The oblation abuser will have the fate of the thirsty buffalo A brief note on Rgveda 10.28.10cd-11ab

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The primary aim of this article is to provide a case study of textual hermeneutics in the context of Vedic literature. It will be shown how some interpretative pitfalls, into which contemporary translators have fallen, can be avoided if we broaden the perspective beyond the semantics of words and apply a principle of plausibility. The case study concerns the analysis of Rayeda 10.28, with special reference to the wildlife episodes depicted in verses 10cd-11ab. A few modern translations in Western languages of 10cd are here considered. Some of them show that a principle of plausibility has been actually taken into account by their authors while approaching the text, albeit the result does not seem always entirely satisfactory. Some other translations seem not to carefully consider the broader context, therefore failing to convincingly make sense of the original text. After an introduction on the general subject of the hymn as it emerges from verses 1-9, i.e., the Vedic sacrifice and the subsequent consumption of the sacrificial offerings, arguments and textual evidence are provided in order to show how the reading of 10cd acquires a cogent and very plausible meaning if regarded in light of verse 11ab.

Keywords: Case study, Hermeneutics, Rgveda, Textual interpretation, Vedic literature

The reader who approaches the <code>Rgveda</code> (hereafter RV) is bound to encounter numerous passages that in the eyes of a contemporary person are difficult to understand when they do not remain completely obscure. This is quite natural whenever we are confronted with such ancient and dense texts, which preserve cultural elements of a society historically so distant from ours and primordial, to the point that part of its customs and beliefs are lost in the mists of time. To make the interpretative work even more tricky is the lyrical and often allusive, lateral, transversal style, typical of the Vedic hymns. The result is that the reader finds him/herself thrown into an intricate semantic maze, made up of several superimposed layers of meaning, inside which it is difficult to move and from which it is sometimes hard to get out. The researcher's job, complex and challenging as it is, is to map this maze while walking through it, avoiding ending up at dead ends, and trying to unearth as much as possible its plausible sense(s) out of all the possible ones.

The present note focuses on the definition of the meaning of RV 10.28.10cd-11ab. In this attempt I will also consider how some modern translations prove to be adequate, while others fail to convincingly make sense of the original text since they apparently remain too faithful to the letter instead of observing the broader context.

RV 10.28 is a short dialogue in 12 verses between a person, allegedly a sacrificer, and the powerful god Indra. The subject-matter of the conversation is the Vedic sacrifice. In verse 1cd Indra's interlocutor makes indeed reference to eating the baked grains (jakṣīyād dhānā) and drinking the soma (sómam papīyāt), which are two typical ritual oblations. In 2cd Indra himself grants strength or protection to the soma-maker who fills the two parts of his, i.e., Indra's, belly with soma (víśveṣv enaṃ vrjáneṣu pāmi yó me kukṣī sutásomaḥ pṛṇāti)² and in 3bc the sacrificer recalls that those who press the soma (sunvánti sómān) and cook the sacrificial victim, in this case a bull (pácanti [...] vṛṣabhām), should offer them to Indra first, who drinks (píbasi tvám) and eat (átsi) the oblation. The first three verses, hence, revolve mainly around the idea of feeding on sacrificial food.

After that, in pāda 4a Indra demands his interlocutor's attention: "Understand well this [speech] of mine, O invoker!" (idáṃ sú me jaritar ấ cikiddhi), and in 4cd he portrays two short wildlife episodes, in both of which a less powerful animal comes close to, or attacks, a more powerful one. The first episode narrates of a fox who stealthily approached a lion that comes from behind or moves in the opposite direction (lopāśáḥ siṃhám pratyáñcam atsāḥ). The second episode depicts a jackal who rushed in front of a boar from a hiding-place (kroṣṭấ varāháṃ nír atakta kákṣāt). These scenes no doubt have a metaphorical meaning, which we are not sure Indra's interlocutor grasps, since he remains so confused and puzzled to the point that in pādas 5ab he openly asks Indra how he can understand them (kathấ ta etád ahám ấ ciketaṃ). In verses 6-7 Indra replies by reminding that he is so powerful and strong to have succeeded in slaying the cosmic serpent Vṛtra. Then, in verse 8 he narrates how the gods cut down trees with their axes in order to feed the sacrificial fire, in which—we add, thus closing a sort of narrative circularity that can be guessed in perspective here—the oblations must be thrown in order to provide nourishment for Indra and keep him strong and powerful. With verse 9 Indra slips again into the discourse other short scenes with animals that depict quite weird situations—for instance, the

 2 For a textual analysis of 2c see Hale (2018: 1935-1936). On the dual term kuksi, which indicates the two parts of an animal belly and in the RV is used to refer to Indra's stomach (which is described as "doubled" perhaps to imply his voracity), see Bodewitz (1992).

