

INDIGENOUS ASTRONOMICAL TRADITIONS AS RELATED BY THE FIRST ETHNOLOGISTS IN BRAZIL

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Abstract

This work aims to present a panorama of the space-time of certain Brazilian native peoples, and especially the Tupi-Guarani and the Apinayé, as reported by some of the early ethnologists who traveled to Brazil, including Paul Ehrenreich, Theodor Koch-Grünberg and Curt “Nimuendajú” Unkel, as well as the Canadian naturalist C. F. Hartt. This ethnohistoric data is compared to recent fieldwork.

Key words: ethnoastronomy, Indians, Brazil, German Ethnologists, C. F. Hartt.

Introduction

According to Penny (2002), during the German Imperial period (1871-1918), a number of German cities began the movement to build up museums and to fill them with collections from all over the world. Ethnology began to emerge as a scientific discipline in Europe in the late 1860s, inspired by the travel literature that became popular at this time. Adolf Bastian, director of Berlin’s ethnographic museum from 1873 to 1905, was inspired by the Humboldtian cosmopolitan vision and efforts to gather all knowledge of human history, and so motivated an array of scientists to travel and collect material traces of human culture across the globe.

In this context, some German ethnologists travelled to Brazil to study the indigenous cultures: they included Paul Ehrenreich, Theodor Koch-Grünberg, and Curt “Nimuendajú” Unkel. These authors contributed decisively to Brazilian ethnology, as they engaged in extensive fieldwork and published the *corpus mythorum* of a variety of native peoples. Before this outstanding period of Brazilian ethnology, however, came the work of a Canadian naturalist with a deep interest in ethnology called Charles Frederick Hartt (1840-1878). Hartt was chief of the Brazilian Geological Commission, which existed from 1875 to 1878.

Charles Frederick Hartt

Hartt was born in 1840 in New Brunswick, Canada. His interest in Brazil began with the Thayer expedition (1865), under the leadership of Prof. Louis Agassiz. Hartt was appointed one of the geologists in the team of naturalists who would make scientific explorations in the Amazon. In 1868, Hartt accepted the chair of

Geology at Cornell University. After several expeditions to Brazil, he founded the Brazilian Geological Commission (CGB), with the support of the Brazilian government. The Commission was established in 1875, with Hartt as its chief. His plan was to make a preliminary survey of the country in order to prepare a Geological Chart of the Empire, and “to study the archeology and ethnology of existing tribes, collecting and classifying samples that can illustrate them conveniently” (Figueirôa 1997). It is interesting to note that the inclusion of archaeology and ethnology was not usual in the USA’s geological surveys, although their institutions were taken as the model for the CGB. Rather, it was an adaptation of the institutional model to the local reality (Brazil being rich in ethnographic material), besides reflecting Hartt’s particular interest in these fields. Hartt was fluent in Portuguese, and knew the Tupi language and its dialects.

At the end of the fieldwork, in 1876, the Commission started to organize the immense geological, paleontological and archaeological collections. Hartt began to write the Memoirs of the work, of which—according to Orville A. Derby, one of Hartt’s assistants—“it may almost be said without exaggeration that in the geological and archeological literature of Brazil Hartt’s contributions outweigh all the rest put together” (Hay 1899, p.163). His publications include *Brazilian Rock Inscriptions* (1871), *The Ancient Indian Pottery of Marajó, Brazil* (1871), *On the Occurrence of Face Urns in Brazil* (1872), *Notes on the Lingoa Geral or Modern Tupi of the Amazonas* (1872), *Beginnings of Art, or Evolution in Ornament* (1873), *Notes on the Manufacture of Pottery among Savage Races* (1875), and *Amazonian Tortoise Myths* (1875).

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The Commission was closed down in January, 1878. Two months later, Hartt died from Yellow Fever in Rio de Janeiro.

