The Ancient Astronomy of Easter Island: Kirch’s Comet

Sergei Rjabchikov

1The Sergei Rjabchikov Foundation - Research Centre for Studies of Ancient Civilisations and Cultures, Krasnodar, Russia, e-mail: srjabchikov@hotmail.com

Abstract

A fragment of the folklore text “Apai” that was once put down on Easter Island contains a report about astronomical observations of Kirch’s Comet or the Great Comet of 1680-1681 A.D. (C/1680 V1) and the partial solar eclipse of March 19, 1681 A.D. Some astronomical aspects of the local cult of bird-men have been discussed, too.

Keywords: archaeoastronomy, writing, folklore, rock art, Rapanui, Rapa Nui, Easter Island, Polynesia

Introduction

The civilisation of Easter Island is famous due to their numerous ceremonial platforms oriented on the sun (Mulloy 1961, 1973, 1975; Liller 1991). One can therefore presume that some folklore sources as well as rongorongo inscriptions retained documents of ancient priest-astronomers.

A Brief Report in a Rapanui Folklore Text

In the folklore text “Apai” (an oral version of a lesson book in the royal rongorongo school) taken down on Easter Island (Thomson 1891: 517-518) there is a passage:

"Ui te taura hiku raverave. A Hiro kai te teri he po." ‘A priest taura stared at a long tail (hiku raverave). (Afterwards the chthonic god) Hiro ate up the sun (teri) before a certain night.’ (It is my own translation.)

The Linguistic Background

In this quotation the term teri is obscure only; on the base of the analysis of the text it is the designation of the sun. I have demonstrated that Rapanui renga ‘yellow; beautiful’ was its epithet (Rjabchikov 1998); as a result the terms teri or tero (the sun) because of the gradations of the sounds i and o are comparable with Mangarevan tero ‘handsome.’ Let us examine the inscriptions on two tablets which contain this archaic word.

1. Consider a record on the Tahua (A) tablet that served as a rongorongo lesson book, see figure 1.

![Figure 1](image)

Figure 1.

1 (Ab 6): 2 (= a reversed variant) 21 2 (= a reversed variant) 44 Ina oko, ina taha. ‘There is no ripeness; there is no food.’
17-15 17 17-15 Tero, te tero. [or: Teri, te teri.] ‘The brilliance of the sun increases.’
35 5 Patu: ‘(Yam) leaves appear:’
4-4 27 19 atuatu rau Kio(r)e, ‘the variety-leaves (called) Kioe,’
atu rau Taha, ‘the variety-leaves (called) Taha,’
atu rau Papa, ‘the variety-leaves (called) Papa,’
atu rau (R)ava, ‘the variety-leaves (called) Ravei,’
(r)ua (R)ua, ‘(the variety) -leaves (called) Rua,’
(r)ua papa, ‘(the variety) -leaves (called) Rua papa,’
and the variety with large leaves [Apuku raurau].’
(They all) are seven (varieties).’

This record has been partially decoded (Rjabchikov 1993a: 138-139, appendix 2, figure 5, fragment 66). It tells of the planting and growth of yams in the spring-time. Old Rapanui taha ‘portion of food; food’ is cognate with Mangarevan tahatu ‘portion of food yet remained,’ Maori taha ‘portion’ and Samoan tafa ‘to cut.’ Rapanui yam varieties have been well documented (Métraux 1940: 155; Barthel 1978: 108-110). Cf. also Hawaiian pālau [< *pa rau] ‘yam; a variety of yam.’

2. Consider three parallel records on the Aruku-Kurenga (B) tablet that served also as a rongorongo lesson book, see figures 2 to 4. These records have been partially decoded (Rjabchikov 1995). Fedorova (1982) at first assumed that glyphs 7-70 denoted the star Aldebaran (α Tauri). Nonetheless, later on she (Fedorova 2001) gave this truly interpretation up. Besides, Lee (1992: 80) believes that in some instances the turtle can be displayed as an emblem of the Pleiades (M45; NGC 1432) in the Rapanui rock art. Although I offered at the outset that the turtle glyph 68 honu, hono, ono denoted the whole constellation of Taurus in some contexts in rongorongo inscriptions (Rjabchikov 1993b: 5, table 1), now I am inclined to suggest that this glyph could, on occasion, represent the Pleiades only.

