea batatas*) (Common Polynesian)
**kumete*	large wooden bowl used as a mortar in pounding food (Common Polynesian)
**maika*	banana (*Musa* sp.) (Common East Polynesian)
**raumaika*	banana leaves used for plaiting girdles and for serving food (Common East Polynesian)
akaue	lever (Rapanui)
aute	paper mulberry (Tahitian)
autia	a plant (Rapan)
ʔakaʔou	again (Mangarevan)
ʔākure	hunt for lice (Mangarevan)
ʔaŋa	work (Rapanui, Mangarevan)
ʔaramā	army (Rapanui)
ʔaruke	remove lice (Rapanui)
ʔaumata	face (Mangaian)
ʔaute	paper mulberry (Mangaian, Rarotongan)
ʔaute	hibiscus (Fijian)
ʔaute	red hibiscus (Samoan)
ʔautiʔa	a plant, probably a hibiscus (Rapan)
ʔavione	airplane (Rapanui)
erero	tongue (Mangarevan)
eriri	a kind of sea snail (Mangarevan)
etua	god (Mangarevan)
eture	big-eyed scad fish (Mangarevan)

eute	paper mulberry (Mangarevan)
ʔeʔo	tongue (Marquesan)
ʔehi	coconut (Marquesan)
faŋa	bay (Samoan)
fautiʔa	*Hibiscus tiliaceus* (Tahitian, Rapan)
feʔe	octopus (Samoan)
fitu	seven (Samoan)
fōu	new (Samoan)
fufuti	to haul in a fishing line (Samoan)
ɸā	four (Māori)
ɸaŋa	bay (Māori)
ɸē	caterpillar (Māori)
ɸeke	octopus (Māori)
ɸitu	seven (Māori)
ɸiɸi	entangled (Māori)
hā	four (Hawaiian)
hakaʔou	again (Rapanui)
hautiʔa	a plant, probably a hibiscus (Rapan)
hē	caterpillar (Hawaiian)
hihi	entangle (Hawaiian)
hoʔou	new (Rapanui)
hōu	new (Māori)
huhuti	pull up and out (Māori)
ʔīrea	idea (Rapanui)
kauta	hibiscus (Rotuman)
kaute	red hibiscus (Tongan, Nukeria)
kioʳe, kioʔe	rat (Rapanui)
zkōani	cork, plug (Mangaian)
kōmani, kōpani	stopper, plug (Mangaian)
kōiti	small black and white marsh crab with red claws (Mangaian)
kouhauti	paper mulberry (Marquesan)
kūara	sweet potato (Mangaian)
kuete	wooden mortar (Mangaian)
kūmara	sweet potato (Mangaian)
kumete	trophy (Mangaian)
kūʔmaku	masticate (Mangaian)
kurī	cat (Rapanui)
kurī	dog, cat (Mangarevan)

mahute	paper mulberry (Rapanui)
mokofute	paper mulberry stick stripped of its bark (Tongan)
ʔoka	plant, stab (Rapanui)
ʔoka	stick used as digging tool, extract with a tool or instrument, spear (Mangarevan)
ʔomaʔa	urinate (Mangaian)
pūaika	banana stem, fibre made from it (Mangaian)
raŋona	to hear, passive form (Māori)
rauaika	banana leaf (Mangaian)
raumiʔi	a kind of crab (Mangaian)
raupipi	young rudderfish (*Kyphosus* sp.) (Mangaian)
roŋona	to hear, passive form (Māori)
rouaika	leaves of the banana (Mangarevan)
rouamaika	green leaves of the banana (Mangarevan)
takatea	semen (Rapanui)
takituri	earwax (Rapanui)
tehi	sneeze (Rapanui)
tiŋaʔi	kill, destroy, murder (Rapanui)
titaʔa	to be on the side of, said of things (Mangareva)
tītaʔa	demarcation, boundary, limits (Rapanui)
tō	sugarcane (Tongan, Niuean)
tōmata	begin (Mangaian)
tumu	cough (Rapanui)
uara	Hawaiian varieties of sweet potato (Tahitian)
urumanu	commoner (Rapanui)
ute	paper mulberry (Marquesan)
ʔuala	sweet potato (Hawaiian)
ʔumara	sweet potato (Tahitian)
ʔūara	sweet potato (Mangaian)
ʔue	lift up with a lever (Mangarevan)
ʔuete	wooden mortar (Mangaian)
ʔurumanu	common people, herd, poor (Mangarevan)
wākea	space deified; first-order anthropomorphic god (Hawaiian)
wauke	paper mulberry (Hawaiian)

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APPENDIX

Regular, Unconditioned Reflexes of Proto-Polynesian Consonants (Bimoraic Roots, Word-Initially)

Note: Well-defined subgroups are delineated.

	*p	*t	*k	*ʔ	*f	*s	*h	*m	*n	*ŋ	*l	*r	*w
1. Tongic:													
Tongan	p	t	k	ʔ	f	h	h	m	n	ŋ	l	–	v
Niuean	p	t	k	–	f	h	h	m	n	ŋ	l	–	v
2. Nuclear Polynesian:													
Samoan	p	t	ʔ	–	f	h	–	m	n	ŋ	l	l	v
East Uvean	p	t	k	ʔ	f	h	–	m	n	ŋ	l	l	v
East Futunan	p	t	k	ʔ	f	s	–	m	n	ŋ	l	l	v
Tokelauan	p	t	k	–	f	h	–	m	n	ŋ	l	l	v
Tuvaluan	p	t	k	–	f	h	–	m	n	ŋ	l	l	v
Anutuan	p	t	k	–	p	t	–	m	n	ŋ	r	r	v
Tikopian	p	t	k	–	f	s	–	m	n	ŋ	r	r	v
Rennellese	p	t	k	ʔ	h	s	–	m	n	ŋ	^{n}g	^{n}g	β

– Appendix table continued over the page

	*p	*t	*k	*ʔ	*f	*s	*h	*m	*n	*ŋ	*l	*r	*w
2.1. Central Northern Outliers:													
Nukeria	p	t	k	–	h	h	–	m	n	n	r	r	v
Takū	p	t	k	–	f	s	–	m	n	n	r	r	v
Nukumanu	p	t	k	–	h	s	–	m	n	n	r	r	v
Luangiua	p	k	ʔ	–	h	s	–	m	ŋ	ŋ	l	l	v
2.2. East Polynesian:													
Hawaiian	p	k	ʔ	–	h	h	–	m	n	n	l	l	w
Tuamotuan	p	t	k	–	f	h	–	m	n	ŋ	r	r	v
Rapan	p	t	k	–	ʔ	ʔ	–	m	n	ŋ	r	r	v
Tahitian	p	t	ʔ	–	f	h	–	m	n	ʔ	r	r	v
Rarotongan	p	t	k	–	ʔ	ʔ	–	m	n	ŋ	r	r	v
Mangaian	p	t	k	–	ʔ	ʔ	–	m	n	ŋ	r	r	v
Tongarevan	p	t	k	–	h	s	–	m	n	ŋ	r	r	v
North Island Māori	p	t	k	–	ɸ	h	–	m	n	ŋ	r	r	w
2.2.1. Far East:													
Rapanui	p	t	k	ʔ	h	h	–	m	n	ŋ	ɾ	ɾ	v
Mangarevan	p	t	k	–	ʔ	ʔ	–	m	n	ŋ	r	r	v
North Marquesan	p	t	k	–	h	h	–	m	n	k	ʔ	ʔ	v
South Marquesan	p	t	ʔ	–	f	h	–	m	n	n	ʔ	ʔ	v