

ces étoiles „qui donnent la pluie” (Tištrya et Satavaēsa) apparaissent ⁴².

La fin du fargard n'est pas nette, elle se „dissout” dans les fragments ajoutés, qui sont communs à quelques fargards ⁴³. La dernière strophe, la 17^{ème}, appartenant à Vd. 21, semble formellement être liée avec tout le *fargard* car, tout comme les invocations des corps célestes, elle commence par „*uzayara uzīra*...”. En réalité elle parle de démons (*kaxuži*, *ayehi*, *jaḥi*), et par ce fait elle est liée aux fragments empruntés qui suivent, et qui ont un caractère d'exorcismes contre les démons, représentés en partie par les différentes maladies.

uzayara uzīra est un appel qui doit mettre en marche en même temps les corps célestes et les démons. Elle doit forcer les deux à quitter la place qu'ils occupaient jusqu'à présent. La lumière et l'eau régénérées en arrivant sur la terre chassent les démons dont l'activité précédente rendait impossible leur séjour. Et c'est ainsi que furent sauvés l'équilibre et l'ordre cosmique.

⁴² Conformément à la suggestion de Herzfeld, *Zoroaster*, vol. 2, p. 599.

⁴³ Vd. 21.18—23 = Vd. 20.9—14 et Vd. 21.21—23 = Vd. 8.19—21 ainsi que Vd. 21.20 = Y. 54.1 et Vd. 21.22 = Y. 27.13.

TOMASZ MARSZEWSKI

THE PROBLEM OF THE INTRODUCTION OF „PRIMITIVE” MAIZE INTO SOUTH-EAST ASIA

(Part I)

In his two papers (1963, 1969) ¹ dealing with the problem of the ancientness and early diffusion of maize cultivation in Asia the present author has joined a group of specialists supporting with diverse arguments the hypotheses suggesting a pre-Columbian age of this crop in that part of the world and particularly those who supposed that some of its „primitive” races have been carried through the Pacific between South America and South-East Asia. However, while some of these specialists took into consideration both possible directions of such a plant-transfer the author having in view the paleobotanical findings in Mexico, inclined to admit that maize was transplanted from America to Asia. Furthermore, the author advanced ² a tentative hypothesis — developing partly the hypothesis of Heine-Geldern ³ — and indicated the most plausible sectors of the coasts of the mainland of South-East Asia on to which the alleged Austronesian sailors could introduce those „primitive” forms of maize. Thus, he considered the following two

¹ T. Marszewski, *The Age of Maize Cultivation in Asia (A Review of Hypotheses and New Ethnographical, Linguistic and Historical Data)*, „Folia Orientalia”, Vol. IV, 1963, pp. 243—296; idem, *The Age of Maize Cultivation in Asia (Further Investigations)*, „Folia Orientalia”, Vol. X, 1969, p. 91—192.

² T. Marszewski, *The Age of Maize...*, 1963, p. 293; idem, *The Age of Maize...*, 1969, p. 190 and map on the p. 192.

³ R. Heine-Geldern, *Kulturpflanzengeographie und das Problem vorkolumbischer Kulturbeziehungen zwischen Alter und Neuer Welt*, „Anthropos”, Vol. 53, 1958, p. 396.

sectors from which these types of maize could spread into the inland of Asia: (1) some indefinite places on the shores of North or Central Vietnam — as suggested by Heine-Geldern — and (2) some regions at the base of the Malay Peninsula.

In the present paper the author will juxtapose some data which, he thinks, should be thoroughly studied in connection with his hypothesis. If one of the tentative explanations of these data can find support, then, according to his view, they may:

1. speak in favour of the transplantation of a „primitive” maize on the northern sector of the coast of South Vietnam (without excluding, however, other possible places of its introduction into South-East Asia);

2. suggest the regions of America from which that type of maize could be brought by some unidentified sea voyagers.

Three categories of data will be reviewed here: the botanical, the linguistic and the ethnogeographical ones.

TAXONOMICAL AND PHYTOGEOGRAPHICAL DATA

The taxonomical comparative studies of the Asiatic maizes — successively undertaken and published by Collins (1909, 1920)⁴, Kuleshov (1928, 1929)⁵, Anderson (1945, 1949)⁶, Anderson & Brown (1953)⁷, Suto & Yoshida (1956)⁸ — have revealed that some pe-

⁴ G. Collins, *A New Type of Indian Corn from China*, U. S. Department of Agriculture, Bureau of Plant Industry, Bulletin No. 161, Washington 1909, pp. 1—30; idem, *Waxy Maize from Upper Burma*, „Science”, N. S., Vol. LII, 1920, No. 1333, pp. 48—51.

⁵ N. N. Kuleshov, *Nekotore osobennosti kukuruzy Azii*, BABGPB, Vol. XIX, 1928, pp. 325—374; idem, *Geograficheskoe raspredelenie sortovogo raznoobraziya kukuruzy na zemnom sharie*, BABGPB, Vol. XX, pp. 493—509.

⁶ E. Anderson, *What is Zea Mays? A Report of Progress*, „Chronica Botanica”, Vol. IX, 1945, pp. 88—92; C. R. Stonor & E. Anderson, *Maize among the Hill Peoples of Assam*, AMBG, Vol. XXXVI, 1949, pp. 355—395.

⁷ E. Anderson & W. L. Brown, *The Popcorns of Turkey*, AMBG, Vol. XL, No. 1, 1953, pp. 33—40.

⁸ T. Suto & Y. Yoshida, *Characteristics of the Oriental Maize*, in: H. Kihara (editor), *SRJENH*, Vol. II, Kyoto 1956, pp. 375—513.

culiar forms of that crop are grown spottily on a wide area stretching from the Aegean Sea up to Hainan and from Mongolia up to Indonesia.

One set of these forms distinguished by many small ears on a stalk, small spherical kernels having sometimes waxy endosperm, many prop-roots, shortness of almost all organs etc. — most of them usually ranged among the popcorn subvarieties (*Zea mays* L. var. *evarta*) or labelled as „Persian” race — have been considered as representing the most „primitive” (Anderson) or „pure” (Suto & Yoshida) type of maize in the Old World⁹. These forms of maize — cultivated mainly by the conservative hill peoples and uncultivated by the coastal ones — have been testified since the Pontian Mountains eastwards up to the Himalayas and their ramifications and then southwards through the western part of the Indochinese Peninsula, maybe, up to Java¹⁰. Besides, the most typical representatives of that race have been found up till now in North Turkey, Sikkim, Bhutan, South-East Tibet, Assam, North-East Burma and Thailand¹¹. It seems, however, that the area of the distribution of the „Persian” race sketched by Suto and Yoshida will need serious corrections¹². It is to be expected too particularly when in the eastern part of the Indochinese Peninsula and in the subcontinental islands of South-East Asia, detailed comparative studies of maize forms cultivated there by some backward peoples are to be undertaken. That has been strongly postulated already by Anderson¹³, but as yet neglected so far as it is known to the author. Thus, though all that area

⁹ Stonor & Anderson, *op. cit.*, p. 395; Suto & Yoshida, *op. cit.*, pp. 503—505.

¹⁰ Stonor & Anderson, *op. cit.*, pp. 386, 390, 395; Suto & Yoshida, *op. cit.*, p. 503 and map (fig. 69) on the p. 497.

¹¹ Stonor & Anderson, *op. cit.*, pp. 385, 389; Suto & Yoshida, *op. cit.*, p. 490.

¹² See: Marszewski, *The Age of Maize...*, 1969, p. 174.