Amazonian Tortoise Myths

The book *Amazonian Tortoise Myths* (Hartt 1875) presents a collection of animal stories related to the Brazilian land-tortoise (*Jabuti* in Portuguese, and *Yautí* in “Língua Geral”, an indigenous common language). The myths, according to Hartt, appear to be current wherever Lingua Geral is spoken. Hartt interprets the myths as ancient indigenous astronomical theories, based on De Gubernatis’ book *Zoological Mythology*. About the first myths – “How the tortoise out-ran the deer”, “The Jabuti that cheated the Man”, and “How a Tortoise killed two Jaguars” – Hartt says that in ancient world mythology, myths of the race between the Tortoise and some swift animal have been explained as referring to the race between the slow one, the Sun, and the swift one, the Moon, and “it seems to me eminently probable that the similar Amazonian myth may have the same signification” (Hartt 1875, p.15).

In the Myth “The Jabuti avenges himself on the tapir”, “a tapir met with a jabuti in a wet place, and stepping upon him, buried him deep in the mud, where the tortoise remained two years before he could extricate himself” (Hartt 1875, p.30-32). When at last the jabuti succeeded, he follows the track of the tapir and kills him by biting his leg.

According to Hartt, “The Amazonian story seems susceptible of the following interpretation: The tapir is the Sun, the tortoise is the Moon. The rising Sun extinguishes the old Moon, and buries her, but after a time, the new Moon appears and begins the pursuit of the Sun. The fact that the race continues day after day, and that the scent grows constantly stronger suggests, however, that the pursuer may, after all, be the Sun. May not the story, perhaps, have been confused through an interchange of characters?” (Hartt 1875, p.33).

Hartt frequently quotes Brazilian authors, such as Couto de Magalhães, a politician, serviceman, folklorist, and writer. They exchanged Amazonian stories frequently, and Couto de Magalhães presented another interpretation of the same myth (Magalhães 1935, p.235-237), associating the jabuti with the Sun and the Tapir with Venus: “In the first part of the myth the jabuti is buried by the tapir. The explanation seems very natural, being in a time of the year when Venus appears while the Sun sets in the west [Venus as the ‘Evening Star’]. When wintertime comes, the jabuti goes out, and pursuing the tapir, repeatedly meets various trails, but always arrives after the tapir has left. It really happens with

the Sun and Venus; the latter appears early in the morning [Venus as the ‘Morning Star’] but when the Sun rises, it disappears. The jabuti finally kills the Tapir. As Venus has an orbit between us and the Sun, there is a time in the year when Venus does not appear in the morning any more, but in the evening. The burial of the jabuti is the first conjunction, when the Sun disappears under the horizon and lets Venus shine. The killing of the tapir by the jabuti is the second conjunction, when Venus disappears and lets the Sun shine” (Magalhães 1935, p.225).

Hartt quotes the French Capuchin monk Claude d’Abbeville, who wrote about Tupi astronomical traditions¹ and reports a name of a large star, *iaouáre* or dog (more properly ‘jaguar’) that follows close to the Moon, and which was supposed by the Indians to pursue her in order to devour her (Hartt 1875, p.38). Hartt says: “In the myths I have given, I have interpreted the jaguar to be the Moon, having been led to this opinion from analogy. It may, however, be fairly questioned whether it may not, at least, in some instances, mean the star just named” (Hartt 1875, 39).

Another Brazilian engineer, Major Silva Coutinho, a specialist in Amazonia, told Hartt that “The two stars that form the shoulders of Orion are said to be an old man and a boy in a canoe, chasing a *peixe-boi* [Amazonian Manatee], by which name is designated a dark spot in the sky near the above constellation. The Indians say that originally the old man, the large star, was in the bow, the boy, the small star, being in the stern, steering. When the man caught sight of the *peixe-boi* he became too much excited to shoot, and so he exchanged places with the boy. There is a constellation, called by the Indians the palmtree, and near by is a line of stars which they call monkeys coming to eat the fruit. Another constellation is called *jaburú* crane (Ciconia) and another the white crane” (Hartt 1875, p.39).

Câmara Cascudo, who wrote the notes for the Portuguese version of *Amazonian Tortoise Myths* (Hartt 1952), says that Silva Coutinho’s information is precise and reliable. However, another version is reported by Stradelli: “Cacuri [indigenous fish trap], indigenous constellation corresponding more or less to the Southern Cross. The four stars of the cross form the *cacuri*, and the central stars are the fishes trapped. The Coal Sack is a *Peixe-Boi*, and the two stars from Centaurus, A[lpha] and B[eta], are the fishermen who come to shoot him. Long ago, they say, the younger Indian, B[eta], who is in the bow today, ready for shooting, was in the *jacumã*, i.e., the stern. The elder couldn’t hold the harpoon any more, so exchanged places with the young Indian” (Hartt 1952, p.68-69).