Figure 2.

(H)apa(h)apa tua, (h)apa Hina … a niva ua … a Tero [or: Teri], a Re Manu.
‘The star rose, the Moon goddess, … the darkness because of rains … the sun, the Flying (Rere) Bird (appeared).’

Here the star (tuu) is Aldebaran (see below). Its emergence before dawn in the rainy season is described. The natives waited for the time of the increasing hot of the sun as well as the arrival of the sooty terns in September.

Let us study a folklore text about the god Makemake (Felbermayer 1971: 41-44). It contains the following verb apa ‘to lift’ that was not documented in the Rapanui vocabularies: He apa no te toe i te vave nunui i te tomohanga. ‘The big waves (te vave nunui) rose (apa) higher (no te toe) during (his) landing.’ (It is my own translation.) Instead of the terms apai and hapai ‘to lift’ (< *sapai < *sapa-’i), their more archaic version, (h)apa ‘ditto’ (< *sapa), is presented. Old Rapanui niva ‘darkness’ fits Maori niwaniwa ‘dark, deep black.’

Figure 3.
The Pleiades IN THE SKY, (and then on the same path) Aldebaran were created before dawn (= the sun god Make-make literally); the Moon goddess, … the darkness because of rains … the sun, the Bird, (the sun god) Tiki-te-Hatu (appeared).

In two Rapanui rock drawings (Lee 1992: 102, figure 4.97; 151, figure 5.24) at the ceremonial centre Mata Ngarau, Orongo, I have disclosed glyph 7 tuu denoting the star. Such symbols rendered in the midst of the petroglyphs of sacred birds or bird-men identify in all likelihood Aldebaran.

In one Rapanui rock drawing (Lee 1992: 150, figure 5.22) at the ceremonial centre Mata Ngarau, Orongo, I have disclosed among the symbols of bird-men glyph 68 honu, hono, ono (cf. Rapanui ono ‘six’) denoting here the Pleiades. The natives saw in the sky this small cluster counting six or seven stars. Métraux (1940: 323) has correlated the name of the female personage Rurua-Tiki-te-Hatu with the Tuamotuan mythological name Rua-Tiki.

On the strength of PMP *dilap and *dilep ‘to shine’ (ACD) one can reconstruct the evolution of a derivative of these forms: *dil- > *del- > *tel- > *ter-.

On the New Zealand Designations of Some Comets as Celestial Tails

Best (1922: 53, 56) says that Taketake-hikuroa was the Maori name of a comet. The last components of it are hiku roa ‘long tail.’

Another Maori term associated with comets was hiku makohurangi ‘misty tail’ (Ibid., p. 55); this expression [hiku ma-kohu rangi] literally signifies ‘misty tail in the sky.’

A further Maori term treated on a comet was the name of the mythological Mount Hikurangi (Ibid., p. 13), literally meaning [Hiku rangi] ‘Tail in the sky.’

The Ultimate Interpretation of the Passage of the “Apai” Text

For years 1600 – 1860 A.D. I have calculated all the dates of the solar eclipses on Easter Island using the computer program RedShift Multimedia Astronomy (Maris Multimedia, San Rafael, USA). I have taken into account the information about comets that were visible by the naked eye during that time period (Kronk 1999; 2003).

As one would expect, one solution of our problem has been obtained. The long tail (hiku raverave) was Kirch’s Comet or the Great Comet of 1680-1681 A.D. (C/1680 V1) in reality. The narration about the eaten sun (kai te teri) during its setting (he po) was a mythological sketch (cf.: a Hiro) of the partial solar eclipse of March 19, 1681 A.D.

