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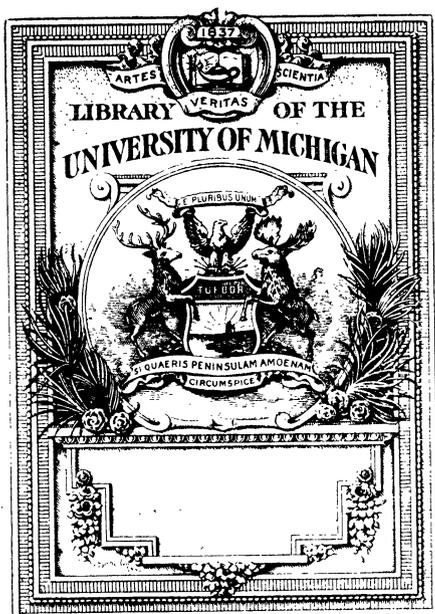
A DISSERTATION

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OF DOCTOR OF PHILOSOPHY

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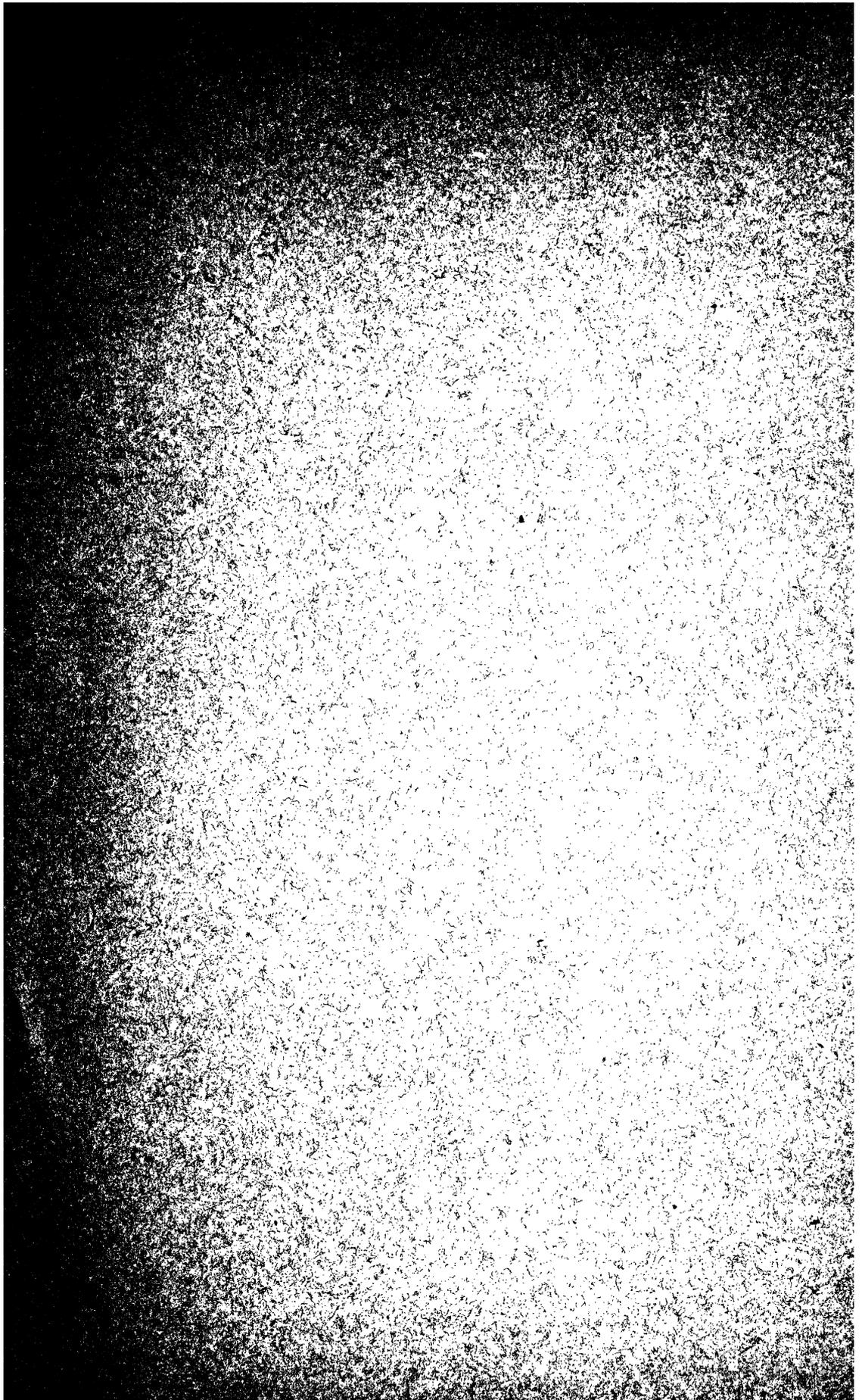
BY
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CHICAGO
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The Pepet Law in Philippine Languages.

By CARLOS EVERETT CONANT, Lecturer of Indonesian Languages, University of Chicago.

In the vocalism of Indonesian languages the original indifferent vowel plays an important rôle. Resembling the Hebrew *shēwa*, and the obscure vowel of many Indo-European languages, it was so colorless and indefinite in pronunciation that it developed differently in different speech groups. In some languages it remained practically unchanged, as in Javanese, where it is called *pepet*¹, while in others it evolved into various and more or less definite vowel sounds, e. g., IN² *atěp* roof became Jav. *atěp*, Mal. *atap*, Tag. *átip*, and Bis. *atúp*.

BRANDSTETTER³ gives the following concise statement of the varied representation of *pepet* in several of the more important languages of Indonesia:

"The *Pěpět* Law: Where the IN parent speech (Ursprache) had an *ě* (called *pěpět* in Javanese), OJav., Tontb., Bug. and Karo also have *ě*, Mkb. and Mak. *a*, Bis. and Toba *o*, Tag. *i*, Day. *e*, Mal. in final syllable *a*, in the penultimate syllable *ě*, Mlg. in accented syllable *e*, in a syllable following the tone, *i*."

The following table will illustrate the above law:

	rice	sugar cane	roof	hear	six
Jav.	—	<i>těbu</i>	<i>atěp</i>	<i>děňěr</i>	<i>ěněm</i>
Mak.	—	<i>tabu</i>	<i>ata</i>	<i>laňéré</i>	<i>anaň</i>
Bis.	<i>bugás</i>	<i>tubó</i> ⁴	<i>atúp</i>	<i>duňóg</i>	<i>unóm</i>
Toba	<i>boras</i>	<i>tobu</i>	—	—	<i>onom</i>
Tag.	<i>bigás</i>	<i>tubó</i>	<i>átip</i>	<i>diníg</i>	<i>anim</i>
Day.	<i>behas</i>	<i>tewu</i>	<i>atep</i> door	—	—
Mal.	<i>běras</i>	<i>těbu</i>	<i>atap</i>	<i>děnar</i>	<i>ěnam</i>
Mlg	—	—	—	<i>reni</i>	<i>enim</i> .

¹ *Pepet* or *ě* will be employed throughout the article to designate the original indifferent vowel.

² The list of abbreviations:

Bgb. Bagobo	IN Indonesian	OMlg. Old Malagasi
Ban. Banawi	Inb. Inibaloi	Pamp. Pampanga
Bat. Batán	Isn. Isinai	Pang. Pangasinan
Bil. Bilan	Itw. Itawi	Phil. Philippine
Bkl. Bikol	Jav. Javanese	Sml. Samal
Bis. Bisaya	Klm. Kalamian	Sbl. Sambal
Bol. Bolinao	Knk. Kankanai	Sng. Sangir
Bon. Bontok	Kuy. Kuyunon	Sund. Sunda
Bug. Bugis	Lep. Lepanto	Tgk. Tagakaolo
Chro. Chamorro	Mgd. Magindanao	Tag. Tagalog
Day. Dayak	Mak. Makassar	Tgb. Tagbanwa
Gad. Gaddang	Mal. Malay	Ting. Tingyan
Har. Haraya	Mlg. Malagasi	Tir. Tirurai
Hlg. Hiligaina	Mnb. Manobo	Tontb. Tontemboan
Ibg. Ibanag	Mkb. Minankabau	Yog. Yogad
Ilk. Iloko	OJav. Old Javanese	

Bis., when not qualified, will be here intended to include the three great dialects, Hiligaina, Cebuan, and the Samar-Leyte dialect.

³ "Mata-Hari", Luzern 1908, p. 52.

⁴ Unless otherwise indicated, *u* and *o* are interchangeable in Philippine languages.

For *u* of Tag. *tubó* see below, p. 933.

It is the purpose of the present study to trace the evolution of this indifferent vowel (pepet) thru several of the Philippine languages and dialects. The material will be treated under seven classes or types, as follows:

- I. the *ap*-class, represented by Phil. *atěp* roof, i. e. words having *a* in the first of two syllables the second of which has pepet;
- II. the *pa*-class: Phil. *běgas* rice;
- III. the *ip*-class: Phil. *ńipěň* tooth;
- IV. the *pi*-class: Phil. *běli* to buy;
- V. the *up*-class: Phil. *pusěd* navel;
- VI. the *pu*-class: Phil. *pěnu* full;
- VII. the *pp*-class: Phil. *lěběň* to excavate.

Following out this classification, it will be convenient to limit the study at first to eleven of the more conspicuous speech groups, viz.: Tag., Pang., Ilk., Mgd., Tir., Pamp., Ibg., Bkl., Bis., Bgb., and Sulu. The first comparative table will give a general view of the phenomena of the seven classes in the eleven languages named. This will be followed by a series of seven tables, each illustrating a single class, and arranged in the order given above. After studying the phenomena of the pepet law as shown by the material thus presented, other languages and dialects will be examined according to the same classification, tho less formally and completely, owing to their greater scarcity of available material.

Class	I <i>ap</i>	II <i>pa</i>	III <i>ip</i>	IV <i>pi</i>	V <i>up</i>	VI <i>pu</i>	VII <i>pp</i>
Phil.	<i>atěp</i>	<i>běgas</i>	<i>ńipěň</i>	<i>běli</i>	<i>pusěd</i>	<i>pěnu</i>	<i>lěběň</i>
Tag.	<i>átip</i>	<i>bigás</i>	<i>ńipin</i>	<i>bili</i>	<i>púsud</i>	<i>punó</i>	<i>libín</i>
Pang.	<i>até</i>	<i>belás</i>	<i>ńipén</i>	<i>billi</i>	<i>puség</i>	<i>pánu</i>	—
Ilk.	<i>atép</i>	<i>bagás</i>	<i>ńipen</i>	—	<i>púseg</i>	<i>punnó</i>	—
Mgd.	<i>atep</i> ¹	<i>begás</i>	<i>ńipen</i>	—	<i>puset</i>	<i>penú</i>	<i>lebeň</i>
Tir.	<i>atef</i>	<i>begás</i>	<i>kifen</i>	<i>betlei</i>	<i>fused</i>	<i>fenó</i>	<i>lebeň</i>
Pamp.	<i>atáp</i>	<i>abyás</i>	<i>ipan</i>	<i>abli</i>	<i>púsad</i>	<i>apnú</i>	<i>albán</i>
Ibg.	<i>atóp</i>	<i>baggá'</i>	<i>ńipan</i>	<i>balli</i>	<i>futád</i>	<i>pannú</i>	<i>labbán</i>
Bkl.	<i>atúp</i>	<i>bagás</i>	<i>ńipon</i>	<i>bili</i>	<i>pusód</i>	<i>panó</i>	<i>lubón</i>
Bis.	<i>atúp</i>	<i>bugás</i>	<i>ńipon</i>	<i>bili</i>	<i>púsod</i>	<i>punó</i>	<i>lubón</i>
Bgb.	<i>atop</i>	<i>buggás</i>	<i>ńipon</i>	<i>balli</i>	<i>pusod</i>	<i>punnó</i>	<i>lubbón</i>
Sulu	<i>atup</i>	<i>bugas</i>	<i>ipun</i>	<i>bi</i>	<i>pusud</i>	—	<i>lubaň</i>

An examination of the above table with reference to the individual languages shows that pepet regularly becomes *i* in Tag., *e* in Pang., Ilk., Mgd. and Tir., *a* in Pamp. and Ibg. and *u* in Bkl., Bis., Bgb. and Sulu. Languages which, like Tag., regularly show *i* for original pepet, may be spoken of as *i*-languages, those of the Pang. type, as *e*-languages and those of the Pamp. and Bgb. types, as *a*-languages and *u*-languages, respectively.