¹ This subject is detailed discussed in Lima et al 2006.

Theodor Koch-Grünberg

Koch-Grünberg (1872-1924) studied Classical philology, and from 1898 to 1900 took part in Herrmann Meyer's second expedition to the Xingu area. After his Ph.D. in Philosophy, he was charged, by the Museum of Berlin, with surveying the northwestern borders of Brazil, from 1903 to 1905. His expedition from Roraima to the Orinoco river (1911-1913) is considered one of the major exploits of scientific exploration through Brazil and South America (Koch-Grünberg 1953, 10 - preface), and resulted in the monumental work *Vom Roraima zum Orinoco* (5 volumes).

Vom Roraima zum Orinoco vol. II, published in Portuguese, received the title *Mitos e Lendas dos Índios Taulipáng e Arekuná* (Koch-Grünberg 1953). In this book, we can find cosmogonic myths and legends of heroes, stories, and fables of animals, as well as good-humoured narratives.

In the collection of fifty myths of the Taulipáng and the Arekuná, from Roraima and Venezuela, several Taulipáng legends tell the adventures of the tribal hero Makunaíma and the anthropophagous giant Piaíma. The form of Makunaíma is sometimes presented in solar character, sometimes in lunar character (Koch-Grünberg 1953, p.22-23). In one legend, he is caught in a lasso made by Piaíma, who then carries off Makunaíma in his basket. Makunaíma steals a magical formula from the giant, and escapes (Koch-Grünberg 1953, p.57-58). According to Koch-Grünberg's interpretation, based on Paul Ehrenreich (1905), the capture of the Sun in a bow may refer to the solstices, and it is a very common motif.

The lunar phases are explained in myth 16, "The Moon and his two wives": "The moon, called Kapéi, has two wives, both called Kaiuanóg, one in the East, the other one in the West. He is always with one of them. First, he stays with one who feeds him heartily, so he gets fatter and fatter. Then he leaves the first one and goes with the other wife, who barely feeds him and he loses weight. Then he meets again with the first wife, who makes him gain weight, and so on. The woman of the East fights with the moon because she gets jealous. She says: 'Go back to the other woman! So you get fat again! You can't gain weight with me!' Then he goes to stay with the other one. Therefore, the two women are enemies, and they are always far from each other" (Koch-Grünberg 1953, p.65)

According to Koch-Grünberg, his informant explained that the two women of Kaipei are two planets that walk with the Moon. In a footnote, Koch-Grünberg says that they are Venus and Jupiter. We think it more plausible that both women are Venus, as the Morning Star (in the

East) and as the Evening Star (in the West). The West woman feeds Kaipei, so that when the Evening Star is in the West after sunset, the Moon waxes. When the Moon is close to the Morning Star, before sunrise, the Moon wanes.

Myth 18, "Jilijoafbu turns into Tamekan (Pleiades)" (Koch-Grünberg 1953, p.65-69), describes how the Pleiades appeared in the sky. According to this indigenous interpretation, the Pleiades, the Hyades, and part of Orion form the figure of a one-legged man, Jilikawai ou Jilizoaiibu (Jilijuaipu), who dies after his leg is cut off by his adulteress wife. Before his ascension to the sky, Jilikawai talks to his brother, and gives him his wife and son. He announces that the rainy season will start when he arrives in the sky, and there will be a great quantity of fish, so there will be plenty of food. In fact, "the Pleiades play an important role for the Indians in establishing the seasons and the right time to sow. When they disappear behind the western horizon, the rainy season starts, and when they reappear above the eastern horizon, they indicate the dry season" (Koch-Grünberg 1953, p.29).

According to Koch-Grünberg (1953, p.29), the Pleiades represent the head of the hero, while the Hyades and Aldebaran only have a secondary role. Therefore, in the indigenous text, the hero has the name Jilike-Pupai, meaning "starred head".