¹³ Stonor & Anderson, *op. cit.*, p. 393: „Certainly we cannot even discuss the probable history of Zea Mays in an intelligent fashion until we have learnt an approximate notion of what varieties of maize are being grown by the Lolo in Central Asia, by the hill tribes of Burma, Siam and Indo-China, by the aboriginal remnants in Hainan and Formosa, and in the isolated interior of New Guinea”.

according to Sutô and Yoshida¹⁴ is dominated by the „Carribean” race of maize, we have indications which show that in some at least and mainly hilly regions, „primitive” maizes, which possibly may be ranged among the „Persian” race, are abundantly grown. So, for North Vietnam Anderson has reported¹⁵ (after the information given him by Pierre Larroque) two such forms: one grown by Meo, which on the Yünnan border „seems almost to run wild” and another being a „small-grained sort, raised in Indo-China for chicken feed, which germinates effectively in the soaking wet soil of rice paddies”. Then, for South Vietnam we learn from Guilleminet¹⁶ that several Bahnar (Bana) tribes living around Kontum and to the east of Pleiku are growing some tardy sorts of maize with small reddish grains. Similarly, for some islands of East Indonesia (Lombok, Flores, Palau) Kamocki has testified¹⁷ the cultivation of some forms of maize with small cobs and small reddish grains.

Among the American maizes the close counterparts of the Asiatic popcorns (particularly North Anatolian, Assamese and Siamese forms of the „Persian” race), showing several of their characteristic traits as short cobs with small spherical kernels, are known, as demonstrated by Anderson¹⁸, from various prehistoric graves and trash-heaps on the shores of Peru¹⁹, Chile and even from Argentina.

¹⁴ Sutô & Yoshida, *op. cit.*, p. 494 and the map (fig. 69) on the p. 497.

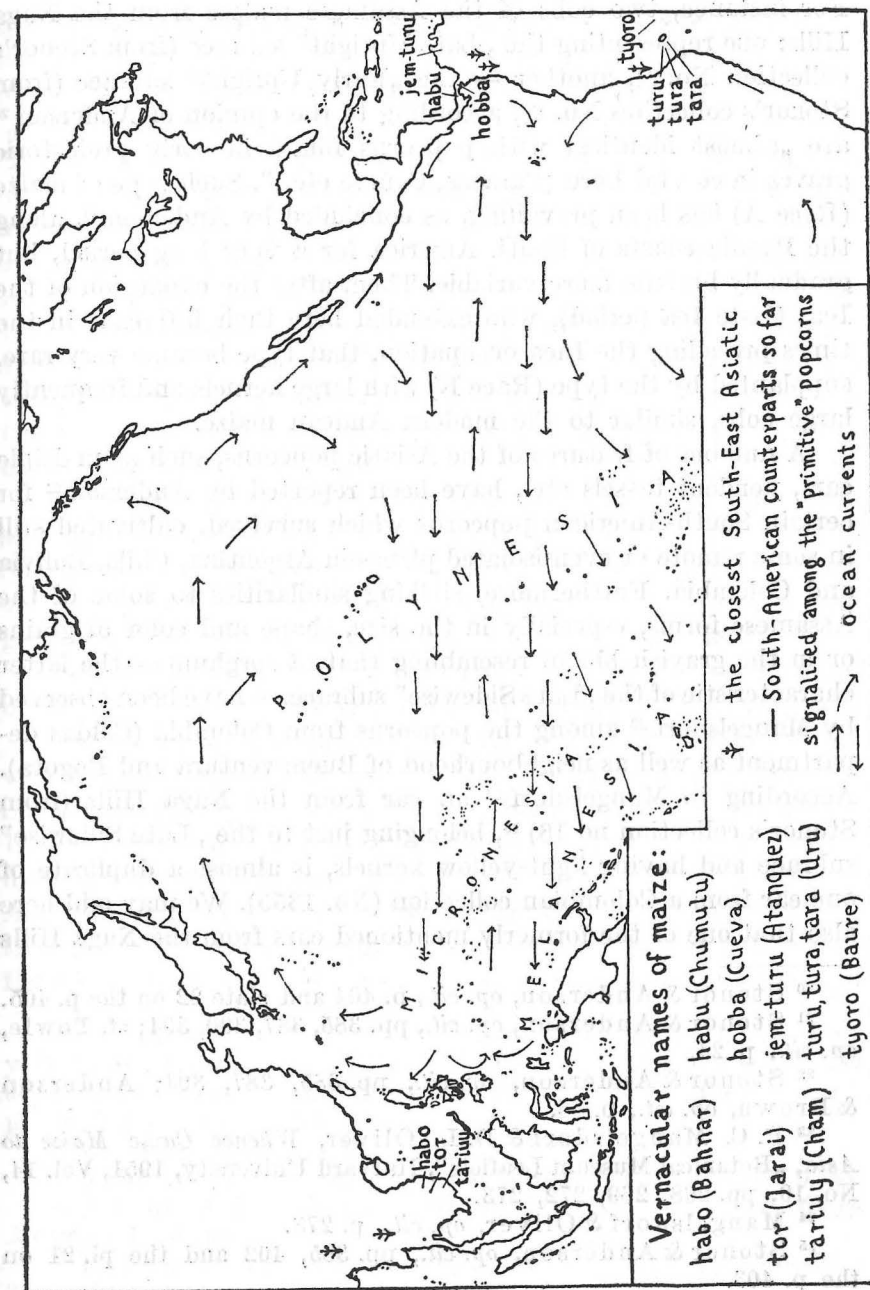
¹⁵ Stonor & Anderson, *op. cit.*, pp. 389, 393.

¹⁶ Paul Guilleminet, *Dictionnaire Bahnar-Français*, Publ. EFEO, Vol. XL, Tome Premier, Première Partie A—K, Paris 1959, pp. 22, 89, 154, 219, 450.

¹⁷ That information the author is greatly indebted to Dr. Janusz Kamocki who in 1970 undertook ethnographical research in these islands.

¹⁸ Stonor & Anderson, *op. cit.*, pp. 385, 387, 390, 394; Anderson & Brown, *op. cit.*, p. 35; cf. Sutô & Yoshida, *op. cit.*, pp. 504, 505.

¹⁹ According to the opinion of Towle, based on maize remains from the early archeological levels at Paracas and Nazca on the southern Peruvian coast, it appears that two or three races of primitive popcorns — sharing also some traits of a podcorn — have been grown there. (See: M. A. Towle, *The Ethnobotany of Pre-Columbian Peru*, Viking Fund Publications in Anthropology, No. 30, 1961, pp. 22—24).



For instance, two cobs of the Assamese maizes from the Naga Hills: one representing the „Late Upright” subrace (from Stonor’s collection No. 8), another — the „Early Upright” subrace (from Stonor’s collection No. 6), according to the opinion of Anderson²⁰ are „almost identical with popcorns found in early prehistoric graves in coastal Peru (Paracas, Cañete etc.)”. Such type of maize (Race A) has been prevailing, as concluded by Anderson²¹, along the Pacific coasts of South America for a very long period, but gradually became more variable. Then, after the expansion of the Incas (Late Ica period), who extended here their influence in the times preceding the Inca occupation, that type became very rare, supplanted by the type (Race B) with large kernels and frequently large cobs, similar to the modern Andean maize.

