

THE BON-SHIO (文昌) DIALECT OF HAINAN

A Historical and Comparative Study of Its

Phonological Structure

First part: The Initials

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0. Introduction¹⁾

From occasional contacts I had known for a long time that Hainanese has a most peculiar sound system among the Chinese dialects. A linguistic analysis of Hainanese, however, had scarcely ever been attempted. In the traditional classification Hainanese is labeled 'Min-nan (閩南)', which is not much more than a geographical name. Among the books treating Hainanese in a not too incomplete way²⁾ I saw the seven following titles: Katsuta MURAKAMI: "*Kainango Shoho* (海南語初歩)", 1922, T'aipei; Taiwan Sôtokufu Bunkiyôka: "*Nikkai Kaiwa* (日海會話)", 1939, T'aipei; Den KISUI: "*Poketto Tsûyaku Kainango* (ポケット通譯海南語)", 1939, Minami Shinago Kenkyûkai; Yoshihisa KATSUMADA: "*Nikkaigo Shûsei* (日海語集成)", 1939, T'aipei, Takegoshi Company; Kinshû Ô & Shôsô CHIN: "*Jitsuyô Sokusei Kainango Dokuhon* (實用速成海南語讀本)", 1941, Nikkôdô Company; Enji YAMAJI & Tadashi MATSUTANI: "*Kainantôgo Kaiwa* (海南島語會話)", 1941, Tokyo, Sanseidô; Ming-shu CH'ÊN: "*Hainantao Chih* (海南島志)", 1932, Shanghai, Shên-chou Kuo-kuang Shê. But they are only conversation books for practical use. Their phonetic notation is hardly of any use for my present purpose, giving only the transcription of colloquial phrases either in Chinese characters, Japanese *katakana* or romanization³⁾ with very uncertain sound values. No description of individual sounds nor of the phonetic system is given. The two following works were not available for the present, although Professor Yuen Ren CHAO of Berkeley during his visit to Japan (this year) kindly promised to look them up for me in the "*Union Catalogue of American Universities*"; they are S. C. de SOUZA: "*A Manual of the Hailam Colloquial*", and a Hainanese dictionary from an unknown author, which my main informant used during his childhood

1) A shorter paper on this subject was read at the 10th Congress of the Chinese Language Society of Japan, Tokyo, October 18, 1959. I want to express my respectful gratitude to Professors Takeshirô KURAISHI and Shirô HATTORI for their direction. I also profited from the advice given by Professor Akiyasu TÔDÔ and Father Willem A. GROOTAERS. My heartfelt thanks also to my informants MM. Tiu-on WUI and Seng-jong LIANG, whose helpful co-operation made this study possible.

2) I do not include here fragmentary reports, vocabularies written only in Chinese characters, etc.; I refer the reader to my "*Catalogue of Hainanese Studies* (海南語研究文獻目錄)" (ready for the press).

3) See the alphabets in E. YAMAJI and T. MATSUTANI, op. cit. These seem to have been borrowed without any revision from S. C. de SOUZA's book. Although the authors state in their foreword: 'We wrote the Bon-shio dialect with Chinese characters, romanized them and added the pronunciation (Japanese *katakana*) and the translation', actually their alphabet is made for a dialect of the kind spoken on the Lei-chou (雷州) peninsula. From the contradictory statements of the foreword nothing emerges clearly; from my own experience, I am inclined to think that they describe the dialect of the city of Hai-k'ou (海口).

and which seems to have been written in Chinese (Standard Pekinese).

Some literary sources in Hainanese, written in vernacular characters, contain traditional dramas, the self-styled [heŋ²-ki²?] (瓊劇), for example: "[ʔaŋ²-ʔio²? Doi²-ti¹] (紅葉題詩)", "[jiau² tu¹-dʒuanj²] (搜書院)" etc.; for the present purpose, however, these texts are useless.

0.1 Aim and Range of the Present Study

The present paper is the first report on a linguistic study of the Hainanese dialect. It endeavors to make clear the basic structure of colloquial Hainanese in its sound system, mainly by way of determining the sound-laws between Hainanese and Ancient Chinese. This is meant to pave the way to a consideration of the problems involved in a comparative study of the Chinese dialects and the Sino-Tibetan languages. The linguistic corpus used here was gathered from two informants, native speakers of Bon-shio, who came to Japan in May, 1959.

The Chinese inhabitants of the island of Hainan (海南) speak many dialects and sub-dialects. Roughly speaking, one may classify them as follows:

- i) The **Ch'ung-chou** (瓊州) **dialect**, self-styled [heŋ²-tʃiu¹ ʔue¹] (瓊州話), the most prominent, and the one commonly called *Hainanese* until now;
- ii) The **Tan-chou** (儋州) **dialect**, self-styled [Dam¹-tʃiu¹ ʔue¹] (儋州話), similar to Pekinese;
- iii) The **Lin-kao** (臨高) **dialect**, self-styled [liom²-ko¹ ʔue¹] (臨高話), a most peculiar language, considered by some as one of the Burmese dialects;
- iv) The **Hakka** (客家) **dialect**;
- v) The **T'ing-chia** (艇家) **dialect**, self-styled [heŋ²-ke¹ ʔue¹] (艇家話), one of the Yüeh (粵) group;
- vi) The **Hai-pien** (海邊) **dialect**, self-styled [ʔai³-Bi¹ ʔue¹] (海邊話), a mixture of Yüeh, Hakka and Mandarin⁴⁾.

The name Hainanese is therefore a general name for many sub-dialects, branching in more than ten sub-dialects, the speakers of which do not understand one another. Actually the chief languages spoken on the island are the **Wên-ch'ang** (文昌), **Ch'ung-shan** (瓊山) and **Hai-k'ou** (海口) dialects, which are self-styled [boŋ²-ʃio² ʔue¹] (文昌話), [heŋ²-tua¹ ʔue¹] (瓊山話) and [ʔai³-hau² ʔue¹] (海口話) respectively. The last mentioned recently gained some prominence because of its geographical position; the city of Hai-k'ou has been the front

4) Ming-shu CH'ËN, op. cit., chapter 3, section 2.

gate of the island in modern times, and the principal port leading to China proper. Nevertheless the Bon-shio (文昌) dialect may still be regarded as the standard language of the island. The number and the social status of its speakers are in its favor, and the prefecture of Bon-shio is the center of traditional culture⁵⁾. According to my informants, the radio in Hainan uses the Bon-shio dialect. From the linguistic point of view, moreover, the Ch'iung-shan and the Hai-k'ou dialects are similar to the language spoken in the peninsula of Lei-chou (雷州) in the nearby Canton province and can hardly be regarded as the standard speech of Hainan.

Therefore, by 'Hainanese' I will indicate the Bon-shio dialect ([bon]²-fio² tʃue¹]).

0.2 The Informants

My informants were MM. Tiu-on WUI (守訓, 黃) and Seng-jong LIANG (程湧, 龍). Mr. WUI was born in Liom-shiang village, Tien-kio yo, Bon-shio prefecture, Canton province (廣東省, 文昌縣, 新橋鄉, 林昌村), on February 18, 1936. He spent his childhood there. Many merchants of South East Asia originate from Hainan, and specially from Bon-shio prefecture. Like them, Mr. WUI's family went to Malaya in 1939; he lived there in a small linguistic community in which the speakers all came from Bon-shio prefecture. In 1951 our informant came back alone to his native place to enter the secondary and high school; he finished at Wa-kiao High School (華僑中學) in the city of Hai-k'ou, after which he entered the Wa-nam Normal School (華南師範學院) in Canton. After only two years he became ill and went back again to his native village. Then after four years of rest he came to Japan in May, 1959. Mr. WUI's parents are also natives of the same village, Liom-shiang.

Mr. LIANG, also born in Bon-shio prefecture in 1941, moved to Malaya in a village where the great majority of the inhabitants came from Bon-shio prefecture. His mother, however, is a native of Ch'ao-chou (潮州) in Canton province. His dialect, compared with that of Mr. WUI, lacks one phoneme /d/ and presents some slight lexical differences⁶⁾. All the material obtained through

5) The Bon-shio prefecture has the highest rate of education in the Canton province.

6) Differences between them in familiar words are, for example, as following:

	Mr. WUI's dialect	Mr. LIANG's dialect
'thou'	[du ²]	[Du ²]
'who?'	[nɕiaŋ ⁶]	[Diaŋ ⁶]

him was thoroughly checked by Mr. WUI, the main informant. But the presence of two informants made the work easier and more precise.

I started my study immediately after their arrival in Japan, which I had been expecting. During four months I recorded about 6,000 colloquial words and phrases, and noted carefully the type of articulation of each morpheme. Mr. WUI lived in my house for two months, July and August of 1959, and showed an unflagging spirit of co-operation. During this period I gathered about 300 pages of colloquial sentences, forming a manuscript "*Materials for the Study of Hainanese* (海南語料)". I was able to make clear the basic structure of colloquial Hainanese in its sound system, its vocabulary and its grammar. The language used with Mr. WUI was only Pekinese or Hainanese and the present survey is exclusively based on these conversations. Only living language was considered, and no use was made of any reading of written characters.

As the base of my study, I analyzed the phonological system of the Hainanese by the methods of descriptive linguistics. Then I constructed the phonetic laws between Hainanese and Ancient Chinese by the methods of comparative linguistics.

0.3 The Transcription

The phonetic symbols are those of the International Phonetic Alphabet and are enclosed in brackets [], except in the tables. The phonemic symbols (also except in the tables) are presented between slant lines / /. The phonetic transcription is broad; for a study of diachronic phonology, there is no need for a narrow transcription. The palatalization of consonants will be indicated by [j]. For typographical reasons, the following simplifications were introduced:

- [B] is [ʙ̚] (voiced pre-glottalized bilabial implosive⁷⁾;
- [D] is [ɖ̚] (voiced pre-glottalized alveolar implosive⁷⁾;
- [ʔ] is [ʔ̚] (glottal explosive);
- [ʌ] is [ɦ] (voiced glottal fricative, or smooth vocalic ingress).

