

Mother Tongue



Mother Tongue

XXV (2024)

In Memory of John D. Bengtson (1948-2024)
and Raimo Anttila (1935-2023)

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INTRODUCTION TO THIS ISSUE OF MOTHER TONGUE

This issue was originally intended to be dedicated to the memory of Raimo Anttila, who died on January 27, 2023. That plan had to be modified because of the sudden and unexpected death of John Bengtson, our long-time editor-in-chief. In addition to his editorial work, John had served in many different roles for ASLIP, including President, Vice-President, Secretary/Treasurer, and Board Member. In recognition of his long-term dedication to the cause, this issue of *Mother Tongue* is therefore dedicated jointly to the memories of John Bengtson and Raimo Anttila.

- In commemoration of John's life, Václav Blažek has prepared a biographical tribute to him that includes a detailed bibliography of John's scholarly work. Various ASLIP members have appended eulogistic notes based on their long association with him.
- Raimo Anttila was, for many years, an honored member of the ASLIP Council of Fellows. In the last issue (*MT24*), we were able to include tributes by two of his former students, Sheila Embelton and Angela Della Volpe. In this issue we add memorials by two additional students, Georgios K. Giannakis (Aristotle University of Thessaloniki) and Lyle Campbell (Professor Emeritus at the University of Hawaii). It also seemed fitting to honor Raimo by reprinting a review by Leonid Kulikov of one of Anttila's most important books. Professor Kulikov also contributed a heretofore unpublished article that was originally written for a planned *Festschrift* in honor of Raimo Anttila, which, for various reasons, never materialized. The subject of Kulikov's article is the Indo-European *Schwebeablaut*, a subject that had also been investigated extensively by Raimo.
- Jan Henrik Holst has contributed an article entitled "Observations on the Reflexes *k*- and *h*- for Initial **k*- in Hungarian."
- Roger Blench graciously sent us a new article, "(De)Classifying Arunachal Pradesh Languages: Reconsidering the Evidence," which is based upon his recent field work with the Trans-Himalayan [= Sino-Tibetan] languages.
- Gregory Haynes has contributed an article entitled "Old Norse *Yggdrasill*: An Etymological Re-evaluation."
- The first ever English language translation of Michael Witzel's article, "Sur le chemin du ciel" [The Path in Heaven] is proudly included in this issue. These last two articles address mythological subjects, which is fitting given that many of our oldest written sources of ancient languages deal with myth.

- Finally, we include an announcement of Pierre Bancel's newly published book, *Pris aux mots – De l'origine du langage à l'origine des langues*.

Because of his illness, John Bengtson was only peripherally involved in the production of *Mother Tongue* 24, with Gregory Haynes and Pierre Bancel handling most of the editorial work. For the present issue (MT25), John's contributions were limited to the decisions to accept the articles by Holst and Haynes for inclusion. Otherwise, this issue is entirely the responsibility of the current editors, so the blame for any errors or omissions should rightfully fall on their shoulders. Bengtson is innocent!

It is our intention to maintain the level of quality that John Bengtson set for the *Mother Tongue Journal*, as far as possible. Any suggestions or critiques are warmly invited. Above all, please keep *Mother Tongue* in mind as a publisher for your latest research. Articles dealing with long-distance language relationships on a global scale, relationships between languages, language families and language phyla are welcome provided that they use rigorous comparative methodology with well-documented sources. Additionally, we also wish to solicit articles from any other field of study that complements historical and comparative linguistics in prehistory. These include, but may not be limited to, archaeology, population genetics, and comparative mythology.

November, 2024

— Gregory Haynes, editor-in-chief, and Pierre Bancel, editor

MEMORIALS

IN MEMORY OF JOHN D. BENGTON (MARCH 26, 1948–MARCH 3, 2024)

John Donald Bengton, the oldest son of Hilding Bernhard Bengton (March 2, 1913–June 6, 1967) and Doris Mae Furrer (November 20, 1922–March 23, 2002), was born in Tanganyika,¹ where his father, a Lutheran minister, taught as a theological & biblical professor at Makumira Seminary, near Arusha² in today's North Tanzania. Here John studied at Kiomboi Academy in the Iramba District of the Singida Region.

From his stay in East Africa John acquired a knowledge of Swahili. After relocating to the USA, John continued his education at Golden Valley Lutheran College in Minnesota (1966–1968).³ There he completed the two-year undergraduate degree program (Associate of Arts) consisting of Liberal Arts and Biblical studies. It was there that, among other languages, he became acquainted with Latin and Greek. During the following decade (1968–1978) John studied at the University of Minnesota in Minneapolis (Anthropology, Linguistics, and Scandinavian languages), completing the degrees of Bachelor of Arts (BA) and Master of Arts (MA). During this time, he made his living by doing occasional jobs. At the end of this decade (1977) he visited the country of his ancestors, Sweden, for several months in order to study Swedish language and literature at Grebbestad Folkhögskola.⁴

Throughout his professional life, John divided his time between his job and his linguistic pursuits. From October 1978 till March 2013, he worked as a property description technician at Hennepin County, whose center is Minneapolis proper, the capital and biggest city of Minnesota.⁵ In April 2013, thanks to his retirement, John could, for the first time, fully devote himself to linguistics.

Those linguistic interests had already been stimulated during his stay in multilingual Tanzania and they continued throughout the rest of his life. At first, his interest was in the Scandinavian languages, including Old Norse, although his first article specifically devoted to them appeared only recently (2016b with its Chinese version 2022c). On the other hand, his first published article analyzed the Indo-European numerals '10,' '100,' '1000' (1987).

¹ Renamed as Tanzania after October 29, 1963.

² Approximately 618,000 inhabitants in 2022.

³ The school was founded in St. Paul in 1919; moved to Golden Valley in 1929; closed in 1985.

⁴ Founded 1875 in Grebbestad, a village on the southwest coast of Sweden, Västra Götaland County.

⁵ In the last decades John lived in Savage (32,893 inhabitants in 2022), a suburban city 15 miles south of downtown Minneapolis. The city is on the south bank of the Minnesota River.

Practically all of the remainder of John's writings have been devoted to the so-called distant relationships between already established language families, including investigations of possible genetic relations between various isolates or substrate relics. He also concerned himself with the biographical histories of several scholars interested in these themes. In the following, we list the spheres of John's linguistic interests, with citations referring to his Bibliography (in alphabetical order):

Ainu – 1992b; 1996b; 1998d, e; 2000; 2009a.

Amerindian – 2021a.

Austrian – 1992b; 2000; 2006.

Basque – 1994b; 1995a, b; 1996a; 1997c; 1999a, b, c; 2001a; 2003a; 2004; 2008b; 2009b; 2011a; 2013a; 2015c; 2016a; 2017a, b; 2018a, b; 2019b; 2021b; 2022a; 2023a; 2024a; 2024b.

Burushaski – 1997a; 2001a; 2010; 2011c; 2014.

Dene-(Sino-) Caucasian – 1991b, f; 1993b; 1995c; 1996c; 1997b; 1998a, b; 1999e; 2002a, b, c; 2004; 2008e, f, g; 2010; 2014; 2015b; 2023a.

Editor – 2008c.

General questions of comparative linguistics – 1991a; 2003b; 2007a.

Global relations among languages – 1994c; 1999f; 2007b; 1998a; 2009c; 2011d; 2013b; 2015a.

Kusunda – 1993b; 2020a.

Macro-Caucasian – 1990; 1991c, d, e, g; 1992a; 1993a.

Na-Dene – 2020b.

Nihali – 1996b; 1997d.

Scholars – Golla 2023a; Hodgson 2011b; Sapir 1994b; Starostin 1997f; 2005; Wescott 2001b.

Substrata – 2019a; 2021b.

Sumerian – 1995c; 1997e.

Yeniseian – 1998a; 2010.

As is apparent, the largest number of these publications are devoted to the Basque language and its genetic affiliations. In my judgment, John's best work belongs here too, namely the monograph *Basque and its Closest Relatives: A New Paradigm*. Cambridge (Massachusetts): Mother Tongue Press (2017a), an updated version of which was published five years later under the extended title *Basque and its Closest Relatives: A New Paradigm. An Updated Study of the Euskaro-Caucasian (Vasco-Caucasian) Hypothesis*. Piscataway (New Jersey): Gorgias Press (2022a). I would also like to mention John's *Basque Etymology Database* <TOB/EHL. <http://starling.rinet.ru/>> (2015c), which is extraordinarily useful and incomparably more easily available than the monograph. I myself use the *Basque Etymology Database* very frequently.

Despite the fact that John had never held an academic position, he became a respected linguist, continually increasing his knowledge of the diachronic linguistic history of several language families and isolates. Additional studies in anthropology and comparative mythology rounded out his education. John did not, however, remain an outsider to academic cooperation. In 1988 he was invited to participate at the International Symposium on Language and Prehistory, organized by Vitaly Shevoroshkin and Harold Fleming at the University of Michigan in Ann Arbor.

From that time onward, he collaborated with the Association for the Study of Language in Prehistory (ASLIP), founded by Harold Fleming in 1986. It was in that year that Harold began to

publish the *Mother Tongue Newsletter*, sharing information about progress in the research of distant language relationships (in a series of 34 issues 1986-2003). In 1995, a regular scholarly journal, *Mother Tongue*, began to be published by ASLIP. John Bengtson was the editor or co-editor of *Mother Tongue* during two periods: 1996-2003 and 2007-2023, while at the same time serving as president or vice-president of ASLIP. In 2001 John also began to cooperate with the *Evolution of Human Language* project, sponsored by the Santa Fe Institute, thanks to the support of its founder, the Nobel Prize winner Murray Gell-Mann.⁶

My personal communication with John, which began in 1986 or 1987, was via written correspondence facilitated by Harold Fleming and Vitaly Shevoroshkin. During that period we exchanged several letters concerning global etymologies. In November 1988 we had a unique chance to meet personally at the *International Symposium on Language and Prehistory*, organized by those scholars. Our participation in that event was somewhat fortuitous, since at that time we both stood outside any formal academic affiliations—John worked as a property description technician at Hennepin County and I was a teacher of mathematics and physics at a high school of technology in Central Bohemia. But the great achievement accomplished by the organizers of that event was that they were able to get linguists from the former Soviet Union (and its satellites Hungary and Czechoslovakia) through the iron curtain to participate in this unparalleled symposium.

