

## **Taiwan Austronesian Electronic Cultural Atlas of the Pacific**

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Fig. 1 Southern Materials © 1998

### **Abstract**

Over the past few years a group from the University of California, Berkeley, (UCB) and other institutions set up the Electronic Cultural Atlas Initiative (ECAI), to connect geographical areas of the world through a digital geographical information system (GIS) based mapping process (Lancaster and Henderson 1998). To expand the initial Berkeley Image Database Project at UCB, conferences were established for the purpose as in the case of the meetings sponsored under the Pacific Neighborhood Consortium (PNC) by the Computing Centre, Academia Sinica, and the Ministry of Education, ROC, at Academia Sinica, Nankang, in 1998 and 1999. From these meetings and others, scholars have shared technical information to unify digital parameters to chart global spatial data. The initiative is to link geographical regions of the world as modular areas of research such as Central Asia, East Asia, and North America (these are current ECAI project areas). The founder and chairman of ECAI, Lewis Lancaster, suggested at a meeting entitled Austronesian Studies in Taiwan—Retrospective and Prospect (UCB sponsored with the Shung Ye Museum in 1997) a mapping project: the Austronesian Electronic Cultural Atlas. Since then the idea has taken up by researching the possibilities of a cultural atlas to be produced in Taiwan. The last atlas on the language areas of the Pacific was published about twenty years ago, sponsored by UNESCO.

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Fig. 2 Topographical Map 1990

### **Introduction**

Across the Pacific and Indian oceans, the Austronesian speaking people have voyaged for centuries making a network of communication within this linguistic family to be the most extensive in the world prior to the European colonial days. Launched from the Western Pacific, in the neighborhood of the South China Sea (yet undetermined), the early Austronesian speakers reached islands of further distance apart traveling in canoes lashed and pegged together to Micronesia, the Lesser Sunda, and the Society Islands to Easter Island and Hawaii. In the westerly direction, voyagers made it to Madagascar. It set the stage for pan-Pacific/Indian Ocean long distance navigation (Sneider and Kyselka 1986).

As this tracing of oceans happened from 5500 years ago to the ethnographic present, the network process of these cultures is now only becoming to be understood as vast sophisticated complex (Bellwood 1998). For Westerners, this was observed by Captain Cook, a British explorer of the oceans and terra incognita in the 1700s who discovered that Austronesian speakers had advance information on his visits before his arrival to islands across the Pacific.

The earliest evidence of the Austronesian linguistic family points to Taiwan (yet unconfirmed as such), and the surrounding islands. Presently there are just under a dozen distinct groups in this family inhabiting the plain such as the Kavalan and Amis, the mountain areas, and the offshore isle of Lanyu where the Daowu (or Yami) live. These people have different cultures proving them with specialized means of co-existing with the natural environment.

Fig. 3 Ref. from Hu and Tsui 1998

Presently in Taiwan there is an increased awareness of ethnicity and roots (Appadurai 1981; Huang, Ku, Tsai 1997). To serve this quest of cultural diversity and ancient time frames, projects have been initiated in Taiwan such as the NTU Digital Library/Museum Project (NTU-DLM). Its projects have been initiated in Taiwan such as the NTU Digital Library/Museum Project (NTU-DLM) as a joint effort of the Center of Excellence for Research in Computer Systems (CERICS) of NTU and the departments of anthropology, computer science, library sciences, history, and the University Library. Initiated in December 1996, the project has employed 14 participating-faculty members and over 30 research assistants and graduate students. The main mission of the project was stated to digitize the historical documents and artifacts kept in the various departments of NTU and present them through the World Wide Web. The goals of the project are to conserve the heritage of Taiwan by advancing the research of digital library/museum and to provide an educational tool over the Web for the public to learn about Taiwanese history and culture (Hsiang 1998). The facilities are being developed to enhance research tools for social scientists.

The National Taiwan University main campus, established in 1928 during the Japanese occupation, has one of the richest collections of material concerning the indigenous Austronesian Taiwanese and early Han immigrants. During the first phase of the NTU-DL/M project, from 1997 to 1999, the plan is to focus on some of the most important collections, including the Tam-Hsin Archives, Anli-Dashe Files, the Ino Archives, artifacts and historical documents from the Department of Anthropology, and Taiwan geographic survey maps done by the Japanese army around the turn of the century. The material being digitized relates mainly to the *pinpu* people, Austronesian speakers of the Taiwan plains, who's identity, both

cultural and ethnically, has largely been fragmented or has disappeared.