¹ RV 10.28.1 is discussed in Palihawadana (2017: 143-145).

³ The term *pratyáñc* can be interpreted here in several manners: also "western, gone, averted" can be taken into consideration.

sentence śaśáḥ kṣurám pratiáñcaṃ jagārá° in 9a describes a hare devouring a razor—⁴ and emphasizes once more his own strength and ability—in 9b Indra tells he was able to split a rock from afar with a lump of clay: °ádrim logéna ví abhedam ārất.⁵

We have now reached verse 10, which contains other episodes involving animals:

suparṇá itthấ nakhám ấ siṣāyấvaruddhaḥ paripádaṃ ná siṃháḥ | niruddháś cin mahiṣás tarṣiyấvān godhấ tásmā ayáthaṃ karṣad etát ||

Several modern translations in Western languages have been provided.⁶ Let us read here just a few of them:⁷

(Savitṛ) and Agni, allow us to indirectly link it also to the *soma* and consequently to the sacrifice. Coming back to the hare devouring or swallowing a razor, in the light of the considerations just pointed out the scene could allude to the ritual tonsure (the razor) performed on some specific days of the lunar calendar (the hare), especially for the *soma dīkṣā*. The hare's act of swallowing could hence adumbrate the Sun > Agni > fire > brahmin feeding on the sacrificial offering, which must take place

⁴The scene appears less picturesque if we consider that in certain special occasions, like ritual tonsure, the use of (Parpola 2019: 13) "a razor made of the wood of the udumbara fig (audumbaraḥ kṣuraḥ)" was prescribed. Even though a hare gnawing on the handle of a razor is certainly an unusual event, yet it is not unimaginable. The episode, however, seems to definitely have an allegorical meaning, which remains quite hard to unravel. On the "hare" (śaśa), see Wada (2007: 417), who resorts to the couple śaśin-śaśa, "Moon-hare," to exemplify the denotative (direct) and the indicative (indirect) functions of words: accordingly, śaśa could occasionally indicate the Moon. Following this interpretation, Smith (2017: 162, note 272) suggests that "the image of the hare and the razor from RV X.28.9a may covertly refer to the waxing phases of the Moon." On the "razor," we do not have much clues in the RV. The Atharvaveda (Śaunaka 6.68.1-3; Paippalāda 19.17.13-15) however tells us that the razor is the attribute of the solar god Savitṛ (ấyám agant savitấ kṣuréṇo°), who used it to ritually shave king Soma (yénấvapat savitấ kṣuréṇa sómasya rấjño). According to Sakamoto-Gotō (2014: 4), who discusses this Atharvaveda passage, the tonsure of king Soma "implies waxing and waning of the moon and might suggest the custom of shaving at the new and full moon." The Śatapathabrāhmaṇa 2.6.4.5 mentions a red copper razor, which is equated to Agni, who metaphorically stands for both the sacrificial (red) fire and the brahmin's power (lohaḥ kṣuro brahmaṇo rūpam agnir hi brahma lohita iva). As Heesterman (1957: 111 and note 30) noticed, the Atharvaveda and the Śatapathabrāhmaṇa, by directly identifying the razor with, respectively, the Sun

only after the ritual shaving, i.e., when the function of the razor has been fully consumed (devoured/swallowed).

The act of breaking a rock occurs *passim* in the RV, sometimes it is related to the liberation of cows (or cows and horses) trapped in a cave whose entrance is blocked by a large boulder (RV 1.7.3cd, 1.62.3c, 4.3.11ab, 6.17.5cd, 10.68.11d) and sometimes to obtaining a prize (RV 4.2.15d; the prize however may consist in cows and horses) or to releasing the waters (RV 4.16.8a, 10.113.4c). Because in some of these cases, though not in all, it is Indra who splits the rock, our verse 9b may allude to this. See Srinivasan (1973).