Beginning from this first meeting, we cooperated regularly. John sent me his manuscripts for comment, and I sent him my texts for corrections to my English. Since John usually added some comments to accompany his editorial suggestions, this made him the first reviewer of my manuscripts. Sometimes we collaborated on joint articles (1995c; 2000; 2005; 2009a; 2011c; 2012). In the year 2023 we began a collaborative study of the relation of Kartvelian to the Macro-Caucasian languages. One of my intentions for the future is to finish this project as a memorial tribute to John, since it was originally his initiative.

We were able to meet together twice in the year 2002, first at a conference organized by Michael Witzel at Harvard University and again at the Santa Fe Institute in New Mexico, thanks to Murray Gell-Mann. We later met again two or three times at each of these places up until the year 2006. Our next meeting took place at a conference in 2008 devoted to the memory of Sergei Starostin (1952-2005) in Moscow.

The last time we met, however, was in 2016, when John visited my homeland, the Czech Republic. In addition to visiting me at my home, he spent time in the cities of Příbram, Prague, and especially Brno. It was in Brno (at Masaryk University) that Michael Witzel, Nataliya Yanchevskaya and two of my Ph.D. students from the Department of Linguistics and Baltic Studies, Zuzana Malášková and Kristýna Dufková, organized the 10th conference of the *International Association for Comparative Mythology*.

In 2019, despite his mobility issues, John, along with his wife April, realized his dream: to return to the country of his youth, Tanzania. John's health took a turn for the worse in 2023 when he had

⁶ In 1969 Murray Gell-Mann (1929-2019) received the Nobel Prize in Physics for his theory of quarks.

to spend several months in a rehabilitation hospital in Tucson, Arizona. In the autumn of that year he moved to Sholom Home, an assisted living facility in Tucson, and then to a nursing home in Edina, Hennepin County, Minnesota, which he ominously predicted would be his final home.

On November 22, 2023, John wrote me, “I still hope to finish my book (proposed title: *Introduction to Paleolinguistics*).” Later he asked me for my article ‘The Afroasiatic personal pronouns: a textbook example of a suppletive paradigm,’ which was published in: *Diachronic Perspectives on Suppletion*, ed. Ronald I. Kim, Hamburg: Baar Verlag, 2019, pp. 239-270. This text was devoted to the prefix conjugation in Afroasiatic. As with many of my other articles, this one was also corrected by John.⁷

In a communication that I received from John on January 29, 2024, he concluded his email with two quotations:

Logic will get you from A to B. Imagination will take you everywhere. —Albert Einstein.

Only those who will risk going too far can possibly find out how far one can go. —T. S. Eliot.

I could not know then that this was to be his last email to me.

After 37 years of collaboration, I am convinced that John was a man endowed with a strong but realistic imagination. He was not afraid to risk crossing the borders between language families that had, since the 19th century, been deemed unrelated and unrelatable. It is important to note that, in his work, he was always careful to employ the classical Comparative Method, as that method had been developed by the Neogrammarians in the early years of scientific linguistic study.

John D. Bengtson: Bibliography

The bibliography of John D. Bengtson consists of 105 titles, including articles, reviews, obituaries, and reports about various conferences.

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- 1991c. Some Macro-Caucasian etymologies. In: Shevoroshkin 1991: 130-141.
- 1991d. Postscript I. In: Shevoroshkin 1991: 150-156.
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- 1991g. Macro-Caucasian again. *Mother Tongue (Newsletter)* 13: 19-26
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⁷ I estimate their number to be approximately 300, including several monographs.

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TRIBUTES TO JOHN BENGTON FROM ASLIP COLLEAGUES

It is with deep regret that I'm writing to let you know that John Bengtson passed away on March 3rd, 2024. This is a great loss for ASLIP and the *Mother Tongue* journal, as John had been one of the early drivers of both, along with founder Harold C. Fleming before his own passing. John's work on the Dené-Caucasian hypothesis, including his proposed inclusion of the Vasconic and Burushaski languages (which he grouped with the Caucasian languages in a Macro-Caucasian subgroup) has been some of the most rigorous and important work in historical linguistics of the past few decades. It was John's work with Merritt Ruhlen which originally caught my attention as an undergraduate and led to my own interest in long-range linguistics. John will be greatly missed, and we are thankful to him for his hard work in the past few decades, which will be his legacy.

Peter Norquest, ASLIP President

Remembering John Bengtson (1948–2024)

The word “fellowship,” which John used on occasion, seems to have expressed his attitude to the world, his family, the community of researchers, and to the peoples of Tanzania, which, as “Tanganyika,” was what he called his “native land.” John was generous with his time and his knowledge. As an editor, he took great care that texts that reached him would emerge improved. As a long-range friend, he will be badly missed.

John Saul
Paris, March 16, 2024

I was inspired by first reading of John's collaboration with Merritt Ruhlen, and when I began my own foray into taxonomic research, he was unfailingly helpful and supportive. The case he made for the grouping of Basque and Caucasian, and the body of fine detail he presented in support, was indeed of the highest quality – and if there is any justice in the world it will be recognised for the breakthrough that it is. For me personally, the world is just that little bit smaller now that he is gone.

Paul Whitehouse

It was terrible to hear of John Bengtson's death. John was one of my best friends ever since 1986 when we began to communicate. In 1988 we met personally for the first time thanks to Vitaly Shevoroshkin and Harold Fleming at Michigan University, and after that, several more times: at Harvard thanks to Michael Witzel, at Santa Fe Institute thanks to Murray Gell-Man, and finally in 2016 at Masaryk University in Brno, Czech Republic during the conference of the International Association of Comparative Mythology founded by Michael Witzel (he was present too). In that time John spent several days in my home in Příbram, Central Bohemia. Many years ago, John offered to correct my English texts and has corrected literally hundreds of articles and several books, e.g. "Altaic Languages" or "Early Indo-Europeans in Central Asia and China." He was often the first reader and reviewer, and his comments were always very valuable for me. What is most important, John was a fine human being.

Václav Blažek
Department of Linguistics & Baltic Studies

My first encounter with John was, like several others here, thanks to the chapter on Global Etymologies cowritten with Merritt Ruhlen, which radically altered my view of the linguistic past of humanity and changed the course of my life. In this respect, I would elaborate somewhat on Václav Blažek's claim in his excellent obituary above that John had always worked along impeccable Neo-Grammarian rules regarding linguistic reconstruction.

It must be obvious to any reader of said Global Etymologies, and of many other works of John's, that this claim is only true if one gets rid of the blinders most comparative linguists have adopted following the overstrict demands of the 19th century Neo-Grammarians themselves. Indeed, none of these Global Etymologies even attempt to exhibit the least *recurring* phonetic correspondence over different word series.

Admittedly, at the global (Proto-Sapiens) level, such recurring phonetic correspondences over multiple word series have for the most part been erased by the various well-known processes which make linguistic evolution a far from completely regular phenomenon: word replacement, morphological regularization (which make words phonetically irregular), and random changes such as epentheses, metatheses and metastases (er, not the latter ones).

John and Merritt's Global Etymologies, instead, exhibit multiple internal strong phonetic correspondences, sound by sound, in very long series of words belonging to too many languages (in particular, regularly reconstructed proto-languages, where available – which are many) for these strong correspondences to likely result from chance. What I mean by "strong phonetic correspondences" are correspondences that, for each sound of the presumed etymon, do not entail more than one or two common changes in the corresponding sound of its presumed reflexes, most often preserving, for consonants, at least the original place of articulation.

The result is that, granted, given the absence of recurring sound correspondences in these etymological series, one cannot be sure that any given presumed reflex truly is a reflex of the

proposed etymon. However, the strict abiding to well-known phonetic evolutions warrants that most presumed reflexes really are descended from the proposed etymon.

In the only physical encounter I had with John, at the occasion of the 2010 annual ASLIP meeting, I was pleased to discover a man as gentle as he had always been in our mail exchanges since the mid-1990s. His generosity, already apparent from his correction of hundreds of Václav's articles and books mentioned above, also extended to the realm of ideas. When I submitted to him my paper on universal *hum* interjections, he immediately answered that they reminded him of a Proto-Sapiens root that he had taken over from Trombetti's work in a first run of the Global Etymologies he had made alone in the mid-1980s, but which they had left aside in the final version of the article cowritten with Merritt Ruhlen due to its brevity, so as not to expose themselves to criticism along the usual "chance resemblances" line.

It was the negative / prohibitive particle ***ma*, which I then found in over 600 languages from nearly all macrophyla worldwide, including over 60 ancient written languages, reconstructed ancestral languages and the ill-named "isolates," which certainly doesn't mean that these isolates really are isolated, only that they separated from their closest relatives too long ago for blindsided comparative linguists to be able to recognize their relatedness. And I think John was right to intuitively link hums and mas. As with Jakobson linking *mama* words to the nasal murmur *mm* of suckling babies without explaining – and most likely not knowing – exactly how, such intuitions are the true mark of great linguists.

Pierre Bancel
Mother Tongue editor

IN MEMORY OF RAIMO ANTTILA (MUISTOJA)

BY LYLE CAMPBELL

Raimo Anttila was a faculty member at UCLA when I first met him as a new linguistics graduate student in 1969. His erudition was immensely impressive. He spoke many languages very well, could read most of the other languages of Europe, seemed to know everything about Indo-European and Uralic, and had broad knowledge far beyond just linguistic matters. He published many articles and books, not only on Indo-European, Finno-Ugric, and Finnish, but also on historical and comparative linguistics, analogy, morphology, and semiotics, and he published many original etymologies. He also wrote many things opposing generative grammar. I eagerly read nearly everything he wrote. I also personally had wished that he would have spent more of his time on Indo-European themes, where his talent was supreme; I felt that his criticisms of generative linguistics were ineffective and did not serve him well.

It was hard not to be impressed by Raimo's sense of humor. He told many jokes, in various languages; some of them were really good, some not so much. He was delighted that occasionally he received mail in Santa Monica addressed to "Ramón Antilla."

What impressed me most was his humanity, and his kindness, especially to me.

I think Raimo was surprised and pleased to have me in the graduate program. He often commented that I was the only student who had read his 1969 book, *Uusimman Äännehistorian Suunnasta ja Luonteesta* (Publications of the Phonetics Department, University of Turku, 5) [*On the Direction and Nature of the Latest Sound History*]. Earlier, I had had ambitions to become a Finno-Ugric scholar; I had learned Finnish and my MA thesis at the University of Washington was a generative phonology of Finnish. We often spoke Finnish together, not something he could do with most other students.