A number of features of the Asiatic popcorns, such as multiple ears, pendent tassels etc., have been reported by Anderson²² for certain South-American popcorns which survived, cultivated still in some remote or even isolated places in Argentina, Chile, Bolivia and Colombia. Furthermore, striking similarities to some of the Assamese forms, especially in the size, shape and color of grains or in the grayish bloom resembling that of sorghum — the latter characteristic of the „Late Sidewise” subrace — have been observed by Mangelsdorf²³ among the popcorns from Colombia (Caldas department as well as neighbourhood of Buenaventura and Bogota). According to Mangelsdorf²⁴ an ear from the Naga Hills (from Stonor’s collection no 18)²⁵, belonging just to the „Late Sidewise” subrace and having light-yellow kernels, is almost a duplicate of one ear from a Colombian collection (No. 1355). We may add here also that one of the formerly mentioned ears from the Naga Hills

²⁰ Stonor & Anderson, *op. cit.*, p. 404 and plate 22 on the p. 405.

²¹ Stonor & Anderson, *op. cit.*, pp. 385, 387, 390, 394; cf. Towle, *op. cit.*, p. 24.

²² Stonor & Anderson, *op. cit.*, pp. 385, 387, 394; Anderson & Brown, *op. cit.*, p. 35.

²³ P. C. Mangelsdorf & D. L. Oliver, *Whence Came Maize to Asia*, „Botanical Museum Leaflets”, Harvard University, 1951, Vol. 14, No. 10, pp. 268, 269, 272, 273.

²⁴ Mangelsdorf & Oliver, *op. cit.*, p. 273.

²⁵ Stonor & Anderson, *op. cit.*, pp. 385, 402 and the pl. 21 on the p. 403.

(from Stonor’s collection No. 6), classified as „Early Upright” subrace and distinguished by its red kernels, bears a certain degree of resemblance in several traits to some ears of the Colombian „Pollo” race, which should, however, be verified by the specialists. The typical traits of that race are: multiple small and conical ears on a stalk, frequently reddish kernels and some features resembling it to teosinte²⁶. Moreover, it is considered²⁷ now to be probably the most „primitive” in Colombia, being possibly a domesticated form of a wild forest maize from which it may be not very distant. „Pollo” race is supposed also to be the maize type cultivated by the inhabitants of some caves near Boyaca before the advent of Chibcha to that region and is grown now on the eastern slopes of the Cordillera Oriental in the departments of Cundinamarca and Boyaca²⁸.

The appearance in Asia of all these peculiar forms of maize and strange resemblance of some of them to certain popcorns of South America have been, however, a subject of obstinate controversies, among the botanists, agronomists, geographers, anthropologists, etc. engaged in the investigation of that problem.

Among those who have admitted the pre-Columbian occurrence of maize in Asia the following points of view have been expressed:

First, certain specialists have paid attention to some forms which along with several specific traits had also waxy endosperm. So, Collins signalized (1909, 1920)²⁹ them for South-East China, Upper Burma and Mindanao, and inclined to see in such their distribution an indication of a respectable age of that crop in Asia. He has been followed by Kuleshov who testified (1928)³⁰ them for a far wider area inside Asia and considered that a sufficiently long time must have elapsed until they could have evolved

²⁶ L. M. Roberts, U. J. Grant, R. Ramirez, W. H. Hatheway y D. L. Smith con la colaboración de Paul C. Mangelsdorf, *Razas de mais en Colombia*, D. I. A. Boletín Tecnico No. 2, Bogota 1957, pp. 36 (fig. 3), 37, 39 (fig. 6).

²⁷ Roberts & al., *op. cit.*, pp. 35, 37.

²⁸ Roberts & al., *op. cit.*, p. 36 and the map (fig. 5) on the p. 38.

²⁹ Collins, *A New Type...*, 1909, pp. 7—19, 24, 25; idem, *Waxy Maize...*, 1920, pp. 48—51.

³⁰ Kuleshov, *Nekotorie osobennosti kukuruzy Azii*, pp. 371—372, 374.

from an American maize. A different hypothesis has been forwarded by Anderson (1945)³¹, who reviving the conception of Griesbach (1872)³² has suggested that maize might have originated in South-East Asia, where from in the evolutionary stadium of a „primitive“ popcorn could have been transferred by the Polynesians through the Pacific to South America. Later on (1949)³³ he considered two possible directions of such transfer, either from Asia to America or in opposite direction, which point of view has been upheld or similar one admitted by several scholars, as Carter (1950, 1953), Hatt (1951), Sauer (1952)³⁴ and some others. Then, after the discovery of new archeological maize remains in Mexico, a whole pleiade of specialists, Anderson (1952)³⁵ among them, inclined to admit the transpacific introduction of that popcorn type from South-America to South-East Asia, do not always rejecting, however, all premises of the above mentioned hypothesis, as Sutô and Yoshida (1956), Carter (1963), Vishnu-Mittre and Gupta (1966) etc.³⁶, or more decidedly, as Heine-Geldern (1958), Vishnu-Mittre (1966) etc.³⁷ A quite genuine hypothesis, based on other than

³¹ Anderson, *What is Zea Mays?*, pp. 89—90.

³² A. Griesbach, *Die Vegetation der Erde nach ihrer klimatischen Anordnung. Ein Abriss der vergleichenden Geographie der Pflanzen*, Leipzig 1872, Vol. I, note 79 on the p. 542.

³³ Stonor & Anderson, *op. cit.*, pp. 356, 391, 395.

³⁴ G. F. Carter, *Plant Evidence for Early Contacts with America*, „Southwestern Journal of Anthropology“, Vol. 6, No. 2, 1950, pp. 177—178; idem, *Plants Across the Pacific*, „Memoirs of the Society for American Archaeology“, No. 9, Salt Lake City, Utah, 1953, pp. 68—69; G. Hatt, *The Corn Mother in America and in Indonesia*, „Anthropos“, Vol. XLVI, Nos. 5—6, 1951, p. 902; C. O. Sauer, *Agricultural Origins and Dispersals*, New York 1952, map II.

³⁵ E. Anderson, *Plants, Man and Life*, Berkeley and Los Angeles 1967 (First edition 1952), p. 160.

³⁶ Sutô & Yoshida, *op. cit.*, p. 508; G. F. Carter, *Maize to Africa*, „Anthropological Journal of Canada“, Vol. I, No. 2, 1963, p. 7; Vishnu-Mittre & H. P. Gupta, *Pollen morphological studies of some primitive varieties of maize (Zea mays L.) with remarks on the history of maize in India*, „The Palaeobotanist“, Vol. 15, Nos. 1—2, 1966, pp. 176, 181.

³⁷ Heine-Geldern, *Kulturpflanzengeographie...*, pp. 373, 396; Vishnu-Mittre, *Kaundinyapur Plant Economy in Protohistoric and*

botanical grounds, has been set forth by Jeffreys (1955, 1971)³⁸, who has not paid special attention to the separate taxonomical position of the discussed Asiatic popcorns though he considered the waxy forms of maize. He emphasized instead that the „Caribbean“ type of maize has been testified also for the mountains of Assam and suggested that it could have been picked up by the Arabs during their alleged voyages to the shores of America, then carried through the Atlantic and via Near East and Central Asia introduced to China as well as separately to the Philippines.