Before proceeding to our comparative and analytic study of the pepet vocalism, attention should be called to certain other phonological peculiarities

¹ The sources for Mgd., Tir., Bgb. and Sulu do not, as a general rule, indicate the stress accent. Wherever ascertainable, the stressed syllable will be marked in this paper by the acute accent (').

of the languages examined. Most, if not all, of these peculiarities will be found to exist to a greater or less extent in other Indonesian speech groups, and a general comparative study of any one of them, metathesis, for example, would be worthy of separate treatment in a copious article. For our present purpose, however, it will be sufficient to note such secondary phonetic changes as must be taken into account in order to recognize the original phonetic equivalence of words so dissimilar in appearance as Pamp. *abyás* and Ibg. *baggá'*, both accurately representing Phil. *begas* rice, according to individual phonetic laws of the two languages. Thus, while both Pamp. and Ibg. are *a*-languages regularly showing *a* for *pepet* in the penult, the Pamp. *abyás* has metathesis of the first syllable and *y* for the usual Phil. *g* of the RGH series, neither of which phenomena is shared by Ibg. *baggá'*, which doubles the Phil. *g* and represents Phil. final *s*, as regularly, by an Ibg. *t* that has degenerated to the glottal top (hamza), tho it is retained with full pronunciation in the Ibg. dialects, Gad., Itw. and Yog. *baggát*. Compare here Ibg. *appát'* four, beside Gad., Itw., Yog. *appát*.

Consonant gemination. — Several Phil. languages and dialects double a single intervocalic consonant under certain conditions.

The languages of the above table which show this doubling are Ilk., Ibg. and Bgb., the examples being Ilk. *punnó*, Ibg. *baggá'*, *balli*, *pannú*, *labbán*, and Bgb. *buggás*, *balli*, *punnó*, *lubbón*.

Other speech groups showing gemination of consonants are the Ibanag dialects called Gaddang, Itawi, and Yogad, and the Igorot dialect, Inibaloi. The following brief table will illustrate the more common cases:

	Phil.	Ilk.	Ibg.	Gad.	Itw.	Yog.	Inb.	Bgb.
four	<i>épat</i>	<i>uppát</i>	<i>appát'</i>	<i>appát</i>	<i>appát</i>	<i>appát</i>	<i>appat</i>	<i>appat</i>
six	<i>ěněm</i>	<i>inném</i>	<i>annám</i>	<i>anněm</i>	<i>ěnněm</i>	<i>anněm</i>	<i>annim</i>	<i>annam</i>
seven	<i>pitu</i>	<i>pitó</i>	<i>pitú</i>	<i>pitú</i>	<i>pitú</i>	<i>pitú</i>	<i>pitto</i>	<i>pitto</i>

In all these languages the gemination is real, that is, the two consonants are distinctly pronounced, e. g., the *pp* of the word for "four" is sounded as in Ital. *Giuseppe*, and not as in Eng. *upper*.

The first two of the three examples follow the law of gemination of a single consonant following a *pepet* vowel (see below, pp. 927 ff.). But it is to be noted that the *t* of Phil. *pitu*, where the preceding vowel is not originally *pepet*, but *i*, is doubled only in Inibaloi and Bagobo, an indication that these two languages have a stronger tendency to gemination than the others, tho in this instance it is quite possible that the phenomenon is due to analogy with the gemination of the other numerals. This latter explanation is further borne out by the persistence of the single *t* of Phil. *batú* "stone" in all the geminating languages here enumerated¹.

¹ BLAKE, "Contributions to Philippine Grammar", Jour. Am. Or. Soc., vol. 27, New Haven 1907, p. 336, has noticed the doubling of single consonants in Ilk. and Ibg., but one of the two examples given for Ibg., namely, *battu*, is erroneous, the correct form being *batú*. In the same article (pp. 331 and 332) attention is called to the varied vocalism seen in Tag. *bigas*, *dirig*, *silid*, the suffix *-in*, and *anim*, and their cognates in Bis. Bkl. Ilk. Pang. Mgd. Ibg. and Pamp. It is then stated "quite possible that this varied vocalism is the representation of a fourth

The *rr* written by Padre BENNÁSAR in Tir. words is not a case of gemination, but is the Spanish mode of representing a single *r* sharply trilled. In certain languages, notably, Ibg. and its dialects, double consonants are often the result of assimilation rather than gemination (see below, under consonant assimilation).

Consonant assimilation. — Cases of both partial and total assimilation¹ are to be found in abundance in certain philippine speech groups.

The most common illustration of partial assimilation is that of a nasal conforming to the class of the following consonant, a common example being the variants Tag., Pamp., Mgd., Sulu, Tir., Bgb., Kuy. *kambiñ* goat, and Bkl. Bis. *kandiñ*, Gad., Itw. *gandiñ*. The Ibg. word *kazziñ* shows total assimilation. The most striking example of partial assimilation presented by the material to be examined in this paper is that of the Pamp. change of a stop consonant to the class of the consonant immediately following. The consonants in question are most commonly brot into contact with each other as a result of metathesis, e. g. Pamp. *abpá* fathom from Phil. *děpa*, where, after metathesis, the dental sonant *d* becomes the labial sonant *b* before the labial surd *p*. In the same manner labial-to-palatal assimilation is shown by Pamp. *agkás*, from Phil. *bėkas* to shoot an arrow, and the labial *p* of Phil. *apdu* gall becomes the dental *t* before *d* in Pamp. *atdú*. This partial assimilation of stops is, however, very limited and of exceptional occurrence, even in Pamp., as is shown by Pamp. *atbú* (Phil. *tėbu*), *atbús* (Phil. *tėbus*), *ablák* (Phil. *bėtak*), *akbág* (Phil. *kabag*), *akdál* (Phil. *kadėl*), *agtál* (Phil. *gėtėl*), *apdá* (contrasted with *atdú* for *apdı*), and the Pamp. variants *agpán* and *abpán* rule, standard.

Total assimilation is a characteristic of some languages, notably Ibg. and its dialects, e. g. Ibg. *ággu* gall (Phil. *apdu*), *ággau* day (Ilk. &c. *aldau*), the consonant of the RLD series becoming *g* in Ibg. as in *igüñ* nose and *'pıga* how much?, Ibg. *illüg* egg (Phil. *itlug*), Ibg., Itw. *uffú*, Gad. *úffu*, beside Pang. *ulpó* thigh. The Ilk. equivalent *luppó* shows metathesis and gemination. Assimilation follows metathesis in Ibg. *appá* (Phil. *děpa*) fathom (see below, table II). The case of Ibg. *tallú* &c. will be treated below (p. 935). The Ibg. assimilation of a final consonant to a following initial consonant does not concern us here.

Metathesis. — This, perhaps the most striking characteristic of the Indonesian languages, shows a high degree of development in Philippine speech, where its manifestations are exceedingly varied and often so complex as to render their classification difficult.

primitive Philippine vowel, an indistinct vowel like the Indo-European shewa (Cf. BRANDSTETTER, "Tag. u. Mad.", p. 34), which in a similar way is represented by several different vowels in the various Indo-European languages (Cf. BRUGMANN, "Grundriß &c.", zweite Bearb., Straßburg 1897, Bd. 1, p. 170)". The existence of the pepet vowel in the IN parent speech had years before been established by the Dutch scholars and BRANDSTETTER, who had identified this obscure vowel with the prototype of the *i : u* correspondence of Tag. *bigás* and Bis *bugás*. My own study of the pepet vocalism of Phil. languages was begun in the Philippine Islands in 1901 and was suggested by BRANDSTETTER's treatment of the IN obscure vowel in his "Die Beziehungen des Malagasy zum Malaischen", Luzern 1893, pp. 21, 22, 23, *et passim*.

¹ Cf. SIEVERS, "Grundzüge der Phonetik", 5th ed., Leipzig 1901, p. 277.

A case commonly noted is that of the metathesis of two consonants thrown together by the syncopation of an intervening vowel from which the stress has been removed by the addition of a formative suffix, e. g. Tag. *aptán* from *atíp*, Bis. *imnon* for *inumon* from *inúm*; but the cases of metathesis appearing in the material collected for the present study are mostly of a different character, in which the transposition is not of concurrent consonants, but of a consonant and an adjacent vowel or of two consonants more or less widely separated. Metathesis of a consonant and adjacent vowel is seen in Pamp. *altáu*, *abyás*, *atyás*, *abpá* (table II below), Ibg. *appá* (for *adpa* < *dapa*), Mgd. *alpá* or *arpá* (beside *lepá*, *repá*), and Ilk. *luppó* beside Pang. *ulpó* (see above).

Metathesis of consonants separated by a vowel is seen in Bkl. *gabát* (Phil. *bĕgat*) weight, Ilk. *gasút* (Phil. *gatus*) hundred, Ilk. *gessát* (Phil. *gĕtas*) to cut or break thread. Initial and final consonants exchange places in Ilk. *sagát* (Phil. *tĕgas*) hard, Ilk. *subbút* (Phil. *tĕbus*) to redeem, the Ilk. variants *gorróod* and *dollóog* thunder, and Pang. *samít*, Ilk. *sam'ít* beside Tag., Bis. *tam'ís* sweet.

Loss of intervocalic *l*. — Several languages show, with greater or less regularity, loss of an *l* between vowels, sometimes with, and sometimes without, resulting contraction. Sulu always drops *l* between two like vowels, which are then contracted, e. g. *dān* (Phil. *dalan*) way, *bī* (for *bīlī*, Phil. *bĕlī*) to buy, *o* (for *olo*, Phil. *ulu*) head. The *l* is retained in Sulu *walu* eight but lost in *kauhan* (Cebú Bis. *kaluha'án*) twenty. The loss is less regular in Tag. where no resulting contraction takes place, e. g. *dāan* way, but *dálan* to sow; *bīlī* to buy; *pūo* or *pūwo* ten (Phil. *pulu*), but *úlo* head. In Bontok "ten" is (*sim*)pó'o, while three and eight are *toló* and *waló*, respectively. Kankanaí and Tingyan also have *tulú* (*toló*), but *wá'o* (Phil. *walu*), and (*sim*)pó ten, tho *l* reappears in Ting. *duapulu* twenty. In Isn. the Phil. numerals *tĕlu*, *walu* and *pulu* become *tiu*, *wēu* and *piu*, respectively, while *l* remains in Isn. *sala sin*, and *tulid* straight.

RGH and RLD laws. — The phenomena of these laws, even within the limits of Philippine territory, are too varied and complex to permit of detailed study here¹. While the consonant of the RGH series appears in most Phil. languages as *g*, as contrasted with the *r* of Toba and Mal. and the *h* of Day. and Sangir, there are several of them in which it is represented by other sounds, notably *r*, *l* und *y*, tho the Phil. *g* often appears in the same languages alongside the other representatives. The following table, showing examples for the RGH consonant in initial, medial and final position, will present the more common cases:

		night	hundred	vein	rice	lip
Tag.	Phil.	<i>gabi</i> (g)	<i>gatus</i>	<i>ugat</i> (g)	<i>bĕgas</i>	<i>bibig</i> (g)
	Ilk.	<i>rabi</i>	<i>gasút</i>	<i>urát</i>	<i>bagás</i>	<i>bibir</i> and <i>bibig</i>
	Tir.	—	<i>ratus</i>	<i>urrat</i>	<i>begás</i>	<i>bĕwĕr</i>
	Pang.	<i>lábī</i>	<i>lasús</i>	<i>ulát</i>	<i>belás</i>	<i>bibíl</i>

¹ For a more extensive study of these laws see "RGH Law in Philippine languages", JAOS vol. XXXI, pp. 70—85.

	night	hundred	vein	rice	lip
Inb.	(ka)l'bi(an)	dasus	ulat	bekás	—
Klm.	labil	—	—	—	bibil
Knk.	labi	gasut	uwat	—	—
Bon.	lafi	lasót	wath ¹	—	—
Lep.	labi	—	uat	—	—
Ban.	—	—	ulot	—	—
Ting.	lâbi	kásut	—	bogas	—
Pamp.	—	gatus	uyát	abyás	—
Bat.	—	yatús	úyat	—	bibi.