7) M. HASHIMOTO: "*Bilabial and Alveolar Implosives in a South Chinese Dialect*" (STUDY OF SOUNDS, No. 9). This technical term is borrowed from Kenneth L. PIKE: "*Phonemics—A Technique for Reducing Languages to Writing*", Ann Arbor, 1947, pp. 38-40; "*Phonemics—A Critical Analysis of Phonetic Theory and a Technique for the Practical Description of Sounds*", Ann Arbor, 5th ed., 1955; Shirô HATTORI: "*Phonetics*" (in Japanese), Tokyo, 3rd print, 1954, pp. 142 & 207, and does not designate the 'implosif', which is used in F. de SAUSSURE's "*Cours de Linguistique Générale*", Paris, 4th ed., 1949, pp. 79-95 and in M. GRAMMONT's "*Traité de Phonétique*", Paris, 1933, pp. 38 and below. But the Hainanese implosives are a little different from that of K. L. PIKE's books. About the detailed description, I refer the reader to my paper, op. cit. Following R. J. LLOYD, ("*Northern English*", chapter 26), I use 'applosive' instead of 'implosive', which is used by E. SIEVERS, F. de SAUSSURE and M. GRAMMONT etc.

The tonemes are marked by the numerals 1, 2, 3, 4, 5, 6 and 7.

The phonetic signs are used also in the phonological analysis.

For the details of the phonetics and phonology of Hainanese I refer the reader to my study "*HAINAN PHONEMICS—The Phonetics of the Bon-shio (文昌) Dialect and Its Phonemic System*" (ready for the press).

1. Ancient Chinese and the Sound-laws of Hainanese

It is very convenient for Chinese dialectology to make use of the Chinese traditional phonological terms, i.e. the 36 TZŪ-MU (字母), the 16 (or 14) SHĒ (攝), K'AI-HO (開合), TĒNG-HU (等呼) etc.⁸⁾, though these are not, strictly speaking, the categories of Ancient Chinese {the language of the *Ch'ieh-yün* (切韻)} itself. For convenience in presentation in this paper I make use of these categories, as well as of the traditional initial-final division of the syllables.

In the following table of correspondence, some exceptions are omitted. But because rules could be determined for some 3,500 basic morphemes in each of the two languages (Hainanese and Ancient Chinese), the sound-laws, although not absolute, are not without value.

TABLE I

WU-YIN	CH'UN-YIN				SHĒ-YIN			
	CHUNG-CH'UN		CH'ING-CH'UN		SHĒ-T'OU		SHĒ-SHANG	
DIVISIONS	I, II, IV		III		I, IV		II, III	
CH'ING-CHO	Anc. Ch.	Hain.	Anc. Ch.	Hain.	Anc. Ch.	Hain.	Anc. Ch.	Hain.
CH'UAN-CH'ING	幫	B	非	B, f	端	D	知	D, t, tʃ
TZ'Ū-CH'ING	滂	f	敷	f	透	h	徹	s
CH'UAN-CHO	並	B, f	奉	B, f	定	D, h	澄	D, h, t, tʃ, s
TZ'Ū-CHO	明	b, m	微	b, m	泥	d, n	娘	d, n, dʒ
					來	l	日	n, ʎ, dʒ

WU-YIN	CH'IH-YIN						YA-YIN		HOU-YIN		
	CH'IH-T'OU		CH'IH-SHANG		CHĒNG-CH'IH						
DIVISIONS	I, IV		II		III		I, II, III, IV		I, II, III, IV		
CH'ING-CHO	Anc. Ch.	Hain.	Anc. Ch.	Hain.	Anc. Ch.	Hain.	Anc. Ch.	Hain.	Anc. Ch.	Hain.	
CH'UAN-CH'ING	精	t, tʃ	莊	t, tʃ	照	t, tʃ	見	k	影	ʔ, dʒ	
TZ'Ū-CH'ING	清	s	初	s	穿	s	溪	h	CH'ING	曉	
CH'UAN-CHO	從	t, tʃ, s	牀	t, tʃ, s	神	t, tʃ, s	羣	k, h	CHO	匣	
CH'ING	心	t, s	山	t, s	審	t, tʃ, s	TZ'Ū-CHO	疑	g, ɲ, dʒ	于	ʔ, dʒ, ʎ
CHO	邪	t, tʃ, s			禪	t, tʃ, s				喻	ʔ, dʒ

8) Small capitals denote Chinese historical categories, as "CH'UN-YIN" (唇音) (: LABIALS).

1.1 A Simplified Table of Corresponding Initials of Ancient Chinese and Hainanese

As can be seen in Table I, any one initial phoneme of Ancient Chinese corresponds to more than one phoneme in Hainanese. These Hainanese phonemes may be plosives with fricatives, or with nasals, or with affricates and fricatives. The table alone would not suffice to show the system of correspondence.

1.2 Character and Conditions of the Correspondences

As a further step, the correspondences of Table I were tabulated according to the number of examples involved and to the conditions obtaining in Ancient Chinese. Although the system of correspondences remains complicated, some regular pattern emerges, once examples of living language are adduced. The pattern becomes especially clear when differences in dialectal strata are considered, as will be seen presently.

1.3 Classification by Means of the WU-YIN (五音) : FIVE GROUPS OF SOUNDS

The WU-YIN (五音) (:FIVE GROUPS OF SOUNDS) in Ancient Chinese give us a convenient division into five categories among which the initial phonemes were distributed. By noting now the divergences and the re-grouping that have occurred in each modern dialect regarding these initials, the individual character of each dialect can be determined.

1.3.1 CH'UN-YIN (唇音) : LABIALS

First, we can point out that the Ancient Chinese CHUNG-CH'UN-YIN (重唇音) (:BILABIALS) and CH'ING-CH'UN-YIN (輕唇音) (:LABIO-DENTALS) correspond to Hainanese initials in the same way, although the statistical distribution differs in each; the CH'ING-CH'UN-YIN category corresponds mainly to the Hainanese labio-dentals. Here are few examples:

Anc. Chinese initial 非: Hain. initial /B/ & /f/

{ [ti'-Ban'] (四方) 'square'	{ [Baŋ'] (放) 'to loose'
{ [faŋ'-kio'] (方向) 'a direction'	{ [tʃi'-faŋ'] (脂肪) 'grease'
{ [Bo'] (斧) 'an ax'	{ [Bue'-sotj'] (飛出) 'to fly out'
{ [tʃeŋ'-fu'] (政府) 'the government'	{ [fui'-tiang'] (非常) 'very'
{ [Bonj'] (糞) 'excrement'	
{ [fonj'-Dau'] (奮鬥) 'to struggle'	

Anc. Chinese initial 奉: Hain. initial /B/ & /f/

{ [Bou ²] (符) 'a talisman'	{ [Ban ² -su ¹] (房○) 'a house'
{ [fu ² -to ¹] (扶助) 'to aid'	{ [fan ² -Bi ¹] (防備) 'to defend'

As one can see through these examples, the bilabial phoneme occurs in the basic morphemes and the labio-dental in the relatively literary morphemes. Therefore Hainanese phonemes can be divided into two strata:

{ stratum A: /f/ (: 非)	/f/ (: 奉)	(/b/, /m/: 微)
{ stratum B: /B/ (: 幫, 非)	/f/ (: 滂, 敷)	/B/, /f/ (: 並, 奉) /b/, /m/ (: 明, 微)

Stratum A must be that of a dialect other than Min-nan (South-Fukkien) or Hakka⁹⁾, as far as we can judge by its correspondences with Ancient Chinese.

The case of Ancient Chinese initial 敷 gives us no clue for classifying the Hainanese phonemes which correspond to it; for the initial 微 I refer the reader to section 1.4.4.

1.3.2 SHÊ-YIN (舌音) : DENTALS

A clue to distinguish the strata of the Hainanese phonemes which correspond to the SHÊ-YIN is found in the Hainanese correspondence to the SHÊ-SHANG-YIN (舌上音) (: SUPRA-DENTALS). As one can see in Table I, the Hainanese phonemes that correspond to Ancient Chinese SHÊ-SHANG-YIN (4th vertical column) are, as a first step, divided into two large groups.

In one group are /D/ and /h/, which coincide with the phonemes corresponding to Ancient Chinese SHÊ-T'OU-YIN (舌頭音); in the other group are /t/, /tʃ/ and /s/, which coincide with those corresponding to Ancient Chinese CH'IH-YIN (齒音) (: DENTAL SIBILANTS). Here are some examples:

Anc. Chinese initial 知: Hain. initial /D/, /t/ & /tʃ/

{ [maj ³ -Dio ⁴] (蚊帳) 'a mosquito-net'	{ [Duak ⁶ bi ³] (啄米) 'to pound rice'
{ [tiau ⁴ -fou ³] (帳簿) 'an account-book'	{ [tuak ⁶ -dzuatj ⁷] (卓越) 'excellent'
{ [Du ¹] (豬) 'a pig'	
{ [tʃi ¹ -tu ¹] (蜘蛛) 'a spider'	

Anc. Chinese initial 徹: Hain. initial (h) & /s/

Ancient Chinese morphemes belonging to this initial were rather rare, and we could not find a single Hainanese example, whose initial phoneme coincides with those corresponding to Ancient Chinese SHÊ-T'OU-YIN.

9) Ch'ang-p'ei LO: "Phonetics and Phonology of the Amoy Dialect (廈門音系)", Peiping, 1931; M. HASHIMOTO: "HAKKA PHONEMICS—The Phonetics of Mei-Yan (梅縣) Dialect and Its Phonemic System", GENGO KENKYŪ (Journal of the Linguistic Society of Japan), No. 35, pp. 52-85.