I came to know Raimo very well and developed a strong appreciation for him. He was in Linguistics and Indo-European at UCLA from 1965 to retirement in 2006; I was there 1968-1971. He was the professor of general linguistics at the University of Helsinki from 1972 to 1974. I stayed at his house in Santa Monica, CA on several occasions over the years. In 1973, I was on a Fulbright fellowship in the department of linguistics that Raimo chaired at the University of Helsinki. While there, I interacted almost daily with him and continued to learn much from him. To mention just one example, at the time I knew nothing of architecture and so had scarcely any appreciation of it, but as we walked to different places around Helsinki, with great enthusiasm Raimo pointed out architectural styles, features, and details of numerous buildings we passed. From that I learned to pay attention to and appreciate the architecture wherever I have traveled or lived. Raimo resigned from his professorship at the University of Helsinki and returned to California because one of his two children had difficulty adapting to schooling in Finland.

I also visited Raimo in Finland on several other occasions over the years. Some of the visits were to his summer cabin in eastern Finland. It was far more than a summer cabin, however; it was more like a private folk museum. Raimo had acquired – rescued – a number of old farm buildings of various sorts, including saunas, and brought them to this summer place. It was truly impressive to see, a monumental achievement in my estimation. Later on I was called upon to give a deposition about what I had observed of these buildings and what Raimo had done with them in connection with turbulent and protracted divorce proceedings in Finland.

As an aside, one morning at his summer place as I was making my way to the outhouse (toilet), I got a great shock: an adder was sunning itself on the last flat rock of the stone walkway leading up to the outhouse. Because I was distracted, only at the last second did I avoid stepping on it. Raimo was very sympathetic about how icky being startled like that could make you feel. I knew about adders in Finland, but I had never expected to experience one up close and personal.

Raimo's best known publication was his 1972 *An Introduction to Historical and Comparative Linguistics* (and its second edition in 1989). For a number of years it was the dominant introductory textbook for historical linguistics. I had kind of a strange connection with that book. In 1997, the Edinburgh University Press (EUP) asked me to write an introduction to historical linguistics. I told them I did not want to do that because some friends and colleagues of mine, including especially Raimo, were authors of introductory textbooks for historical linguistics and that it did not feel proper to write a book that would compete with their texts, and I did not want to be disloyal to my former professor. The Press wrote that, OK, they would just get someone else to write it. That alternative seemed almost equally undesirable, since in any event it would result in competition with Raimo's textbook and for those of the other authors. I wrote to those author friends and asked them what they thought; they said that another such book on the market would not matter to them at all, and since EUP was going to commission one in any event, I should just go ahead and accept their request. So I wrote *Historical Linguistics: An Introduction*, published in 1998 by EUP and MIT Press (4th edition in 2020). I learned only later that the circumstances that led to me doing this book had not been clear to Raimo. That made me sad, but I was happy for the opportunity to clarify my earlier reluctance and how only the encouragement from those other authors of similar textbooks could have induced me to agree to write another one.

Raimo was crucial to my education and the directions my career would take; I am deeply indebted to him. I had fancied myself as preparing for a career primarily as a generative phonologist, maybe with some secondary specializations. I took two seminars in advanced historical linguistics from Raimo at UCLA, and I was captivated by the intellectual excitement of historical linguistics. This eventually came to influence my career immensely. My paper for his seminar was a preliminary reconstruction of the K'ichean subgroup of Mayan languages. This later evolved into my dissertation, and that in turn determined what I would consider my professional specializations to be.

Incidentally, in that seminar, we looked briefly into Illich-Svitych's publications on Nostratic. Raimo was vaguely sympathetic to the hypothesis; I was agnostic to it. The topic had not been of

any real significance to him or to me, though later on I ended up writing a critique of the hypothesis, grateful for Raimo's earlier introduction and orientation to it (Campbell, Lyle. 1998. *Nostratic: a personal assessment*. *Nostratic: sifting the evidence*, ed. by Brian Joseph and Joe Salmons, 107-152. Amsterdam: John Benjamins.)

Raimo was very kind to me in many ways. I'll mention just one example; over the years he gave me many books. He came to my wedding in 1988, in Toronto, one of the few friends or family from my side in attendance. Much later, in 2012, he visited me with his niece in Hawai'i. I mistakenly took them hiking on the Mānoa Falls Trail, normally a beautiful experience, except that we went after heavy rain and the mud was a painful ordeal for them.

I saw Raimo in person for the last time in 2013, in an unusual circumstance. It was at the defense of a PhD dissertation on Indo-European at the University of Helsinki, where I acted as the "official opponent." I had been asked by University of Helsinki colleagues there to do this and I had declined, saying it was not my area and that there were many scholars much more qualified for this than I was, but I ended the communication saying that if they absolutely could not get anyone else to do it, they could ask me again. Well, they did get two others to read the dissertation and give written reports, but neither could go to the official oral defense – one was in the hospital, the other didn't speak English. So, very reluctantly I agreed. The Helsinki colleagues thought that having me be the opponent was just fine because of my general historical linguistic background, though I thought the opponent should have stronger Indo-Europeanist credentials. So, I went. Raimo was in the audience, a true Indo-Europeanist of the highest caliber. Apparently, my performance as opponent went well enough, thanks, I think, to training I had received from studying with Raimo. The irony, however, was almost painful, that Raimo, the real Indo-Europeanist, should be in the audience while I, the non-Indo-Europeanist and his student, acted the part of the opponent. Unfortunately, Raimo and I only got to talk very briefly there.

I have just reread the last email messages I got from Raimo, ten in 2012 and 2013. In the last one I received, he wrote, "Fall is here. I am trimming my apple trees, and doing some masonry under my outside tub (which should start hibernating before use). Am reasonably happy. Totally out of academe." Eight of the ten messages are in Finnish; their topics include linguistics in Finland, loss of vowel harmony in Estonian and how little had been written about it, Indo-European, Finland, and Hawai'i.

I miss him sadly and sorely.

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ON RAIMO AULIS ANTILA (1935-1923)

BY GEORGIOS K. GIANNAKIS, ARISTOTLE UNIVERSITY OF THESSALONIKI

My acquaintance with Raimo Anttila was first remote when I was a graduate student in Chicago and his “black book”, as he used to refer to his *An Introduction to Historical and Comparative Linguistics*, New York/London: Macmillan 1972) (subsequently since the second edition in 1989 with the phrase “An Introduction to” clipped off, Amsterdam/Philadelphia: John Benjamins 1989), was the main handbook in courses of historical linguistics in many institutions, an allegedly and admittedly difficult book to use as an introductory textbook, albeit great fun to read and an equally great depository of deep and multidisciplinary knowledge on the ways languages evolve over time and shape themselves in so many mysterious yet majestic ways. It was good fortune that brought me to Los Angeles and made Raimo my teacher and advisor in my graduate studies in Indo-European linguistics in the late '80s. As teacher and mainly as a scholar he had the deepest influence on my linguistic training, especially in areas that the norm in linguistic studies seems not to care about so much, such as the dialog between the disciplines of man, especially between philology and linguistics, with all subsequent sub-branches and subfields that revolve around the core fixture of language and its study. “Language is the product of history”, he used to say in an emphatic way both in his writings and in his teaching, an idea that sounded a bit awkward to most theory-oriented linguists but which over the years gained an ever wider and more diverse audience, particularly so in fields like semiotics, socio-historical and cultural semantics, anthropological linguistics, if not in plain historical linguistics.

My humble contribution to his memory here (I should rather say, celebration of his life instead) will be based on two events that marked our partnership as (former) student and teacher and later on as colleagues and friends since my hooding and promotion to Doctor of Philosophy in Indo-European linguistics at UCLA. Both events took place in Ioannina (Greece) where I moved, the first in 1999 and the second 2009. The topic of two rounds of night-long discussions was, for the first, his book *Greek and Indo-European Etymology in Action. Proto-Indo-European *ag-*, Amsterdam/Philadelphia: John Benjamins 2000), and in the second round my then forthcoming book (in Greek) on the relation of historical linguistics and philology. In some ways, it was the same topic of discussion a decade apart.

In the first case, the main debate was the possibility of associating some of the material discussed in his forthcoming book with another word group of Ancient Greek that seemed to build a series of derivatives that looked very like the ones he discussed, i.e. from the Indo-European root **ag-*: he believed that all his material belonged to the same etymological nest, while my suggestion was that part of it related to another root, namely **wag-* ‘strike; kill’, and that the important Greek word ἄγος ‘strike; religious awe; curse’ was part of this word group. The discussion went on for quite some time afterwards, and finally he made way for my suggestion in an excursus in his book (pp. 264-266), acknowledging that things could go a different way from what he had originally thought and insisted on. The lesson here is self-asserting: Linguistics is said to be a very democratic

discipline, and Raimo was flexible enough to adopt democratic procedures in his work. He was a person who was open to other ideas, even though going against his thesis, and an open-minded scholar, just as he was as a teacher: he would patiently listen to the student (or any discussant for that matter), bring his argument and counterargument, defend his thesis ardently but with ears and eyes wide open, but above all with mind ready to digest the food produced in a discussion.

The second round focused on my work. After all, the topic was the outcome of Raimo's idea, and I simply picked on it and developed it a bit further (see, among others, his 1975 fundamental contribution to the topic: "Linguistics and Philology", in R. Bartsch & Th. Vennemann, eds., *Linguistics and Neighboring Disciplines*, Amsterdam: North-Holland Publishing Company 1975, 145-155). As his doctoral student, I had the opportunity to be a frequent listener of his and collaborate with him a lot. I was fortunate enough to be at UCLA's interdisciplinary program of study of Indo-European languages, linguistics and philologies, and was blessed to have some of the best scholars in their own field as my teachers. Raimo was one of them, and the long discussions with him on various problems left a strong mark on my thinking. His insistence on seeing little linguistic details within the wider philological, historical and cultural milieu affected my view as well, and one thing that made me think more was the way linguistics and philology relate and interact. Raimo always insisted that etymology, for instance, is "philology in small doses", and this epitomizes his approach in seeking historical explanations in linguistic phenomena, more especially in language history. Thus, the night-long discussion in Ioannina in 2009 was devoted to this very idea, as I was then completing a monograph on the relation of historical linguistics and philology. His knowledge and expertise on the matter was distilled like the local wine that accompanied the debate and the dialectic of that evening: clear, crispy, sharp, penetrating, sound and golden, just like the thunderous reverberations of Zeus Bouleus 'Zeus the Counselor' in his nearby Dodona sanctuary located in a whistler's distance from the spot of our conversation.