Ilk. and Tir. are the *r*-languages, the *r* being more regularly found in the latter. The *l*-languages are Pang., Klm. and the Inb., Knk., Bon., Lep., Ban. and Ting. The *y*-languages are Pamp. and Bat. It is to be noted that most of these languages have also *g* in some of the examples, this *g* in a few cases being changed to the corresponding surd *k*.

Cases of apparent irregularity in the representation of the RLD consonant will be treated as they appear in the tables that follow.

Other phonetic peculiarities appearing in the material to be examined will be given attention only when deemed necessary in order to identify a word with its cognates in other languages.

We now proceed to the study of the pepet law by examining the material classified as outlined above (p. 921).

Table I: the *ap*-class.

	roof	plant	grasp	sharp	within, under	great, much	leech
Phil.	atěp	taněm	dakěp	tarěm	dalěm	dakě-l-a	limatěk
Tag.	átip	taním	dakíp	talím	lálím	dakilá, malaki	limátik
Pang.	atép	taném	dakép	tarém	dalém	dakél	—
Ilk.	atép	taněm	dakép	tarém	dalém	dakkél - a lu	alimaték
Mgd.	atep	—	dakep	tarep	idalem	dakel	limatek
Tir.	atef	—	—	tarrem	dalem	dakel	limetek
Pamp.	atáp	tanám	dakáp	tarám	lalam	dakál	limátak
Ibg.	atóp	tanám	dakóp	tarám	aralám	dakál	alimató ^k
Bkl.	atúp	tanúm	dakúp	tarúm	irárum	dakúl, dakulá	limátuk
Bis.	atúp	tanúm	dakúp	talúm	dálum	dakú	limátuk
Bgb.	atop	—	dakop	—	tadalom	dákol	limatok
Sulu	atup	tanam	dakup	—	ha-lum	dakola	limatok.

In the *ap*-class the operation of the pepet law is remarkably uniform. If we disregard Sulu *tanam*, which may have been borrowed from Mal., the examples in the above table show no exception to the rule that pepet becomes *i* in Tag., *e* in Pang., Ilk., Mgd. and Tir., *a* in Pamp. and Ibg., and *u* (or *o*) in Bkl., Bis., Bgb. and Sulu. The *o* of Ibg. *atóp*, *dakóp*, *alimató^k* is no exception, as it regularly stands for an Ibg. *a* representing Phil. *ě* when followed by a final glottal stop (hamza) which represents one of the surd stops, *k*, *t* or *p*. This *o* has an open sound as in Ital. *può*, and is entirely distinct from the Ibg. *u*. When a suffix is added to the root, the surd stop is restored and

¹ The Bon. examples in this paper are taken from JENKS, "The Bontoc Igorot", Manila 1906.

the Ibg. *a* reappears, e. g., *atóp*, with the locative suffix *-an*, becomes *atappán* place of roof(ing) with Ibg. doubling of original *p*. Phil. *a* regularly remains unchanged in Ibg., e. g. *baggát*, *taggát* (table II below).

The consonant of the RLD series is given in the hypothetical Phil. words heading the tables as *r* when medial (*tarēm*), and as *d* when initial (*dalēm*) or final (*pusəd*, table V). This *r* is here used merely as a convenient symbol and is not to be considered as in any way indicative of the original character of the RLD consonant, which in the majority of Phil. languages appears as *l* when intervocative. I have chosen *r* in order to differentiate the RLD consonant from an original *l*.

The discussion of prefixed elements, as seen in the case of Phil. *dalēm* and *limatěk*, where the identity of the examples is evident, is here unnecessary.

Sulu *ha-lum* is for *ha-lalum* (<*ha-dalum*) with loss of intervocalic *l* and resultant contraction. The Phil. words for "great, much" show three variations: *dakě*, *dakěl* and *dakěla*. The first variation is shown by Bis. *dakú* and Tag. *malaki* (for *ma-daki*). The intermediate *dakel* is the prototype of the majority of the examples, including, besides those here given, Batán *rakuh*, where *h* represents Phil. *l* (see below, p. 939). The third variation appears in Tag. *dakilá*, Bkl. *dakulá* (great beside *dakúl* much), and Sulu *dakola*, and probably in Klm. *dakólo* and Chro. *dánkulo*¹.

Table II: the *pa*-class.

	rice	hard	fathom	to chew	demolish	weight	erupt, float
Phil.	<i>bėgas</i>	<i>tėgas</i>	<i>dėpa</i>	<i>sėpa</i>	<i>gėba</i>	<i>bėgat</i>	<i>lėtau</i>
Tag.	<i>bigás</i>	<i>tigás</i>	<i>dipá</i>	<i>sapá</i>	<i>gibá</i>	<i>big'át</i>	<i>litáu</i>
Pang.	<i>belás</i>	<i>segát</i>	<i>depá</i>	<i>sepá</i>	<i>gebá</i>	<i>belát</i>	<i>letáu</i>
Ilk.	<i>bagás</i>	<i>šagát</i>	<i>dėppá</i>	<i>sapá</i>	<i>rebbá</i>	<i>begat</i>	<i>lettáu</i>
Mgd.	<i>begás</i>	<i>tegás</i>	<i>lepá, repá, alpá, arpá</i>	<i>sepá</i>	<i>gebá</i>	<i>begat</i>	<i>letau</i>
Tir.	<i>begás</i>	<i>tegás</i>	—	<i>sefá</i>	<i>gebá</i>	<i>begat</i>	<i>letau</i>
Pamp.	<i>abyás</i>	<i>atyás</i>	<i>abpá</i>	<i>sapá</i>	—	<i>báyat</i>	<i>altáu</i>
Ibg.	<i>baggát</i>	<i>taggát</i>	<i>appá</i>	<i>sapá</i>	—	—	<i>látau</i>
Bkl.	<i>bagás</i>	<i>tagás</i>	<i>dupá</i>	<i>sápá</i>	<i>gabá</i>	<i>gabát</i>	<i>latáu</i>
Bis.	<i>bugás</i>	<i>tugás</i>	<i>dupá</i>	<i>supá</i>	<i>gubá</i>	<i>bug'át</i>	<i>lutáu</i>
Bgb.	<i>bugás</i>	<i>tuggás</i>	<i>duppá</i>	<i>suppa</i>	<i>gubbá</i>	—	<i>luttau</i>
Sulu	<i>bugas</i>	—	<i>dupa</i>	<i>sopah</i>	—	<i>bogat</i>	—

With the exception of the Ilk. and Bkl. examples, this class shows a uniform and undisturbed operation of the pepet law. Tag. *sapá* is an isolated exception for which I have found no parallel among the thirty words of this class which I have examined. The Mgd. variants for Phil. *depa* are interesting as showing the unstable representation of RLD in that language, the consonant occurring indifferently, as *r*, *l* or *d* (cf. further Mgd. *rugu*, *lugu* or *dugu* blood), and a peculiar metathesis in which *le*, *re* become, with change of vowel, *al*, *ar*.

¹ But see my paper "Consonant Changes and Vowel Harmony in Chamorro", "Anthropos", vol. VI (1911), pp. 136—146.

It is especially worthy of note that the geminating languages, Ilk., Ibg. and Bgb., show frequent doubling in this class, that is, of a consonant following the pepet vowel, while table I shows only one case of gemination (Ilk. *dakkél*) before the pepet vowel. Likewise in the following tables, as a general rule classes IV, VI and VII show doubling of the medial consonant in the geminating languages, as contrasted with classes III and V, in which no examples of gemination appear. Ibg. *táddag* is not an example of gemination, but of assimilation (Phil. *tindĕg*). It may therefore be set down as a working rule that: Those Philippine languages and dialects which permit of consonant gemination double a single intervocalic consonant preceded by a vowel representing original pepet, whatever be the nature of the following vowel; but this gemination does not take place between two vowels of different origin, the second of which is a pepet vowel.

Ilk. *bagás*, *sagát* and *sapá*, contrary to the above rule, show no gemination, and at the same time have *a* instead of *e* in the first syllable, while the other Ilk. examples have the regular doubling and the *e* representation of pepet. The *bagás* type, tho constituting half the examples here given, is exceptional (see additional list of *pa*-class examples given below), but the regular coincidence of the *a* vocalism and the single consonant is significant, and not to be regarded as merely accidental. The identity of the three words with those listed as their cognates in other Phil. languages is unquestionable, from both the semantic and the phonetic standpoint, the metathesized *sagát* being supported by Pang. *segát* and the similarly metathesized Ilk. *subbút* (Phil. *tĕbus*) to redeem (table VI), and the pepet origin of the first *a* of *sapá*, in spite of the isolated Tag. *sapá*, being further vouched for by Mal., Jav. *sapah* and Toba *sopa*. Thus we are prepared to treat these three words as forming a category of Ilk. words in the *pa*-class showing at the same time the ungeminated consonant and the *a* vocalism of pepet. The explanation of this striking phenomenon is simply that the pepet vowel is assimilated to the *a* of the following syllable when only a single consonant intervenes, while the attractive force of the *a* of the second syllable is not sufficient to affect the pepet vowel of the preceding syllable when the two vowels are further separated by gemination. The vowel *u* (*o*), on the other hand, has a stronger influence in Ilk. over the pepet vowel of the preceding syllable, as shown by Ilk. *punnó* (Phil. *pĕnu*), *tubbó* (Phil. *tĕbu*), &c. of table VI, where the regressive vocalic assimilation takes place in spite of the intervening gemination. The following additional examples are given as further illustration of the pepet vocalism of the *pa*-type in Ilk. and Bkl.:

Phil.	Ilk.	Bkl.	Tag.	Bis.	Phil.	Ilk.	Bkl.	Tag.	Bis.
<i>bĕkas</i>	<i>bekkás</i>	<i>bukás</i>	<i>bikás</i>	<i>bukás</i>	<i>lĕna</i>	<i>lenná</i>	<i>laná</i>	<i>liná</i>	<i>luná</i>
<i>bĕtak</i>	<i>betták</i>	<i>baták</i>	<i>biták</i>	<i>butak</i>	<i>lĕtak</i>	<i>letták</i>	<i>laták</i>	<i>liták</i>	<i>lutak</i>
<i>bĕak</i>	—	<i>baák</i>	<i>biák</i>	<i>bú'ak</i>	<i>pĕsa</i>	<i>peśá</i>	<i>pasá</i>	<i>pisá</i>	<i>pusá</i>
<i>dĕg'as</i>	<i>deg'ás</i>	—	<i>dig'ás</i>	<i>dug'ás</i>	<i>tĕna</i>	<i>tenná</i>	<i>taná</i>	<i>tiná</i>	<i>túna.</i>
<i>gĕtas</i>	<i>gessát</i>	<i>gatás</i>	—	<i>gutas</i>					

Ilk. *deg'ás* is no exception to the rule for gemination nor to the law of assimilation just stated, since the hamza takes the place of, and is equivalent to, an additional consonant.

Turning our attention now to the Bkl. words of this class, we find that they regularly show *a* for original pepet, instead of the *u* of the *ap*-class (table I), only two out of the fifteen examples cited showing *u*, viz., *dupá* and *bukás*. Is this Bkl. *a* to be explained also as due to vocalic assimilation as in the case of the Ilk. *bagás*-type? Our answer depends upon an examination of the Bkl. examples of the other classes where regressive vocalic assimilation could affect the pepet vowel, that is to say, those having the pepet vowel in the first syllable. In all of these classes there are Bkl. examples showing *a* for pepet, apparently without regard to the quality of the vowel in the next syllable, e. g. Bkl. *sapí* (Phil. *sěpi*), *panó* (Phil. *pěnu*), *danúg* (Phil. *děňěg*), *lanúd* or *lanúd* (Phil. *lěňěd*). On the other hand, Bkl. always shows *u* (*o*) for pepet in a final syllable (cf. tables I, III, V and VII). We thus discover that Bkl. has a tendency to represent pepet in the penultimate syllable by *a*, and is therefore not a *u*-language exclusively, but also an *a*-language in so far as the natural representation of penultimate pepet is concerned. We are prepared to say, then, that the first *a* of Bkl. *bagás* is not to be explained in the same manner as that of the Ilk. *bagás*, namely, as a case of assimilation, but the regular Bkl. vocalism of penultimate pepet. Such occasional exceptions as *dupá* and *bukás* are probably due to the working of analogy. For the metathesis of Bkl. *gabát* and Ilk. *gessát*, see above (p. 924). Worthy of note is the variety of the RGH consonant in Pang., Ilk. and Pamp., while the Tir. examples in table II show only *g* (see above, p. 926).