Anc. Chinese initial 澄: Hain. initial /D/, /h/, /t/, /tʃ/ & /s/

{ [Di ²] (遲) 'late'	{ [Diu ² -Duan ¹] (綢緞) 'satin damask'
{ [tʃi ¹ -ji ²] (支持) 'to support'	{ [ʃiu ² -Bi ¹] (籌備) 'to prepare'
{ [Deŋ ² -seŋ ¹] (澄清) 'clear'	{ [haŋ ²] (虫) 'an insect, a worm'
{ [tʃeŋ ² -ʃuat ¹] (懲罰) 'chastisement'	{ [soŋ ² -fok ¹] (重複) 'repetition'

Anc. Chinese initial 娘: Hain. initial /d/, /n/ & /dʒ/

{ [tienj ¹ -njio ²] (親娘) 'one's real mother'
{ [dʒian ¹ tʃiu ²] (釀酒) 'to brew drinks'

Anc. Chinese initial 日: Hain. initial /n/, /ʃ/ & /dʒ/

The traditional phonologist regards it as a kind of CH'IH-YIN, constituting the category PAN-CH'IH-YIN (半齒音). Actually we can accept the phoneme as the Ancient Chinese initial which has the features of both SHĒ-YIN and CH'IH-YIN. This is also the situation in Hainanese, as can be seen from the following correspondence:

{ [kue ¹ -no ²] (瓜瓤) 'the pulp of a melon'	{ [no ²] (二) 'two'
{ [hou ² -dʒian ¹] (土壤) 'soil'	{ [dʒi ² -tiom ¹] (貳心) 'of two minds'
{ [non ¹ -gue ² ?] (閏月) 'an intercalary month'	
{ [dʒon ¹ -gue ² ?] (閏月) 'ditto, (spoken language, but with a literary flavor)'	

Thus the Hainanese phonemes which correspond to Ancient Chinese SHĒ-YIN are divided into the following two strata:

{ stratum A: /t/, /tʃ/ (: 知) /s/ (: 徹)	/t/, /tʃ/, /s/ (: 澄)
{ stratum B: /D/ (: 端, 知) /h/ { : 透, (徹) }	/D/, /h/ (: 定, 澄)
/dʒ/ (: 娘)	/dʒ/ (日)
/d/, /n/ (: 泥, 娘)	/n/, /ʃ/ (: 日) /ʃ/ (: 來)

The phonemes belonging to the stratum A (the more literary one), coincide with the phonemes corresponding to the CH'IH-YIN, like in the Mandarin dialects; the remainder (stratum B) are similar to the phonemes of the Min-nan dialects or Hakka⁹.

1.3.3 CH'IH-YIN (齒音) : DENTAL SIBILANTS

Any of the three sub-groups of Ancient Chinese CH'IH-YIN, i.e. CH'IH-T'OU-YIN (齒頭音) (initials of DIVISION I & IV of the SOUND TABLES), CH'IH-SHANG-YIN (齒上音) (DIVISION II) and CHĒNG-CH'IH-YIN (正齒音) (DIVISION III) corresponds in precisely an identical way to the Hainanese initials. This correlation between Ancient Chinese and Hainanese resembles that between Ancient Chinese and the Min-nan dialects. In the case of one initial only, Ancient Chinese 神, does

the correspondence not point to Amoy¹⁰.

1.3.4 YA-YIN (牙音) and HOU-YIN (喉音): GUTTURALS and LARYNGALS

Regarding these initials, the comparison with the WU-YIN reveals not a single discrepancy. Therefore the problem of their correspondences in Hainanese will be tackled by another method.

1.4 Classification by Means of CH'ING (清) and CHO (濁) : VOICELESS and VOICED

In the preceding sections we examined how the WU-YIN category is reflected in the phonological system of the Hainanese initials. The principal conclusion was that some Hainanese phonemes corresponding to one Ancient Chinese initial were divided into two stylistic strata. Stratum A points to dialects other than Min-nan and Hakka; stratum B, however, presents unique features and is sometimes partially similar to the Min-nan and Hakka dialects. Even by separating the phonemes into two such strata, the correspondences are still very far from simple. We will now go a step further and investigate the correspondences within each of the WU-YIN, through the CH'ING (VOICELESS) and CHO (VOICED) classes of Ancient Chinese initials, i.e. CH'ING-YIN (清音), CHO-YIN (濁音) and their variants.

1.4.1 CH'ÜAN-CH'ING-YIN (全清音): VOICELESS UNASPIRATES

Excepting stratum A, the Ancient Chinese CH'ÜAN-CH'ING-YIN show the following correspondences:

Anc. Chinese CH'UN-YIN & SHÊ-YIN : Hainanese voiced implosives
Anc. Chinese CH'IH-YIN, YA-YIN & HOU-YIN : Hainanese voiceless explosives,
or voiceless and voiced affricates

The Hainanese initials which correspond to Ancient Chinese CH'UN-YIN and SHÊ-YIN are voiced¹¹ implosives; this is not without its reason, as the Hainanese initials, either voiced explosives or nasals, correspond to Ancient Chinese TZ'Ü-CHO-YIN (次濁音) (: NASALS) (excluding here the HOU-YIN group). The former had thus to become implosives to maintain phonological opposition with the

10) Ch'ang-p'ei LO, op. cit., p. 56.

11) Strictly speaking, they are 'neutral-voiced' implosive phonemes, that is to say, the sonority of Hainanese implosives is an irrelevant feature, though their phones in rapid speech are often voiced consonants. See below, section 2. 2.

latter.

The Hainanese explosives and affricates correspond to the Ancient Chinese YA-YIN, HOU-YIN and CH'IH-YIN. Of these three, the first two have a relatively backward point of articulation where an implosive could hardly be expected¹²⁾. In the case of the CH'IH-YIN, of course, their modern counterparts are affricates, which could hardly be anything else but explosives.

We have seen that the Hainanese voiced explosives (guttural and alveolar) and the voiced affricates (dental) correspond to Ancient Chinese TZ'Ü-CHO YA-YIN (: GUTTURAL NASALS) or TZ'Ü-CHO SHĒ-YIN (: DENTAL NASALS) and CH'ÜAN-CH'ING HOU-YIN (: VOICELESS UNASPIRATED LARYNGALS), CHO HOU-YIN or TZ'Ü-CHO HOU-YIN (: VOICED LARYNGAL FRICATIVES) respectively. This whole group maintains a phonological opposition in Hainanese with the group of the preceding paragraph through being voiced. Finally, Hainanese /t/ and /d₃/, which correspond to Ancient Chinese CH'IH-YIN and HOU-YIN respectively, is the regular variant of /t/ and /ʔ/ as one will see in section 1.4.5. & 1.5.

We can conclude that the CH'ÜAN-CH'ING-YIN correspond as a rule to the Hainanese plosives, i.e.:

幫, 非: /B/ 端, 知: /D/ 精, 莊, 照, (知): /t/, /tʃ/ 見: /k/ 影: /ʔ/, /d₃/

These correspondences are fairly regular; the characteristic distinctive features of the Hainanese phonemes are rather to be found in the internal phonological oppositions existing between these phonemes.

1.4.2 TZ'Ü-CH'ING-YIN (次清音): ASPIRATES

All the Ancient Chinese TZ'Ü-CH'ING-YIN of the WU-YIN correspond to Hainanese fricatives, excepting only that of the HOU-YIN group not represented among the TZ'Ü-CH'ING-YIN. In the case of this HOU-YIN group, the author of the SOUND TABLES set up a category CH'ING in parallel with the four other TZ'Ü-CH'ING-YIN classes. In Hainanese this CH'ING-YIN is represented by voiced and voiceless fricatives.

These correspondences are unique among Chinese dialects. At the most one could point to some similar phenomenon in some stratum of Cantonese or Hakka, and even then it is limited to the Ancient Chinese CH'IH-YIN and HOU-YIN.

We have thus the following correspondences:

12) When we pronounce a sound of which the point of articulation is relatively far back in the oral cavity, the enclosed cavity between this point and the vocal cords is too small to produce an entering air stream (to fill up the rarefied cavity) after release. See below, section 2. 2.

滂, 敷: /f/ 透, (徹): /h/ 清, 初, 穿, (微): /s/ 溪: /h/ 曉, /ʃ/, /h/

1.4.3 CH'ÜAN-CHO-YIN (全濁音): VOICED

Keeping the stratum A out of consideration here, the Ancient Chinese CH'ÜAN-CHO-YIN correspond to Hainanese as follows: the WU-YIN are divided into two categories (actually only four of them are involved here, because the HOU-YIN have no representative in the CH'ÜAN-CHO-YIN):

Anc. Chinese CH'UN-YIN & SHÊ-YIN: Hain. voiced implosives or voiceless fricatives

Anc. Chinese CH'IH-YIN & YA-YIN: Hain. voiceless explosives & affricates or voiceless fricatives

If one compares the actual occurrences of the morphemes in which these Hainanese phonemes are represented, one realizes that the opposition between plosives (or affricates) and fricatives reflects a difference in the vocabulary of colloquial forms as opposed to more literary forms. Here are examples:

Anc. Chinese initial 並: Hain. initial /B/ & /f/

{ [Bi ²] (脾) 'the spleen'	{ [Bue ² -tiag ²] (賠償) 'to compensate'
{ [fi ² -hui ⁴] (脾氣) 'temper'	{ [fui ² -dʒiag ²] (培養) 'to cultivate'
{ [Be ² tua ¹] (爬山) 'to climb up a mountain'	{ [Be ² -ha ²] (平坦) 'flat'
{ [fi ² -fa ²] (琵琶) 'a Chinese lute'	{ [feg ² -mien ²] (平民) 'the common people'

Anc. Chinese initial 定 & 澄: Hain. initial /D/, /h/, /t/, /tʃ/ & /s/

{ [be ² -Doi ²] (馬蹄) 'a horse hoof'	{ [Deŋ ²] (亭) 'an arbour'
{ [hoi ² -kuai ¹] (提高) 'to raise'	{ [heŋ ² -tʃi ²] (停止) 'to suspend'
{ [tui ² -Do ²] (水塘) 'a pond'	{ [Du ² -tua ²] (屠殺) 'to slaughter'
{ [tua ¹ -ho ²] (砂糖) 'sugar'	{ [ʔo ² -hu ²] (學徒) 'an apprentice-boy'
{ [Deŋ ² -seŋ ¹] (澄清) 'clear'	{ [Du ² -se ¹] (廚師) 'a cook'
{ [seŋ ² -tʃiap ²] (橙汁) 'orange juice'	{ [su ² -gua ¹] (除外) 'to except'