⁶ For a list of the major full and partial translations of the RV in Western languages and resources for RV studies, see Jamison and Brereton (2014: 19-22).

⁷I leave aside here many older translations, such as those by Horace Hayman Wilson (published between 1850 and 1888) or by Ralph Thomas Hotchkin Griffith (published between 1889 and 1892), which mix the work of translation with textual exegesis in a critically unacceptable way by modern standards. In particular, concerning Griffith's work Jamison and Brereton (2014:

- Geldner (1951: 173): 'Ein Adler hat auf diese Weise seine Kralle verstrickt, gefangen wie ein in die Fußschlinge (geratener) Löwe. Eingefangen wurde selbst der Büffel, da er Durst hatte. Ein Krokodil wind ihm dann das Bein wegschleppen.'8
- Doniger (1981: 147): 'That is the way the eagle caught his talon and was trapped, like a lion caught in a foot-snare. Even the buffalo was caught when he got thirsty: a crocodile dragged him away by the foot.'
- Jamison and Brereton (2014: 1420): 'The eagle caught its talon just so, like a lion entrapped into a snare. The buffalo also got trapped, when it was thirsty. The monitor-lizard plowed this way for him.'
- Smith (2017: 162): 'Like so, the one of good feather is bound at the talon. Likewise, the lion caught at the foot. Trapped is the thirsty buffalo, the monitor lizard digs this foot.'

In pādas ab it occurs the term suparná, which usually indicates a bird "with beautiful feathers/wings." In some RV passages *suparna* stands figuratively for the Sun, ¹⁰ which flies with fiery feathers in the sky. By extension it also alludes to the altar of the yajurvedic *agnicayana* ritual, which has indeed the shape of a big eagle or falcon (suparna, syena)¹¹ made of bricks and harboring the sacrificial fire, in whose flames, as recalled above, the offerings are thrown as nourishment for the gods. ¹² The couple of terms itthå and ná indicate a parallelism between pāda a and pāda b, so that the sentence conveys the following meaning: the *suparna* ended up tied by its claw like a lion trapped in a snare.

The question now arises as to why the suparna got tied (sisāyá). A possible answer can be found considering RV 4.26-27, where it is narrated the myth of the theft of the soma by a bird of prey, which

²⁰⁾ underscore that: "[i]ts philology was already dated when it was published, and the English style of the translation is cloying and almost unreadable. Now, well over a century later, it should have long since been superseded."

⁸ Although this is an old translation, completed between 1907 and 1920, but published posthumously in 1951, I am considering it here because, as Jamison and Brereton (2014: 19) point out "[t]he standard scholarly translation remains that of Karl Friedrich Geldner into German."

On suparna see Norelius (2016: 7-8): "In classical Sanskrit, the word means 'eagle', and it has usually been so translated also in the Veda. While it clearly denotes some kind of bird of prey already in the RV, it is however not certain that it has the meaning 'eagle' here; nor can it be excluded that it may be used to designate a number of birds, rather than a single species." ¹⁰ See Norelius (2016: 17-18).

¹¹ For more details I refer the reader to Freedman (2012: 327).

¹² The offerings to gods thrown in this fire-altar have a specific aim, as recalled by Converse (1974: 83): "The immediate practical purpose of the Agnicayana rite is to build up for the sacrificer an immortal body that is permanently beyond the reach of the transitoriness, suffering, and death that, according to this rite, characterize man's mortal existence."

in RV 4.26.4 is indifferently referred to as both *śyenáḥ* and *suparṇó*. The story goes as follows: the archer Kṛśānu held captive the *soma* in the fortress of Śambara located in the lofty heavens, *śyena/suparṇa* stole the *soma* and brought it to "Indra's followers" (RV 4.27.4a: *índrāvato*) because "Indra shall put [it] to the lips in order to drink [of it] up to inebriation" (RV 4.27.5d: *índro mádāya práti dhat píbadhyai*). Accordingly, the image of the tied up *suparṇa* in 10a could allude to the necessity to tame and keep the bird close after its return among the gods. In the yajurvedic context this same image may metaphorically indicate the need to keep under control the eagle/falcon-shaped fire-altar in order to prevent it from consuming entirely and too quickly the oblation, is giving thus Indra time to receive all the food thrown in its flames and to feed abundantly on it, is since he is the prime recipient of the sacrificial offerings, as underscored in 2cd and 3bc. In the wake of these considerations, we can even push our imagination a little further and picture that it was Indra himself the one who tied the *suparṇa* claw for his own interest. In the way in the suparṇa claw for his own interest.