Table III: the *ip*-class.

	tooth	slave	cockroach	desire	to stand	black
Phil.	<i>nípěn</i>	(ě) <i>ripěn</i>	<i>ipěs</i>	<i>iběg</i>	<i>tinděg</i>	<i>itěm</i>
Tag.	<i>nipín</i>	<i>alipín</i>	<i>ipís</i>	<i>ibíg</i>	<i>tindíg</i>	<i>itím</i>
Pang.	<i>nipén</i>	<i>aripén</i>	<i>ipés</i>	<i>ibeg</i>	<i>talindég</i>	—
Ilk.	<i>náipen</i>	<i>adipen</i>	<i>ipes</i>	<i>ɣat</i>	<i>tomacker</i>	<i>nunjisit</i>
Mgd.	<i>náipen</i>	<i>uripen</i>	<i>ipes</i>	—	<i>tindeg</i>	<i>item</i>
Tir.	<i>kifen</i>	<i>rifen</i>	<i>ifes</i>	<i>ibeg</i>	<i>tindeg</i>	<i>itam</i>
Pamp.	<i>ipan</i>	<i>alipan</i>	<i>ipás</i>	—	<i>tindig</i>	—
Ibg.	<i>nípan</i>	<i>aripán</i>	<i>ipó'</i>	—	<i>táddag</i>	—
Bkl.	<i>nípon</i>	<i>oripun</i>	—	<i>ibúg</i>	<i>tindug</i>	<i>itúm</i>
Bis.	<i>nípon</i>	<i>ulipon</i>	<i>ipus</i>	<i>ibug</i>	<i>tindug</i>	<i>itúm</i>
Bgb.	<i>nípon</i>	—	<i>ipús</i>	<i>ibug</i>	<i>tindug</i>	<i>itum</i>
Sulu	<i>ipun</i>	<i>ipun</i>	—	—	<i>tindog</i>	<i>itum</i>

The *ip*-class, like the *ap*-class, shows remarkable uniformity of the pepet vocalism. The *i* of the first syllable evidently exerts no influence over the pepet vowel. Pamp. *tíndig* and *tínig* (Phil. *tíňěg*, Tag. *tínig*, Bis. *tínog* voice) are exceptions for which there is at present no explanation. The possibility that they are borrowed from the neighboring language, Tagalog, is remote owing to their primitive meaning. Tir. *itam* is a Mal. loan word. The *o* of Ibg. *ipó'*, of which there are several examples in the tables that follow, is for Ibg. *a* as explained above (p. 927). In Ibg. *táddag* *n* is assimilated to the following *d* and the *a* of the first syllable is due either to an exceptional assimilation to the following *a*, or to analogy. The initial (ě) of (ě)*ripěn* will be discussed below (pp. 934 ff.).

Table IV: the *pi*-class.

	to buy	strip off	seed		to buy	strip off	seed
Phil.	<i>bēli</i>	<i>sēpi</i>	<i>bēn'i</i>	Pamp.	<i>abli</i>	<i>aspi</i>	<i>bini</i>
Tag.	<i>bili</i>	<i>sipt</i>	<i>binhi</i> ^{or} <i>bntá</i>	Ibg.	<i>balli</i>	<i>tappi</i>	<i>bini</i>
Pang.	<i>bili</i>	<i>sipt</i>	<i>bini</i> ^{or} <i>bnkel</i>	Bkl.	<i>bill</i>	<i>sapt</i>	<i>banhi</i>
Ilk.	<i>ɔ mātany</i>	—	<i>bin'i</i> ^{or} <i>bnk</i>	Bis.	<i>bill</i>	<i>sipt</i>	<i>binhi</i>
Mgd.	—	—	<i>benih</i> (Mal.)	Bgb.	<i>balli</i>	—	<i>binni</i>
Tir.	<i>betlei</i>	<i>sefē</i>	<i>benē</i>	Sulu	<i>bi</i>	—	—

Unquestioned examples of the *pi*-class are few. Total regressive assimilation of vowels has here been more extensive than in any of the other classes, tho its operation has in some cases been so erratic as to defy classification.

So great is the apparent irregularity of vocalism here that the investigator is strongly tempted to set up a variable prototype, e. g., *bēli*: *bili*, pending the identification of further material for comparison. Most of the examples, however, are readily explained as due to the law of vocalic assimilation restricted by an intervening consonantal increment, such as that produced by gemination, between the pepet vowel and the following *i*.

Before proceeding with the study of the Phil. examples, let us further justify their classification by reference to their cognates in some of the other related languages. The *ē* of Phil. *bēli* is represented regularly according to the general pepet law (p. 920) in OJav. *wēli*, Mal. Bali *beli*, Toba *boli*, Mak. *balli*. Čam *blēi* shows loss of pepet as in *brah* (Phil. *bēgas*, Mal. *bēras*). But Day. *bili* and Mlg. *vidi*, in both of which we should expect *e*, show assimilation to the following *i*. For *sēpi* I have traced no cognates outside of Phil. territory. Cognate with Phil. *bēn'i* are Mal. *benih*, Toba *boni*, which show the regular vocalism, and OJav. *winih*, Sund. *binih*, Mak. *biné*, Bug. *winé*, and Day. *binyi*, which show assimilation. The *h* of Tag. *binhi*, Bkl. *banhi*, and Bis. *binhi* takes the place of the hamza, as often in the *h*-languages (cf. Tag. Bkl. Bis. Bgb. Sulu *dahun*, Phil. *da'un* leaf). It is quite possible that the same holds true for the *y* of Day. *banyi*¹.

Returning to the Phil. material in table IV, we find in the Tag. examples neither difficulty nor assistance, since Tag. is an *i*-language. The Pang. Ilk. Bis. and Sulu examples all suffer assimilation of the pepet vowel to the following *i*. The Tir. words have regularly *e*. The *t* of Tir. *betlei* is obscure, but there can be little doubt of the identity of this word, as it is the only Tir. term for barter (buy or sell), and offers no other phonetic difficulty, the final *ei* being practically the same sound as the final *ē* of *sefē* and *benē*, and representing original *i*, just as *eu* in Tir. *bateu* stands for original *u*. Pamp. has assimilation in *bini*, but not in *abli* and *aspi*, where it is prevented by the intervention of two consonants brot together by metathesis. Likewise in Ibg. the pepet vowel is assimilated in *bini*, where only a single consonant separates it from the attracting vowel, but not in *balli* and *tappi*, where gemination

¹ BRANDSTETTER, "Mata-Hari", Luzern 1908, p. 24, considers the phonetic interrelation of these cognates "vielfach unklar". The Ilk. variant *beni* given in this citation is not found in the LÓPEZ-CARRO Iloko dictionary, nor have I found it in other sources.

takes place. Ibg. *tappi* has *t* for Phil. *s* regularly as in *takt'* (Phil. *sakit*) pain. Bkl. here wavers between the regular *a* and assimilation. Most peculiar and inconsistent of all the examples studied for any class are the Bgb. *balli* and *binni*, especially when we compare here Bgb. *palli* (IN *pili*) to choose, showing *a* for an unmistakably original *i*.

Mal. *sepit*, Sund. *jepit*, Jav. *sapit* (with exceptional *a*) pinchers must be referred to a prototype having *pepet* in the first syllable, which suffers assimilation in Mak., Bug. *sipi*. The Phil. cognates have *i* in both syllables in all the eleven languages of the classified tables: Tag., Pang., Ilk., Mgd., Pamp., Bkl., Bis., Bgb. *sipit* (with varying accent), Ibg. *sipi'*, Tir. *sifit*, Sulu *gipit* (if *g* can be explained). Whether assimilation of the *pepet* vowel has here acted independently in the various Phil. languages or had already taken place in the Phil. prototype is an open question; but that the IN prototype was a word showing *pepet*, and that the penultimate *i* of the non-*i* languages is a result of assimilation at some stage of IN speech evolution is, in my opinion, beyond doubt. A good example of the *pi*-class outside of Phil. territory is IN *tēpi* edge, border, which shows the regular vocalism in Mal. and Jav. *tepi*, Toba *topi*, Mak. *tappi*, Bug. *teppi*. It seems probable that assimilation is prevented in the Mak. and Bug. examples by the intervening consonant gemination as in Mak. *balli*, while it appears in Mak. *biné*, *sipi* and Bug. *winé*, *sipi*. If this is true, we have in Mak. and Bug. an exact parallel to the Phil. law of vocalic assimilation. The only possible Phil. cognates of Jav. *tepi* &c. which I have been able to trace are Bkl. *tapi* to lack little of, Bis. *tapi* edge of boat, Pang. *tapi* board, and Ilk. *tappi* to fill to the edge, run over. If these are to be with the non-Philippine words, which to me seems more than probable, the uniform Phil. *a* is very obscure.

Table V: the *up*-class.

	navel	brain	hair	knee	worm	snake	yes
Phil.	<i>pusēd</i>	<i>utěk</i>	<i>buěk</i>	<i>tuěd</i>	<i>ulěd</i>	<i>ulěg</i>	<i>uě(n)</i>
Tag.	<i>pūsud</i>	<i>útak</i>	<i>buhók</i>	<i>túhod</i>	<i>óod, ówod, óhod</i>	—	<i>óo</i>
Pang.	<i>puség</i>	<i>uték</i>	<i>buék</i>	—	—	<i>ulég</i>	<i>on</i>
Ilk.	<i>púseg</i>	<i>útek</i>	<i>boók</i>	<i>túhong, túhod</i>	<i>igag, ues</i>	<i>úleg</i>	<i>wen</i>
Mgd.	<i>puset</i>	<i>utek</i>	<i>buk</i>	—	<i>uled</i>	<i>ular</i> (Mal.)	<i>wai</i>
Tir.	<i>fused</i>	<i>utek</i>	<i>ebuk</i>	<i>etur</i>	—	<i>urrar</i>	<i>hoo, hēè</i>
Pamp.	<i>pūsad</i>	<i>útak</i>	<i>buák</i>	<i>tud</i>	<i>ulád</i>	—	<i>ówa</i>
Ibg.	<i>futád</i>	<i>utó^k</i>	<i>vu^k, vu^t</i>	<i>tuád</i>	—	<i>ulág</i> mouse	<i>uwán</i>
Bkl.	<i>pusód</i>	<i>hútuk</i>	<i>búhuk</i>	<i>túhud</i>	<i>úlud</i>	—	<i>óho</i>
Bis.	<i>púsod</i>	<i>útok</i>	<i>buhók</i>	<i>túhud</i>	<i>úlud</i>	—	<i>óo</i>
Bgb.	<i>pusod</i>	<i>utuk</i>	—	—	<i>olod</i>	—	<i>oo</i>
Sulu	<i>pusud</i>	<i>utuk</i>	<i>buhok</i>	<i>tuhud</i>	<i>ud</i>	—	<i>hu.</i>

¹ The correct Ibg. word is *vu^k*, and not *vu^t*, tho the latter is the only form given by PAVO in his "Diccionario Español-Ibanág" (sic), Manila 1867. Both forms are given in the older work of BUGARÍN, "Diccionario Ibanag-Español", Manila 1854, and *vu^k* only in a still older MS Ibg.-Span. dictionary in my possession. The *k* form is also supported by the testimony of the Ibg. dialects Gad. and Itw., which have *buk* and *ahúk*, respectively, the final *k* being here fully pronounced. As the original final surd stops are not distinguished in pronunciation in Ibg., where they pass into hamza, except when supported by a suffix, they are often confused with each other in that language. This is especially frequent with words, which, like *bu^k*, have no

With the exception of Tag., the languages here present the regular pepet vocalism, unless pepet is lost entirely as occurs in several cases, where the two vowels are concurrent, e. g., Pang. *on*, Mgd. *buk*, Tir. *ebuk*, *etur*, Pamp. *tud*, Ibg. *vu^h*.

This is probably best explained as an absorption of the weak pepet vowel by its neighbor. Sulu *ud* and *hu* are examples of contraction of two concurrent similar vowels, the former after loss of the intervening *l* (see above, p. 924). In some words, however, Sulu, being an *h*-language, bridges the hiatus between two vowels by the intercalation of *h*. Phil. *buĕk* and *tuĕd* show this *h* uniformly in Tag., Bkl., Bis. and Sulu. *buhuk*, *tuhud*.