Curt Nimuendajú

According to the preface of the Portuguese version of his book on the Apinayé (Nimuendajú 1983), Curt Unkel was born in Jena, Germany, in 1883. He emigrated to Brazil in 1903, and two years later he was living in a Guarani settlement in the state of São Paulo, where he was baptized and received the Guarani name "Nimuendajú". He adopted this name, and so became known in the ethnological literature as Curt Nimuendajú. After more than 40 years living among several native groups in Brazil, Nimuendajú died in 1945, among the Ticuna Indians. The author of several publications in German, Portuguese and English, he worked for the *Museu Paulista* (São Paulo, Brazil), the Museum of Gothenburg, the *Museu Nacional* (Rio de Janeiro, Brazil) the *Museu Paraense Emílio Goeldi* (Belém, Brazil) and the *Serviço de Proteção aos Índios*, a federal agency charged with protecting indigenous peoples.

The Apinayé

The Apinayé live in the state of Tocantins, and are linguistically classified within the Macro-Gê superfamily. According to Nimuendajú (1939), the Apinayé tribal

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domain embraced the triangle between the Tocantins river and the lower Araguaia, extending southward to about 6° 30'. In the villages, "the houses form an approximate circle, their wide sides facing a central plaza, with a broad street, the 'boulevard', extending concentrically on the inner side of the house circle. The central plaza is, connected with each house by a straight, broad radial path" (Nimuendajú 1939, p.16). According to the Indian Matuk, the village is a representation of the Sun (Nimuendajú 1939, p.134).

The Apinayé are organized into moieties (men-ga-txa), each of which formerly occupied a well-defined part of the village. "The one localized in the northern half of the circle is called Kol-ti or Ko'lo-ti, i.e., Sapucaia chestnut (*Lecythis ollaria*); the complementary division bears the name of Kol-re or Ko'lo-re, i.e., Pará chestnut (*Bertholletia excelsa*)" (Nimuendajú 1939, p.21). According to Apinayé legend, the Kolti were created by the Sun and the Kolre by the Moon, and these beings localized them in the northern and southern halves respectively (Nimuendajú 1939, p.164).

The Apinayé subjected all young males to a warrior initiation. There were two phases that "jointly occupied more than a year, but the period is now considerably shortened" (Nimuendajú 1939, p.37). Nimuendajú witnessed part of the initiation in the village of Gato Preto, in 1937. The date of the beginning of the first phase is not given, but we can deduce from the text that it lasted for several weeks. The festival that closed the first phase of the initiation took place on July, 28th 1927. The second phase of initiation would have begun some months later, after the completion of the clearing of timber (Nimuendajú 1939, p.56).

During the second phase, the men performed the *Peny-tag* ceremony, a rubber ball (*peny-krã*) game played with battledores [light bats] (Nimuendajú 1939, p.61). The *pemb* (warriors) themselves do not, in fact, take part in the *Peny-tag* game, but remain under their mats in the house in at the eastern extremity of the village while it is played. During this time they may not so much as glance at the plaza where the *uyapé* (mature men) alone play the game (Nimuendajú 1939, p.64). Nimuendajú describes the *Peny-tag* festival, which he thinks is related to an ancient Apinayé Sun cult, though "the memory of any such association has completely vanished from these Indians' consciousness" (Nimuendajú 1939, p.67):

"On the eve of the festival the two lines of Kolti and Kolre, each with its ceremonial director at its right wing, danced me-ang-rõ² in the plaza. ... At nightfall

² "The *me-ang-rõ* ceremony is repeated several times during this initiation phase. The Kolti and the Kolre lines face each other, standing in an E-W direction, the former on

there were heard from the house in the east, where the *pemb* met, the melodious me-amni'a³ songs. When it had grown wholly dark, the old counselor Ngoklua (Kolti) emerged from the door of the house, holding the large rubber ball in his uplifted right hand while walking very slowly, solemnly, and silently along the boulevard around the periphery of the houses from the east by way of the north. No one saw him in the dark... It took the old man a very long time to complete his circuit, for he moved forward only during the brief intermissions of the me-ang-rõ. But finally people discovered that he had again returned inside his residence...

"The next morning the *uyapé* began their me-anrõ as early as 4:30, the two moiety groups dancing round each other in a gradually contracting circle. Then they assumed the position sketched in Fig. 1, by the eastern exit of the plaza, made a brief stop, and began anew. The ceremonial directors carried their battledores by the corded loops; the others were holding their paddles in their right hands. The Kolti director was distinguished by a dorsal feather decoration mounted on some basketwork and by a double flute.