As far as 10cd is concerned, we observe that Geldner and Doniger offer similar interpretations, which are considerably different from Jamison-Brereton's and Smith's. About the latter two, in Jamison-Brereton's translation I cannot figure out how a monitor-lizard ($godh\hat{a}$) could possibly plow a way, unless we assume that the sentence is describing the groove left behind on the sand by the animal's tail. In Smith's translation, on the other hand, it is unclear how is a monitor-lizard capable of digging a foot and whose foot is this. I think that these odd interpretations are due to the fact that both Jamison-Brereton and Smith consider $p\bar{a}das$ c and d as narrating two separate short episodes, like in $p\bar{a}das$ a and b, whereas they should instead be taken as depicting just one scene, as Geldner seems to do, followed by Doniger. The particle cin < cid ("like, as well as, also") in 10c suggests that this scene sketches another incident of entrapment of a limb of an animal, which recalls those described in 10ab, albeit it has a much worse outcome than the previous ones. Yet, although Geldner's and Doniger's

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¹³ The myth was first analyzed by Roth (1882).

 $^{^{14}}$ On the interpretation of práti dhat as pratidhā see Lubotsky (2002: 44).

 $^{^{15}}$ Consider for instance RV 1.174.3c, which defines the fire ($agn\'{m}$) as voracious ($a\'{s}\'{u}\'{s}a\r{m}$) and quick-moving ($t\~{u}rvay\=a\~{n}a\r{m}$).

¹⁶ Although, as underscored by Converse (1974: 88-94), the primary deity involved in the *agnicayana* ritual is Prajāpati and not Indra, nonetheless we owe for instance to Amano (2022: 1040-1041) a selection of yajurvedic passages that either directly or indirectly assimilate Prajāpati to Indra. Among those that directly identify the two gods, we find the explicit *Taittirīyasaṃhitā* 5.7.1.3: *asáu vá ādityá índra eṣá prajāpatiḥ* ("That Sun is indeed Indra, this [*scil*. Indra] is Prajāpati").

¹⁷ In 10a a sort of play on words is detectable, since $sis\bar{a}y\acute{a}$, which in this case refers to $suparṇ\acute{a}$ and is therefore the third-person singular of the perfect tense of $\sqrt{s}i$ ("to tie, fetter, bind"), is identical to one of the variants of the first-person singular of the perfect tense, which can be spelled as both $sis\bar{a}y\acute{a}$ and $sis\bar{a}y\acute{a}$. The homophony and partial homography between the first and third person lead us to suspect that Indra (first person $sis\bar{a}y\acute{a}$) is somehow involved in the scene he is recounting.

translations prove to be interpretatively adequate, unlike them and in light of the structure of verse 11ab, discussed hereunder, I suggest to construe 10cd as one single sentence:

Withheld (*niruddháś*) is also (*cin*) the thirsty (*tarṣiyắvān*) buffalo (*mahiṣás*), from it (*tásmā*) the alligator (*godhá* = *gosāpa*) is tearing off (*karṣad*) this (*etát*) foot (*ayáthaṃ*).

This is a very plausible and natural reading of the text: there is a thirsty buffalo that, in order to quench its thirst, goes to a bank of a river or a pond where an alligator comes out of the water and bites and rips off one of its limbs. It is a hunting scene that must not have been so uncommon in the Indian subcontinent during the epoch of the compilation of the RV, as it is not uncommon even today in wilderness. Both Geldner and Doniger prove to have applied a principle of plausibility that gives contextual meaning to the letter, thus avoiding to fall in improbable readings like those of Jamison-Brereton and Smith.