Among the adherents of the post-Columbian introduction of maize into Asia the following opinions have been published:

One of the first who has attached special interest to the discussed popcorns was Wagner (1926)³⁹. Being convinced that the first maize cultivated in China belonged only to the type with small kernels, he considered that fact as an argument against its great ancientness in that country, proving that there was no sufficient time for a varietal differentiation. Later on, several specialists construing their hypothesis on the origin of the maize forms grown in the mountains of South Asia, had already in view their South American counterparts, which in the meantime became better recognized. Some have admitted that certain forms of maize brought from South America have been carried, through the North Atlantic and then via North Africa and the Indian Ocean⁴⁰ introduced to India and the Far East. Such a route was accepted by Humlum (1942)⁴¹ for the „Peruvian“ maizes and by Mangelsdorf

Historic Times, „The Palaeobotanist“, Vol. 15, Nos. 1—2, 1966, p. 155; cf. Marszewski, *The Age of Maize...*, 1969, the map on the p. 192.

³⁸ M. D. W. Jeffreys, *Pre-Columbian Maize in Asia*, „The Eastern Anthropologist“, Vol. IX, No. 1, 1955, pp. 22, 23; idem, *Pre-Columbian Maize in Asia*, in: C. L. Riley, J. Ch. Kelley, C. W. Pennington, R. L. Rands (editors), *Man across the Sea. Problems of Pre-Columbian Contacts*, University of Texas Press, Austin & London 1971, pp. 377—380, 382, 385—386, 389, 393, 400.

³⁹ W. Wagner, *Die Chinesische Landwirtschaft*, Berlin 1926, pp. 307—308.

⁴⁰ B. Laufer, *The Introduction of Maize into Eastern Asia*, Congrès International des Américanistes, XV^e Session tenue à Québec en 1906, Tome I, Québec 1907, pp. 239, 241, 250.

⁴¹ J. Humlum, *Zur Geographie des Maisbaus*, København 1942, pp. 29, 74.

(1951)⁴² for some „Colombian” forms. Some others have concluded that the maize forms under discussion have been directly transplanted by the Portuguese from Brazil — through the South Atlantic and Indian Ocean — to India and South-East Asia. That route has been admitted by Merrill (1954)⁴³ for the above mentioned „Colombian” forms — according to his view possibly cultivated also in Brazil — as well as by Weatherwax (1954)⁴⁴ for some alleged Brazilian „primitive” maizes. Finally, the fact that among the Asiatic forms of maize discussed here one may discern different races has led some specialists to suggest separate ways of introduction for each of their American protoplasts. So, Kupzow (1968)⁴⁵ has concluded that one of these forms brought from the Carribean area to Spain and then by the Arabs to North Africa, spread eastwards through the Musulman countries giving rise to the „xeromorphic” type of maize known from eastern Transcaucasia, Iran, Pakistan, North India and Central Asia, while another one, carried directly from Brazil to South-East Asia, has transformed into waxy form.

Though the puzzle of the origin of those peculiar Asiatic maizes has evoked and still evokes serious contradictions, one must state that the plant itself offers particularly good potential possibilities for the research concerning the earliest transoceanic contacts between the peoples of the New and the Old World. Firstly, in the light of the taxonomical, phylogenetic and paleobotanical data the American origin of maize may be considered, it seems, as proved, what forecloses the direction of its first transoceanic diffusion. Secondly, the morphology and the physiology of maize does not allow it to be proliferated by maritime currents, winds and animals, but makes its spread dependent on the human activity. Thirdly, the morphology and chemical composition of its

⁴² Mangelsdorf & Oliver, *op. cit.*, p. 276.

⁴³ E. D. Merrill, *The Botany of Cook's Voyage*, „Chronica Botanica”, Vol. 14, No. 5/6, 1954, p. 189; see also: pp. 192, 193, 237, 261.

⁴⁴ P. Weatherwax, *Indian Corn in Old America*. New York 1954, p. 135.

⁴⁵ A. J. Kupzow, *Histoire du maïs (deuxième partie)*, „Journal de l'Agriculture tropicale et de botanique appliquée”, Vol. XV, Nos. 1—3, 1968, pp. 45—47.

seeds and ears predestinates them to be better preserved — under some conditions of course — in the archeological strata than the corresponding elements of many other plants that may be considered here. Nevertheless, among these plants, suspected now by a number of specialists to have been carried by man in pre-Columbian times from America to Asia or to Oceania, as well as in opposite direction, there are some which offer also certain of these potential possibilities. Furthermore, the investigation of their transoceanic dispersal may have some greater or lesser importance for the problem of the first introduction of maize into Asia. To such plants, the American origin of which is no more doubted by the most of specialists, belong: two species of the amaranth (*Amaranthus caudatus* L., *Amaranthus leucocarpus* S. Wats.) whose distribution in Asia partly overlaps⁴⁶ that of the above discussed Asiatic maizes; peanut (*Arachis hypogaea* L.) testified among the archeological findings of the Lungshanoid culture from Chekiang⁴⁷, a coastal province in South China; and sweet potato (*Ipomoea batatas* Poir.) which almost unanimously is considered to spread up to the eastern marginal islands of Melanesia before the advent of Spaniards and Portuguese⁴⁸.

LINGUISTIC AND ETHNOGEOGRAPHICAL DATA

The successive studies of Laufer (1906)⁴⁹, Stonor (1949)⁵⁰ and Marszewski (1963, 1969)⁵¹ have collected a great amount of data

⁴⁶ J. Sauer, *The Grain Amaranths: A Survey of their History and their Classification*, AMBG, Vol. XXXVII, 1950, pp. 572—573, 587—594, 613—616; Carter, *Plants Across...*, p. 69; S. Nakao & J. Sauer, *Grain Amaranths*, in: H. Kihara (editor), *SRJENH*, Vol. II, Kyoto 1956, pp. 141—146; Heine-Geldern, *Kulturpflanzengeographie...*, pp. 374—376.

⁴⁷ Kwang-Chih Chang, *The Beginnings of Agriculture in the Far East*, „Antiquity”, Vol. 44, No. 175, 1970, pp. 178, 179, 184.

⁴⁸ See: M. Urban, *Die Alter der Süßkartoffel in der Südsee*, „Anthropos”, Vol. LXIII—LXIV, 1968—1969, pp. 395—405; T. Heyerdahl, *Discussion of Transoceanic Contacts: Isolationism, Diffusionism, or a Middle Course*, „Anthropos”, Vol. LXI, 1966, p. 698.

⁴⁹ Laufer, *op. cit.*, pp. 225, 232—234, 241—250.

⁵⁰ Stonor & Anderson, *op. cit.*, pp. 359—371.

⁵¹ Marszewski, *The Age of Maize...*, 1963, pp. 270—274, 276, 289; idem, *The Age of Maize...*, 1969, pp. 170—174.

demonstrating that the minority peoples of the Himalayan area and the Indochinese Peninsula have their own appellations for maize in general and for its particular sorts, which differ from the names utilized by the bulk of population in the countries of that part of Asia. Some of these „tribal” appellations have been preliminarily and tentatively classified by the present author into groups, each of them embracing the names which most probably or possibly have a common origin which, however, should be verified, he emphasized, by an etymological analysis by specialized linguists.

As regards the eastern part of the Indochinese Peninsula, which for the discussed problem is of particular interest, two following groups of maize names⁵² — all current among the peoples of the Mon-Khmer branch of the Austroasiatic family — have been presented⁵³:

1. *pot* (Khmer), *pho* (Sedang), *phō* (Rongao);
2. *saly* (Tsa Khmu), *sali* (Sue), *hali* (Halang, Boloven), *hilui* (Sedang), *hōli*, *holai* (Alakong).

Now we can add here two other groups from South Vietnam. One of them embraces the maize appellation used by a few subtribes of the Bahnar — a people belonging to the Mon-Khmer division of the Austroasiatic family; the other — the names of that crop applied by two subtribes of the Jarai as well as the Cham — both peoples ranged usually among the Austronesian family.