Anc. Chinese initial 從, 牀 & 神: Hain. initial /t/, /tʃ/ & /s/

{ [ton ²] (蹲) 'to squat down'	{ [tʃia ² -heŋ ²] (情形) 'the state (of things)'
{ [son ² -tai ²] (存在) 'to exist'	{ [seŋ ² -çi ¹] (晴天) 'fine weather'
{ [ta ²] (炸) 'to fry'	{ [teŋ ² -lo ²] (剩○) 'to have as remainder'
{ [çiau ² -sa ²] (調查) 'examination'	{ [tio ¹ -seŋ ²] (相乘) 'to multiply'

Anc. Chinese initial 羣: Hain. initial /k/ & /h/

{ [kon] ² } (裙) 'a skirt'	{ [ki ⁴ -ko ¹] } (旗杆) 'a flagstaff'
{ [hon] ² -t[ian] ⁴ } (羣衆) 'the multitude'	{ [ti ² -ci ⁴] } (時期) 'a period'
{ [kio] ² } (橋) 'a bridge'	{ [kian ⁴ -nan ²] } (窮儂) 'the poor'
{ [fue ² -ciu ²] } (皮球) 'a rubber ball'	{ [fu ⁴ -cian ²] } (富強) 'enrichment and strengthening (of a country)'

The voiceless fricatives occur, as a whole, in the morphemes which bear the P'ING-SHÈNG (平聲) (: LEVEL TONE), while the plosives and affricates occur in the words with the other three tones {i.e. SHANG-SHÈNG (上聲), CH'Ü-SHÈNG (去聲) and JU-SHÈNG (入聲)}. The distinctive character of the phonological system of the Mandarin dialects and of the literary stratum of the Cantonese¹³⁾ embodies the following equations:

- i) Initial phonemes evolved from Anc. Chinese CH'ÜAN-CHO-YIN + P'ING-SHÈNG = coincide with initial phonemes evolved from TZ'Ü-CH'ING-YIN;
- ii) Initial phonemes evolved from Anc. Chinese CH'ÜAN-CHO-YIN + three other tones = coincide with initial phonemes evolved from CH'ÜAN-CH'ING-YIN.

In Hakka, however, the situation is different, and all initial phonemes evolved from Ancient Chinese CH'ÜAN-CHO-YIN, regardless of tone, coincide with these evolved from TZ'Ü-CH'ING-YIN.

In the colloquial stratum of Cantonese, there is still a different equations:

- i) Initials of words in P'ING-SHÈNG and SHANG-SHÈNG = Anc. Chinese TZ'Ü-CH'ING-YIN;
- ii) Initials of words in CH'Ü-SHÈNG and JU-SHÈNG = Anc. Chinese CH'ÜAN-CH'ING-YIN¹⁴⁾.

Finally, Min-nan dialects disregard the tones in these cases.

Coming back now to Hainanese, we found regularly plosive or affricate phonemes in the morphemes with the P'ING-SHÈNG. The examples given above were all chosen intentionally from the YANG-P'ING-SHÈNG (陽平聲) classes¹⁴⁾. Accordingly we find that stratum B can further be subdivided in the following way:

stratum Ba: /f/ (: 並a)	/h/ (: 定a, 澄a)	/s/ (: 從a, 牀a, 神a)
stratum Bb: /B/ (: 並b, 奉b)	/D/ (: 定b, 澄b)	/t/, /tʃ/ (: 從b, 牀b, 神b)
	/h/ (: 羣a)	
	/k/ (: 羣b)	

13) S. L. WONG: "A Chinese Syllabary Pronounced According to the Dialect of Canton (粵音韻集)", Shanghai, 1938; Yuen Ren CHAO: "Cantonese Primer", Cambridge, 1947.

14) Hainanese toneme 2 corresponds to the 'YANG-P'ING-SHÈNG' of Ancient Chinese.

Stratum Ba clearly points to the Mandarin dialects.

1.4.4 TZ'Ü-CHO-YIN (次濁音) : NASALS

We must note first that the HOU-YIN group is not considered here because of its divergent phonetic value. Grouped together for analysis are, besides the Ancien tChinese TZ'Ü-CHO-YIN (: NASALS), the PAN-SHĒ-YIN (半舌音) (: LATERALS) and the PAN-CH'IH-YIN (半齒音) (: NASALIZED SIBILANTS).

All these TZ'Ü-CHO-YIN correspond, except for stratum A, to the Hainanese voiced explosives or voiced nasals (or voiced affricates), but it is noteworthy that no stylistic difference can explain the grouping of the morphemes here.

We have to turn to the phonological environment of these phonemes to find the reason for the shaping of the two series (explosives and nasals). Chinese finals have been divided into two classes, one with, the other without a nasal final consonant. The traditional Chinese phonologists called the former YANG-SHĒNG (陽聲) or YANG-YÜN (陽韻), the latter YIN-SHĒNG (陰聲) or YIN-YÜN (陰韻).

Ancient Chinese YANG-YÜN mainly correspond to the Hainanese syllabemes with a nasal initial, very rarely to one with an explosive initial.

Ancient Chinese YIN-YÜN correspond to syllabemes with a nasal initial or an explosive initial. This must be seen in more detail, and here are some examples of the YIN-YÜN syllabemes :

Anc. Chinese initial 明 : Hain. initial /b/ & /m/

{ [bua ³] (磨) 'to grind'	{ [boi ¹] (賣) 'to sell'
{ [mo ² -kui ³] (魔鬼) 'a devil'	{ [mai ² -tjienj ⁴] (邁進) 'to stride'
{ [bio ¹] (廟) 'a temple'	{ [be ²⁷] (麥) 'wheat'
{ [çi ² -miau ⁶] (奇妙) 'curious'	{ [xue ² -me ²⁷] (血脈) 'a vein'

Anc. Chinese initial 泥 & 娘 : Hain. initial /d/ & /n/

{ [do ⁴ -bi ³] (糯米) 'glutinous rice'	{ [du ³] (你) 'thou'
{ [na ¹] (擲) 'to snatch'	{ [nji ² -ku ¹] (尼姑) 'a nun'

Anc. Chinese initial 疑 : Hain. initial /g/, /ŋ/ & /dʒ/

{ [go ³] (鵞) 'a goose'	{ [gou ³] (吳) '(a surname)'
{ [ŋo ² -kok ⁶] (俄國) 'Russia'	{ [ŋu ² -hog ¹] (梧桐) 'a sultan's parasol'
{ [gou ¹] (誤) 'to commit a fault'	
{ [kiak ⁶ -ŋu ⁶] (覺悟) 'preparedness'	

If we had only these examples to go by, it would seem as if an opposition in stylistic strata was working here too; many other examples, however, point

in the opposite way, as if the Hainanese had possessed the two kinds of initials (i.e. voiced explosives and nasals) from the beginning.

Only the case of Ancient Chinese initial 疑 gives us a clue to classify the Hainanese initials which correspond to it. As one can see through the following examples, the opposition between explosives (or nasals) and affricates reflects a difference between two stylistic strata of Hainanese words:

{ [sotj ⁴ ge ²] (出 芽) 'to bud'	{ [gue ² ?] (月) 'the moon'
{ [bonj ² -d ₃ ia ²] (文雅) 'elegance'	{ [lai ² -d ₃ uanj ²] (來源) 'the origin, the cause'

We can compare here the case of the TZ'Ü-CHO-YIN of CH'ING-CH'UN-YIN (set aside in section 1.3.1) which also shows no clear rules for the occurrence of nasals and explosives. Even the presence or the absence of nasal finals (YANG-YÜN or YIN-YÜN) seems to be irrelevant.

In the YANG-YÜN syllabemes we see that the explosive and the nasal occur in the following oppositions:

{ [cia ¹ -mui ²] (聽聞) 'to hear'	{ [mag ²] (網) 'a net'
{ [bonj ² -t ₃ iaj ¹] (文章) 'a sentence'	{ [Ai ¹ -ban ²] (希望) 'hope, desire'

The nasal initial phoneme here seems to belong to the basic morpheme.

In the YIN-YÜN syllabemes, we have examples like:

{ [ʔej ¹ -bu ²] (鸚鵡) 'a parrot'	{ [bue ² -Ba ¹] (尾巴) 'a tail'
{ [mou ² -hai ²] (舞臺) 'the stage'	{ [mau ² -Donj ²] (矛盾) 'inconsistency'
{ [batj ²] (襪) 'socks'	
{ [mok ² -se ¹] (牧師) 'a pastor'	

We again call attention to the case of the explosive initials corresponding to the TZ'Ü-CHO-YIN (CHUNG-CH'UN-YIN group) and we may therefore say that this time the explosives set apart the basic vocabulary.

Ancient Chinese PAN-CH'IH-YIN are found in Hainanese as nasals and voiced glottal fricatives, except in stratum A. In colloquial words, the glottal occurs before unrounded narrow front vowels, the nasal before other vowels. And one can see through the following examples that the nasal before front vowels appears only in literary morphemes. For instance:

{ [gu ² -Aiok ¹] (牛肉) 'beef'	{ [Ai ²] (耳) 'an ear'
{ [ɕiaj ² -n ₃ jak ¹] (強弱) 'strong or weak'	{ [gu ² -nji ²] (牛乳) '(cow's) milk'

The glottal fricative had to be maintained before front vowels by a process of denasalization accompanied by palatalization of the PAN-CH'IH-YIN to keep

the opposition with the phonemes that correspond to the HOU-YIN group.

Ancient Chinese PAN-SHÊ-YIN are found in Hainanese as laterals. The morphemes which contain them are not distinguished through their stylistic strata.