The majority of the materials of the digitization effort were never published and rarely studied. Then from 2000 to 2002, digitization process will continue utilizing the records and artifacts the indigenous people of the mountain areas as well as specimens of the endemic plants and animals preserved in various departments within the university. During the phase from 2003 to 2010, plan is to incorporate research in history and anthropology resulting from the digitization project into the existing systems, and then apply this process as a model to other collections and related projects in Taiwan. As the NTU-DLM Project enters the next century, it could generate the capability to handle an electronic cultural atlas for the Austronesian speakers in Taiwan. The eventual result would extend to other Pacific communities as a network for mutual research across the vast array of neighborhoods, from Taiwan to other quarters of Oceania.

In the following we give a brief overview of some of the most important archives. The Tam-Hsin Archives are a collection of official documents about the Tamsui Ting and Hsin-Chu Prefecture during the Ch'ing dynasty. The area covers the entire area north of the Dajia River and dates from about 1810 to 1895.

Anli-Dashe is a group of villages of the Pazehe, a tribe of *pinpu*. Pazehe was once the strongest tribe in the central plains of Taiwan and was instrumental in the pacification and agricultural development of central Taiwan (Chen 1986). The Anli-Dashe Files were uncovered in 1935 after an earthquake from the walls of a collapsed house of the descendants of the great chief Pan Duan. While the collection at NTU contains 1,131 documents, there are another 80 to 90 documents kept at the Provincial Museum of History. The NTU collection was obtained through Mr. Chang Yao-Kuen, who studied the documents for his thesis in 1938. (Chang himself was the descendant of another pivotal person of the era, Chang Da-Jing, who was closely associated to Pan Duan.) The NTU collection contains a rich variety of documents; including land-trade agreements, tax records, inheritance records, religious ceremonies, as well as a list of draftees during one of the expeditions. They span over two hundred years. The history of the Austronesian people throughout the world suffered from the lack of a written language. These files are an extremely rare case where the rise and fall of a tribe is recorded through its dealing with outside people. What makes it even more unique is that the records were not done through the conscious effort of an external observer.

Kanori Ino was a Japanese anthropologist sent to Taiwan in 1895 by the Japanese army, immediately after the island was ceded to Japan, to study the indigenous population. During his ten-year tenure in Taiwan, Ino made one of the first, and most, comprehensive

investigations of the Taiwan Austronesian speakers.

One of his most important studies is about the *pinpu*, who were rapidly assimilating into the Han people even at the time of Ino. Indeed, the work of Ino on *pinpu* is unsurpassed and is the basis of many studies that follow. His classification of *pinpu* is still adopted today (although not without controversy). When he died in 1925 from malaria contracted while in Taiwan, he left behind a tremendous collection of books and artifacts from Taiwan, diaries documenting his travels, over 1,000 scholarly articles and an important volume of *History of Taiwanese Culture*.

A large portion of the archives were bought by the Japanese Imperial University in Taipei (the former National Taiwan University) and brought back to Taiwan in the 1920s, and the rest are kept by his descendants in Japan. Artifacts are maintained under the Department of Anthropology where studies of the materials are conducted (Hu and Tsui 1998), and the manuscripts and books are under the care of the University Library.

For decades, the Ino Archives at the NTU University Library was neglected and almost forgotten through misplacement and misclassification. An effort was made in the 1980s, mainly by Professor Wu Micha, Department of History at NTU, to reorganize and recover the archives (Wu 1999). The work took several years and was finally completed. In commemoration with the 80th anniversary of NTU, the university held an exhibition and workshop on the Ino Archives in 1998. In addition to the collection within the university, our current digitization work also includes the remaining of the archives kept in Japan.

While the above archives are under the care of the University Library, the Department of Anthropology, NTU, also has an impressive collection of Austronesian Taiwanese artifacts, whose variation, quality and quantity is perhaps unsurpassed in Taiwan. They include more than four hundred land-trade agreements that cover many *pinpu* tribes; more than 200 articles of wood carvings, clothes, weapons, and utensils. There are also over 700 early photographs that provide an important source of information of the lives of the Taiwan Austronesian speakers (Lien 1998). Another important collection of the Department of Anthropology is eight different sets of survey maps, of different scales and periods, taken by the Japanese army during the Japanese occupation. These invaluable maps show the evolution of landscape and townships between 1900 to 1945.