His words still echo today in my ears as if uttered yesterday, vivid, stimulating, Doric, spondaic, straightforward. The book came out two years later (*Ιστορική γλωσσολογία και φιλολογία* (*Historical Linguistics and Philology*), Thessaloniki: Institute of Modern Greek Studies 2011), but I am still with it today, striving to prepare an enlarged and updated English edition. That said, and having learned of Raimo's passing away, the least I thought I could do was to dedicate to his memory a volume I was editing at the time of the proceedings of an international conference held in Thessaloniki in 2021 on the very topic of our 2009 Ioannina overnight discussion (cf. Giannakis, G. K. et al., *Classical Philology and Linguistics*, Berlin/Boston: De Gruyter 2023): his presence is secured in many people's hearts and minds, in the fond memories of our UCLA Friday colloquia, weekly seminars, and many weekend excursions to nearby sites or meals in the Santa Monica Promenade Thai and Indian food establishments. Everywhere his spirit was real, bright, insightful and inspiring; some of us tried to imitate it and get the best out of it. I consider myself fortunate to have received a call from him to move to LA in the Fall of 1984 and to have a chat with him that was to become a long dialog lasting a lifelong and beyond.

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RAIMO ANTILA.
GREEK AND INDO-EUROPEAN ETYMOLOGY IN ACTION:
PROTO INDO-EUROPEAN *AG-

Amsterdam: Benjamins, 2000. (Amsterdam studies in the theory and history of linguistic science. Series 4, Current issues in linguistic theory; vol. 200). IX, 314 p. Reviewed by Leonid Kulikov

There are few monographs totally devoted to just one single root. The new book by the prominent Indo-European scholar Raimo Anttila (A., henceforth) is one of those. It deals with IE *ag- ‘drive’ and its reflexes in Indo-European languages (among which the Latin root *ag-* in *action*, whence the word play in the title).

The book provides both a general status quo and birds-eye view of the current etymological Indo-European research. It also addresses many particular problems of individual languages. A. presents the relationships between numerous derivatives of the root in question, their developments in Indo-European languages (foremost in Greek, which furnishes the richest evidence), the semantically related word families and, finally, the borrowings to Finno-Ugric languages. (Some of A.’s observations collected in this book have been published in earlier articles and conference papers.) Such a uniquely broad picture of the etymological research makes the reading of A.’s book particularly interesting.

The book consists of 9 chapters. Chapter 1 “Introduction” offers a general survey of the relevant material: the basic meaning of the root in question is ‘drive, lead (particularly of cattle)’, which “implies an external force moving an object” (p. 1–2), as well as connections with semantically related roots. A. explains the main methods and goal of the book as “pattern explanation, reordering the pieces in a new way”, which “creates new explanations, or rather explications” (p. 12). The genre of the study is determined as “a modest lexilogus contribution” (p. 13).

Chapter 2 “Ἀγών and ἄγα” discusses semantics and morphology of Gr. ἄγών, originally probably meaning ‘assembly (for games)’, which provides substantial evidence for *ag- as a racing term. Calling in question the traditional analysis of the enhancing particle ἄγα as the zero grade of μέγα ‘big’ (i.e. *m̥ga), A. assumes that it rather belongs with the root *ag- (the final vowel represents the zero grade of the nominal suffix *-He/on-, i.e. *ag-η), originally meaning ‘the activities of gathering, whether sport, other performing arts, or home entertainment involving these very arts; contest; games’ (also probably ‘a (driven) group of people, drove’). He further tentatively explains the name Ἀγαμέμνων as ‘contest-enduring’.

Chapter 3 discusses the noun Ἀγαθός in its relation to the games and culture and explains it as a compound with the root *dhē- ‘put, place’, i.e. *agη-dhə-o-s, tentatively interpreting it as ‘supporting the *aga*, up-holding the (social) unit’. In Chapter 4 two other names are subjected to

analysis: Ἀγαπητός (explained as based on the compound **aǵh-pā-* ‘protect *aga*’) and Ἀγανός ‘driven/driving; effective, effecting’.

In Chapter 5 “Speaking-as-driving words” A. demonstrates the close connection between verbs of speaking and acting (‘driving’), which enables him to explain yet another group of IE forms as originally belonging to **aǵ-*. Cases in point are Lat. *aio* ‘say, affirm’ (which A. etymologizes as **agyō*) as well as several verbs denoting ‘driving, pushing sound’ (e.g. Old Irish *aigid*, *ad-aig* ‘raise cry, shout’, Gr. ὤζω ‘cry OH’).

Chapter 6 “Aggression and sustenance: **aǵ-(r-)* & **g^when-*” discusses the derivatives of **aǵ-* belonging to the semantic domain of the country-side activities: cattle-rising (cf. **aǵ-ro-s* ‘field’ = ‘an open place where one drove (grazed) animals’), hunting, gathering, agriculture etc. — all treated together as different aspects of the “works of men”. This explains, for instance, why Gr. ἄγρός ‘field’ and ἄγρα (< **aǵra*) ‘hunt’ are derived from the same root. The author also investigates further connections of **aǵ-* with such meanings as ‘killing, chasing’, uncovering many parallelisms with another root, **g^when-*.

Chapter 7 deals with the verb ἄγαμαι (which combines opposite meanings, ‘admire; feel envy, be jealous’), discussing at length its paradigmatic features and related forms.

Chapter 8 “Parallels from Baltic Finnic”, the largest in the book (p. 197–256), is devoted in fact not merely to parallels, but, above all, to Finnic borrowings from Indo-European: *ajaa* ‘to drive’ (one of the earliest borrowings), with its numerous derivatives: causative, frequentative etc.; *keno* ‘high, slender’, *kenata* ‘to transport’, *kinata* ‘to drag’; *äkä* ‘anger’ (cf. Low German *äken* ‘to hurt’, English *ache*), and many others, up to such most recent as *draivi* (←Eng. *drive*) ‘enhanced tempo of rhythm in jazz’.

The final Chapter, 9, discusses a few stray issues such as the problem of the derivatives of **aǵ-* reconstructable for Proto-Indo-European (for instance, Gr. ὄγμος and Skt. *ájma-* point to the PIE nominal in **-mo-s*).

To conclude the discussion of the book, a minor “technical” Indo-Europeanist remark will be in order. Although the root in question is now generally reconstructed with the initial laryngeal determining the quality of the root vowel, i.e. **h₂eǵ-* (see e.g. M. Mayrhofer, *Etymologisches Wörterbuch des Altindoarischen* (Heidelberg 1986), Bd. I, p. 51), A. avoids any laryngalist discussion, which one might expect in this study, tacitly opting for the non-laryngalist notation. The only passage hinting at the author’s views on the subject I was able to find appears in the discussion of Skt. *ījate* ‘to stir, to set in motion’ (p. 117). A.’s quotation of its proto-form, the reduplicated present formation derived from our root, **h₂i-h₂g-e-toi*, is accompanied with a note-worthy remark — “if one insists on a laryngeal interpretation or “orthography”” — which seems to point to the author’s skepticism towards the general possibility to eliminate the phoneme *a* from the Proto-Indo-European reconstruction.

Alongside with substantive analyses and data, the book is richly supplied with commentaries and digressions on variegated topics (among which “die deutsche Wissenschaft” or the Finnish roots of the Russian field marshal Alexander Suvorov), which animate a lot the general narration and make the reading accessible and worth-while even for a beginner in comparative grammar and

etymology. Needless to say, the book is highly recommended for everyone interested in recent developments in historical linguistics and Indo-European etymology.

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THE VEDIC ROOT VARIANTS OF THE TYPE *CaC* // *C(C)ā*: FORMAL PATTERNS AND TRANSITIVITY TYPES (INDO-ARYAN EVIDENCE FOR THE INDO-EUROPEAN SCHWEBEABLAUT AND LARYNGEAL ROOT EXTENSION)*

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Abstract

The present paper offers a systematic analysis of Vedic root pairs of the type *ay* (*i*) ‘go’ // *yā* ‘drive’ or *tarⁱ* (*tṛⁱ*) ‘pass’ // *trā* ‘protect, rescue’ (called ‘*C*-roots’ and ‘*ā*-roots’ for short), concentrating on their syntactic features and correlations with transitivity positions, voice and such voice-related categories as causative. It will be argued that the *ā*-verbs generally attest much less syntactic flexibility, being employed either mostly/ex-

*This paper has a long (pre)history. It has come out of my Moscow Candidate degree dissertation (1989), and the very first draft of the paper where I summarized my ideas on the syntactic features of the verbal pairs of the type *CaR* (*CaC*) // *CRā* (*CCā*) was written in the same year. Two years later, I presented a short summary of my results at the conference “Slavic, Indo-European and Nostratic studies”, held on the occasion of V.A. Dybo’s 60th birthday (see Kulikov 1991; a somewhat extended English version of the brief summary Kulikov 1991 was published as Kulikov 2011). Yet several aspects of the phenomena in question remained unclear to me, which was one of the reasons to repeatedly revisit this issue. In November 1992 I gave a draft version of my paper to Prof. Raimo Anttila when meeting him during Ann Arbor Workshop on Reconstruction at University of Michigan, and in December 1992 I had the pleasure to discuss some ideas formulated in my paper with Raimo during my short stay in Los Angeles. Both reading Raimo’s monograph (Anttila 1969), which remained the most comprehensive treatment of the Indo-European Schwebeablaut till the appearance of Kaspars Ozoliņš’ PhD dissertation (2015), and our 1992’s discussion have strongly encouraged me to continue my research. Needless to say, Raimo’s memorial volume seems to me the best occasion to update my paper (the complete version of which was never published) and to present here the results of my study. Besides Raimo Anttila, I am thankful to Tatjana Elizarenkova, Frits Kortlandt, Alexander Lubotsky, Werner Knobl, Sergej Starostin and Ilya Yakubovich for their comments on earlier drafts of this paper. I also would like to express my thanks to the audience of the conference “Slavic, Indo-European and Nostratic studies” (Moscow, May 1991) and of the XIII. Fachtagung der Indogermanischen Gesellschaft “Historischer Sprachvergleich und linguistische Theorie: Indogermanistik und allgemeine Sprachwissenschaft im Dialog” (Salzburg, September 2008), where some parts of the present paper were discussed, for remarks and criticism. I acknowledge the support of the Marie Skłodowska-Curie grant no 665778, the NCN POLONEZ grant no. 2015/19/P/HS2/02028 for a research stay at Adam Mickiewicz University in Poznań, and the FWO research grant no. G004121N, which allowed me to finalize this paper.

clusively in intransitive usages, or mostly/exclusively in transitive usages. The corresponding *C*-verbs typically are syntactically more flexible as far as transitivity features are concerned, cf. *yā* (intransitive) vs. *ay* (*i*) (intransitive and transitive); *trā* (transitive) vs. *tarⁱ* (*tṛ*) (intransitive and transitive), sometimes even demonstrating labile syntax. I will further argue that the heterogeneous origin of this morphophonological type accounts for the diverse character of the syntax of the corresponding verbs.