All the Hainanese phonemes corresponding to the TZ'Ü-CHO-YIN can now be summarized as follows:

stratum Ba :	/b/ (YANG-YÜN), /m/ (YIN-YÜN) (: 微a)
stratum Bb :	/b/, /m/ (: 明) /b/ (YIN-YÜN), /m/ (YANG-YÜN) (: 微b)
	/d ₃ / (: 疑 a) /n/ (before front vowels) (: 日 a)
	/g/, /ŋ/ (: 疑 b) /n/, /ɿ/ (: 日 b) /l/ (: 來)

1.4.5 CH'ING-YIN (清音) and CHO-YIN (濁音) : VOICELESS and VOICED

Ancient Chinese initial 于(喻), which was set aside in the discussion in section 1.4.4, is ordinarily styled TZ'Ü-CHO-YIN in the SOUND TABLES. It is, however, homogenous with the CHO-YIN because of its sound value.

First, the Ancient Chinese CH'IH-YIN are found in Hainanese as voiceless explosives, voiceless affricates, or voiceless fricatives.

There is no clear rule of correspondence, but one many suppose the following process of phonetic change :

CH'ÜAN-CH'ING-YIN : VOICELESS UNASPIRATES	} → plosives and affricates
CH'ÜAN-CHO-YIN : VOICED (UNASPIRATES)	
TZ'Ü-CH'ING-YIN : VOICELESS ASPIRATES	→ fricatives

As a result of the dissolution of the phonological opposition voiced/voiceless in the CH'IH-YIN of Ancient Chinese, the CH'ING-YIN and the CHO-YIN are deprived of their phonological location in the phonological system of Ancient Chinese. One finds that they are now arbitrarily dispersed between the CH'ÜAN-CH'ING and CH'ÜAN-CHO groups and the TZ'Ü-CH'ING group in an effort to keep some of their former opposition. In present-day colloquial one finds some free alternations without stylistic signification, as for instance :

[su ¹ -lien ²] (蘇聯)	∞	[tou ¹ -lien ²] (蘇聯) :	'USSR'
[se ¹] (星)	∞	[teŋ ¹] (星) :	'star'

These examples can not be explained except through the hypothesis advanced. Regarding the alternation /t/ ∞ /tʃ/, I refer the reader to the following section ; /tʃ/ is the regular variant of /t/. One must not look here for a relationship with Amoy dialect, in which Ancient Chinese CH'ING-YIN is found as voiceless fricatives, and CHO-YIN as voiceless unaspirated affricates, aspirated affricates

and voiceless fricatives.

The HOU-YIN group has some complicated relations of correspondence. The phonological feature of sonority, which is irrelevant in the CH'IH-YIN group, is significant here. As far as this HOU-YIN group is concerned, the correspondence with Ancient Chinese found in Hainanese is similar to that of the Min-nan dialects and of Ancient Chinese.

The CH'ING-YIN is found in Hainanese as voiced fricatives and voiceless fricatives. For instance:

{ [ʔue³] (火) 'fire'	{ [ʔuaŋ¹-tʃiaŋ¹] (慌張) 'to be confused'
{ [fue²-hue¹] (皮靴) '(leather) shoes'	{ [hwaŋ²-fotj²] (恍惚) 'to be enraptured'
{ [ʔuaŋ¹-Di³] (荒地) 'waste land'	
{ [hwaŋ¹-se³] (況且) 'besides, moreover'	

We can distinguish two strata. One has a voiced fricative; when the TZ'Ü-CH'ING-YIN of the YA-YIN group developed into a fricative, it had to change into a voiced, to maintain its opposition against the YA-YIN group. The other stratum has the voiceless fricative similar to the Mandarin and Min-nan dialects.

The CHO-YIN corresponds to Hainanese /ʔ/, /ʔ/, /k/ and /h/. The latter two, as one can see from the following examples, seem to reflect an Amoy stratum. The pure Hainanese stratum has the former two, /ʔ/ and /ʔ/. Because of the loss of phonological opposition between the original voiced and voiceless, these two are dispersed among the CH'ÜAN-CH'ING-YIN and CH'ING-YIN of the HOU-YIN group. Examples:

{ [ʔe¹-çi¹] (夏天) 'summer-time'	{ [ʔoi¹] (蟹) 'a crab'
{ [ʔam¹-kia²] (暗霞) 'evening-mist'	{ [ki¹-kai¹] (機械) 'a machine'
{ [hau²-ʔotj²] (桃核) 'a peach-stone'	{ [ʔienj¹-ʔap²] (煙盒) 'tobacco box'
{ [kiaŋ¹-kotj¹] (狡猾) 'cunning'	{ [kap¹-to²] (合作) 'to collaborate'
{ [ʔaŋ¹-liet²] (行列) 'a procession'	{ [ʔienj¹-ʔaŋ²] (銀行) 'a bank'
{ [haŋ² haŋ¹] (航空) 'to aviate'	{ [haŋ²-tʃiu¹] (杭州) 'Hang-chow'
{ [ʔuai²-njam²] (懷念) 'to long for'	{ [ʔo²] (河) 'a river'
{ [hui²-ʃiu¹] (槐樹) 'sophora japonica'	{ [ho²-ʔue¹] (荷花) 'a lotus-flower'

There seems to be no fixed rule directing the repartition of the CHO-YIN among the present Hainanese glottal explosive and fricative.

There is a great similarity between the treatment of the CHO-YIN in Hainanese and the treatment of the CHO-YIN in the literary stratum of Amoy.

The CHO-YIN of DIVISION III & IV of the SOUND TABLES (i.e. the TZ'Ü-CHO-YIN 于 & 喻) are similar to the CHO-YIN of the other DIVISIONS and have also

the corresponding Hainanese /d₃/, the regular variant of /ʔ/. The distribution of the glottal explosive and of the voiced palato-alveolar affricate is as follows:

explosive: before all the vowels which can occur after the initials corresponding to Ancient Chinese initial 于 & 喻;

affricate: only before the unrounded narrow front vowels.

This affricate is a voiced consonant, and so it looks as though it were a phoneme corresponding to CH'ING-YIN. But both the CH'ÜAN-CH'ING-YIN of the HOU-YIN group of DIVISION III & IV and the TZ'Ü-CHO-YIN have such correspondence also. These facts seem to prove that the affricate is the regular variant of the explosive¹⁵.

The regular alternation /ʔ/ ∞ /d₃/ finds its exact parallel in the group of the CH'IH-YIN.

The TZ'Ü-CHO-YIN of the HOU-YIN group, like the CHÜAN-CHO-YIN of the CH'UN-YIN, SHÊ-YIN, CH'IH-YIN and YA-YIN, coincide with the CH'ÜAN-CH'ING-YIN in Hainanese. The TZ'Ü-CHO-YIN of the HOU-YIN group have also Hainanese initial /d₃/ (the regular variant of /ʔ/), because the TZ'Ü-CHO-YIN are classified as the sound of DIVISION III & IV of the SOUND TABLES.

The Hainanese correspondence to CH'ING-YIN and CHO-YIN may be classified as follows:

stratum Ba:

stratum Bb: /t/, /s/(: 心) /t/, /s/(: 山) /t/, /tʃ/, /s/(: 審) /t/, /tʃ/, /s/(: 邪)
/h/(: 曉a) /k/, /h/(: 匣a)
/t/, /tʃ/, /s/(: 禪) /ʃ/, /ʃ/(: 曉b) /ʔ/, /ʃ/(: 匣b) /ʔ/, /d₃/, /ʃ/(: 干) /ʔ/, /d₃/(: 喻)

1.5 Conditions of Correspondence of Phonological Environment

This problem has been touched upon several times above. I want to study here the conditions influencing the CH'IH-YIN (in Hainanese explosives or affricates).

Through the above-mentioned classification by strata, we were able to show that Hainanese has a relatively simple system of initial consonants and that this system corresponds regularly to that of Ancient Chinese. Only the correspondence of the CH'IH-YIN is a little complicated.

15) Also in a Hakka dialect the voiced dental affricate initial corresponds to Ancient Chinese HOU-YIN of the DIVISION III and IV of the SOUND TABLES. cf. M. HASHIMOTO: "THE HOI-LIUK (海陸) DIALECT OF HAKKA—Its Phonemic Structure" (in Japanese), CHÔGOKUGOGAKU (Bulletin of the Chinese Language Society of Japan), No. 83, February, 1959.

Ancient Chinese CH'ÜAN-CH'ING-YIN, CH'ÜAN-CHO-YIN, CH'ING-YIN and CHO-YIN of the CH'IH-YIN group are found in Hainanese as voiceless explosives, voiceless affricates or voiceless fricatives. I interpret the former two as the regular variants caused by the phonological environment.

After noting that the affricate phonemes correspond mainly to the CH'IH-YIN of the DIVISION III and IV, we can give the following rule for the distribution of the preceding two phonemes :

explosives : before all the vowels which can occur after the initials corresponding to Ancient Chinese CH'IH-YIN ;

affricates : only before the unrounded narrow front vowels.

One can see in the preceding sections that this condition also occurs in the HOU-YIN group. Whereas Ancient Chinese initials 邪, 審 and 禪 correspond to plosives, fricatives and affricates, in the case of 心 and 山, however, we find only plosives and fricatives ; the above formula explains this divergence. And no explanation by strata can be adduced here, as no stylistic difference whatsoever can be determined.