Fig. 4 From Hu and Tsui ref. 1998

The Austronesian Electronic Cultural Atlas project traces its history to the *Conference on Austronesian Studies in Taiwan*, October 1997 at UCB (following the Electronic Buddhist Text Initiative, Kyoto meetings). Lewis Lancaster gathered the scholars for an orientation at the campus for the Central Asia/Silk Road projects and a lunch to discuss the Pacific Neighborhood Consortium (PNC) and the Electronic Cultural Atlas Initiative (ECAI). It was mentioned that our group could possibly work on an atlas for the Austronesians. The people attending considered this to be an intriguing new idea.

At the 1998 PNC meetings, at Academia Sinica, Taipei, the idea continued with growing awareness of the idea since National Taiwan University began the digital museum and library programs. Academia Sinica's mapping projects for China, and the *pingpu* artifact web site from university collections continued to help people understand the possibilities of ECAI. After speaking with Simon Lin and from the technical support of Eric Yen at the Computing Center, Academia Sinica, work was initially started on mapping the Taiwan Austronesian groups in late 1998. While at the meetings, Lawrence Crissman offered to assist with GIS mapping especially for the languages of the Pacific.

Fig. 5 From Hu and Tsui ref. 1998

In order for preparing an atlas of the Austronesian speakers of the Pacific region, it is proposed here that an electronic cultural atlas of the Pacific be constructed through the computing centers and institutes at Academia Sinica, National Taiwan University, and National Chengchi University. Each institution has unique facilities to set up such a project that would include studies related to Austronesian languages.

As the NTU-DLM Project enters the next century, it could generate the capability to handle an electronic cultural atlas for the Austronesian speakers in Taiwan. The eventual result would extend to other Pacific communities as a network for mutual research across the vast array of neighborhoods, from Taiwan to other quarters of Oceania (Chang 1989). An atlas electronically tracing the Austronesian voyaging and settlements across the ocean would be an asset for understanding the Pacific as a highway of population and cultures. It is proposed to be a colorful walk through the layers living ethnography into the reaches of prehistory, with cultural phases coming, staying and waning according to the evidence from specialized observation and record of data collection (Chiu 1996, Blundell 1997a, 1998a, 1998b). Scholars and the public could access the "electronic cultural atlas" on the Web, and go through the centuries of time to share specific Austronesian cultural ideas.

Map surveying and the use of systems analysis (Weisbrod 1982) for picturing regions of the Pacific (Wasley 1995) would expand the 20<sup>th</sup> century's archaeological research and anthropology of Taiwan (Sung 1976, 1989, 1995; Chen 1989; Tsang 1995; Sung and Lien 1998) in terms of establishing a cultural laboratory (Li 1989). The growing concern for the preservation of Austronesian legends (Li, Wu, Huang 1992) and the interdisciplinary use of archaeology and ethnology for the understanding of local heritage (Lien 1989, 1996), has generated awareness for indigenous heritage *vis-à-vis* the natural environment (Ong *et al.* 1994). There are recent trends in unified systems of heritage management with other regions (Comer 1994), ecological tourism and traveling seminars (Tai and Blundell 1994, Wylie 1996), and the preservation of culture through tourism (Chang J. 1989, Chen 1989, Feilden 1993, Lin 1995). Growth in these trends has called for the appreciation of the landscape (Phillips 1998) in terms of the aesthetic (Maquet 1986) and ethnicity in the presentation kept in a museum (Hudson 1992, Gentler 1992, Lu 1996b) or as life in the context of living in the tradition (Blundell 1997b).

Since Taiwan is planning a Telecom project to strengthen the communications infrastructure through broadband Internet systems. The government of the ROC is facilitating the development and authority for a new generation of medium or small satellites to fill in the present satellite gaps for communications and weather reporting. The cause for Taiwan to be a first class computer and communications center has been proposed by Taipei Mayor Ma Ying-jeou to extend a software development area from Nankang to Neihu by 2002. It would be of the greatest utility to have a world class geographical information system operating to map the cultures of the Pacific.

This is surprising in view of the highly technical society of today that such a set of data does not presently exist in an electronic medium. Taiwan is presently in an excellent position to set the stage and coordinate the first electronic cultural atlas of the Pacific. Since Taiwan claims some of the oldest Austronesian archaeological sites in the Western Pacific, it would be the logical place to institute the lead to coordinate the ECAI project based on the latest advanced electronic technology (Matsuzawa 1995).