"When the sun was about to rise, the counselor once more stepped out of the house in the east (Fig. 1), holding in his raised right hand the large rubber ball, which now had paty wool⁴ stuck on it. Very slowly – almost imperceptibly – he advanced in short stages without raising his feet from the ground. This continued as long as the me-anrõ dancers were standing still, but every time they began to stamp he stood quite still. In this manner he gradually approached the front of the dancers' double line, reaching it just as the sun's orb began to rise above the horizon of the steppe, precisely behind him. The Kolti director of ceremonies now approached the old man slowly and bent down before him. The counselor pretended to throw the ball, but actually put it into the director's hand, who passed it on to the Kolre colleague beside him. This Kolre passed it over in turn to the Kolti opposite him, the Kolti handed it to the nearest Kolre obliquely facing him, and so on until the ball had zigzagged through the hands of all, whereupon

the north, the latter on the south. First they rapidly tap their right feet, uttering a protracted cry, 'Ha-hã-a-hwu' (Kolti) and 'Ha-hã-a-hwi' (Kolre), which is followed by piercing shrieks. Then the Kolti shout briefly and rhythmically, 'Haã-[stamping] wu!'; and the Kolre similarly answer 'Haã-wi!' crying and stamping thus follow alternately from both sides with attention to accurate time." (Nimuendajú 1939, p.59)

³ The *pemb* songs are called *me-amni'a*, which is rendered into portuguese as 'reza', prayer (Nimuendajú 1939, p.60).

⁴ A light pinkish-yellow wool obtained by scraping the young leaf stalks of the paty palm (*Orcus* sp.).

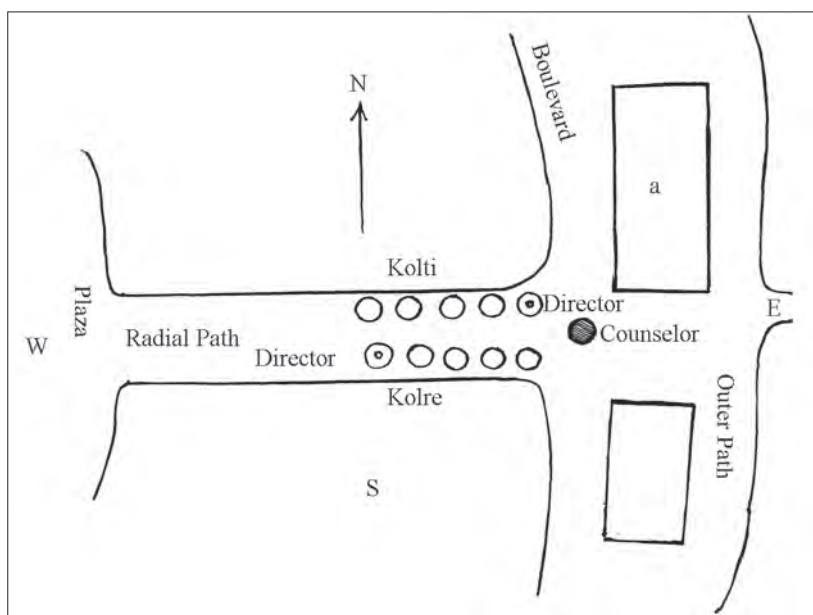


Fig. 1. Position of the Me-ang-rō dancers at sunrise on day of Peny-ta'g (Nimuendajú 1939, p. 65).

the Kolti director took it back to the old man.” (Nimuendajú 1939, p.64-66)

As a tentative interpretation, we could suggest that the zigzag path of the ball between the two rows is a representation of the peregrinations of the Sun between its northernmost and southernmost horizon extremes, the solstices. On the other hand, the change of the ball from the Kolti's hands to the Kolre's hands symbolizes the passage of the Sun from the northern half of the sky to the southern half and vice versa at the two equinoxes.