The interpretation just proposed is corroborated by the following verse 11ab, which takes on the episode depicted in 10cd and concludes the narration:

tébhyo godhá ayátham karşad etád yé brahmánah pratipíyanti ánnaih

These words sound like a curse. As a matter of fact, the text points out that the same unfortunate fate that awaits the thirsty buffalo of 10cd will strike also those who abuse the nourishment intended for the brahmins.¹⁸ My translation is:

[As happens to the buffalo,] the alligator (*godhá*) is tearing off (*karṣad*) this (*etád*) foot (*ayáthaṃ*) to those (*tébhyo*) who (*yé*) abuse (*pratipiyanty*) the brahmin's (*brahmáṇaḥ*) foods (*ánnaiḥ*).

The plural "foods" with all probability alludes here to the oblation, a part of which is to be left for the brahmins at the end of the sacrifice, and conceptually links this verse to the first three verses of the hymn, which we have seen insist on the act of eating the sacrificial offerings. RV 10.28.10-11 seem hence to stress the necessity to supervise the sacrifice and prevent any abuse of food by cursing anyone guilty of such an act. This explains why 11cd concludes by telling us that those who eat (simá [...] adanti) the bull thrown (ukṣṇó'vasṛṣṭā́m̆), rend by themselves (svayám [...] śṛṇānāḥ) their own powers and bodies

¹⁸ For a different interpretation of 11ab see Palihawadana (2017: 144).

(bálāni tanváḥ). Noteworthy is here the occurrence, again, of the "bull" ($ukṣṇ\acute{o}$)—which reminds us of verse 3bc, where the cooked meat of the bull is said to be the sacrificial offering¹⁹ for Indra—that is qualified by the adjective $avasṛṣṭ\acute{a}m$ —compounded by the verbal prefix ava- ("off, down") and the root \sqrt{srj} , which among its meanings counts "to throw, cast, hurl"—, suggesting the act of tossing the oblation down (in the sacrificial fire).²⁰

At this point, RV 10.12 closes the hymn by praising those who sing the ritual verses during the soma sacrifice (sóma ukthaíḥ) and by asking Indra, who is known in heaven as "hero," for weighing well the rewards for the oblations received (nrvád vádann úpa no māhi vájān diví śrávo dadhiṣe nấma vīráḥ).

To conclude, we can now go back to verse 9, take the razor from the hare's mouth and use it to prune all the overly picturesque aspects of the several possible interpretations of RV 10.28.10cd. What remains is a natural scene involving a buffalo and an alligator. The buffalo is thirsty and looks for water but cannot refrain from drinking where it would be better not to. As a result, one of the buffalo's legs ends up clamped in the jaws of an alligator and ripped off, therefore the vigor and body of the ungulate is destroyed by the reptile. From verse 11 we understand that this scene illustrates also the fate occurring to those who are "thirsty" of undeservedly consuming the sacrificial offering not destined to them but to Indra and the brahmins: for this reason the fire-altar must be tied tightly (10a) in order to prevent that the oblation ends up in the hands of intemperate people, whose vigor and bodies, should they inappropriately eat the offering, would be destroyed. As last observation, it must not escape our attention that this fate of decline and destruction had actually already been overshadowed by Indra in verse 4cd, where he described two weak or petty animals, such as the fox and the jackal, attacking two more powerful animals, namely the lion and the boar. Indra's interlocutor, at that moment, had been confused by these metaphors, whose sense he could not grasp, but now everything is clearer: what can happen to a fox that attacks a lion or to a jackal that crosses the path of a wild boar, if not the same fate of defeat and decline that awaits the thirsty buffalo and, therefore, anyone who abuses the sacrificial offering?

Bibliography

Amano, Kyōko. 2022. "Is Indra a Sun God?" Journal of Indian and Buddhist Studies 70: 1039-1044.

¹⁹ For an analysis of the ingestion verbs occurring in RV 10.28.3c and 11a see Dahl (2009: 37).

²⁰ Doniger (1981: 147) offers a different translation of *avasṛṣṭám* as "set free," yet, it is quite difficult to imagine, at least in the present context, people eating bulls set free (what this means remains indeed obscure), whereas it seems more natural to assume that one can eat the (cooked meat of) bulls thrown (on the fire).

Atharvaveda (Paippalāda), online edition:

http://gretil.sub.uni-

goettingen.de/gretil/corpustei/transformations/html/sa_paippalAdasaMhitA.htm (accessed November 13th, 2022).