Key words: Proto-Indo-European, Vedic, transitivity, Schwebeablaut, laryngeal, root extension, labile verb, causative, passive, alternation, submorph

1. THE *C//ā*-ALTERNATION: A SHORT SURVEY

1.1. *ā*-roots: synchronic patterns and diachronic sources

The Vedic verbal lexicon contains some twenty root pairs of the type *ay* (*i*) ‘go’ // *yā* ‘drive’, *gam* ‘go’ // *gā* ‘tread’, *tarⁱ* (*tṛ*) ‘pass’ // *trā* ‘protect, rescue’, *dhamⁱ* // *dhmā* ‘blow’, *parⁱ* (*pṛ*) // *prā* ‘fill’, *bhas* ‘devour’ // *psā* ‘chew’, *man* ‘think’ // *mnā* ‘mention’, etc. In all such pairs, the second member ends in *ā* and can be derived, in formal terms, by adding *ā* to a certain modification (most often, the zero grade) of the first member (*i-ā*, *psā* [= *bhs-ā*], *mn-ā*, etc.). Schematically, the formal relationship between the members of such pairs can be represented as *CaC* // *C(C)ā*, where the final consonant is, most often, a sonant (*i* = *ay*, *tṛ* = *tarⁱ*, etc.), thus: *CaRⁱ* (/C*R̥*) // *CRā*. Accordingly, I will hereafter refer to the second members of such pairs as ***ā*-roots** (***ā*-verbs**), while the first members, the ‘base roots’, will be called, for lack of a better term, ***C*-roots** (***C*-verbs**). The alternation of this type¹ will be referred to as ‘***C//ā*-alternation**’.

The formal relations between the members of such pairs are quite diverse, and so are their origins. Some of them can be treated in terms of the pattern *CaC* // *CCā*, which suggests that the second member of the pair is derived by means of a laryngeal **root extension** (*-e*H*- > -a-), cf. *i* – *yā*, *man* – *mnā*. Some others follow the pattern *C*R̥** (*CaRⁱ*) // *CRā* (where *R* stands for a sonant), and thus, at the level of the Indo-European reconstruction, instantiate **Schwebeablaut** *CeRH-* // *CR*eH*-*, a phenomenon discussed in detail by Raimo Anttila (1969). The members of the schwebeablauting pairs, *CaRⁱ* and *CRā*, are often called, according to the Indo-Europeanist tradition, ‘full grade I’ (Vollstufe I) and ‘full grade II’ (Vollstufe II), respectively (see, for instance, Gotō 1987: 45f.). Finally, a few pairs exemplify the type *CaC* (*CaR*) // *Cā*, as in the case of *gam* ‘go’ // *gā* ‘tread’ and *dru* (*drav*) // *drā* ‘run’; some of these pairs may be formed by etymologically unrelated roots as a result of their semantic and phonological convergence.

No less variety is found in the treatment of the relationship between the members of such pairs in the traditional Sanskrit (Vedic) scholarship. Some of them are taken as root variants distributed between the formations of one single paradigm (individual verbal system, in terms of Jamison 1983), as in the case of *dhamⁱ* // *dhmā* ‘blow’ (see below, Section 3, *sub voce*). The emergence of two different full grades is mostly explained by several secondary developments and paradigmatic

¹ Noticed, for instance, as early as in Brugmann 1878 and Hübschmann 1885: 34–47.

reanalyses.² In some other cases, the members of such pairs are more commonly treated as distinct lexical units (resp. roots), which, nevertheless, historically belong together as etymologically related roots (see below on *parⁱ* (*pṛ̥*) // *prā* ‘fill’). Finally, the members of some pairs are never treated as representing one synchronic unit, while their historical (etymological) connections vary from clear and undoubted (cf. *bhas* ‘devour’ // *psā* ‘chew’) to questionable or implausible (cf. below on *gam* ‘go’ // *gā* ‘tread’ and *kan* // *kā* ‘be pleased, enjoy’).

Altogether, the synchronic status of the *C//ā*-alternation within the Vedic verbal system is unclear. On the one hand, it is beyond any doubt that there must be some sort of relationship between such roots as *i* and *yā* or *bhas* and *psā*. No Sanskritist or Indo-Europeanist will deny that the members of such pairs are related rather than result from accidental formal coincidence (convergence). There are good reasons to believe that, synchronically, the members of such pairs as *parⁱ* (*pṛ̥*) // *prā*, *dham* // *dhmā* or *pay⁽ⁱ⁾* (*pi* [*pī?*]) // *pyā* were considered as belonging together, too, even in spite of the somewhat unclear and non-productive character of relation between them, thus resembling the English type *foot*: *feet*, *tooth*: *teeth*, rather than *near*: *next* (cf. Old English *nēah* : *nēarra* : *nēahsta*) or *old*: *elder*.

On the other hand, no Sanskrit (Vedic) grammar deals with the pairs of the type *tarⁱ* (*tṛ̥*) // *trā* in the chapter on verbal derivation,³ treating the second members (of the type *trā* etc.) as separate lexical units.

There are several reasons for this state of affairs. On the one hand, there are cases such as *dhamⁱ* // *dhmā* ‘blow’, where the genetic and synchronic relationship between the members of a pair is beyond any doubt, and the two members appear to be (nearly) exact synonyms, so that it is unclear if any functional value whatsoever might be ascribed to the *C//ā*-alternation. On the other hand, in some other pairs, such as *tarⁱ* (*tṛ̥*) ‘pass, overcome, carry across’ // *trā* ‘protect, rescue’ or *marⁱ* (*mṛ̥*) ‘crush’ // *mlā* ‘wither, relax’, the formal and/or semantic relation between the members is blurred, which prevents us from considering them as forming a synchronic unity; such pairs rather belong to the type *near*: *next*. Thus, ironically enough, the members of the pairs like *dhamⁱ* // *dhmā* or *parⁱ* (*pṛ̥*) // *prā* are (semantically) **too similar** to be treated as representing a morphological derivation, whereas the members of the pairs like *tarⁱ* (*tṛ̥*) // *trā* or *marⁱ* (*mṛ̥*) // *mlā* are **too different** to be regarded as synchronically (derivationally) related.

Last but not least, there is yet another reason which has contributed to the ‘bad reputation’ of the *C//ā*-alternation. It seems that pairs of the type *parⁱ* (*pṛ̥*) // *prā* and *tarⁱ* (*tṛ̥*) // *trā*, however transparent their **synchronic** relations might appear, bear a heavy burden of **diachronic** “sins”. Specifically, most of these pairs are associated with two quite ill-famed phenomena of the proto-language. One is the Schwebeablaut, the alternation of the type *CeRC-* // *CReC-*, observed in such examples as **perk-* (cf. OHG. *fergôn* ‘to ask’) ~ **prek-* (Got. *fraihnan* id.); see Anttila 1969: 150-

² Thus, the full grade *dhamⁱ*, as in the class I present *dhāma^{-ti}*, can be explained as resulting from the reinterpretation of the athematic root present (= class II present: 3pl. *dhāmanti* for **dhamānti* < **d^hṁH-énti*) or thematic zero grade root present (= class VI present: 3sg. *dhāmati* for **dhamāti* < **d^hṁH-é-ti*); see Gotō 1987: 46, fn. 11.

³ Thus, the comprehensive Sanskrit grammar by Whitney (1889: 103) treats such roots as “variations or differentiated forms of one another”. Specifically, Whitney mentions “roots in *ā* and in a nasal, as *khā* and *khan*, *gā* and *gam*, *jā* and *jan*; roots made by an added *ā*, as *trā* from *tṛ*, *mnā* from *man*, *psā* from *bhas*, *yā* from *i*”.

151 and Ozoliņš 2015: 29. Here must belong, in particular, such pairs as $t\bar{r}$ // tar^i (cf. class I pres. $tārati < *terH-e-ti$) // $trā$ (cf. class IV pres. $trāyate < *treH-$). Anttila's 1969 monograph removes the Schwebeablaut from the proto-language, explaining such pairs as due to several secondary developments.⁴ Yet, much remains unclear about this morphological phenomenon, and, in any case, we are hardly able to ascribe any functional value to this alternation.

Another – and even more vexed – problem directly related to our $C//\bar{a}$ -pairs is the highly controversial issue of the Proto-Indo-European laryngeal root extension and/or suffix $*-\bar{e}-$. As is well known, the final consonants in such Indo-European roots as $*trep-$ (OCS $trepetb$ 'trembling'), $*tres-$ (Skt. $trasati$ 'trembles') and $*trem-$ (Gr. $τρέμω$ 'tremble'), or $*dreu-$ (Skt. $drāvati$ 'runs'), $*dreH-$ (cf. Skt. impv. $drātu$) and $*drem-$ (Gr. $δραμεῖν$ 'run'), might be treated, at least from the formal point of view, as suffixes. However, given that the meaning or function of these final elements is unclear, Indo-European scholarship sticks to more neutral terms, such as 'root enlargements', 'root extensions', 'Wurzeldeterminativa' or 'Wurzelerweiterungen'. Attempts to determine the function of these elements have largely failed.⁵ Since the monograph Persson (1912), which remains the most fundamental treatment of the issue till now, no special study has been devoted to this phenomenon.⁶

Thus, pairs of the type $ay(i)$ // $yā$ or dah // $kṣā$ can only be taken as related if the second members are treated as comprising the morphological element (suffix? submorph? root extension?) $-\bar{a}-$ ($< \text{PIE } *-\bar{e}-$ or $*-eH-$). Such a suffix, presumably with an intransitivizing function and/or stative meaning, is posited in many Indo-European handbooks,⁷ but Vedic roots such as $yā$ or $kṣā$ are (usually) treated separately from the $-\bar{e}$ -verbs in Indo-European scholarship of the last century.⁸ Accordingly, we are forced to posit a laryngeal extension ($*(e)H-$) at the end of these roots. This analysis is adopted, in particular, by Anttila (1969: 59-63) and Mayrhofer (EWAia, *sub voce*) for $kṣā$ (EWAia I, 430), $psā$ (EWAia II, 198) and $yā$ (EWAia II, 407).