Turning to other celestial phenomena, the Apinayé regard meteors as evil demons. In case of a lunar eclipse, an old man lifts a girl towards the Moon, calling out: 'Look, here is your wife! Don't die!'. They sing special chants until the darkness is gone, and the men shoot at the Moon with arrows (Nimuendajú 1939, p.139). The constellations are devoid of religious significance, and they recognize a giant Emu (*mā-ti*) in the Milky Way, but unlike other tribal groups in Brazil, they are not afraid of it. Another constellation is a big ant-eater (*pad-ti*) fighting a jaguar, and another is interpreted as a sting-ray (*bienče'd* or *bieneyéd*, as written in the Portuguese version of the book). The Pleiades are called *Ngrôdo*; Venus and Jupiter, *Tamgaa'ga*; and Mars remains undesignated (Nimuendajú 1939, p.140).

Discussion

The analysis of the texts did not permit us to determine whether some of the interpretations mentioned by the

different authors came originally from the informants, or whether they were simply the personal interpretations of the ethnologists.

The Emu and the 'one-legged man'⁵ constellations are found among several ethnic groups in Brazil, including some that are culturally very dissimilar, such as the Guarani (related to the Tupi linguistic family) and the Apinayé (related to the Macro-Gê).

The Milky Way is the main point of reference in the sky for native Brazilians. As far as we know, there is no direct evidence or indirect indication (either from literature or fieldwork) that any importance was attached to the zodiac.

During interviews conducted with the Guarani people in the village of Paraty-Mirim, Rio de Janeiro, in 2004 and 2005 by one of the authors, part of their astronomical knowledge and lore started to be recounted by the tribe, and the village elder even gave an astronomical lesson to the children, something that has not happened for a very long time.

Acknowledgments

Thanks are due to all the Brazilian native groups that have been fighting for the last five centuries to keep their lands and to preserve their ethnic identities.

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⁵ Koch-Grünberg (1953, p. 160-169) includes an extensive discussion about the one-legged man constellation among several Brazilian native groups.

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VIETINIŲ BRAZILIJOS GYVENTOJŲ ASTRONOMINĖS TRADICIJOS PIRMŪJŲ ETNOLOGŲ DARBUOSE

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Santrauka

Imperiniu periodu (1871–1918) daugelyje Vokietijos miestų vyko muziejų kūrimo ir aprūpinimo eksponatų kolekcijomis iš įvairių pasaulio vietovių sąjūdis. Vėlyvaisiais 1860 m. inspiruota populiarėjančios kelionių literatūros Europoje formavosi etnologijos disciplina. Berlyno etnografijos muziejaus direktoriumi nuo 1873 iki 1905 m. dirbęs Adolfas Bastianas (Adolf Bastian) įkvėptas Humboldto kosmopolitinių idėjų ir siekių surinkti visas žmonijos istorijos žinias, paskatino gausybę mokslininkų keliauti ir rinkti kultūros vertybes visame Žemės rutulyje. Dėl šios priežasties į Braziliją studijuoti vietinės kultūros atkeliavo nemažai vokiečių etnologų: Karlas fon den Šteinasas (Karl von den Steinen), Paulas Ehrenheichas (Paul Ehrenreich), Maksas Šmidtas (Max Schmidt), Teodoras Koch-Griunbergas (Theodor Koch-Grünberg), Fricas Krauzė (Fritz Krause) ir Kurtas Unkelis (Curt Unkel) (Nimuendajú). Šie autoriai įnešė reikšmingą indėlį į Brazilijos etnologiją. Jie įsitraukė į plačius lauko tyrimus, paskelbė čionykščių Brazilijos gyventojų mitų rinkinius. Prieš šį iškilų Brazilijos etnologijos periodą apie Amazonijos gyventojų Vėžlio mitą, indėnų poeziją, Tupi kalbą ir kt. rašė Čarlzas Fridrichas Hartas (Charles Frederick Hartt) (1840–1878), Kanados gamtininkas, giliai besidominintis etnologija, dirbęs Brazilijos geologijos komisijos viršininku.

Šiuo darbu siekiama pristatyti vietinių Brazilijos gyventojų etnoastronomines žinias, ypatingą dėmesį atkreipiant į Tupi-Guranų ir Apinaje etninių grupių medžiagą. Etnoistoriniai duomenys yra lyginami su šiuolaikinių lauko tyrimų medžiaga.

Vertė Jonas Vaiškūnas