1. *ho'bō* (Bonom, Golar), *habō* (Alakong, Tolo, Kontum, Jolong)⁵⁴, *hābo lo* (Rongao)⁵⁵;

⁵² In all the vernacular names, mentioned in that paper their original transcription has been retained. As regards the vowels, following to Guilleminet (*op. cit.*, p. XII) and Lafont (*op. cit. infra*, p. IV) they are to be pronounced similarly to the corresponding vowels in the following French words: *o* like *e* in „jeu”; *o'* like *oeu* in „oeuf”; *ō* like *o* in „code”; *ô* like *o* in „rose”; *õ* like *o* in „sot”; *ā* like *a* in „mal”; *ā* like *eu* in „heure”; *ĩ* like *i* in „ville”.

⁵³ Marszewski, *The Age of Maize...*, 1969, pp. 172—173.

⁵⁴ Guilleminet, *Dictionnaire Bahnar-Français...*, pp. 219, 287, 299.

⁵⁵ Guilleminet, *op. cit.*, p. 219. That name is applied especially to the tardy sort of maize with small grains, while the general name of maize current among Rongao is *phō*.

2. *tariuy* (Cham)⁵⁶, *tōr* (Habau), *kōtor* (Hodrung)⁵⁷.

If we compare the Bahnar names with those of Jarai, we see a great phonologic difference. It is not strange of course, as both these peoples, though inhabiting adjacent areas, belong to different linguistic entities. On the other hand, we find peculiar similarities between the Bahnar maize names *ho'bō*, *habō* and the first segment of Jarai appellations for several plants having mealy comestible tubers — *i.e.* for: yam — *hō'bo'i apui*; manioc — *hō'bo'i plum*; sweet potato — *hō'bo'i tin*; potato — *hō'bo'i prang* — as well as the word applied by the northern Jarai subtribes for the meal itself, *i.e.* *hō'bao*⁵⁸. Now, if we take into consideration the fact that the grains of maize are mealy too, we seem to be authorized to put the question whether that resemblance is an effect of a purely phonetic convergence or we have to do with a transmittance of a term, reserved especially for meal-producing crops from one tribe to another with a slight phonetic change. The first solution is quite real, as we shall see below. If we accept the second one, a new question arises: in which direction most plausibly could happen such alleged transmittance — from Bahnar to Jarai, or reversely. Both these possibilities should be taken into account, if we consider:

1. the alleged ancient neighbourship of some of the Bahnar subtribes (Tolo, Golar etc.) inhabiting now the vast area to the east of Pleiku and around Kontum with several Jarai subtribes (Habau, Hodrung etc.) living to the south and west of them⁵⁹;

2. the intimate relations between some groups of both these peoples, as for instance peaceful trade-relations linking the Hodrung — a northern Jarai subtribe with the Golar — an eastern Bahnar subtribe⁶⁰;

⁵⁶ A. Cabaton, *Dix dialectes indochinois recueillis par Prosper Odend'hal administrateur des services civils de l'Indochine*, „Journal Asiatique”, X^e série, T. V, No. 2, 1905, p. 315.

⁵⁷ P. B. Lafont, *Français — Jarai — Vietnamien (Parler de la Province de Plei Ku) avec le concours de Nguyễn Văn Trong pour le vietnamien*, Publ. EFEO, Vol. LXIII, Paris 1968, pp. 103, 181.

⁵⁸ Lafont, *op. cit.*, pp. 126, 155, 183, 214, 227.

⁵⁹ U. Willenberg, *Interethnisch-ökonomische Beziehungen in Süd-Vietnam. Ihre Bedeutung für den Ethnogeneseprozess*, Berlin 1972, maps (Karte 1 and 5).

⁶⁰ Willenberg, *op. cit.*, pp. 64, 74; see also: pp. 119, 121, 124.

3. the mutual exchange of loan-words between the Jarai and Bahnar languages ⁶¹.

Anyhow, whatever would be the answer to that local problem the nearest phonetic counterparts of the maize names of Bahnar, Cham and Jarai we find on the other side of the Pacific in some appellations of that crop testified for several peoples belonging mostly to the Chibchan ⁶² family and inhabiting some regions of Panama and Colombia. So, we may present here the following juxtaposition:

1. *ho'bō*, *habō* (Bahnar), *habu* (Chumulu ⁶³, West Panama), *hobba* (Cueva ⁶⁴, Darien), *aba* (Chibcha, around Bogota), *eba* (Tunebo ⁶⁵, to the NE of Bogota);

2. *tariuy* (Cham), *tōr* (Habau), *jem-turu*, *mon-turru* ⁶⁶ (Atanquez and Guamaca in Sierra Nevada de Santa Marta), *turu*, *tura*, *tara* (Uru, Lake Titicaca), *tyoro* (Baure, East Bolivia) ⁶⁷.

Furthermore, we are tempted here to juxtapose the following striking similarities observed between some maize names of certain Tibeto-Burman peoples of the Himalayas and those applied by a few peoples from diverse ethnic groups living in the tropical zone of America:

1. *sepa* (Abor, Arunachal) ⁶⁸, *sepó* (Shipibo, East Peru) ⁶⁹;

⁶¹ Lafont, *op. cit.*, p. VIII and Guilleminet, *op. cit.*, p. XIV.

⁶² K. Birket-Smith, *The Origin of Maize Cultivation*, København 1943, p. 30.

⁶³ A subtribe of the Dorasque tribe of the Talamanca group (see: F. Johnson, *Central American Culture: An Introduction*, in: J. H. Steward (editor), *HSAI*, Vol. 4, Washington 1948, p. 65).

⁶⁴ An almost extinct tribe from the Cuna group (see: Johnson, *op. cit.*, p. 49 and the map between the p. 50 and 51).

⁶⁵ A. Métraux & P. Kirchhoff, *The northeastern extension of Andean Culture*, in: J. H. Steward (editor), *HSAI*, Vol. 4, Washington 1948, map 6 between the p. 350 and p. 351.

⁶⁶ *Turu*, *turru* means „maize cob” (see: Birket-Smith, *op. cit.*, p. 30).

⁶⁷ Birket-Smith, *op. cit.*, pp. 12, 16, 21.

⁶⁸ J. H. Lorrain, *A Dictionary of the Abor-Miri Language*, Shillong 1910, p. 322.

⁶⁹ Birket-Smith, *op. cit.*, p. 24. Shipibo belong to the Panoan stock.

2. *kun-tson kŭp* (Lepcha, Sikkim) ⁷⁰, *kup* (Boruca, Costa-Rica) ⁷¹;

3. *kani* (Nevār, Central Nepal) ⁷², *kana* (Tariana, Guyana) ⁷³.

The degree of similitude between the above mentioned Asiatic and American vernacular names of maize is so great, that, if the peoples under consideration were living on the adjacent territories, their maize appellations could be easily suspected to derive from a common root and range to the same group. But what can be in that geographical context the most plausible explanation of so strange parallels in the maize appellations of so distant peoples divided by the whole expanse of the Pacific Ocean and belonging to quite different linguistic families? The possibility that there are only simple phonetic convergences must be, of course, taken into account in the first line, too particularly, if we envisage the following facts:

1. In the Bahnar and Jarai languages there are some words which sound similarly to the discussed bahnaric maize appellations: *ho'bō*, *habō* — though they are somewhat differently spelled — having quite another meaning. To such words belong in the Bahnar language ⁷⁴: *Habāu*, the name of one of the Jarai subtribes and *habāu*, designating a sort of conch, while in the Hódrung dialect of Jarai language ⁷⁵: *hō'bō* meaning „face” and *ho'bō* meaning „form”. Furthermore, though *tōr* is a maize name in the Habau dialect of Jarai language, *tō'r* designates „plank” in the dialect of the Jarai from Chu Ty region ⁷⁶.