The National Museum of Prehistory, Taitung, will be the largest institution of its kind in the Pacific that will include Taiwan, Pacific Ocean, Southeast Asia, and China cultural areas of research and public exhibition for education (Lu 1993, 1996a). This institution will require the latest technology to facilitate the spatial and time frame data (Coupland 1994, Johnson 1998) to develop its ethnomuseum concepts (Lu 1996b) by providing digital designs to enhance the conversation on culture (Applebaum 1995).

The first phase for the atlas would include the linguistic areas of Taiwan to produce a map module for Taiwan. The second module would be the prehistory of Southeast Asia area (Blundell 1984, 1995) to the living ethnology. Research would be sought at National University of Singapore for ASEAN geographic information and the South China Sea region (Chen and Chang 1996). And the third would be Pacific regions.

Selected Pacific regions would be in the areas where Austronesian cultures are well documented. Field research would include the Marshall Islands and to Fiji for understanding the state of Pacific Austronesian studies. This atlas would fit into other ECAI electronically posted bulletin boards to represent the Pacific the way other modular geographic areas under development. A metadata system utilizing the ECAI coded information format (Jarvis 1989) allows the user to seek additional stored data on the attributes or elements given on the atlas.

Phases of mapping would be where the Austronesian speaking cultures have extended throughout Southeast Asia. Then the vast Pacific region will come under this scholarly process of annotated mapping with the assistance Indo-Pacific linguistics, prehistory, ethnology, sociology, geography, and history to the present. Phases including the initial Taiwan mapping would serve as an academic bulletin board for scholarly exchange.

The atlas proposal is to update the *Language Atlas of the Pacific Area* based on GIS geo-referencing by ECAI under the network umbrella of the scientific Pacific Neighborhood (PNC) that is based at Academia Sinica. Members of the PNC are scientific, library, museum, and other academic institutions—in Taiwan the National Central Library, National Taiwan University, and Academia Sinica are members. Projects are underway for preserving cultural heritage and increasing awareness of ethnicity and cultures as a people of linguistic diversity (Li 1998).

Presently the proposal outlines the steps to cooperate with the Australian Centre of the Asian Spatial Information and Analysis Network (ACASIAN) and the Electronic Cultural Atlas Initiative (ECAI) to secure maps and copyrights from the World Digital Atlas (WDA) and UNESCO publications for the Taiwan Austronesian Electronic Cultural Atlas of the Pacific project.

Producing a Geographical Information System (GIS) version of the *Language Atlas of the Pacific Area* will involve more than just making a vector map that contains the linguistic information, as all of the spatial objects, such as the representations of all of the islands (Crissman 1998). It will need to be geo-referenced and coded in order to link to the linguistic information. ACASIAN is willing to produce a GIS version of the *Language Atlas of the Pacific Area*. ACASIAN has produced a digital (vectored) version of the *Language Atlas of China* for the China GIS Project and the Spatial Information Infrastructure for Asian Studies

in Australia. That work was undertaken under copyright permissions from the Australian Academy of the Humanities and the Longman Group (Hong Kong), which were the producers and publishers, respectively. It is anticipated that, on the basis of a similar recommendation from Professor Blum at the Australian National University who also prepared the maps in the *Language Atlas of the Pacific Area*, copyright permissions can also be obtained for similar work on that atlas (Crissman 1999).

Ian Johnson has currently developed a TimeMap software system for ECAI (Johnson 1998). He has offered this software at the joint PNC meetings in Academia Sinica, January 1999. This software will be instrumental in producing the atlas to work as a multimedia device, sustainable, and interactive for the World Wide Web (WWW) on the second generation Internet (currently being developed in Taiwan along with AT&T).

This electronic atlas would contain linguistic, contemporary, historic, and archaeological artifact content, related to Austronesian speaking populations. Layers of time frame maps would illustrate the development of cultures in time from the ancient to the present time in a continuous process system of spatial data. Each cultural element would be coded based on GIS, and specific linguistic areas would be color-coded. Landforms would be in shaded-relief (Thelin and Pike 1991). This would be user friendly based as a resulting product for research, education, and continuing understanding of the Pacific region. Each subsequent atlas would be modular to fit into the complete set of maps in a complementary system: Taiwan, Southeast Asia, and the overall Austronesian Pacific and Indian Ocean regions.

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