Tag., which has hitherto shown regularly *i* for pepet, here deviates from its regular vocalism, and, with the single exception of the isolated *útak*, substitutes *u(o)*. We evidently have before us an example of progressive vocalic assimilation, which is not paralleled elsewhere in the material of the eleven languages here tabulated, unless the isolated Ilk. *boók* is thus to be explained. The assimilation with which we have to do in the other classes is regressive. Progressive assimilation is likewise doubtless the explanation of the second *u* of Sund. *buuk* hair and *tuur* knee¹, and of Batán *buúk*, *túud*, Klm. *tood*, Kuy. *bóok*. That this assimilation in Tag. is prevented by the intervention of more than one consonant is indicated by the regular *i* of Tag. *butlíg* wart, whose pepet origin is vouched for by the cognates, Pang. *butlég*, Bkl., Bis. *butlóg*, Pamp. *butlíg*. We are already prepared for this case of prevented assimilation by our study of the same phenomena in the *pa*-class and the *pi*-class.

The *a* of Tag. *útak* is an exception to which I know no parallel in Tag. BRANDSTETTER (Prodromus, p. 51) sets up the variant series *utak*, *utek*, *utok* to account for the vocalic variety seen in Tag. *útak*, Jav. *utak* and *utĕk*, and Mak. *otoq* (*q*=hamza). I am, however, strongly of the conviction that further investigation of the laws of pepet evolution as affected by the more powerful action of the laws of assimilation and analogy will establish the original identity of these various forms, and the preponderance of examples showing a vowel of unmistakable pepet origin, together with those whose

forms with suffix to preserve the character of the original stop. The erroneous *t* written by Payo and by Bugarín (or one of his numerous revisers) in addition to the correct *k*-form, is doubtless due to popular analogy with other Ibg. words of more or less similar meaning properly ending in original *t*, e. g. *kulú'* kinky hair, *gunú'* hair of the wild palm, *duddú'* hair of the body. The Ibg. word, therefore, does not belong with Mal. *rambut*, as suggested by BRANDSTETTER ("Prodromus", p. 42), but with Toba *buk*, Sund. *buuk* and the Phil. words in *k*. For my orthography *v* instead of the *t* of the Spanish dictionaries and grammars, cf. my paper "F and V in Philippine Languages", p. 139.

¹ BRANDSTETTER, "Prodromus", p. 41, instead of setting up a dissyllabic IN prototype *buĕk*, *tuĕd*, from which both the dissyllabic and the monosyllabic forms are easily derived as explained above, considers the monosyllabic type the original one and then attempts to explain the longer forms Tag. *buhók*, *túhod*, Sund. *buuk*, *tuur* as extensions of this prototype, admitting, however, that the extension (Zerdehnung) seen in Bis. and Tag. *buhók* is "rätselhaft". In the same work (p. 48) the author shows how simply and naturally the dissyllabic prototypes with pepet: *tĕràs*, *tĕrab*, *bĕrat* degenerate, thru OJav. *twas*, *twab*, *bwat*, to New Jav. *tos*, *a-tob*, *bot*.

vowel could have developed from either *pepet* or another vowel, makes it certain that when such identity is established it will be on the basis of original *pepet*. That the positing of variant forms in general in the study of IN phonology and morphology is merely a convenient makeshift for a temporary classification of phenomena not yet sufficiently investigated, and hence does not commit the investigator to any theory that may later be proved untenable, is distinctly stated by BRANDSTETTER ("Mata-Hari", p. 53, par. 96), and this is the only possible method of proceeding to a scientific arrangement of many phonetic phenomena presenting problems awaiting solution in this comparatively new field of research.

The similarity, both in form and meaning, of Phil. *uləd* and *uləg*, together with the fact that most Phil. languages having the one word do not have the other, would at first sight suggest a confusion here of the final RLD and RGH consonants, and lead one to the conclusion that the word with a final consonant wavering between that of the RLD and the RGH series has come to have the exclusive meaning "worm" in some languages and that of "snake" in others. But in spite of the physical similarity of the two objects, worm and snake, they seem never to have been confused by the primitive Indonesian, certainly not by the Filipino, all of whose languages, so far as I have been able to examine them lexically, have distinct words for the two ideas. Thus the blank spaces under "worm" and "snake" in the above table (V) may be semantically filled out as follows; "worm": Pang. *bigís*, Ilk. *eggés*, Tir. *sofot*, Ibg. *tuggít*; "snake": Tag. *áhas*, Mgd. *nipai*, Pamp. *ubiñan*, Ibg. *iráu*, Bkl., Bis. *hálas*, Bgb. *bakossan*, Sulu *has* (the Tag., Bkl., Bis. and Sulu words being, of course, identical). Under none of the definitions given is there any suggestion of confusion between the concepts "worm" and "snake". Add to this the uniform RLD consonant in the words having the former meaning and the equally uniform RGH consonant of the others, as well as the existence in Mal. of both *ulat* (*hulat*) worm and *ular* snake¹, and the probability of confusion of the two prototypes disappears.

The exceptional *a* of Tir. *urrar* may be due to the influence of the adjacent *r* sounds. The *w* of Ilk. *wen* and Mgd. *wai* represents the original *u* which, after loss of accent, has weakened to a semivowel; that of Pamp. *ówa* and Ibg. *uwán* is a semivocalic glide developed between the two vowels, while in Bkl. *óho* the *h* is inserted a in *búhok*, *túhod*. The vocalism of Mgd. *wai*, where we should expect *we*, is unclear. The Tir. variants *hoo*, *hěě* exemplify a law of vocalic interchange peculiar to Tir., and as yet little understood, but paralleled by the Tir. pluralizing variants *de*, *do*, *da*.

Table VI: the *pu*-class.

	full	sugar cane	redeem	pedere	sound	to sate	to boil
Phil.	<i>pěnu</i>	<i>těbu</i>	<i>těbus</i>	<i>ětut</i>	<i>těnug</i>	<i>běsug</i>	<i>sěbu</i>
Tag.	<i>punó</i>	<i>tubó</i>	<i>tubós</i>	<i>utót</i>	<i>tunóg</i>	<i>busóg</i>	<i>subó</i>
Pang.	<i>pánu</i>	<i>tabú</i>	...	<i>atót</i>	<i>tanól</i>	...	<i>sabó</i>

¹ The *t* of Mal. *ulat* is for the sonant *d* of the RLD series by the law of final stop consonants, the *r* of *ular* regularly for RGH.

	full	sugar cane	redeem	pedere	sound	to sate	to boil
Ilk.	<i>punnó</i>	subbó <i>unas</i>	<i>subbút</i>	<i>uttót</i>	—	<i>bussúg</i>	(<i>sobbó</i>) <i>síbo</i>
Mgd.	<i>penú</i>	<i>tebu</i>	<i>tebus</i>	<i>tud</i>	<i>tanuk</i>	—	—
Tir.	<i>fenó</i>	—	<i>tebús</i>	<i>etút</i>	—	<i>besor</i>	—
Pamp.	<i>apnú</i>	<i>atbú</i>	<i>atbús</i>	<i>atút</i>	<i>atní</i>	<i>absí</i>	<i>asbó</i>
Ibg.	<i>pannú</i>	<i>tavvú</i>	<i>tavvút</i>	<i>attút</i>	<i>tannúg</i>	<i>battúg</i>	<i>tavvú</i>
Bkl.	<i>panó</i>	<i>tubú</i>	<i>tubús</i>	<i>atót</i>	<i>tanóg</i>	<i>basóg</i>	<i>sabó</i>
Bis.	<i>punó</i>	<i>tubó</i>	<i>tubós</i>	<i>utót</i>	<i>tunóg</i>	<i>búsog</i>	<i>subó</i>
Bgb.	<i>punnó</i>	<i>tubbó</i>	<i>tubbos</i>	<i>uttót</i>	—	<i>bussog</i>	—
Sulu	—	<i>tubu</i>	—	<i>utut</i>	—	—	—

Tag. shows *u* for pepet as in the preceding class, but here by regressive assimilation. Ilk. likewise has *u* for the same reason (cf. above, p. 931). Pang. shows *a* instead of the regular *e*. This is evidently a case of partial assimilation to the following *u*. The geminating languages here show doubling of the medial consonant in all the examples (see above, consonant doubling), and the Pamp. examples, excepting *atút*, show metathesis in the first syllable. Ilk. *subbút* is an example of metathesis of initial and final consonants not infrequent in that language (see above, under metathesis). Mgd. has an exceptional *a* in *tanuk*, which shows the surd *k* finally for the sonant *g*, as Mgd. *puset* for Phil. *puséd* (table V). A comparison of the final consonantism with that seen in Mgd. *uled* (Phil. *uléd*) and Mgd. *tud* (Phil. *étut*) would indicate that final stops in Mgd. waver between surd and sonant, whatever may have been the original sound.

In Pamp. *atní* and *absí* we have a peculiar treatment of original final *ug*, the *g* of the RGH series becoming the semivowel *y* or *i*, which with the preceding *u* first forms a diphthong *ui*, from which the labial element is later lost after shifting of accent to the final component *i*.

The Bkl. words have the regular *a* for pepet in the penult in five of the seven examples here tabulated, in spite of the following *u* (cf. above, p. 931).

Table VII: the *pp*-class.

	excavate	pole	hear	cleave, stick	thorn	to close (hand)	six
Phil.	<i>lěběň</i>	<i>těkěň</i>	<i>děňeg</i>	<i>děkět</i>	<i>těňěk</i>	<i>kěmkěm</i>	<i>ěněm</i>
Tag.	<i>libiñ</i>	<i>tikiñ</i>	<i>diñig</i>	<i>dikit</i>	<i>tiñk</i>	<i>kimkim</i>	<i>anim</i>
Pang.	—	<i>tekén</i>	<i>deñél</i>	—	<i>tenék</i>	<i>kemkém</i>	<i>aném</i>
Ilk.	<i>Calí</i>	<i>tekkén</i>	<i>deññég</i>	<i>rekkét</i>	<i>tennek</i>	<i>kemkém</i>	<i>inném</i>
Mgd.	<i>leben</i>	<i>teken</i>	—	<i>deket</i>	<i>tenek</i>	—	<i>aném</i>
Tir.	<i>leben</i>	—	—	<i>deket</i>	—	<i>kemkem</i>	<i>enem</i>
Pamp.	<i>albán</i>	<i>atkán</i>	—	—	—	<i>kamkám</i>	<i>anám</i>
Ibg.	<i>labbáñ</i>	<i>takkán</i>	—	<i>dakkót</i>	<i>tannók</i>	—	<i>annám</i>
Bkl.	<i>lubúñ</i>	<i>tukún</i>	<i>danúg</i>	<i>dokót</i>	<i>tunok</i>	<i>komkóm</i>	<i>unúm</i>
Bis.	<i>lubúñ</i>	<i>tukún</i>	<i>duñúg</i>	<i>dukút</i>	<i>tunúk</i>	<i>kumkúm</i>	<i>unúm</i>
Bgb.	<i>lubbúñ</i>	—	—	<i>dókkot</i>	—	<i>komkom</i>	<i>annám</i>
Sulu	<i>luban</i>	—	<i>duñuk</i>	—	<i>tunok</i>	<i>kumkum</i>	<i>unom</i>

This class, like the *ap*-class (table I), is remarkably uniform in its pepet vocalism. This is evidently due to the fact that the development of the pepet vowel is here undisturbed by the attractive influence of a neighboring dissimilar vowel.