⁷⁰ That name is applied to one of the eighteen sorts of maize cultivated by the Lepcha. The general name of that crop in the Lepcha language is: *kun-tsang* (see: G. B. Mainwaring, *Dictionary of the Lepcha Language*, Berlin 1898, p. 19).

⁷¹ Birket-Smith, *op. cit.*, p. 30. Boruca belong to the Chibchan stock.

⁷² D. Wright (editor), *History of Nepal* translated from the Parbatīyā by Munshī Shew Shunker Singh and Pandit Shri Gunānand with an introductory sketch of the country and people of Nepāl by the editor, Cambridge 1877, Appendix VI: Vocabulary, p. 303.

⁷³ Birket-Smith, *op. cit.*, p. 20. Tariana belong to the Arawakan stock. Identical or similar names are current also among some other tribes of that stock (see: Birket-Smith, *op. cit.*, pp. 20—21).

⁷⁴ Guilleminet, *op. cit.*, p. 218.

⁷⁵ Lafont, *op. cit.*, pp. 11, 126, 133.

⁷⁶ Lafont, *op. cit.*, p. 223; see also: p. VI.

2. As regards the Nevar, Lepcha and Abor, having in view the geographical context of their present and former seats as well as the limits of their past migrations and contacts, no special arguments, it seems, are needed. If we want, however, to avoid any peremptory statements, we should only remark that no vernacular maize names which could be suspected to represent possible links between those that have been compared above, are detected up till now among the peoples of the tropical zones of Asia and America, living (Boruca from Costa Rica being an exception) closer to the shores of the Pacific.

Before ranging yet without remorse, the similarities between some South Vietnamese and Panamian-Colombian-Bolivian vernacular designations for maize to the category of the phonetic convergences, we should, it seems, take into account the following facts:

1. The Cham, Jarai and Bahnar have emerged most probably from an ancient neolithic stratum of the population of South Vietnam⁷⁷ and had either direct or indirect contact with the sea. As regards the Cham their navigational skill and maritime activity are well known. Besides, they tried also to extend their political control over akin and other tribes inhabiting to the west the adjacent mountain area. The first attempt, testified in written records known to us, has occurred in the 4th century A.D., while since the 11th or at least 12th century up to the fall of Champa kingdom in the second half of the 15th century some of the above mentioned tribes — the ancestors of Jarai and Bahnar among them — were semidependent on Cham, with whom they had either peaceful trade-or war-contacts⁷⁸. Especially Jarai had the closest intercourses with their more developed relatives and their culture and language show strong Chamese influence⁷⁹.

2. The Cueva, occupying once a vast territory of Darien in Panama, lived in close proximity of the Pacific shore, while Chumulu along with other Dorasque subtribes nearer to the

⁷⁷ Willenberg, *op. cit.*, p. 34.

⁷⁸ Willenberg, *op. cit.*, pp. 19, 23, 25, 30, 34, 35.

⁷⁹ Willenberg, *op. cit.*, pp. 23, 30, 68, 119.

Carribean coast⁸⁰, but on this narrow isthmus intertribal contacts must have been vivid. One should remark also that at the time of the Spanish conquest the farming of these peoples, based on maize cultivation and culture in general were more developed and refined than today⁸¹. As regards Chibcha and Tunebo, who at the time of the Spanish conquest occupied their present habitat in Cordillera Oriental, their former seats are not yet identified⁸². Anyhow, the fact that their names of maize are so similar to those of some akin tribes in Panama is not strange of course. The natural conditions do not created barriers for the exchange of cultural elements between the peoples living in the highlands of Central Colombia and those of the lowlands of Panama⁸³. The migratory movements of diverse tribes of the Chibchan family, who extended their area deeply into the Central America up to Costa Rica⁸⁴, had rather, as indicated by Reichel-Dolmatoff⁸⁵, a peaceful character. Besides, the trade relations⁸⁶ between some of these tribes must have been once more developed, until the infiltration of the peoples belonging to other stocks⁸⁷ isolated them from each other. All these factors might have favored the diffusion of maize names, which undergoing some modifications crossed ethnic boudaries, as shown by their distribution demonstrated by Birket-Smith⁸⁸.

⁸⁰ Johnson, *Central American...*, map 2 between the p. 50 and p. 51; p. 53; idem, *The Post-Conquest Ethnology of Central America: An Introduction*, in: J. H. Steward (editor), *HSAL*, Vol. 4, Washington 1948, map 5 between the p. 196 and p. 197.

⁸¹ J. H. Steward, *The Circum-Carribean Tribes: An Introduction*, in: J. H. Steward (editor), *HSAL*, Vol. 2, Washington 1946, pp. 8, 26—29, 31; G. Reichel-Dolmatoff, *Colombia*, London 1965, p. 44.

⁸² Reichel-Dolmatoff, *op. cit.*, p. 162.

⁸³ Birket-Smith, *op. cit.*, p. 42; Reichel-Dolmatoff, *op. cit.*, pp. 36, 37, 121, 161.

⁸⁴ Steward, *The Circum-Carribean Tribes...*, p. 10.

⁸⁵ G. Reichel-Dolmatoff, *The Agricultural Basis of the Sub-Andean Chiefdoms of Colombia*, in: J. Wilbert (editor), *The Evolution of Horticultural System in North South America*, A Symposium, Caracas 1961, p. 88.

⁸⁶ Reichel-Dolmatoff, *The Agricultural Basis...*, p. 87.

⁸⁷ See for instance: Roberts *et al.*, *op. cit.*, p. 8.

⁸⁸ Birket-Smith, *op. cit.*, pp. 32, 34 and plate I.

As concern the Guamaca and Atanquez from Sierra Nevada de Santa Marta, they were orientated to the Carribean Sea. Birket-Smith has suggested⁸⁹, however, that the great similitude of their maize names to those of some Andean peoples, i.e. *turu*, *tura*, *tara* of the Uru — who belong to an old ethnic stratum stretching once on a wider area⁹⁰ — and *tulu* of the Aymara — who, we may add, before the domination of Quechua had also been more extended — as well as to some maize appellations of two peoples from the lowlands to the east of Andes, i.e. *tyoro* of the Baure, an Arawak tribe and *tara* of the Mosetene, an isolated linguistically tribe — cannot be accidental. We should not therefore exclude that some groups of people either from the Uru or even Chibchan stock and having perhaps the names of maize composed with the root *tur* or *tar*, lived previously on such or other sector of the Pacific coast.

Besides, we may point here that some possibilities of a pre-Columbian transmittance of some plant- or even animal-appellations since a long time have been discussed or new ones lately indicated. We may give here the following examples:

1. An early diffusion in Oceania of some sweet potato names like *kumara*, *kumala*, *umara* etc. is agreed upon by almost all investigators. Most of them admit that they are local adaptations of Quechua names of that cultigen current in Peru and Ecuador, i.e. *kumara*, *kumar*, *kumal*, *kumari* and that along with the crop itself they spread in Polynesia up to the eastern peripheries of Melanesia before the coming of the Europeans⁹¹. However Christian (1923) and Carter (1953)⁹² have considered also the possibility that

⁸⁹ Birket-Smith, *op. cit.*, pp. 12, 28—29, 31.