⁴ For further discussion and criticism, see, in particular, reviews by Beekes (1972) and Schindler (1970).

⁵ See, in particular, Persson 1912: 556 et passim.

⁶ The last few decades (and, particularly, the last ten years or so) were marked, however, by some revival of interest to this topic, cf. a series of publications such as de Vaan 1999, Lubotsky 2001: 34-35, 51, Gordon 2010, Kocharov 2016, Ackermann 2017, Ackermann 2022 as well as several articles stemming from the Workshop "Proto-Indo-European Root Extensions" organized as a part of the 15. Fachtagung der Indogermanischen Gesellschaft (Vienna, 17–18 September 2016) and published in vol. 131 of *Historische Sprachforschung* (in particular, Kazansky 2018 [2021], Kocharov and Shatskov 2018 [2021], Lubotsky 2018 [2021], Ozono 2018 [2021]).

⁷ See, e.g., Benfey 1873: 403 [= *Kl. Schr.* I/2, 171f.] ("Wie dieses \bar{a} zu deuten, ist noch sehr fraglich"); Kuryłowicz 1964: 76-84; Watkins 1971; Szemerényi 1970: 257ff. \approx 1990: 298ff.; Beekes 1995: 230 ("this suffix served to express a situation"); for a detailed treatment of this suffix, see, in particular, Wagner 1950, Jasanoff 2002-03 and, most recently, Yakubovich 2014. The quality of the laryngeal poses some problems: in the \bar{a} -members of the majority of $C//\bar{a}$ -pairs \bar{a} is probably going back to PIE $*eh_2$ (see Section 5 for details), whilst the laryngeal reconstructed for the suffix $*-\bar{e}-$ is usually determined as h_1 ($*-eh_1-$); see Beekes 1995: 230.

⁸ The analysis of such roots as containing the suffix $-\bar{a}-$ was advocated, in particular, by Brugmann (1878); see also Bezenberger 1879 for its criticism. Since then, it was largely abandoned in the scholarship; for a detailed survey of the older literature, see Anttila 1969: 3-5. The old idea of the Indo-Iranian suffix $-\bar{a}-$ posited in such roots as $yā$ and $kṣā$ was retrieved by Yakubovich (1999), but the presentation and analysis of the material in this paper is far from convincing and barely clarifies the matters.

Obviously, the analysis of such roots as $kṣā$, $psā$ and $yā$ as containing the reflexes of the laryngeal root extensions (= suffix $*-eH-$?) leaves open the question on their function of this element and, more generally, on the semantic difference between them and the corresponding non-extended roots, i.e. dah , $bhas$ and ay (i).

Likewise, the functional value of the Old Indo-Aryan $C//\bar{a}$ -alternation altogether remains an enigma, and the very phenomenon is largely disregarded by Sanskritists. Yet, there is a feature that makes a research of the $C//\bar{a}$ -alternation in Vedic a particularly interesting and important task. This alternation appears to be better represented in Indo-Iranian (and especially in Indo-Aryan) than in most other Indo-European branches. This may point to the fact that the origin and expansion of this phenomenon must represent an Indo-Iranian (or even an Indo-Aryan) innovation.

Accordingly, in what follows, I will make no attempt to investigate or reconstruct at full scale the Proto-Indo-European origins of the $C//\bar{a}$ -alternation. Rather I will concentrate on the systematic treatment of the features of the members of the Vedic $C//\bar{a}$ -pairs, above all in a synchronic perspective.

1.2. Remarks on the morphophonological features of \bar{a} -roots

Before I proceed to the analysis of the C - and \bar{a} -verbs, a few remarks on their morphophonological features are in order.

Obviously, for our purposes we need to identify any relevant formation as belonging to the system of the C - or \bar{a} -root. Generally, this task poses no problem, cf. infinitives $\acute{e}tave$ and $tar(i)tum$ (built on the C -roots ay and tar^i), as opposed to $yātave$ and $trātum$ (\bar{a} -roots $yā$ and $trā$). Problems are only posed by the zero grade forms of the schwebeablauting roots, such as tar^i ($tṛ$) // $trā$ or par^i ($pṛ$) // $prā$. From the formal point of view, such formations as verbal adjectives $tīrṇá-$ and $pūrṇá-$ might belong to either of the two variants, i.e. either to the C -root $CaR^i / C\bar{R}$ ($< *C\bar{R}H- / *CeRH-$), or to the \bar{a} -root $CaR^i (C\bar{R}) / CR\bar{a}$ ($< *CaRH- (*C\bar{R}H-) / *CReH-$), that is, in our case, either to $par^i/pṛ$, $tar^i/tṛ$ or to $prā$, $trā$. This problem does not actually arise in the case of pairs such as $tar^i/tṛ$ ‘pass, carry across’ // $trā$ ‘protect, rescue’, where the C - and \bar{a} -roots clearly differ in meaning, cf. $tīrṇá-$ ‘passed, crossed’ (\neq ‘protected, rescued’). The zero grade formations made from members of $C//\bar{a}$ -pairs with (nearly) no semantic difference may pose difficulties, however: for the correct identification/attribution of such forms we need additional criteria. There are some indications that all zero grade forms should be grouped with the C -roots. Specifically, many \bar{a} -roots such as $trā$ and $prā$ tend to generalize full grade (i.e. \bar{a}), using it also in those formations where we expect zero grade. Thus, we find \bar{a} -grade in verbal adjectives (past perfect participles) in $-ta/-na$, cf. $trāta-$, $dhmātá-$, $prātá-$, as opposed to the adjectives $sthítá-$ and $dhītá-$, made from the ‘independent’ (= non-schwebeablauting) roots $sthā$ ‘stand’ and $dhā$ ‘suck’. In other words, the \bar{a} -roots such as $trā$, $dhmā$ and $prā$ belong to the ‘non-alternating’ morphophonological type in terms of Zaliznjak (1975: 68ff.).⁹ This morphophonological peculiarity of the \bar{a} -roots has not of course remained unnoticed. Sanskrit grammars and dictionaries usually do not connect formations

⁹ Cf. Renou (1930 : 75): “La tendance de ce groupe sonante + \bar{a} est de s’immobiliser et de se dissocier de la racine de base, en manière d’élargissement autonome”.

such as *pūrṇá-*, *tīrṇá-*, pres. *pṛṇāti*, *tiráti* etc. with *ā*-roots. I will basically follow this tradition, including zero grade formations into the verbal systems of the corresponding *C*-roots, unless there are clear semantic indications for the opposite analysis (as in the case of *yā* ‘drive’ – pres. *īyate*).

2. SYNTACTIC FEATURES OF THE *C//Ā*-ROOTS: A PRELIMINARY HYPOTHESIS

To begin with, let us have a closer look at the features of two *C//ā*-pairs.

(i) *parⁱ* (*pṛ*) // *prā* ‘fill’

The roots *parⁱ* (*pṛ*) and *prā* ‘fill’ are synonymous and occur in similar constructions, as, for instance, in (1a, b):

- (1) a. (RV 8.64.4c)
óbhé pṛṇāsi ródasī
 ‘You fill both worlds.’
 b. (RV 9.97.38)
óbhé aprā ródasī
 ‘You have filled both worlds.’

There is, however, a remarkable difference between their properties that seems to have escaped scholarly attention. The verbal system of *parⁱ* (*pṛ*) contains both intransitive and transitive formations; both groups are well-attested from early Vedic (= the language of the Ṛgveda and Atharvaveda) onwards, cf. intransitive constructions as in (2-3) and transitive-causative usages as in (1a):

- (2) (RV 1.51.10cd)
ā tvā vātasya nṛmaṇo manoyúja ' ā pūryamāṇam avahan abhī śrávaḥ
 ‘[The horses] of Vāta, yoked with thought, (wind) conveyed you, O one who has manly thought, (sc. Indra) who were growing full [with soma and strength], to glory.’
 (3) (RV 3.50.1c)
óruvyácāḥ pṛṇatām ebhír ánnaiḥ
 ‘Let the one who is able to contain much fill himself with this food.’

By contrast, *prā* is mostly employed in transitive constructions, as in (1b) and (4):

- (4) (RV 1.52.13)
viśvam āprā antárikṣam mahitvā
 ‘You filled the whole space [between heaven and earth] with your greatness.’

The intransitive class IV present *pūryate* is likely to belong to the *C*-root *parⁱ* (*pṛ*), and there is no present passive ***prāyāte*. The only attestation of an intransitive (passive?) form built on this root, the medio-passive *i*-aorist *-aprāyi* (with the preverb *ā*), appears at the end of the early Vedic

period, in a late stanza (5), for which see Kümmel 1996: 72f.; Griffiths 2009: 213f.; Kulikov 2012 [2014]: 124–125:¹⁰

- (5) (RVKh. 4.2.1 = AVŚ 19.47.1ab = AVP 6.20.1ab = VS 34.32ab)

ā rātri pārthivaṃ rājaḥ ' pitúr aprāyi dhāmabhiḥ

‘O night, the earthly space has been filled / has become full¹¹ with the establishments of the father.’

(ii) *ay* (*i*) ‘go; send, set in motion’ // *yā* ‘drive, speed’

As in the case of *parⁱ* (*pṛ*) // *prā*, the *ā*-root *yā* neatly differs from its *C*-counterpart *ay* (*i*) in syntactic features. For the root *ay* (*i*), both intransitive and transitive formations are well-attested from the early Vedic period onwards. Intransitive derivatives, meaning ‘go’, are represented, in particular, by the class II present (= athematic root present) *éti*, as in (6). The transitive-causative counterpart of *éti* is the class V present *inóti* and its thematization *invati*,¹² meaning ‘send, impel, set in motion’, as in (7):

- (6) (RV 1.191.8c)

út purástāt sūrya eti

‘The sun rises (lit. goes up) in the East.’

- (7) (RV 4.53.5c)

tisró dívaḥ pṛthivís tistrá invati

‘He sets in motion three heavens (and) three earths.’

By contrast, the *ā*-root *yā* is basically intransitive (cf. pres. *yāti*, *īyate*¹³ ‘drives, speeds’, etc.). The *-aya*-causative *yāpayati* first appears in the Brāhmaṇas.¹⁴

In spite of the difference between the syntactic types of the *ā*-roots in the two above-discussed cases, there is a remarkable syntactic feature shared by the pairs *parⁱ* (*pṛ*) // *prā* and *ay* (*i*) // *yā*.