1.6 Table of Ancient Chinese and Hainanese Initials

The following table sums up the results attained in our first chapter :

TABLE II

Anc. Ch.	Hainanese			Anc. Ch.	Hainanese			Anc. Ch.	Hainanese		
	stratum				stratum				stratum		
	Bb	Ba	A		Bb	Ba	A		Bb	Ba	A
幫 滂 並 明	B f B b/m	f		非 敷 奉 微	B f B b/m		f f				
端 透 定 泥 來	D h D d/n l	h		知 徹 澄 娘 日	D (h) D d/n n/ɿ		t/tj s t/tj/s d ₃ d ₃				

Anc. Ch.	Hainanese			Anc. Ch.	Hainanese			Anc. Ch.	Hainanese		
	stratum				stratum				stratum		
	Bb	Ba	A		Bb	Ba	A		Bb	Ba	A
精 清 從 心 邪	t/tʃ s t/tʃ t/s t/tʃ/s	s		莊 初 牀 山	t/tʃ s t/tʃ t/s	s		照 穿 神 審 禪	t/tʃ s t/tʃ t/tʃ/s t/tʃ/s	s	
見 溪 羣 疑	k h k g/ŋ	h h dʒ		影 曉 匣 于 喻	ʔ/dʒ ɿ ʔ/ɿ ʔ/dʒ/ɿ ʔ/dʒ	h k/h					

2. The Problems Suggested by the Phonological System of the Hainanese Initials

The phonological system of the Hainanese initials has been tackled here from two different points of view: from the diachronic point of view, analyzing its correspondence with Ancient Chinese; and from the synchronic point of view, contrasting it with other dialects. The Hainanese is not only a peculiar dialect, but also an extremely instructive one. Space forbids giving here more than a preliminary sketch of the important problems suggested by Hainanese phonology.

2.1 The Phonological System of the Sino-Annamese Initials

One who looks at the table at the end of the preceding chapter (TABLE II), will bring to mind the phonological system of the Sino-Annamese initials. But the latter (except for a few divergences) corresponds to the system of Ancient Chinese, as one can see here¹⁶⁾:

TABLE III

幫	b	非	f'	端	d	知	tʂ	精	t	莊	tʂ	照	tj	見	k	影	/
滂	f'	敷	f'	透	t'	徹	tʂ	清	t'	初	tʂ	穿	s	溪	k'	曉	h
並	b	奉	f'	定	d	澄	tʂ	從	t	牀	tʂ	神	t',s	羣	k	匣	h
明	m	微	v	泥	n	娘	n	心	t	山	tʂ	審	t',s	疑	ŋ	于	h, v
				來	l	日	ʃ	邪	t			禪	t',s			喻	z

16) LI WANG: "A Study of Sino-Annamese (漢越語研究)", in his "Papers on the History of the Chinese Language (漢語史論文集)", Peking, 1958, pp. 290-406; H. MASPERO: "Etudes sur la Phonétique Historique de la Langue Annamite. Les Initiales", BEFEO, XII, 1, 1912.

Let us analyze some of these similarities:

i) The Ancient Chinese CH'ÜAN-CH'ING-YIN are found as voiced (CH'UN-YIN and SHÊ-YIN) and voiceless (CH'IH-YIN, YA-YIN and HOU-YIN) in both Hainanese and Sino-Annamese:

Anc. Chinese	Hainanese	Sino-Annamese
CH'UN-YIN & SHÊ-YIN	voiced implosives	voiced explosives
CH'IH-YIN, YA-YIN & HOU-YIN	voiceless explosives	voiceless explosives

The striking feature here is the presence of implosives in Hainanese.

ii) The TZ'Ü-CH'ING-YIN of CH'UN-YIN, SHÊ-SHANG-YIN, CH'IH-SHANG-YIN and CHÊNG-CH'IH-YIN groups are found as voiceless fricatives both in Hainanese and in Sino-Annamese:

Anc. Chinese	Hainanese	Sino-Annamese
CH'UN-YIN, SHÊ-SHANG-YIN, CH'IH-SHANG-YIN & CHÊNG-CH'IH-YIN	voiceless fricatives	voiceless fricatives

But on the other hand, the TZ'Ü-CH'ING-YIN of SHÊ-T'OU-YIN, CH'IH-T'OU-YIN and YA-YIN groups are found in Hainanese as voiceless fricatives and in Sino-Annamese as aspirated explosives:

Anc. Chinese	Hainanese	Sino-Annamese
SHÊ-T'OU-YIN, CH'IH-T'OU-YIN & YA-YIN	voiceless fricatives	voiceless aspirated explosives

These Hainanese fricatives must have come from original over-aspirated explosives, because we see that the Wan-ning (萬寧) dialect of the same Hainanese has the alternative sound [χ]~[$^k\chi$]~[k'] and [pf']~[p'] corresponding to the TZ'Ü-CH'ING-YIN of YA-YIN group (Bon-shio dialect has [h]) and to the TZ'Ü-CH'ING-YIN of CH'UN-YIN group (Bon-shio dialect has [f]) respectively; these sounds represent a transitional stage¹⁷⁾.

iii) The initials corresponding to the CH'ÜAN-CHO-YIN coincide, in Hainanese as well as in Sino-Annamese, with those which correspond to the CH'ÜAN-CH'ING-YIN:

Anc. Chinese	Hainanese	Sino-Annamese
CH'ÜAN-CHO-YIN	plosives or affricates	explosives or affricates

This statement has one group of exceptions: namely the CH'IH-SHANG-YIN and the CHÊNG-CH'IH-YIN of Ancient Chinese which are

17) Po-hui CHAN: "The Sounds of the Wan-ning Dialect (萬寧方言概述)", HUMANISTIC SCIENCES, WU-HAN UNIVERSITY (武漢大學人文科學學報), No. 1, 1958, p. 90.

in Hainanese	in Sino-Annamese
explosives or affricates	fricatives or aspirated explosives.

Finally, in Sino-Annamese as well as in Hainanese, the CHO-YIN of the HOU-YIN group coincides with the phonemes evolved from the CH'ING-YIN.

iv) It is a remarkable characteristic that CH'IH-T'OU-YIN and CHÊNG-CH'IH-YIN (except for TZ'Ü-CH'ING-YIN) are found as voiceless explosives in both Hainanese and Sino-Annamese. There are, however, two differences:

- a) the CH'IH-SHANG-YIN are found as fricatives or affricates in Sino-Annamese;
- b) there is a phonological opposition unaspirated/aspirated between the Sino-Annamese phonemes, which on the one hand correspond to CH'IH-T'OU-YIN and on the other hand correspond to CHÊNG-CH'IH-YIN (neither case, however, includes the TZ'Ü-CH'ING-YIN).

The Sino-Annamese language is generally regarded as based upon Chinese loan-words dating from the T'ang-period. From the 8th century the territories known now as Vietnam had become tributaries of China and were strongly influenced by Chinese culture and language. But there are also linguistic reasons: Sino-Annamese (except the Ancient Sino-Annamese) has labio-dental initials which correspond to the Ancient Chinese CH'ING-CH'UN-YIN. Furthermore, Ancient Chinese CH'ÜAN-CHO-YIN are, except that of CHUNG-CH'UN-YIN and of SHÊ-T'OU-YIN, found in Sino-Annamese as voiceless, though the tonemes they bear may suggest an ancient voiced stage. Both these characteristics point to Chinese after the T'ang-period. So far the accepted theories.

But the preceding comparison between Hainanese and Sino-Annamese can not but raise doubts about the above conclusions. The CH'ÜAN-CH'ING-YIN and the CH'ÜAN-CHO-YIN of the CH'UN-YIN group are found in Sino-Annamese as voiced, and this can indeed be explained by the absence of voiceless labial plosives in Vietnamese. But why should the CH'ÜAN-CH'ING-YIN and the CH'ÜAN-CHO-YIN of the SHÊ-T'OU-YIN group be found as voiced plosives, why the CH'ÜAN-CH'ING-YIN and the CH'ÜAN-CHO-YIN of the CH'IH-T'OU-YIN group, together with the CH'ÜAN-CHO-YIN of the CHÊNG-CH'IH-YIN group, be found as voiceless plosives, although Vietnamese did have [d], [t] and [t']? Why also should the CH'ÜAN-CH'ING-YIN and the CH'ÜAN-CHO-YIN of the YA-YIN group and the TZ'Ü-CH'ING-YIN of the YA-YIN be found as voiceless unaspirated plosives and voiceless aspirates respectively, although Vietnamese did have [g], [k] and [k']? The questions must remain forever without answer if we continue to

regard Sino-Annamese as loan-words of the Ch'ang-an (長安) dialect of the T'ang.

A clue to a solution is furnished by the fact that the CH'ÜAN-CH'ING-YIN and CH'ÜAN-CHO-YIN of the SHÊ-T'OU-YIN group are found in Sino-Annamese as voiced while those of the YA-YIN and SHÊ-SHANG-YIN groups are voiceless. This interesting fact reminds us of the Siamese voiced labial and dental initials which raised questions for which H. MASPÉRO had no answer (*cf.* section 2.3).

The Chinese dialect that Vietnamese borrowed directly had, I suppose, voiced labial and dental implosives or strongly pre-glottalized labial and dental plosives, which correspond to Ancient Chinese CH'ÜAN-CH'ING-YIN and CH'ÜAN-CHO-YIN. (They were perhaps phonetically similar to the initials of the so-called 'pre-glottalized series of consonants' in Common Tai.) In this borrowed Chinese dialect the CH'ÜAN-CH'ING-YIN of the SHÊ-T'OU-YIN became voiced, as a consequence of the plosivization of many initials that correspond to Ancient Chinese CH'IH-YIN; they came therefore to coincide with the phoneme corresponding to CH'ÜAN-CHO-YIN of the SHÊ-T'OU-YIN group, but maintained a phonological opposition with the phonemes corresponding to Ancient Chinese CH'IH-T'OU-YIN, CH'IH-SHANG-YIN and CHÊNG-CH'IH-YIN. To express my thought with still greater precision, I would say that, as a consequence of the above-mentioned changes of the CH'IH-YIN, the CH'ÜAN-CH'ING-YIN and the CH'ÜAN-CHO-YIN of the SHÊ-T'OU-YIN group became not only voiced, but voiced implosives. Only the supposition that these voiced phonemes were implosives can be the answer to the question why the dental and labial plosives are voiced while the gutturals and dental sibilants are not. Gutturals can not be pronounced implosively, their articulation point being far back in the mouth. Moreover, dental plosives and affricates are very difficult to distinguish, if pronounced implosively. One may say that the gutturals and dental sibilants in Sino-Annamese initial system have no inevitable reason for becoming implosives.