⁹⁰ Birket-Smith, *op. cit.*, p. 12; W. La Barre, *The Uru Chipaya*, in: J. H. Steward (editor), *HSAL*, Vol. 2, Washington 1946, p. 575.

⁹¹ Urban, *Die Alter der Süßkartoffel...*, pp. 402—405; see also: J. Hornell, *How did the Sweet Potato reach Oceania?*, „Journal of the Linnean Society of London. Botany”, Vol. 53, 1946—1952, pp. 41, 59; Heyerdahl, *Discussions of Transoceanic...*, pp. 697—698.

⁹² Carter, *Plants Across...*, p. 64; cf. idem, *Pre-Columbian Chickens in America*, in: Riley, Kelley, Pennington, Rands (editors), *op. cit.*, p. 206; as regards the hypothesis of F. W. Christian see: Urban, *op. cit.*, p. 402 (quotation from: Anonymus, *The Story of the Kumara*, „Journal of the Polynesian Society”, Vol. 32, p. 255).

this type of names, maybe deriving from the Sanscrit *kumad* (or *kumal*), the name of a comestible lotus, has diffused through the Pacific in opposite direction and has been introduced into South America, applied there to a new tuberous crop. i.e. sweet potato. Moreover, Rivet (1957) and Carter (1973)⁹³ have emphasized that similar names are current also in diverse regions of India and South-East Asia, applied to different rootcrops, but mainly to yam (for instance *kumara* of Telugu).

2. The possibility of a pre-European transplantation of an American species of tobacco (*Nicotiana tabacum* L.) to India and South-East Asia — suggested already by Rumpius (17th century)⁹⁴ — along with one of his vernacular names, has been considered by Kuznetsov (1972)⁹⁵. He indicated namely that a plant characterized as repulsory — which may be identified with tobacco — is repeatedly mentioned under the name *tamakha* in the medieval Tibetan literature, the relation of Labdon (ca 1055—1143 A.D.) being the earliest known. The nearest American counterparts of that Tibetan appellations is represented according to Kuznetsov by the name *tamaka* of tobacco testified by Benzoni (1565) for one of the tribes of Central America. But its name *tabak* — the most propagated in the Carribean area at the time of Spanish conquest — deserves also for him to be considered, as the shifting from *b* to *m* occurred frequently in the Old Tibetan language and especially in the words of foreign provenance.

3. The alleged pre-European transfer of a melanotic race of chicken from South and East Asia on the Pacific coasts of Central and South America has been a subject of a thorough investigation of Carter (1971)⁹⁶. In conclusion he considered the possibility that this race could be introduced to Mexico with its Japanese name *totori* identical with the chicken name of the Tarahumara; to

⁹³ Carter, *Pre-Columbian Chickens...*, pp. 208—209; cf. P. Rivet, *Relations anciennes entre la Polynésie et l'Amérique*, „Diogenes”, No. 16, Octobre 1956, p. 109.

⁹⁴ A. de Candolle, *Origine des plantes cultivées*, Paris 1883, p. 114.

⁹⁵ B. I. Kuznetsov, *Drevneyshie karty mira*, „Baikal”, No. 2, March—April 1972, p. 133; cf. Carter, *Maize to Africa...*, p. 8.

⁹⁶ Carter, *Pre-Columbian Chickens...*, pp. 180, 200, 204—210, 214 and maps on the pp. 195 and 203.

Panama with its Hindu name *kukri*, whose possible reduction is represented by *kui*, the chicken name of the Guaymi; and to Ecuador or Peru with its Hindu name *karaknath* or *khara* whose alleged modifications *karaka*, *taraka*, are attested as the chicken names of some Arawak tribes in Guyana.

CONCLUSIONS

Let us consider now the following:

1. The botanical evidence showing that the nearest forms to the Asiatic mountain-popcorns — and particularly those of the East Himalayas, Assam, Burma and Siam — are to be found still cultivated in some regions on the Pacific coast and in the Andean area of Colombia;
2. The close similarities between some vernacular names of maize attested for certain peoples living on, or near the coast of the northern part of South Vietnam and those testified for several Chibchan tribes of Panama and Colombia as well as for a few ethnic groups of Bolivia;
3. The analogies between the metallurgical art motives and techniques of the Dongson culture of North Vietnam and those testified for some ancient cultures of Panama, Colombia and North Ecuador ⁹⁷.

Having in view all these facts we could be tempted to follow in certain respect Heine-Geldern ⁹⁸ and admit tentatively the possibility that some aboriginal sailors from the coast of Vietnam and most probably from the region influenced by the Dongson culture but lying on the territory occupied by the Cham or akin

⁹⁷ R. Heine-Geldern, *Die Asiatische Herkunft der Südamerikanischen Metalltechnik*, „Paideuma“, Vol. 5, 1950—1954, pp. 367, 369, 370 (Abb. 31), 372 (Abb. 33), 377, 383, 390, 398, 399, 400, 413; idem, *Asiatische und Mesoamerikanische Hochkulturen*, Festschrift für Ad. E. Jensen, Vol. I, München 1964, p. 177; cf. D. R. Beirne, *Cultural Patterning as Revealed by a Study of Pre-Columbian Ax and Adz Hafting in the Old and New Worlds*, in: Riley, Kelley, Pennington Rands (editors), *op. cit.*, p. 167.

⁹⁸ Heine-Geldern, *Kulturpflanzengeographie...*, p. 396.

ethnic groups, navigating on the Pacific have reached, due to a premeditated voyage or involuntary drift, the shores of America, most plausibly in Panama or Colombia. Then, engaged in some contacts with the natives belonging to the Chibchan or may be also other stock, have exercised certain influence on their culture, while those of them who had a chance to return home have carried back some American items, maize among them.

Let us envisage, however, the maritime activity of the main Pacific sailors who could be potential introducers of some „primitive“ forms of the South American maize, during the laps of time running since the first millenium B. C. through the 16th century A.D.:

1. The Polynesians during their bold navigational enterprises possibly landed on the shores of South America ⁹⁹ but their alleged contacts with the riparian peoples of that continent most probably did not have repercussions on the continental coasts of South-East Asia.

2. The Yüeh from South-East China, known as able ship builders ¹⁰⁰ though suspected by Heine-Geldern and Bosch-Gimpera ¹⁰¹ to have reached the coast of Peru, even if it happen to them, could not be rather responsible for the first transplantation of maize into South-East Asia, as most probably that crop has been introduced to their native country from the western provinces of China ¹⁰².

3. The Dongsonians, having perhaps some affinities with the

⁹⁹ J. E. Weckler, *Polynesians Explorers of the Pacific*, Smithsonian Institution, War Background Studies, No. 6, Washington 1943, pp. 36—37.

¹⁰⁰ W. Eberhard, *The Local Cultures of South and East China*, Leiden 1968, p. 397.

¹⁰¹ Heine-Geldern, *Die Asiatische Herkunft...*, pp. 383, 399—400, 409—410; idem, *Asiatische und Mesoamerikanische...*, p. 183; P. Bosch-Gimpera, *Paralelos Transpacíficos de las altas culturas americanas y su cronología*, „Anales de Antropología“, Universidad Nacional Autónoma de México, Vol. VII, México 1970, pp. 48, 66, 81.