Aside from the exceptional *a* in the ultima of Bgb. *annám* and Sulu *lubañ*, for which no explanation can here be offered, and the peculiar vocalism of the first syllable of Phil. *ěněm* to be treated below, the Bkl. shows the only peculiarity requiring special comment. It will be noted that in this class Bkl. has *a* for penultimate pepet only two of the seven examples listed, the other five showing *u*. The following additional list of words in the *pp*-class shows nearly the same proportion of Bkl. examples having *a* in the penult:

Phil.	Bkl.	Tag.	Other languages	
<i>běgkěs</i>	<i>bugkús</i>	<i>bigkús</i>	Bis. <i>búgkus</i>	Mal. <i>berkas</i>
<i>bětěk</i>	<i>butók</i>	<i>bitík</i>	Pang. <i>beték</i>	Ilk. <i>bették</i>
<i>dělěs</i>	<i>dolós</i>	<i>dílís</i>	Pang. <i>delés</i>	Ibg. <i>dalló'</i>
<i>gětěl</i>	<i>gútul</i>	<i>gitíl</i>	Pang. <i>getél</i>	Pamp. <i>agtál</i>
<i>někněk</i>	<i>noknók</i>	<i>niknik</i>		
<i>pětěs</i>	<i>pútus</i>	<i>pitís</i>	Bis. <i>putús</i>	Pamp. <i>aptás</i>
<i>sěgěd</i>	<i>sogód</i>	<i>sigíd</i>	Tir. <i>seged</i>	Pamp. <i>asyád</i>
<i>těgěb</i>	<i>tagób</i>	<i>tigíb</i>	Mgd. <i>tegeb</i>	Pamp. <i>atyáb</i>
<i>těřek</i>	<i>tárok</i>	<i>tidík</i>	Ilk. <i>tédék</i>	Pamp. <i>atdák</i>
<i>těřs</i>	<i>tadós</i>	<i>tiris</i>	Pang. <i>serét</i>	Pamp. <i>atdás</i>

Ibg. *dalló'* has an original final *t* for Phil. *s* regularly as in *tabbu'* (Phil. *těbus*), and Pang. *serét* has metathesis of initial and final consonants.

Penultimate *a* and *u* interchange in the Bkl. variants *lanúd*, *lunúd* to sink in water (cf. the cognates Pang. *lenéd*, Ilk. *lennéd*, Bis., Sulu *lunúd*). Thus we see that while the penultimate pepet vowel in Bkl. here, as in other classes, wavers between *a* and *u*, the latter predominates to such an extent that it may, for our purpose be considered the rule, and *a* the exception. If we contrast with this case that of the *pu*-class (table VI), where Bkl. regularly shows *a* in spite of an original *u* of the following syllable, we are forced to the conclusion that vocalic assimilation cannot explain the phenomena before us. In fact, the only certain case of vocalic assimilation in the Bkl. material studied is that of *bili* in the *pi*-class, beside the unassimilated pepet vowel of *sapí* and *banhí*.

Now a review of all the Bkl. material we have collected shows that pepet invariably becomes *u* (*o*) in a final syllable, and, as a rule, becomes *a* in the penult of all classes except the *pp*-class, where it regularly becomes *u*. Of the two pepet vowels we have seen that *u* is the more stable, and hence, if there are two pepets in the same word, naturally evolving like sounds, as is seen in all the other languages of the *pp*-class, the two vowels will naturally be *u* rather than *a*. The exceptions like *danúg* are explained as due to analogy, the *a-u* succession following that of the *pu*-class and the large number of other Bkl. words of the same vocalism.

A pepet vowel in initial position develops peculiarly in certain languages. This vowel most commonly appears as a weak, colorless *a*. Its most conspicuous examples are the IN numerals *ěněm* six and *ěpat* four, to which may be added Phil. (*ě*)*ripěn* (table III).

The same *a* appears in the reduplicated syllable of Phil. *tět(ě)lu* three, which has become stereotyped in some languages while others show the simple IN form *tělu*¹.

¹ Cf. BLAKE, "Contributions to Philippine Grammar" in J. of the Am. Or. Soc., vol. 28, p. 204.

Phil.	Tag.	Pang.	Ilk.	Mgd.	Hlg.	Bgb.	Kuy.	Inb.
<i>ěpat</i>	<i>apát</i>	<i>apát</i>	<i>uppát</i>	<i>apat</i>	<i>apát</i>	<i>appát</i>	<i>apát</i>	<i>áppat</i>
<i>ěněm</i>	<i>aním</i>	<i>aném</i>	<i>inném</i>	<i>anem</i>	<i>anúm</i>	<i>annám</i>	<i>aném</i>	<i>anním</i>
<i>(ě)ripěn</i>	<i>alípin</i>	<i>arípen</i>	<i>adípen</i>	<i>urípen</i>	<i>ulípon</i>	—	—	—
<i>tět(ě)lu</i>	<i>tatló</i>	<i>(taló)</i>	<i>(talló)</i>	<i>(telu)</i>	<i>tatló</i>	<i>tatló</i>	<i>tatló</i>	<i>(táddu)</i>

The parenthesized *taló* and *telu* are from the unreduplicated prototype *tělu*. Ilk. *talló* and Inb. *táddu*, as well as Ibg., Gad., Itw., Yog. *tallu*, may phonetically represent either the simple or the reduplicated form. If they are from the simple *tělu*, the double consonant is the result of gemination (see above, p. 922), but if from the reduplicated *tět(ě)lu*, it is the result of regressive assimilation following syncopation of the intervening weak *ě*. It is probable, however, that the Ibg. *tallú* and Ilk. *talló* are, notwithstanding their similarity of appearance, from different prototypes, the former being from Phil. *tět(ě)lu* and the latter from Phil. *tělu*. The unassimilated *t* of Ilk. *itlóg* egg stands as evidence against the reduplicated prototype for Ilk. and the same may be said of the Inb. *táddu* in view of Inb. *exduk*¹ egg, where assimilation does not take place. In Ibg., on the other hand, Phil. *itlug* appears as *illúg*. With this evidence alone, Ibg. *tallú* could be referred to *tět(ě)lu* as well as to *tělu*, and the former prototype is suggested as the more probable by the Bat. *tatdú*² (Phil. *tět(ě)lu*).

Ilk. *talló*, *uppát*, *inném* show an exceptional variety of pepet representation which is difficult to account for. It is possible that the quality of the following consonant has here affected that of the weak vowel in question. Hlg. has, beside the forms here given, *toló*, *upát*, *unúm*, like the other Bis. dialects (except Kuy.).

The *a* vocalism of the original unaccented pepet which appears consistently in *tět(ě)lu*, *ěpat* and *ěněm*, in several languages and dialects instead of the regular pepet vowel peculiar to those languages is doubtless due primarily to the influence of the original *a* in the last syllable of all but one of the first five IN cardinals, *ěsa*, *dua*, *tělu*, *ěpat*, *lima*. Thus the original final *a* of *dua* would tend to give an *a* coloring, especially in counting, to the weak unaccented pepet of the following *tělu*, and this influence would have a still greater effect upon the more isolated pepet of the reduplicated

¹ Ortography of SCHEERER, "The Nabaloi Dialect", Manila 1905, p. 103; *x* represents the sound of *dh* in the Scotch word *loch*.

² *Tatdú* is doubtless the correct form. It is taken from a word list given to me orally by a Batán servant boy at Aparri (north coast of Luzón) in October 1904. This boy had recently arrived from his native island, Batán, and I hence consider his word list more reliable than that which I took one year later at Clavería (North Luzón) from a native of Batán who had many years before migrated with his family to Luzón. The latter gave *táddu*, which, if correct, shows assimilation of *t* to the following *d*, since Bat. does not double a single consonant. He similarly gave the word for goat as *kaddín*, which the servant boy had pronounced *kanáin*. Furthermore, *tatdo* is the form found both in the Batán *Catecismo* of Padre RODRÍGUEZ (reprinted by RETANA in his "Archivo del Bibliófilo Filipino", vol. 2, Madrid 1896), p. 13, *et passim*, and in the Batán "devocionario" entitled "Nu Napia Amigo", Manila 1901, p. 62, *et passim*. I would therefore discard both *táddu* and the by-form *tatlo* given by SCHEERER, "The Batán Dialect as a Member of the Philippine Group of Languages", Manila 1908, Plate I.

form *tět(ě)lu*. The initial *a* of *apát* would in turn be due, either to the assimilative influence of the original *a* of the final syllable, or to analogy with the already established *a* of the first syllable of its predecessor, *tatlú*, or more probably, to both these influences combined. Finally, the *a* of *lima* exerts its influence upon the initial unaccented pepet of its successor *ěněm*, and the *a* thus resulting is now amply fortified by the analogy of the penultimate *a* of *tatlú* and *apát*. The *a*'s thus arising then become still more firmly established by mutual support under the natural operation of the laws of analogy.

A striking example of analogy is furnished by the Pamp. numerals *adwá* and *apulú*, which have prefixed an *a* owing to the initial *a* of *atlú*, *apát*, *anám*. For the *i* of *isá* one in non-*i* languages there seems to be no satisfactory explanation, unless we posit the variants *ěsa*, *isa*. Tag. and Bon. *isá* could be referred to either of these variants, but the following forms must go back to *ěsa*: Knk. *esá*, Kal. *eta*, Bat. *asá*¹, Bis., Isn. *usá*. Tgb. and Hlg. have both *usa* and *isa*. Other examples of the *isa* type are Bkl.², Pang., Pamp., Sulu, Mgd., Tgk. *isá*, Ilk., Ting. *maisá* (for *ma + isa*), Itw. *isa*, Ibg., Gad. *ítte* (*t* regularly for Phil. *s* and *e* as in Ibg. *dúe* two beside *dúa*), Kuy. *isará* (lit. "one only"): The proclitic form *sa* seen in Bkl. *saró*, Inb. *saxěi*, Ibg. *táddai*, Bgb. *sabbad*, Mnb. *sabad*, Tir. *seba'an* one, Tag. *sanpúwo*, Bkl. *sampúlo*, Mgd., Bgb. *sapulu*, Gad. *táfulu* (with secondary Gad. accent and regular *t* for *s*), Pang. *samplo* ten (lit. "one ten"), and Mal., Jav., Sund. *sa* one and *sapuloh* ten may be explained either as a third variant beside *ěsa*, *isa*, or as *ěsa* with loss of the initial pepet when the word becomes proclitic. Čam *sa* may represent either *sa* or *ěsa*, it being a peculiarity of that language to suppress a penultimate pepet vowel, e. g., Čam *braḥ* (IN *běras*) rice, *klău* (IN *tělu*) three, *pak* (IN *ěpat*), *nam* (IN *ěněm*). An IN *u* is thus suppressed in Čam *sa pluh* (IN *pulu*) ten.

It is evident from the above examination of the pepet vocalism of the numerals, that in several languages they form a distinct category subject to a special secondary influence, namely, the combined operation of assimilation and analogy, and hence may be set aside as not belonging to the general phenomena of the pepet law. Excluding, then, this peculiar vocalism of unaccented pepet in the numerals and in the first syllable of the exceptional (*ě*)*ripěn*, we may now proceed to a more concise statement of the evolution of the indifferent vowel in each of the eleven languages above tabulated.

Tagalog: Pepet regularly becomes *i*; but when the vowel of an adjacent syllable of the same root word is an original *u* (*o*), pepet is assimilated to this vowel, becoming *u* (*o*), but not to a preceding *u* (*o*) if more than a single consonant intervenes, e. g. *púsud* (Phil. *pusěd*), *punó* (Phil. *pěnu*), but *butlig* (Phil. *butlěg*).

¹ BLAKE, *op. cit.*, p. 203, explains the initial *a* of *asá* as prefix. I quote his explanation without comment: "Batan *asa* is probably the root particle *sa* which is found in the majority of the forms of one, with a prefix *a* probably identical with the *a* of Tagalog *ang*, just as the *i* of *iisa* is identical with the *i* of Pampangan *ing*",

² Bkl. *isá* is the form used in counting, cf. MARCOS DE LISBOA, "Vocabulario de la Lengua Bicol", Manila 1865, s. v. *isá*.

Pangasinan: Pepet regularly becomes *e*, exceptionally *i* or *a*. It appears as *i* by assimilation to an original *i* of the following syllable in the same root word (*bilí*: Phil. *běli*), and as *a* by partial assimilation to an original *u* (*o*) of the following syllable (*pánu*: Phil. *pěnu*).

Iloko: Pepet regularly becomes *e*, exceptionally *a*, *i* or *u*. It appears as *a* by assimilation to an original *a* of the following syllable in the same word when only a single consonant intervenes (*bagás*: Phil. *běgas*), and as *ě* or *u* by assimilation to an original *i* or *u*, respectively, of the following syllable of the same word (*bin'í*: Phil. *běni*, *punnó*: Phil. *pěnu*).

Magindanau: Pepet appears regularly as *e*, exceptionally as *i*. It becomes *i* by attraction to an original *i* in the following syllable of the same root word (*sipit*: IN *sěpit*).