There is still another reason; this time based on fact. The TZ'Ü-CHO-YIN are found in many Chinese dialects as nasals, and these nasals have one common characteristic, i.e. a slight denasalization—occlusion between velum and pharyngeal wall—precedes the release of the nasalized plosive at its point of articulation, and hence a slightly voiced explosive follows the nasal; it is therefore relatively difficult to maintain a phonological opposition between this nasal and the pure voiced explosive¹⁸).

¹⁸) My papers: "HAKKA PHONEMICS.....", p. 68, "THE HOI-LIUK (海陸) DIALECT OF HAKKA....." p. 7 and its foot notes 12, 13 & 14.

The plosivization of the phonemes corresponding to Ancient Chinese CH'IH-YIN was brought about, I suppose, by the following process: an increase of aspiration at the point of articulation of all aspirated plosives or affricates brought about their shift to the fricative at the same point¹⁹. One may see a living example of this process in the initials of the Wan-ning dialect (see p. 126).

With the change in the dental series of initials, a 'voicing' occurred in the phonemes corresponding to Ancient Chinese CH'ÜAN-CH'ING-YIN and CH'ÜAN-CHO-YIN of the CH'UN-YIN group. The reason was the existence of nasalized labial explosives in the borrowed dialect (and Vietnamese did not possess any voiceless unaspirated labial plosives).

We find also that H. MASPÉRO in his "*Le Dialecte de Tch'ang-ngan sous les T'ang*", p. 21, supposes that the Chinese dialect borrowed by the Vietnamese was a language based on a North China dialect, especially on the Ch'ang-an dialect of that period; but on p. 40 he states more precisely that it was not the Ch'ang-an dialect itself²⁰. I do not doubt that this dialect was a variant of a North China dialect; this is clear enough from the characteristic Sino-Annamese phonemes corresponding to the Ancient Chinese CH'ING-CH'UN-YIN, SHĒ-SHANG-YIN and CH'IH-SHANG-YIN. But I am inclined rather to think about a Chinese dialect which covered some area of south-western China at the T'ang-period, and which was similar to the present Hainanese.

The following fact also seems to strengthen my supposition. Between the phonemes which correspond to Ancient Chinese CH'ÜAN-CH'ING-YIN, CH'ÜAN-CHO-YIN and all the others there exists a distinctive phonological feature. At first glance this seems to apply only to Hainanese and Sino-Annamese. But in fact we have there one of the very essential principles of Chinese language, and this principle is not to be applied only to one of the modern Chinese dialects, but also to the other dialects as we can see from the following comparison of the Wu (吳) dialects.

19) The phonetic changes caused by the increase of aspiration are found in the North Chinese dialects. For instance, the Pekinese initial /t(i-)/ [t'(-i-)] is found in the Shuo-hsien (朔縣) dialect (Shan-hsi province) as [tɕ], [tɕ'] or [tɕ'] (the pronunciation of my informant of Shuo-hsien dialect, Dr. Yang-ming LO). cf. M. HASHIMOTO: "*A Comparative Study of Some North Chinese Dialects*" (in Japanese), the dissertation for the degree of MA, presented to the Department of Chinese Language & Literature, Post-graduate School, Tokyo University, 1956, and Paul L. M. SERRUYS: "*Les Cérémonies du Mariage—usages populaires et textes dialectaux de sud de la préfecture de Ta-t'oung (Chanst)*", FOLKLORE STUDIES, Vol. III, 1944.

20) BEFEO, XX, 2, 1920, p. 21: 'De cette langue classique de l'époque, le fonds était certainement la langue du Nord, et en particulier le dialecte de Tch'ang-ngan, mais dépouillée de ce qui était trop particulier, trop spécial.'; p. 40: 'Mais le sino-annamite n'est pas, comme le kan-on, issu directement du dialecte de Tch'ang-ngan.'

2.2 The Voiced Aspirated Plosives and Affricates in Modern Wu(吳) Dialects

In the reconstruction of the sound value of Ancient Chinese one of the most important controversies was whether Ancient Chinese initials CH'ÜAN-CHO-YIN were aspirated or not (even when this aspiration is phonologically irrelevant)²¹.

B. KARLGREN, who had reconstructed the CH'ÜAN-CHO-YIN as an aspirated group, said in his "*Études sur la Phonologie Chinoise*", p. 360: 'Mon argument dernier, mais nullement le plus faible, en faveur des valeurs b', d', g' etc. est basé sur la nature très particulière des sonores en question dans les dial. Wou... Sans aucun doute, nous avons affaire ici à un rudiment de l'aspiration ancienne'. Thus one of the main grounds of B. KARLGREN's reconstruction was the voiced aspirated initials in the modern Wu dialects. Typical of these are the initials of the Su-chou (蘇州) dialect²². But are they really descendants of the Ancient Chinese CH'ÜAN-CHO-YIN? For this problem, we must first of all compare these voiced aspirated initials with those of the various modern dialects.

The phonological opposition in Ancient Chinese CH'ÜAN-CH'ING-YIN/TZ'Ü-CH'ING-YIN/CH'ÜAN-CHO-YIN seems to be continued most naturally in the present day Hsiang (湘) dialects' opposition system: voiceless unaspirated/voiceless aspirated/voiced²³.

Suppose that the descendants of Ancient Chinese CH'ÜAN-CHO-YIN in Hsiang dialects became plosives (one must note that the TZ'Ü-CHO-YIN of the SHÊ-YIN group and, in some dialects, also PAN-SHÊ-YIN correspond to voiced plosives or nasalized plosives), then the Ancient Chinese CH'ÜAN-CHO-YIN of the SHÊ-YIN group might evolve into Hsiang's voiced implosives, and so the CH'ÜAN-CH'ING-YIN of the same group necessarily into voiceless implosives. In phonetic terms, one could hardly expect to see a phonological opposition between voiced unaspirated explosives against voiced aspirated explosives, and in fact no Chinese dialect

21) H. MASPÉRO: "*Études sur la Phonétique Historique de la Langue Annamite*", BEFEO, XII, 1, 1912, p. 15; B. KARLGREN: "*Études sur la Phonologie Chinoise*", Stockholm-Göteborg, 1915-1926, pp. 356-360; H. MASPÉRO: "*Le Dialecte de Tch'ang-ngan sous les T'ang*", BEFEO, XX, 2, 1920, pp. 4, 23-28; Jung LI: "*The Phonological System of the Ch'ieh-yün (切韻音系)*", Monographs of Linguistics, No. IV, 2nd ed., 1956, pp. 116-124.

22) The pronunciation of Mr. Ting-yü CHU, an informant for the Su-chou dialect. Also cf. Yuen Ren CHAO: "*Studies in the Modern Wu-Dialects (現代吳語的研究)*", Tsing Hua College Research Institute, Monograph No. 4, Peking, 1928.

23) A. A. ДРАГУНОВ и Е. Н. ДРАГУНОВА: "Диалекты Сянгань и Сянсян (Хунань)", ИЗВЕСТИЯ АН СССР, отделение гуманитарных наук, 1932, pp. 239-269; A. A. ДРАГУНОВ: "К Латинизации Диалектов Центрального Китая", ИЗВЕСТИЯ АН СССР, отделение социальных наук, 1932, pp. 210; Jung LI, op. cit., pp. 116-124; Chia-hua YÜAN: "*An Outline of the Chinese Dialects (漢語方言概要)*", Peking, 1960, pp. 103-127.

shows an example of such opposition {for the Yung-k'ang (永康), the Sung-chiang (松江) and the P'u-tung (浦東) dialects, I refer the reader to the following paragraph}. Furthermore it is very difficult to maintain phonological opposition between voiced implosives and voiceless implosives (because voiceless implosives hardly allow for a glide to a following vowel and are therefore an uneconomical means) so that the initials which correspond to CH'ÜAN-CH'ING-YIN and CH'ÜAN-CHO-YIN coincide after all. So far my hypothesis on the genesis of implosives in Hainanese. A further fact is furnished by the phonetic nature of implosives, about which a few words are now necessary.

To articulate the Hainanese implosives, one starts from an occlusion, (at the glottis and either at the lips or at the alveolar arch); by lowering the root of the tongue and the larynx the air is rarefied in the closed up oral cavity; the release then produces an entering air stream to fill the rarefied cavity. Hainanese bilabial and alveolar implosives produced in such a way are nearly voiceless consonants, in emphatic pronunciation. In everyday speech, however, at the moment of lowering the larynx, the closed vocal cords are somewhat relaxed; this allows for the air from the lungs to pass through with a slight vibration; thus the implosive consonants become somewhat voiced and effect a smooth transition in the following vowel.

In rapid speech also a variant of voiced implosive is produced only by pre-glottalization and by lowering the jaw. This shows that the feature voiced/voiceless is phonologically irrelevant in the Hainanese implosives; their essential characteristic is the pre-glottalization.

The glottalized voiceless unaspirated explosive which is found in so many Chinese dialects seems at first glance to be very different from our Hainanese implosives. Actually, in the case of the former, the closed glottis is released with the explosion of the lips (or of the gums), and in the case of the latter, the release of the glottis comes after the whole process described above. Thus the real difference between the two kinds of consonants resides essentially in the order of the closure and release at the articulation point and at the glottis.