¹⁰² Laufer, *op. cit.*, pp. 233, 248; Jeffreys, *Pre-Columbian...*, 1955, p. 27; idem, *Pre-Columbian...*, 1971, pp. 379, 387—393; Merrill, *op. cit.*, p. 289; Heine-Geldern, *Kulturpflanzengeographie...*, p. 369, 370; Marszewski, *The Age of Maize...*, pp. 181—182 and map on the d. 192.

Yüeh¹⁰³ and the same renown as good mariners, if they really accomplished such adventurous and effective voyages, as were ascribed to them by Heine-Geldern¹⁰⁴, may be had some possibilities for the introduction of certain American plants into their homeland.

4. The Cham, famous for their maritime war-expeditions in the times of the Champa kingdom¹⁰⁵, according to Heine-Geldern¹⁰⁶ could also participate in the voyages to America in the Dongson culture period. Nevertheless, even if we admit that the nautical abilities of the Cham mariners and some unknown circumstances made it possible for them, it seems difficult to precise the time in which most plausibly it could happen. Anyhow, if we consider some of the above discussed linguistic parallels — unless they are only phonetic convergences — as well as the fact that a sort of „primitive” maize is cultivated by the mountaineers whose forefathers lived once in the close neighbourhood of the Cham, the latter or other akin coastal people may be, perhaps, more suspected to introduce that crop into Vietnam.

5. The Portuguese, who due to the Cabral expedition in 1500¹⁰⁷, if not sooner, had contacts with the shores of Brazil, maybe, could make acquaintance with some „primitive” maize forms, if they were cultivated by the natives they met. Nevertheless, if they were interested in these unattractive maizes, they could not rather have introduced them to Burma until they went to Chittagong in 1517 or open their emporium at Martaban in 1519¹⁰⁸, to Vietnam before their first alleged trade relations with Faifo

¹⁰³ Heine-Geldern, *Die Asiatische Herkunft...*, p. 399.

¹⁰⁴ Heine-Geldern, *Die Asiatische Herkunft...*, pp. 383, 399—400, 400—401, 412—413; idem, *Kulturpflanzengeographie...*, pp. 388—390; idem, *Asiatische und Mesoamerikanische...*, p. 177; Bosch-Gimpera, *op. cit.*, pp. 46, 48, 49, 58, 71—72, 81.

¹⁰⁵ G. Coedès, *Les États hindouisés d'Indochine et d'Indonésie* (New edition), Paris 1964, pp. 111, 231, 257, 300, 331; cf. Bosch-Gimpera, *op. cit.*, p. 61.

¹⁰⁶ Heine-Geldern, *Die Asiatische Herkunft...*, note 2 on the p. 414; idem, *Asiatische und Mesoamerikanische...*, p. 179.

¹⁰⁷ See: W. Krämer, *Die Entdeckung und Erforschung der Erde*, Leipzig 1971, pp. 104, 113, 229.

¹⁰⁸ A. P. Phayre (Sir), *History of Burma including Burma Proper, Pegu, Taungu, Tenasserim, and Arakan*, London 1883, p. 264.

in 1525—1530¹⁰⁹ and to South-East China sooner than their first commercial enterprises at Canton in 1517¹¹⁰. But if we consider the alleged cultivation of maize in Yünnan in the first half of the 15th century, as indicated by Chiba¹¹¹, the above mentioned dates seem not to be convincing as the possible dates of the first introduction of that plant into South-East Asia.

6. The Spaniards might have had a chance to see some „primitive” types of maize after the landing of Magellan on the coast of Brazil in 1519 and certainly during their conquest of the Chibcha country in Colombia under Quesada in 1536—1541¹¹². But at that time they had no real possibility to introduce these forms, if they considered them to deserve it, into South-East Asia. Their expeditions, which started from Mexico in 1526, 1527 and 1542, and after crossing the Pacific penetrated the coasts of diverse islands of the Philippines, could propagate maize in some places of that archipelago, as suggested by Merrill¹¹³, but most probably it belonged only to the „Carribean” race¹¹⁴.

Summing up, some facts seem to speak in favour of the tentative

¹⁰⁹ P. Y. Manguin, *Les Portugais sur les côtes du Viêt-Nam et du Campā. Étude sur les routes maritimes et les relations commerciales d'après les sources portugaises (XVI^e, XVII^e, XVIII^e siècles)*, Publ. EFEO, Vol. LXXXI, Paris 1972, pp. 181, 184.

¹¹⁰ H. Cordier, *L'arrivée des Portugais en Chine*, „T'oung Pao”, Vol. XII, Leide 1911, pp. 515—516; Manguin, *op. cit.*, p. 181; See also: Collins, *A New Type...*, p. 24.

¹¹¹ Laufer, *op. cit.*, p. 251; W. F. Mayers, *On the Introduction of Maize into China*, „The Pharmaceutical Journal and Transactions”, December 31, 1970, note on the p. 524; Tokuji Chiba, *The Dispersal of Maize in Continental China*, 21st International Geographical Congress, India 1968, Abstracts of Papers, Calcutta 1968, pp. 293—294; idem, *The Introduction of Maize to the Mainland China and Its Subsequent Geographical Significance*, „Geographical Review of Japan” 43—11, 1970, p. 690.

¹¹² A. L. Kroeber, *The Chibcha*, in: J. H. Steward (editor), *HSAI*, Vol. 2, Washington 1946, pp. 895—897; Reichel-Dolmatoff, *Colombia*, p. 158.

¹¹³ Merrill, *The Botany...*, p. 364. See also: F. Blumentritt, *Die maritimen Entdeckungen der Spanier im Archipel der Philippinen*, in: idem, *Versuch einer Ethnographie der Philippinen*, Ergänzungsheft No. 67 zu „Petermanns' Mittheilungen”, Gotha 1882, pp. 60—63.

¹¹⁴ Stonor & Anderson, *op. cit.*, p. 390; Sutô & Yoshida, *op. cit.*, p. 501.

supposition that the introduction of certain „primitive” forms of maize into the mainland of South-East Asia has been done by a seafaring people living on the eastern coast of the Indochinese Peninsula — maybe in the northern part of South Vietnam — in the pre-Columbian era. But from the rigorous methodological point of view, all arguments advanced here to support that hypothesis should be, it seems, considered for the present as indications and stimulants only, inspiring further research. So, comparative studies between Asiatic and American maizes should be enlarged and include especially the forms cultivated in Costa Rica, Panama, Venezuela and Brazil from one side and those grown in the eastern part of the Indochinese Peninsula and on the subcontinental islands of South-East Asia on the other. Also the tentative juxtapositions of the maize vernacular names from the both sides of the Pacific should be a subject of a cautious etymological analysis and historico-ethnographical investigation. Proofs are to be expected either under the form of paleobotanical specimens or even unequivocal iconographical data and written records to be found maybe on the Asiatic side of the Pacific. As regards other parallels, which might throw some light on the historical and cultural context of such an alleged plant-transfer, only an undoubted South-East Asiatic import unearthed on the American continent could stoped, it seems, controversies arising permanently in respect to the fundamental question of the *terminus ante quem* for the earliest transpacific contacts between the coastal peoples of the Indochinese Peninsula and America.

ABBREVIATIONS

- AMBG — Annals of the Missouri Botanical Garden.
 PABGPB — Bulletin of Applied Botany, of Genetics and Plant Breeding (Trudy Prikladnoy Botanike, Genetike i Selektzii).
 HSAI — *Handbook of South American Indians*.
 Publ. EFEO — Publications de l'École Française d'Extrême-Orient.
 SRJENH — *Scientific Results of the Japanese Expeditions to Nepal Himalaya 1952—1953*.

DOCUMENTS ET COMMUNICATIONS