¹⁰ Note also the remarkable observation by Kümmel (1996: 73) on the fundamentally transitive character of the verb *prā*: “Auch wenn die Wurzel **pleh_i* ursprünglich fientive [≈ non-passive intransitive, or anticausative. – LK] Bedeutung gehabt haben sollte, ist die vedische Wurzel *prā* primär agentiv-transitiv”.

¹¹ Translated as passive (‘[a]ngefüllt (worden) ist’) by Kümmel (1996: 72) and as non-passive intransitive (‘has become full’) by Griffiths (2009: 213f.).

¹² The roots *ay* (*i*) and *i(nv)* are taken as (synchronically) distinct in some grammars and dictionaries (cf., for instance, Joachim 1978: 41), but, in fact, there is no need to treat them as separate lexical units (see, in particular, Whitney 1885: 8; LIV 232). The semantic relationship between *éti* ‘goes’ and *inóti*, *invati* ‘sets in motion, sends’ (= ‘makes go’) clearly belongs to the regular causative type. For these causative presents, see, in particular, Kulikov 2000a: 197f.

¹³ On possible morphological analyses of this formation, see Kulikov 2012: 347–349, with bibl. For the evidence against the assumption that the nasal presents *inóti*, *invati* ‘sets in motion, sends’ belong together with *īyate*, as its transitive-causative counterparts (contra Insler 1972: 96ff. ; LIV 233, note 12), see Joachim 1978: 138f.; Kulikov 2012: 348–349. On the syntax of *ay* (*i*) and its relationship with *yā*, see now also Höfler 2023: 95–111.

¹⁴ One of the earliest attestations of this rare causative is the gerundive *prayāpya-* ‘to be moved’ in the compound *yathākāma-prayāpya-* (AB 7.29.3) ‘to be moved according to wish’. AVP 16.75.7 *yāpayanti* (~ AVŚ 9.8.17 *mohayanti*), attested in the Kashmir ms., must be an erroneous reading for *yopayanti* (thus in Orissa mss.) ‘they erase, destroy’. I am thankful to A. Griffiths for providing me with information on the readings of the Orissa manuscripts for this passage.

While the *C*-verbs are well-attested in both intransitive and transitive (transitive-causative) usages, usually from early Vedic onwards, their *ā*-counterparts show a noteworthy limitation of their ‘syntactic flexibility’, restricting their usages either to intransitive or to transitive only. The former, more flexible, type of syntactic behaviour, exemplified by such *C*-verbs as *parⁱ* (*pṛ*) and *ay* (*i*), will hereafter be called ‘diffuse’, for the lack of a better term. The most typical representatives of the diffuse type are those verbs some forms of which can be employed both intransitively and transitively, thus showing the **labile** syntax.¹⁵ Thus, for instance, 3pl.pf.act. *vāvṛdhuh* of the verb *vardh* (*vr̥dh*) ‘grow, increase’ occurs 6 times in intransitive usages (as in (8a)) and 14 times in transitive-causative usages (as in (8b)) in the Ṛgveda (see Kümmel 2000: 469-473 for details):

(8) a. (RV 2.34.13b)

rudrā́ ṛtāsya sādaneṣu vāvṛdhuh

‘The Rudras have grown in the residences of the truth.’

b. (RV 8.6.35a)

īndram ukthāni vāvṛdhuh

‘The hymns have made Indra bigger.’

Apparently, both *ā*-verbs under discussion, *yā* and *prā*, belong to the **non-diffuse** syntactic type: their forms can only be employed intransitively or transitively, while the opposite type of usage (transitive or intransitive, respectively) is either exceptional and/or only attested in late texts, or does not occur entirely.

Thus, the clue to the functional value of the *C*//*ā*-alternation is likely to be found in the domain of syntactic features and transitivity of the verbs in question.

In what follows, I will scrutinize the *C*//*ā*-pairs for their syntax, checking my assumption against the evidence available from Vedic.

3. THE VEDIC *C*//*ā*-VERBS AND THEIR SYNTAX

In what follows, I will briefly discuss almost twenty root pairs exemplifying the *C*//*ā*-alternation.

av (*u*) // *vā* ‘weave’

The *ā*-root *vā* is of clearly secondary nature, being created alongside the *aniṭ*-root *av* (*u*) (see Hoffmann 1974: 23 [= Hoffmann, Aufs. 335], fn. 17; Mayrhofer EWAia I, 275f.; II, 538 and fn. 48 below). The derivatives of both root variants are attested in the same type of transitive constructions. There are only two forms that can be ascribed to *vā*: 1) the infinitive *vātave* at AVŚ 10.7.44 (corresponding to the earlier form *ótave* in the parallel passage RV 10.130.2) and 2) the future participle (RV 7.33.12), cf.

(9) (AVŚ 10.7.44)

imé mayúkhā ūpa tastabhur dívaṃ ' sāmāni cakrus tásarāṇi vātave

‘These pegs have supported the sky; they have made the chants shuttles, for weaving.’

¹⁵ For a general discussion of the labile syntactic type in Vedic, see Kulikov 2014.

The infinitive made from the main root variant *av(u)* attested in the parallel RVic verse 10.130.2cd) clearly point to the secondary character of the AVic *ā*-infinitive:

(10)(RV 10.130.2cd)

imé mayúkhā úpa sedur ū sádah ' sāmāni cakrus tásarāṇyótave

‘Here are their pegs; they [= the gods?] sat down upon their seat and made the sāmān-chants the shuttles for weaving.’ (Jamison/Brereton 2014: III, 1610)¹⁶

***kan*ⁱ // *kā* ‘be pleased, enjoy’**

The verb *kan*ⁱ, attested in the perfect (1sg.act. *cākana*, 2-3sg.inj.act. *cākán*, etc.) as well as in a few sigmatic aorists, is construed either with the accusative (as in (11)), or, more often, with oblique cases (locative or genitive) (as in (12)), thus being ‘intransitive/transitive’ in terms of Jamison (1983: 31-39); see Kümmel 2000: 130-133 for details.

(11)(RV 2.11.13c)

śuśmíntamaṃ yáṃ cākánāma deva

‘[Give us] the strongest [treasure], which we will enjoy, O god.’

(12)(RV 8.31.1c)

brahméd índrasya cākanat

‘That priest will be pleased with Indra.’

The only attested perfect middle form, 3pl.subj. *cākánanta*, appears in intransitive constructions, meaning ‘be pleasant’, as in (13):

(13)(RV 1.169.4c)

stútaś ca yās te cākánanta vāyóh

‘... and the praises [addressed to] Vāyu, which should also be pleasant for you (sc. Indra) ...’

By contrast, the forms of the verb *kā* (middle perfect *cake* and the RVic hapax pres.part. *kāyamāna*-) are employed in transitive constructions, meaning ‘yearn, enjoy’, as in (14-15):

(14)(RV 1.25.19c)

tvám avasyúr ā cake

‘Looking for help, I yearn after you.’

(15)(RV 3.9.2ab)

kāyamāno vanā tvám ' yán mātṛr ājagann apāh

‘When you (sc. Agni), longing for wood, have gone to your mothers, the waters...’

In formal terms, the class IV pres. stem *kāya*- is ambiguous. It may be based on the root *kā* < **keh*₂,¹⁷ thus, belonging with the middle perfect *cake* (thus Joachim 1978: 67f.; Mayrhofer, EWAia

¹⁶As Jamison/Brereton (2014: III, 1609) explain, “it is not clear in pādas 2cd who are “they” who have sat down to weave the sacrifice. They might be the fathers after led, the human priests in continuation of 2ab, or the gods in anticipation of verse 3. Since any of these could have been so described, the ambiguity may be intentional”.

¹⁷See e.g. Persson 1912: 574f.; Mayrhofer, EWAia I, 334.

I, 334; Kümmel 2000: 142f.; LIV 343). Alternatively, *kāya-* might be connected with the set root *kanⁱ* ‘rejoice’, as its class IV present (cf. *janⁱ* - *jāyate*).¹⁸ However, as Narten (1964: 94f.) points out, the individual verbal systems of these two roots, as well as their syntactic and semantics can be neatly distinguished.¹⁹ In contrast to *kanⁱ*, which only builds active forms (perfect *cākān-* and sigmatic aorist *akāniṣ-*) and is employed intransitively, *kā* forms the middle perfect (*ā*) *cake*, *cakānā-*, which is mostly construed with an accusative. This favours the analysis of the hapax *kāyamāna-* as a middle participle of the *-ya*-present built on the root *kā*, connected with the accusative *vanā*.²⁰ Accordingly, the construction in pāda should be interpreted transitively (‘longing for wood’).

These two roots are usually considered as genetically unrelated in the literature (see Mayrhofer, EWAia I, 296f., 334 and LIV 343, 352 on the roots *kanⁱ* ‘Gefallen an etwas finden, sich freuen’ and *kā* ‘begehren, gern haben’). However, in view of the semantic affinity of these two meanings, possible (secondary) connections between them should not be ruled out.

***kāś* ‘become visible, appear (?)’; see’ // *kṣā* (*khyā*)²¹ ‘see, consider, reckon’**

The root *kāś* probably goes back to PIE **k^uek-* (cf. Gr. τέκμωρ, τέκμαρ ‘sign, feature’); the vowel length is likely to be secondary (see Gotō 1987: 115, with fn. 102; Mayrhofer, EWAia I, 344f.; LIV 383ff.). In early Vedic, this verb is only attested in the active intensive *-cākaśīti* etc. (RV+) ‘consider, see, look at’ (see Schaefer 1994: 102-104; Roesler 1997: 199-204) and causative *sām kāśayāmi* (AV 14.2.12), which probably means ‘make visible’ (see Jamison 1983: 125; for a detailed discussion of the relevant passage, see also Schaefer 1994: 103f., fn. 264). The intransitive class I present *-kāśa^{te}* ‘become visible, appear’ occurs from the Brāhmaṇas onwards (ŚB, Jaiminīya-Upaniṣad-Brāhmaṇa).²² In spite of the rather late attestation of the intransitive usages, there are some indirect reasons for determining the original meaning of the root as ‘become visible, appear; consider, see, look at’; as Jamison (1983: 125) suggests, *kāś* may belong to the same syntactic type as *darś* (*drś*), cf. med. *dadrśé* ‘appears’ ~ act. *darśáyati* ‘reveals’. Correspondingly, intransitive usages can be tentatively reconstructed for early Vedic²³ (cf. also the historically related root *cakṣ* ‘look at, appear’, on which see Roesler 1997: 205-209; LIV 383-385).