Tirurai: Pepet becomes uniformly *e*, except in *sifit*: IN *sěpit*, where it becomes *i* lbg. assimilation to the *i* of the following syllable.

Pampanga: Pepet regularly becomes *a*, exceptionally *i* by assimilation to an original *i* of the following syllable in the same root word when only a single consonant intervenes (*biní*: Phil. *běni*, but *ablí*: Phil. *běli*).

Ibanag: Pepet regularly becomes *a*, exceptionally *i* by assimilation to an original *i* of the following syllable in the same root word when only a single consonant intervenes (*biní*: Phil. *běni*, but *ballí*: Phil. *běli*).

Bikol: Pepet regularly becomes *u*(*o*) in a final syllable and *a* in the penult; but if the original vowel of both syllables is pepet, it becomes *u*(*o*) in both. Before an original *i* of the following syllable in the same root word, it is sometimes assimilated, becoming *i* (*bilí*: Phil. *běli*), and sometimes becomes the regular penultimate *a* (*sapí*: Phil. *sěpi*).

Bisaya: Pepet regularly becomes *u*(*o*), exceptionally *i* by assimilation to an original *i* of the following syllable in the same root word (*bilí*: Phil. *běli*).

Bagobo: Pepet becomes *u*(*o*) except when followed by an original *i* in the next syllable of the same root word, when it either it assimilated, becoming *i* (*binni*: Phil. *běni*), or becomes *a* (*ballí*: Phil. *běli*).

Sulu: Pepet regularly becomes *u*(*o*), exceptionally *i* by assimilation to an original *i* of the following syllable of the same root word (*bī* < *bii* < *bilí* < Phil. *běli*).

Other languages and dialects. We now continue our study by examining the pepet vocalism of the following languages and dialects, one of which, Chamorro, tho not within Philippine territory, is conveniently classified here:

1. Ata (near Mt. Apo, S. Mindanao) ¹.
2. Banawi (mountains of N. Luzón).
3. Batán (Batán Islands, to N. of Luzón).
4. Bilan (mountains of S. Mindanao, S. of Ata territory).
5. Bontok (Igorots of Lepanto-Bontok province, N. Luzón).

¹ For more detailed geographical information cf. SCHEERER's sketch map in his work, "The Batán Dialect &c.", p. 17, and, for the Luzón territory, WORCESTER's authoritative work, "The Non-Christian Tribes of Northern Luzon", in the Philippine Journal of Science, vol I, No. 8, Manila 1906.

6. Chamorro (Marianne Islands).
7. Gaddang (Ibanag dialect, N. Luzón).
8. Inibaloi (Igorots, Benguet province, N. Luzón).
9. Isinai (mountains of Nueva Vizcaya province, N. Luzón).
10. Itawi (Ibanag dialect, N. Luzón).
11. Kalamian (N. Palawan).
12. Kankanai (Igorots of N. Benguet, N. Luzón).
13. Kuyunon (Bisaya dialect, Cuyo Islands, between Panay and Palawan).
14. Lepanto (mountains of N. Luzón).
15. Manobo (mountains E. of Gulf of Davao, S. Mindanao).
16. Samal (Samal I. Gulf of Davao, S. Mindanao).
17. Sambal (Zambales province, W. Luzón).
18. Tagakaolo (Apo range, W. of Gulf of Davao, S. Mindanao).
19. Tagbanwa (Palawan I.).
20. Tingyan (mountains of N. Luzón).
21. Yogad (Ibanag dialect of N. Luzón).

E-languages.

Lepanto: Pepet becomes *e*: *zelok* (Tag. etc. *itlug*, Mal. *telor*) egg, *oeg* (*ulëg*¹) snake, *tiñed* (*těñěd*) back of neck. The last example shows *i* in the penult. For loss of *l* in *oeg*, cf. Lep. *uat* (*ugat*) vein, where the consonant of the RGH series, appearing secondarily as *l*, is lost in intervocalic position, and *buan* (*bulan*) moon, where the *l* is original; but it seems not to be lost before *o(u)*, *zelok*, *olo* (*ulu*) head (cf. above, p. 924). The discrepancy between the final consonant sounds of *zelok* and *oeg* is more apparent than real, since final stops are generally not exploded in Philippine languages, and it is probable that to the German ear of SCHADENBERG, from whose list the above examples are taken, the same consonant appeared, now as *k*, now as *g*.

Kankanai: Pepet becomes regularly *e*, exceptionally *u(o)*: *esá* (*ěsa*) one, *epát* (*ěpat*) four, *eném* (*ěněm*) six, *ewég* (*ulëg*) snake, *toló* (*tělu*) three, *bú'ok* (*buěk*) hair, the *o* of the last two examples being the result of assimilation to a neighboring original *u(o)*. In this last respect, Knk. is sharply differentiated from the neighboring dialect Inb., which has *bú'ek*. The first *e* of *ewég*, on the other hand seems to be case of assimilation of an original *u* to an accented pepet vowel.

Inibaloi: Pepet regularly becomes *e*, exceptionally *i* and *a*: *atép* (*atěp*) roof, *ačálem* (Ilk. *adálem*, Tag. *lalim*) deep, *ačaxel* (*dakěl*) much, *bekás* (*běgas*) rice, *utek* (*utěk*) brain, *púseg* (*pusěd*) navel, *bú'ek* (*buěk*) hair, *úleg* (*ulëg*) snake; *atút* (*ětut*) pedere *táddo* (*tělu*) three, *áppat* (*ěpat*) four, *annim* (*ěněm*) six, *mačím* (*marěm*) afternoon. Where *a* occurs it is in the penult, and the two examples of *i* are in an accented final syllable ending in *m*. The *č* (= *ch* in *church*) of *ačálem*, *ačaxel*, and *mačím* is the regular representative in Inb. of the RLD consonant, and *x* (= *ch* in Scotch *loch*) is for intervocalic *k*, cf. also Inb. *koxo* (*kuku*) finger nail.

Kuyunon: Pepet regularly becomes *e*, exceptionally *a* and *u*: *idálem* (*iralěm*, Bis. *iálum*) below, *ráet* (Bis. *da'ut*, Tag. *la'it*) bad, *lieg* (Bis. *lí'ug*, Tag. *lí'ig*) neck, *ibeg* (*iběg*) desire, love, *ipen nípěn* tooth (with loss of initial

¹ When not otherwise indicated, the parenthesized form is to be understood as Phil.

n as in Pamp. *ipan* and Sulu *ipun*, table III); *aném* (*ěněm*); *tatló* (*tět[ě]lu*), *apát ěpat*: *punó* (*pěnu*) full, *tubús* (*těbus*) redeem, *bóok* (*buěk*). The numerals show the penultimate *a* (cf. pp. 935 and ff.), and the *u* (*o*) of the last three examples is the result of *u*-assimilation as in Tag.

Kalamian: Pepet regularly becomes *e*, exceptionally *u* (*o*): *eta* (*ěsa*), *epat* (*ěpat*), *enem* (*ěněm*), *kenái* (Bat. *anái*, Chro. *unai*, OJav. *hěni*) sand, *kiripen*¹ (*ěripěň*) slave, *bitonken* (*bituěň*) star, *kuled* (*ulěđ*) worm; *tolo* (*tělu*), *dakólo* (Chro. *dánkulo*, cf. above. p. 926) great, *tood* (*tuěđ*) knee. The first *o* of *tolo* and *dakólo* is the result of assimilation to the *o* of the following syllable, and the second *o* of *tood* shows assimilation to an original *u* (*o*) immediately preceding, as contrasted with *bitonken* and *kuled*, where progressive assimilation is prevented by intervening consonants. Klm. *eta* has *t* for Phil. *s* like the Ibg. dialects, e. g. Klm. *katawa*, Ibg. *atawa* (*asawa*) spouse, Klm. *toto*, Ibg. *tutú* (*susu*) uber. One of the chief characteristics of Klm. is a parasitic *k*, which is seen most commonly prefixed to an initial vowel, as in *katawa*, *keuai*, *kiripen*, *kuled*, sometimes in the interior of a word, as in *bitonken* and *takon* (Tag., Pang. *taón*, Mal. *tahun*) year, and sometimes finally, as in *lotok* (Bis. *lúto*, Tag. *lutó*) to cook², *polok* (IN *pulu*) ten.

Languages showing both *e* and *a*.

Batan: Pepet regularly becomes *e* in a final root syllable, and *a* in a penultimate syllable: *nipěň* (*nípěň*) tooth, *ipwés* (*ipěs*) roach, *puség* (*pusěđ*) navel, *uhed* (*ulěđ*) worm, *rahet* (*daěť*, see under Kuy) bad, *bituhén* (*bituěň*) star, *ánem* (*ěněm*) six, *laběň* (*lěběň*) to bury, *adńeyen* (*děńěg-ěň*) hear (imv.), *asá* (*ěsa*) one, *tatďú* (*tětlu*) three, *ápat* (*ěpat*) four, *atút* (*ětut*) pedere; it becomes *u* by progressive assimilation in *túud* (*tuěđ*) knee, and *buúk* (*buěk*) hair, where no consonant intervenes, contrast *puség bituhén*. Bat. has both *dadaké* and *rakuh* meaning great, the former being Phil. *dakě* (Bis. *daku*, Tag. *malakí*) with reduplication, and the latter the extended form *dakěl* (see above table I). For the exceptional *u* instead of *e* in *rakuh* there is no satisfactory explanation. In *sehseh*³ (Tag. *silsil*., Ilk. Pang. *selsél*, Pamp. *salsál*, Ibg. *tattál* (Bis., Bkl. *sulsúl*), both syllables show *e* for pepet contrary to the rule for penultimate *a*. We have here the reduplication of a monosyllabic root as in the case of Phil. *kěmkěm* (table VII, p. 933), a type that is very common in all Philippine languages, and in such forms pepet seems always

¹ Written *quiripuen* in Padre JERÓNIMO's Vocabulario, the *u* being written after the labial *p* to indicate the obscure sound of *e*, cf. Padre COSGAYA's Spanish orthography of the Pang. cognate *aripuěň* (pronounced *aripen*, with *e* as in Ger. *sagen*).

² Padre JERÓNIMO's *coser* (p. 17 of the "Vocabulario Castellano-Calamiano") is evidently erroneously written for *cocer*. This is indicated, not only by the phonetic correspondence of the Phil. words, but by the meaning of the words in the list immediately preceding and following *coser*, the order being *comido*, *crudo*, *coser*, *serveza* for *ceveza*, *vino* &c., where *serveza* shows the same error.

³ From the form written *ipanejsej* repent (imperative) in "Nu Nap:a Amigo, p. 421, *et passim*. The Phil. root *sěsěł*, which develops different shades of meaning in different languages, based on the general idea "to crush, blunt, rivet", has often in the reflexive and passive the derived meaning "be sorry, repent".

to develop the same vowel in the two syllables, as tho they were treated as separate words.

The *h* of *sehseh*, like that of *uhed* and *rakuh* is the regular representation of Phil. *l* in Bat., cf. also Bat. *uhó* (*ulu*) head, *hanyit* (*lanit*) sky, *rahan* (*dalan*) way. It is strongly aspirated, approaching the spirant sound of *g* in Ger. "Ziege", and hence is represented in the Span. orthography of *Nu Mapia Amigo* by *j*. When taking the word lists from natives of Batán Island I observed the close similarity of this sound to that Inb. *x* (see above, p. 938). The *h* of *bituhén* and *rahet* is parasitic, as often in the *h*-languages, Tag., Bis., Bkl., Sulu (cf. the medial parasitic *k* of Kalamian, p. 939), where it bridges the hiatus between two vowels, i. e., replaces intervocalic hamza.

The retention of Phil. *l* in Bat. *labeñ* is an exception for which I have found no parallel. Bat. *adñeyen* (*dèñĕg-ĕn*) shows metathesis of the first syllable and *y* for Phil. *g* (RGH) as regularly (see above, p. 924).