Atharvaveda (Śaunaka), online edition:

http://gretil.sub.uni-goettingen.de/gretil/1_sanskr/1_veda/1_sam/avs_acu.htm (accessed November 13th, 2022).

Bodewitz, Hendrik W. 1992. "Belly, pelvis, buttocks or cheeks? Vedic *kukṣī* (dual)." *Indo-Iranian Journal* 35: 19-31.

Converse, Hyla Stuntz. 1974. "The Agnicayana Rite: Indigenous Origin?" History of Religions 14: 81-95.

Dahl, Eystein. 2009. "Some semantic and pragmatic aspects of object alternation in Early Vedic." In *The Role of Semantic, Pragmatic, and Discourse Factors in the Development of Case*, edited by Jóhanna Barðdal and Shobhana L. Chelliah, 23-55. Amsterdam: John Benjamin Publishing Co.

Doniger O'Flaherty, Wendy. 1981. The Rig Veda. An Anthology. London: Penguin Books.

Freedman, Yitzhak. 2012. "Altar of Words: Text and Ritual in *Taittirīya Upaniṣad 2." Numen 59*: 322–343. https://doi.org/10.1163/156852712X641778

Geldner, Karl F. 1951. Der Rig-Veda (vol. 3). Cambridge (Mass.): Harvard University Press.

Hale, Mark. 2018. "The syntax of Indo-Iranian." In *Handbook of Comparative and Historical Indo-European Linguistics* (vol. 3), edited by Jared Klein, Brian Joseph and Matthias Fritz, 1924-1942. Berlin-Boston: De Gruyter Mouton.

Heesterman, Jan C. 1957. The Ancient Indian Royal Consecration. The Hague: Mouton & Co.

Jamison, Stephanie W. and Joel P. Brereton. 2014. *The Rigveda. The Earliest Religious Poetry of India* (vol. 3).

Oxford-New York: Oxford University Press.

Lubotsky, Alexander M. 2002. Atharvaveda-Paippalāda, kāṇḍa Five. Text, Translation, Commentary. Cambridge (Mass.): Harvard University Press.

Norelius, Per-Johan. 2016. "The Honey-Eating Birds and the Tree of Life: Notes on *Rgveda* 1.164.20-22." *Acta Orientalia* 77: 3-70. https://doi.org/10.5617/ao.5356

Palihawadana, Mahinda. 2017. "The Indra Cult as Ideology. A Clue to Power Struggle in an Ancient Society (Including a Discussion of the Semantics of Rgvedic ari and Its Socio-political Background)." Electronic Journal of Vedic Studies 24: 1-166.

https://doi.org/10.11588/ejvs.2017.2.2667

Parpola, Asko. 2019. "The Mirror in Vedic India: Its Ancient Use and Its Present Relevance in Dating Texts." *Studia Orientalia Electronica* 7: 1-29. https://doi.org/10.23993/store.76275

Rgveda, online edition:

http://gretil.sub.uni-goettingen.de/gretil/corpustei/transformations/html/sa_Rgveda-edAufrecht.htm (accessed November 13th, 2022).

- Roth, Rudolf. 1882. "Der Adler mit dem Soma." Zeitschrift der Deutschen Morgenländischen Gesellschaft 36: 353-360.
- Sakamoto-Gotō, Junko. 2014. Symbolism of Hair and Beard in the Vedic Rituals. Handout read at the 6th International Vedic Workshop (Kozhikode, India; 7th-10th January 2014). Available online:
- https://sc95acc52b05b808f.jimcontent.com/download/version/1390723056/module/8777044192/na me/Handout%206th%20IVW%20Kozhikode%209_1.pdf (accessed November 13th, 2022).
- Śatapathabrāhmaṇa (khaṇḍa 2 only), online edition:
- http://gretil.sub.uni-goettingen.de/gretil/1_sanskr/1_veda/2_bra/satapath/sb_02_u.htm (accessed November 13th, 2022).
- Smith, C. Charles. 2017. Look at Me! The Mimetic Impersonation of Indra. PhD dissertation, Harvard University.
- Srinivasan, Doris. 1973. "The Myth of the Panis in the Rig Veda." *Journal of the American Oriental Society* 93: 44-57.

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