Conclusions

So, the ancient Rapanui report concerning a large comet and a solar eclipse has been interpreted successfully. The deciphered fragments on the Aruku-Kurenga tablet as well as the corresponding local rock
drawings witness that the local priest-astronomers watched Aldebaran and the Pleiades to determine their positions as celestial markers of the appearance of the sooty terns in September.

References

ACD – Blust’s Austronesian Comparative Dictionary. <http://www.trussel2.com/acd/>. [July 10, 2016]
Barthel, T.S., 1978. The Eighth Land. The Polynesian Discovery and Settlement of Easter Island. Honolulu: University of Hawaii Press.
Best, E., 1922. The Astronomical Knowledge of the Maori. Dominion Museum Monograph, 3. Wellington: W.A.G. Skinner, Government Printer.
Fedorova, I.K., 1982. Issledovanie rapanuyskikh textov. In: Y.V. Knorozov (ed.) Zabytye sistemy pis’ma. Moscow: Nauka, pp. 23-98.
Fedorova, I.K., 2001. “Govoryashchie doshchechki” s ostrova Paskhi: Deshifrovka. Chtenie. Perevod. St. Petersburg: Museum of Anthropology and Ethnography.
Felhermayer, F., 1971. Sagen und Überlieferungen der Osterinsel. Nürnberg: Hans Carl.
Kronk, G.W., 1999. Cometography: A Catalog of Comets. Vol. 1: Ancient – 1799. Cambridge: Cambridge University Press.
Kronk, G.W., 2003. Cometography: A Catalog of Comets. Vol. 2: 1800 – 1899. Cambridge: Cambridge University Press.
Lee, G., 1992. The Rock Art of Easter Island. Symbols of Power, Prayers to the Gods. Los Angeles: The Institute of Archaeology Publications (UCLA).
Liller, W., 1991. Hetu’u Rapanui: The Archaeoastronomy of Easter Island. In: P.M. Lugger (ed.) Asteroids to Quasars: A Symposium Honouring William Liller. Cambridge: Cambridge University Press, pp. 267-286.
Métraux, A., 1940. Ethnology of Easter Island. Bishop Museum Bulletin 160. Honolulu: Bernice P. Bishop Museum.
Mulloy, W., 1961. The Ceremonial Center of Vinapu. In: T. Heyerdahl and E.N. Ferdon, Jr. (eds.) Reports of the Norwegian Archaeological Expedition to Easter Island and East Pacific. Vol. 1. Archaeology of Easter Island. Monographs of the School of American Research and the Museum of New Mexico, No 24, Part 1. Chicago – New York – San Francisco: Rand McNally, pp. 93-180.
Mulloy, W., 1973. Preliminary Report of the Restoration of Ahu Huri a Urenga and Two Unnamed Ahu of Hanga Kio’e, Easter Island. Bulletin 3, Easter Island Committee. New York: International Fund for Monuments.
Mulloy, W., 1975. A Solstice Oriented Ahu on Easter Island. Archaeology and Physical Anthropology in Oceania, 10, pp. 1-39.
Rjabchikov, S.V., 1993a. Rapanuyskie texty (k probleme rashifrovki). Etnografichesko obozrenie, 4, pp. 124-141.
Rjabchikov, S.V., 1993b. Tayny ostrova Paskhi. Vol. 2. Krasnodar: Severny Kavkaz.
Rjabchikov, S.V., 1995. Notes on the Easter Island Script (part III). L’Écho de Rapa Nui, 8(29), p. 4.
Rjabchikov, S.V., 1998. Rapanui Placenames: Keys to the Mysteries. NAMES: A Journal of Onomastics, 46(4), pp. 277-281.
Thomson, W.J., 1891. Te Pito te Henua, or Easter Island. Annual Reports of the Smithsonian Institution for 1889. Washington: Smithsonian Institution, pp. 447-552.