Togad. Gaddang and Itawi: These are dialects of Ibg. and, like that language, regularly represent pepet by *a*, which, however, is sometimes modified, becoming obscure *e* of the *e*-languages: Gad., Yog., Itw. *baggá* (*bĕgas*) rics, *tállu* (*tĕtlu*) three, *appát* (*ĕpat*) four, Gad. *fútag* (*pusĕd*) navel, Gad., Yog. *útag* (*utĕk*) brain, Gad. *pannú* (*pĕnu*) full, Gad. *attú*, Itw. *áttu* (*ĕtut*) pedere, Gad., Yog., Itw. *anném* (*ĕněm*) six, Gad. *nípen*, Yog. *nípén*, Itw. *nípan* (*nípĕn*) tooth. This *e* may be considered as a secondary modification of *a* since original full vowels are often thus obscured in these dialects, e. g. Gad. *mápie* (Ilk. *mappyá*) good, Gad. *kámet* (Tag., Bis. *kamot*) hand, Itw. *memmemá* (*ma-mama*, IN *mama*) to chew, but Gad. *mámmama*.

Like Ibg., these dialects are characterized by consonantal gemination (*baggát*, *appát*), total regressive assimilation of consonants (*tállu*, see discussion of Tag. *tallú*, pp. 935 ff.), *f* for Phil. *p* before *u* (Gad. *fútag*, Itw. *fútag*, Yog. *tá-fulu*, Phil. *pulu*, but Gad., Yog., Itw. *appát*, *pitú* seven, and *t* for Phil. *s* except before *i* (Gad., Yog., Itw. *baggát*, Gad. *fútag*, Itw. *fútag*, Yog. *tagatút* [*sagatus*] one hundred, but Ibg. *sikú*, Gad. *siku*, Phil. *siku* elbow); but they differ from Ibg. in retaining unchanged the final surd stops, *k*, *t*, and *p* (*baggát*, *útag*) and the pepet *a* preceding such final surd stop (*útag*, but leg. *utó^k*).

U-languages.

Tingyan: Pepet regularly becomes *u* (*o*), exceptionally *a*, *e* or *i*: *dákon* (*dakĕ-n*) great, *bogás* (*bĕgás*) rice, *tulu* (*tĕlu*) three, *upát* (*ĕpat*) four, *boók* (*buĕk*) hair; *anám* (*ĕněm*) six; *beken* (Day., Tir., Mgd. *beken*, Har., Sulu *bukun*) not so; *nebiñ* (*nípĕn*) tooth, *maisá*, for *ma* + *isa* (*ĕsa* or *isa*) one. The material is not sufficient for an analysis of the exceptional vocalism, *a*, *e* and *i*. The *n* of *dákon* is doubtless a connective (the *ligazón* of the Spanish grammarians) like the *ñ* of Bis. *dakúñ balai* large house.

Isinai: Pepet becomes uniformly *u* (*o*): *osa* or *ossa* (*ĕsa*) one, *opat* (*ĕpat*) four, *onom* (*ĕněm*) six, *lubu* (*lĕbĕn*) bury, *anon* (*kan-ĕn*, Tag. *kán'in*, Bis. *kán'on*) food.

The change of IN *k* to hamza seen in *anon* is a peculiarity of Isn. and may occur in any position, initial, medial, or final, e. g. *a* (*ka*) you (sing.)

in *Christiano á?*¹ Are you a Christian? *a(ak)* I in the answer to the above question, *O Ama, christiano á* Yes, Father, I am a Christian, *ana'* (*anak*) offspring, *le'ai (laki)* male. The loss of *ñ* in *lubu* has, so far as I know, no parallel in Isn.

Tagbanwa: Pepet regularly becomes *u* (*o*), exceptionally *i* or *a*: *bugas* (*bēgas*) rice, *itom* (*itēm*) black, *usa* (*ěsa*) beside *isa* (*isa*) one (see above, p. 936), *tulo* (*tělu*) three, *unon* (*ěněm*) six, *bo'ok* (*buěk*) hair, *madlom* (OJav. *malēm*, Mal. *malam*, Čam *mo'lam*, Ilk. *malēm*, Chro. *mačum*) night, *ka'un* (Bis. *ká'on*, Tag. *ká'in*) eat; *nipin* (*ñipěn*) tooth; *bituan* (*bituěn*) star. Tgb. *nipin* has initial *n* for IN *ñ*.

With the final *n* in *unon* for IN *m*, compare Tgb. *lina* (*lima*) five, but the *m* is retained unchanged in *itom* and *madlom*.

Chamorro: Pepet becomes *u* (*o*), exceptionally *e*: *átuf* (*atěp*) roof, *tánum* (*tanēm*) plant, *pugas* (*bēgas*) rice, *lótša* (Tag. *lisá*, Bis. *lusá*) nit, *túlo* (*tělu*) three, *gúnum* (*ěněm*) six, *húnug* (*děňěg*) hear; *nifen* (*ñipěn*) tooth.

The *e* of *nifen* is due to the *i* of the preceding syllable².

The consonantal peculiarities of Chro. illustrated by the above examples are the following: IN *p* becomes *f* (*átuf*, *níjen*); IN *b* becomes *p* (*pugas*, cf. *pílan*, IN *bulan* moon); the consonant of the RLD series becomes *h* initially (*húnug*, cf. *hánum*, Phil. *danum* water); a parasitic *g* is developed (*gúnum*, cf. *gínem*, IN *inum* drink) and IN initial *ñ* is simplified to *n* (*nifen*, cf. *naan*, Phil. *ñalan* name).

Unclassified languages.

Banawi: Pepet becomes *i* in *olig* (*ulěg*) snake.

Bontok: In this dialect, the development of the pepet vowel, like that of other sounds, notably original *b*³, seems to be of a variable and uncertain character. It appears as *i* in *isá* (*ěsa* or *isa*), *ipát* (*ěpat*) four, *inim* (*ěněm*) six, *púsig* (*pusěd*) navel; as a light *ě* in the last syllable of *útěk* (*utěk*) brain, and *čún-něn* (*děň(ě)g-ěň*) hear; as the sound of *u* in Eng. *but*⁴ in the first syllable of the last example, and in *owúg* (*ulěg*) snake; and as *o* in *foók* (*buěk*) hair and *toló* (*tělu*) three. In Bon. *čúkcúki* great is seen the Phil. *dakě* (table I) with reduplication of all except the pepet vowel, the original *a* being obscured to *ú*.

With Bon. *č* for Phil. *d* (RLD) in *čún-něn* and *čúkcúki*, compare *čúwa* (*dua*) two. The *w* of *owúg* is a labial glide after loss of intervocalic *l* (see above, p. 924). With the *f* of *foók*, compare Bon. *lífo* (*ribu*) thousand.

In view of the vocalism of the numerals and *púsig* and *čúkcúki*, it is probable that Bon. should be classified among the *i*-languages, the other vowels being explained as cases of vocalic assimilation, total (*foók*, *toló*) or partial (*útěk*, *owúg*).

¹ This question and the following answer are copied literally from Padre ALARCÓN'S "Catecismo", p. 32. 22, where *á* is written for 'a, and *á* for *á*'.

² Cf. my paper "Consonant Changes and Vowel Harmony in Chamorro", "Anthropos", vol. VI (1911), pp. 136—146.

³ Cf. JENKS, "The Bontoc Igorot", Manila 1905, p. 229, and my paper, "F and V in Philippine Languages", Manila 1908, in Division of Ethnology Publications, vol. V, part II, p. 137.

⁴ Cf. JENKS, *op. cit.*, p. 228: *ú = u* in *but*.

Sambal¹: Pepet becomes *i, e, a* or *u(o)*: *alaku* (*dakě*) large (Bol.); *nipen* (*nipěn*) tooth, *kánen* (*kan-ěň*) food, cooked rice, *ánem* (*ěněm*) six, *ápat* (*ěpat*) four, *táro* (Bol.) *tólo* (Iba) three, *búyas* (*běgas*) rice, *bitúun* (*bituěň*) star.

Sbl. *nipen* shows *n* for original *ñ* as in several other speech groups, and *y* for the consonant of the RGH series in *búyas*, as in Pamp. and Bat. (see above p. 925).

Ata: This is probably an *a*-language: *tatló* (*tět(ě)lu*) three, *appát* (*ěpat*) four, *annám* (*ěněm*) six. In *ponnó* (*pěnu*) full we evidently have a case of regressive assimilation of which this same root has furnished so many examples in other languages. Ata, like Bgb., is a geminating language, as is apparent from the examples here given.

Bilan: This, like the preceding, is probably an *a*-language: *atló* (*tělu*) three, *faat* (*ěpat*) four, *aguaman* (*ěněm*) six. Bil., like Tir. and Tgk., is an *f*-language. With *faat* compare Bil. *fito* (*pitu*) seven. Metathesis is especially frequent and varied in character in this language. It is seen in the first syllable of *atló* and *faat*, for *taló* and *afat*, and in the last syllable of the root in *gasfaolan* (for *gas-falo-an*, IN *pulu*) ten, beside *atló falo* (*tělu pulu*) thirty. The peculiar form *aguaman* (*agwaman*) may be easily explained on the basis of Phil. *ěněm* and comparison with the other numerals in Bil. To *aman* for *anam* by metathesis, is prefixed the parasitic *gw* from *gwalo* (*walu*) eight (cf. Inb. *gwalo*, Chro. *gwalog*), the *g* analogy being assisted by the *g* of *nagfitó* seven, *gasium* nine, and *gasfaolan* ten, and to this increment is further added the initial *a* of the first three Bil. cardinals *anisu*, *aluí*, *atló*.

Manobo: Pepet becomes *u (o)* in *upat* (*ěpat*) four, *ika-unum* (*ěněm*) six, and *ponó* (*pěnu*) full. Mnb. *ikaltó* three (properly third) is formed from the ordinal prefix *ika* and Phil. *tělu* with syncopation of pepet and metathesis of the consonants thus brot together.

Tagakaolo: Pepet becomes *u (o)* in *ufat* (*ěpat*) four and *ka-nuon* (*ěněm*) six. The latter form, if correctly written, is difficult of analysis. Tgk. is an *f*-language: with *ufat* compare *fitó* seven and *folo* ten.

Samal: Pepet becomes *u (o)* in *toó* (*tělu*) three, *upat* (*ěpat*) four, and *ika-unum* (*ěněm*) six. One is *isa* in Sml. Syncopation of *l* appears in *toó* and *waó* (*walu*) eight.

Recapitulation.

I-languages: Tagalog, probably Bontok, and perhaps Banawi.

E-languages: Iloko, Inibaloi, Kankanai, Kalamian, Kuyunon, Lepanto, Magindanau, Pangasinan, Tirurai, Batán (*á* in penult).

A-languages: Pampanga, Ibanag, and its dialects, Gaddang, Itawi, and Yogad, and probably Ata and Bilan.

U-languages: Bagobo, Bisaya, Chamorro, Isinai, Sulu, Tagbanwa, Tingyan, and probably Manobo, Samal, and Tagakaolo. Bikol has *u (o)* in the ultima, and *a* in the penult except in the *pp*-class where it has *u*.

¹ The examples are taken from the lists in Appendix B of REED's "Negritos of Zambales" in „Ethnological Survey Publications”, vol. II, part. I, Manila 1904. The words were selected from the two columns headed “Zambal of Bolinao” and “Zambal of Iba”. Where the Bol. and Iba forms differ, I have so indicated in parenthesis.

Doubtful: Sambal.

It is seen from the above recapitulation that languages of the same class are often widely separated geographically, and conversely, that several classes may have representatives within a comparatively small area. In fact the different classes are so universally commingled geographically, that no given territory can be said to favor any one of the different vowels evolved from original pepet.

From a review of the classified phenomena of pepet vocalism as a whole, it is evident that deviations from the normal development of the indifferent vowel according to the regular operation of the pepet law are due almost exclusively to the interference of the laws of vocalic assimilation and analogy.

Our study has also developed the fact that some Philippine languages, like Malay and Malagasi, show a double pepet vocalism, one vowel regularly appearing in the penult and another in the ultima of the IN prototype, and that the Philippine languages, wherever they show this double vocalism, have *a* in the penult. This is the case of Batán and Bikol, and doubtless of the exceptional *a* seen in the penult of some Bagobo words, and sporadically elsewhere. That this penultimate *a* is not the result of assimilation or analogy, but an undisturbed and natural development of the indifferent vowel in a special position, has appeared from a searching investigation of the Bikol material, and the testimony of the Batán.

We have also found that several languages have a special penultimate *a* in the Phil. numerals *tělu*, *ěpat* and *ěněm*, due to the combined action of assimilation and analogy.

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Lepanto.

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