We noted above a variant of Hainanese implosives produced only by pre-glottalization and by lowering the jaw. Now if we weaken still further the glottal closure and the lowering of the jaw, we obtain a consonant which is a voiced bilabial (or alveolar) plosive preceded by a weak glottal constriction. This is the very phone that corresponds to Ancient Chinese CH'ÜAN-CH'ING-YIN of the CHUNG-CH'UN-YIN and SHÊ-T'OU-YIN groups in the Yung-k'ang, Sung-chiang

and P'u-tung dialects of the Wu group²⁴). These phones can thus be said to constitute the transition type of plosives between the Hainanese implosives and the voiced plosives of the Hsiang dialects. The Ancient Chinese initials found in those three Wu dialects are as follows:

in the Yung-k'ang dialect:

幫	b'/m	非	f	端	d'/n	知	ts	精	ts	莊	ts	照	ts	見	k	影	/
滂	p'	敷	f	透	t'	徹	ts'	清	ts'	初	ts'	穿	ts'	溪	k'	曉	ʒ
並	bʌ	奉	v	定	dʌ	澄	tszʌ/sz	從	tszʌ/sz	牀	tszʌ/sz	神	tszʌ/sz	羣	gʌ	匣	ʌ
明	m/v	微	v/ʌ	泥	ŋ	娘	ŋ	心	s	山	s	審	s	疑	ŋ	于	ʌ
				來	l	日	ŋ/tszʌ/sz	邪	tszʌ/sz			禪	tszʌ/sz			喻	ʌ

in the Sung-chiang and P'u-tung dialects:

幫	b	非	f	端	d	知	ts	精	ts	莊	ts	照	ts	見	k	影	?
滂	p'	敷	f	透	t'	徹	ts'	清	ts'	初	ts'	穿	ts'	溪	k'	曉	h/t/ɸ/ʒ
並	bʌ	奉	v/β	定	dʌ	澄	sz	從	sz	牀	sz	神	sz	羣	gʌ	匣	ʌ
明	m	微	m	泥	ɲ	娘	ɲ	心	s	山	s	審	s	疑	ŋ/β/v	于	ʌ
				來	l	日	ɲ	邪	sz			禪	sz			喻	ʌ

The fact that the CH'ÜAN-CH'ING-YIN of the CHUNG-CH'UN-YIN and SHÊ-T'OU-YIN groups are found in these dialects as voiced and the CH'ÜAN-CH'ING-YIN of the CH'IH-YIN and YA-YIN groups as voiceless bears out my explanation of these voiced plosives.

The voiceless unaspirated plosives and affricates in many Chinese dialects are more or less glottalized; the closed glottis is released at the same time as the release of the lips or gums; the vocal cords vibrate with the air that had been held by the closed glottis.

The voiceless aspirate, however, is not glottalized; the aspiration releases the closure at the articulation point, after which the vocal cords vibrate, bringing on the following vowel.

This explains why often in unstressed words the Pekinese voiceless unaspirated plosives are hardly glottalized, and are pronounced nearly as voiced.

Speaking purely theoretically, we can articulate a sound in which the closed glottis would be released before the explosion of lips or alveolar arch. But I have myself never observed such a sound in Chinese dialects.

24) Yuen Ren CHAO: "Studies in the Modern Wu-Dialects", pp. 22-26, 82, 85-86. Though I have myself never observed this sound, I wonder if we do not have here the sound described by Prof. Y. R. CHAO: 'pronounced as really voiced and notably prolonged' (ibid., pp. 85-86).

From the preceding explanation, we can now draw some conclusions from the table of the plosives and affricates in the above-mentioned dialects. Their phonetic features would then be:

in Hainanese:

{	CH'ÜAN-CH'ING-YIN	: pre-glottalized voiceless (unaspirated) plosives	} →
	CH'ÜAN-CHO-YIN	: pre-glottalized voiced (unaspirated) plosives	
{	pre-glottalized (unaspirated) implosives with phonologically irrelevant sonority; or glottalized voiceless (unaspirated) explosives and affricates		} →
	TZ'Ü-CH'ING-YIN	: voiceless plosives with strong aspiration and without glottalization	
		voiceless fricatives	
{	TZ'Ü-CHO-YIN	: voiced (unaspirated) plosives without glottalization; or nasals	

in Yung-k'ang, Sung-chiang and P'u-tung dialects:

{	CH'ÜAN-CH'ING-YIN	: voiced (unaspirated) plosives (formerly perhaps with weak glottalization, i.e. preceding or simultaneous glottal constriction), or glottalized (voiceless unaspirated) plosives and affricates
	TZ'Ü-CH'ING-YIN	: voiceless aspirated plosives and affricates without glottalization
	CH'ÜAN-CHO-YIN	: voiced (aspirated) plosives and affricates or fricatives without glottalization

In the Su-chou dialect, which is a type of the Wu dialect, the glottalization of the CH'ÜAN-CH'ING-YIN is strong and the closure of the glottis is released simultaneously with the explosion of plosives and affricates. These are therefore voiceless and are opposed to the other initial groups in the following way:

{	CH'ÜAN-CH'ING-YIN	: glottalized (voiceless unaspirated) plosives and affricates
	TZ'Ü-CH'ING-YIN	: voiceless aspirated plosives and affricates without glottalization
	CH'ÜAN-CHO-YIN	: voiced (aspirated) plosives or fricatives without glottalization

The phonological opposition glottalized/non-glottalized in its various concrete realization can be used with success to explain the phonological system of several other dialects. I will list a few here, with their opposition groups:

in P'u-ch'i (蒲圻) and T'ung-ch'êng (通城) (Hu-pei) dialects:

{	CH'ÜAN-CH'ING-YIN	: glottalized (voiceless unaspirated);
	TZ'Ü-CH'ING-YIN	: non-glottalized (voiced aspirated);
	CH'ÜAN-CHO-YIN	

in Hakka and Lin-ch'üan (臨川) dialects:

$\left\{ \begin{array}{l} \text{CH'ÜAN-CH'ING-YIN} : \text{glottalized (voiceless unaspirates)} \\ \text{TZ'Ü-CH'ING-YIN} \\ \text{CH'ÜAN-CHO-YIN} \end{array} \right\} : \text{non-glottalized (voiceless aspirates)}$

in T'ung-shan (通山) (Hu-pei), Fu-chou (福州) and Amoy dialects:

$\left\{ \begin{array}{l} \text{CH'ÜAN-CH'ING-YIN} \\ \text{CH'ÜAN-CHO-YIN} \end{array} \right\} : \text{glottalized (voiceless unaspirates)}$
 TZ'Ü-CH'ING-YIN : non-glottalized (voiceless aspirates)

2.3 A Problem of Sinitic Linguistics

It is well-known that modern Tai dialects correspond to Proto-Tai in the following way:

Siamese	Proto-Tai
p-	*p-
t-	*t-
p'-	*p', *b-
t'-	*t', *d-
b-	
d-	

Dioi	Proto-Tai
p-	*p-, *p', *b-
t-	*t-, *t', *d-
b-	
d-	

H. MASPÉRO supposed in his "*Contribution à l'Etude du Système Phonétique des Langues Thai*" (BEFEO, XI, 1911) that the Proto-Tai initials which correspond to the modern Tai dialects' voiced initials must have been 'voiceless lenis'. Against this theory, Professor Fang-kuei LI, after a thorough demonstration, advanced the theory of a 'pre-glottalized series of consonants', i.e. ʔb, ʔd and ʔj; the main reason is that, although these initials are voiced in all modern dialects, they exhibit as a whole on the tone corresponding to that of voiceless initials²⁵.

Now the Hainanese implosives with their system of phonological opposition (/p/) ²⁶ : /b/ : /B/, /t/ : /d/ : /D/, /k/ : /g/ show an intimate relationship with this 'pre-glottalized series' both from the point of view of phoneme typology and of phonetic resemblance. The reason is of course that the initials /B/ and /D/

25) Fang-kuei LI: "The Hypothesis of a Pre-glottalized Series of Consonants in Primitive Tai", BIHP (歷史語言研究所 集刊) ACADEMIA SINICA, Vol. XX, 1947, pp. 177-188.

26) The initial /p/ occurs only in some loan-words from English or Malayan.

of the Bon-shio dialect correspond to the /ʔb/ and /ʔd/ of the Wan-ning dialect²⁷⁾; Hainanese has glottal explosive (or hard vocalic ingress) opposed to voiced glottal fricative (or smooth vocalic ingress).

These dialects, just like Proto-Tai, have no guttural implosive and dental in-affricate, and these implosives or pre-glottalized plosives bear, like in Proto-Tai, a YIN-TIAO (陰調) {and also YANG-TIAO (陽調)}, i.e. their tones correspond to that of a voiceless (and voiced) initial.

Although I have not yet had the opportunity to observe these Tai dialects directly, I can make use of several outstanding studies done in the field.

In Pu-i (布依) /b/ and /d/ have a preceding laryngeal stricture, in Lung-chou (龍州) /b/ and /d/ have only a reduced laryngeal constriction because no opposition exists with other /b/ or /d/. But in Wu-ming (武鳴), /b/, /d/ and /ʔj/²⁸⁾ are preceded by a strong glottalization, and under its influence they tend to become implosives. These are the very implosives of Hainanese.

These pre-glottalized plosives being found in the Chuang (僮) language of Kuang-hsi (廣西) province, and in the Li (黎) language on the island of Hainan, one may be tempted to consider them as a phenomenon found only in a distinct area. But as appears now from our whole study, these pre-glottalized plosives are original in Tai and in Chinese; they are not isolated and incidental sounds, but appear in the phonetic system, corresponding in a regular manner to that of Ancient Chinese; they have a precise reason of existence²⁹⁾. They are a peculiar but essential constituent of the Chinese sound system. We can conclude therefore that the study of Hainanese phonology promises to contribute new developments to Sinitic linguistics, although a lot of work remains to be done. (October, 1959)

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27) Po-hui CHAN, *op. cit.*, p. 90.

28) /ʔj/ in Pu-i, which is parallel to /ʔb/ and /ʔd/, is found in many other dialects as /ʔ/. cf. Shih-ch'ang YÜ: "A Comparative Study of Several Consonants among the Dialects of the Pu-yi Language (布依語幾個聲母的方言對應研究)", *LINGUISTIC RESEARCHES* (語言研究), No. 1, 1955, p. 283-296.

29) Chinese loan-words in Wu-ming dialect do not have /ʔb/, /ʔd/, /ʔj/ and /ʔw/, though the Wu-ming dialect itself has them. cf. Tsung-chi WU: "The Phonology of the Chinese Loan-words in the Chuang Language of Wu-ming (武鳴僮語中漢語借字的音韻系統)", *LINGUISTIC RESEARCHES* (語言研究), No. 3, 1958, p. 25-70. One of the reasons why these initials are so is that these Chinese loan-words are borrowed from Mandarin dialects or Cantonese. But a more fundamental reason is, I think, that some Chinese dialects have implosives from ancient times, as one can see in the preceding classification of strata.