¹⁸ Thus Wackernagel 1896 [AiG I]: 15 (hesitantly). Against the analysis of *kāya-* as a class I present based on a *i*-root, i.e. of the type *gā(i)* ‘sing’ – *gāy-a-ti*, see Persson 1912: 574, fn. 3.

¹⁹ Accordingly, Mayrhofer (EWAia I, 296f., 334) considers the roots *kanⁱ* (‘Gefallen an etwas finden, sich freuen’) and *kā* (‘begehren, gern haben’) as genetically unrelated: “Von *KĀ* ist *KANⁱ* in Konstruktion, Semantik und Herkunft verschieden.”

²⁰ *vanā* is taken by most translators as an accusative (Geldner; Renou, EVP XII, 57; Joachim 1978: 66ff.; Elizarenkova). Since neither of the two roots occurs construed with an instrumental (W. Knobl, p.c.), Oldenberg’s (Noten ad loc.) interpretation of this form as an instrumental is hardly possible.

²¹ The root variant *khyā* results from the secondary development of *kṣā* (preserved in the Maitrāyaṇī and Kāthaka traditions); see, in particular, Hiersche 1964: 44-45; Lubotsky 1983: 176; Witzel 1989: 163ff.

²² The only mantra attestation, *pra-kāśate* in RVKh. 2.1.4, is, according to Gotō (1987: 115), very late.

²³ Thus Jamison 1983: 125; Gotō 1987: 115; Roesler 1997: 204; differently Schaefer 1994: 103 (“Die in der späteren Sprache vorherrschende Bedeutung ‘erscheinen, sichtbar werden’ ... ist wohl erst sekundär über das Oppositionsmedium *-kāśate* ‘wird gesehen, ist sichtbar’ zu ursprünglich transitivem ‘sehen, betrachten’ entstanden”).

The *ā*-verb *kśā* (*khyā*) ‘consider, count’ is fundamentally transitive. The present *-yá*-passives appear from the Brāhmaṇas onwards, but in early Vedic (RV) we find the middle thematic aorist (3sg. *-akhyata*) attested in a passive construction (for a detailed analysis of the passage, see Kulikov 2008: 251-252):

(16) (RV 9.61.7c)

sām ādityébhir akhyata

‘[Soma] has appeared together (and, by virtue of that, has become associated) with the Ādityas.’

The Iranian evidence (Cheung 2007: 245-246) supports the secondary character of the *ā*-root as well as the antiquity of the intransitive usage.

***gam* ‘go’ // *gā* ‘go, tread’**

In spite of the semantic and phonological similarity of these roots, their historical relationship is far from clear. In the early scholarship, *gam* and *gā* are often connected (cf., e.g., Benfey 1837: Sp. 927 [= *Kl. Schr.* I/2, 29]; Reichelt 1904: 40; Persson 1912: 572ff.), and this view is adopted by Mayrhofer (EWAia I, 466: “Mit *GAM* vermutlich wurzelverwandt ... ist *GĀ*”); see also EWAia I, 482). **g^he-* could not be a possible root structure in Proto-Indo-European, and thus PIE **g^hem-* (> Ved. *gam*) and **g^heh₂-* (> Ved. *gā*) cannot be directly related in terms of root extensions. Nevertheless, the semantic affinity between the members of this pair could be supported by the model of the semantically similar pair *dram* // *drā* ‘run’ (see below, s.v.), which may be associated with *gam* // *gā* as ‘rime-words’ (‘Reimbildungen’).²⁴

Whatever the historical relations of these two roots in Proto-Indo-European, their syntactic behaviour is amazingly similar to that of most other *C*//*ā*-pairs. The *C*-verb *gam* is fundamentally intransitive, but its present causative *gāmayati* is well-attested from early Vedic onwards (3x in the RV); the causative aorist *ajīgamat* first appears in the Atharvaveda (see Jamison 1983: 172). By contrast, causative of the intransitive *gā* (**gāpāyati*) is lacking.

***janⁱ* ‘be born; beget, generate’ // *jñā* ‘know’**

The attempts to connect these two roots²⁵ semantically and historically proved unsuccessful (see Anttila 1969: 130).²⁶ Yet, this pair is worthy of mention in our discussion, foremost because of the fact that the syntactic behaviour of its members perfectly fits the pattern of the type *parⁱ* (*pṛⁱ*) // *prā*. The verb *janⁱ*, well attested both in intransitive (pres. *jāya-te*, pf. *jajñé*, medio-pass. aorist *ájani*, sigmatic aorist *ájaniṣṭa*) and transitive-causative (pres. *jána-ti*, *janáya-ti*, pf. *jajāna*, etc.) usages can serve as a parade example of the diffuse syntactic type.²⁷ By contrast, *jñā* is fundamentally

²⁴ On rime-words, see, e.g., Bloomfield 1895 and Güntert 1914.

²⁵ Cf., for instance, the unlikely semantic shift ‘рождать(ся)’ → ‘знать (человека)’ [‘beget / be born’ → ‘know (a man)’] proposed by Trubačev (1964: 104) [= Trubačev 2004: 317].

²⁶ Note, in particular, the different laryngeals: *janⁱ* < PIE **génh₁-* vs. *jñā* < PIE **gneh₃-*; for details, see Mayrhofer, EWAia I, 567-568 and 599-601.

²⁷ See, in particular, Jamison 1983: 154; Gotō 1987: 145-147; Kulikov 2012: 320-322.

transitive; passive usages are only attested for the present passive *jñāyá^{-le}* ‘be known’ (RV 4.51.6 +; see Kulikov 2012: 92-95).

***tan* // *tā* ‘stretch, extend’**

The syntactic type of *tan* ‘stretch’ can be determined as diffuse. There is a remarkable correlation between tenses and syntactic patterns attested for this verb (for details, see Kulikov 1999: 26ff.). On the one hand, forms of the present system most often occur in transitive-causative usages, as in (17-18):

(17)(RV 10.125.6a)

ahám rudrāya dhánur ā tanomi
‘I string his bow for Rudra.’

(18)(RV 4.52.7)

ā dyām tanoṣi raśmíbhīr ... úṣaḥ ...
‘You string the sky with your rays, ... O Uṣas ...’

On the other hand, perfect forms are more common in intransitive constructions, as in (19), although transitive-causative usages are possible, too, cf. (20):

(19)(RV 6.12.1d)

dūrāt sūryo ná śociṣā tatāna
‘From afar [Agni] has extended, like the sun, with [his] flame.’

(20)(RV 10.80.4c)

agnír diví havyám ā tatāna
‘Agni has stretched the oblation up to heaven.’

The root variant *tā* is never treated as a separate root. The origin of this secondary root is unclear.²⁸ It only appears in the RVic hapax 3sg.pf.med. *tate*²⁹ (RV 1.83.5) ‘has extended’ (transitive, cf. (21)) and present passive *tāyáte*³⁰ (RV+) ‘is stretched, extended’.

(21)(RV 1.83.5a)

yajñáir átharvā prathamāḥ pathás tate

²⁸ Brugmann (1879: 275ff.) believed that the root variant *tā* (“doppelwurzel” *tan* // *tā*) was created in analogy with pairs like *gam* // *gā* and *jan* // *jā* (as in *jāyate* ‘is born’). According to Wackernagel (1935-1937: 827 [= *Kl. Schr.* I, 409]), *tā* is extracted from the passive *tāyá^{-le}* (see also Kümmel 2000: 210, with fn. 278) – which remains problematic, however.

²⁹ Created on the model *pā* ‘drink’ – *pape*; the regular form built on the root *tan* is *tatne* (attested at RV 10.130.2); see Beekes 1985: 48; Kümmel 2000: 210.

³⁰ There are two possible morphological analyses of this passive: it can be taken as built on the root *tā* or on the set root *tanⁱ*. Evidence for the set root *tanⁱ* is rather scarce, however, and includes, apart from the -*yá*-passive *tāyáte*, the nominal derivatives *uttāná-* ‘stretched, extended’ (< **ud-tṇH-nó-*) and *tanú-* ‘thin’ (< **tṇH-ú-*); see Beekes 1985 (see also Kulikov 2012: 96-97, with fn. 203, for a discussion and bibliography). The regular passive derived from the anī root *tan* would be *tanyate*. This secondary and very late (post-Vedic) formation (attested, for instance, in late Upaniṣads), albeit taught by the grammarians (Pāṇini 6.4.44), has no value for the Indo-European reconstruction; for details, see Kulikov 2012: 97, fn. 223 (with bibl.).

‘The Atharvan has first stretched the paths by means of sacrifices.’

In late Vedic, we also find the medio-passive *-i*-aorist *prātāyi* (hapax, attested in the AĀ). It must be conditioned by the adjacent *-ya*-present (probably passive) *prātāyata*. Both forms are employed for an “etymological explanation” of *prātar* ‘early in the morning’:

(22) (AĀ 2.1.5)

taṃ devāḥ prāṇayanta. sa praṇītaḥ prātāyata. prātāyītīm³¹. tat prātar abhavat

‘The gods led him (sc. the *prāṇa* = the out-breathing breath) forward / to the east. Having been led forward / to the east, he was extended³¹ [forth / further to the east]. [The gods said:] He has extended [forth / further to the east]. Then it became early in the morning.’³² (i.e. *prātar* is called thus because it has been extended [*prātāyi*])

Thus, with the exception of one isolated perfect form (transitive), the secondary root *tā* only appears in two intransitive (passive) formations.

***tarⁱ* (*tṛ*) ‘pass, carry across’ // *trā* ‘protect, rescue’**

The *C*-verb *tarⁱ* (*tṛ*) is well-attested both in intransitive constructions (e.g. class I pres. *tāra^{-ti}* ‘pass’, cf. (23)),³³ and in transitive-causative constructions (e.g. class VI pres. *tirā^{-ti}* ‘make pass’, with the preverb *prā* typically meaning ‘make someone’s life(time) safely pass over [obstacles and dangers] and reach its natural end’, cf. (24)),³⁴ thus, being a typical example of a diffuse verb:

(23) (RV 6.64.4b)

avāte apās tarasi svabhāno

‘In the windless [atmosphere] you (sc. *Uṣas*) cross the waters, O self-luminous one.’

(24) (RV 1.89.2d)

devā na āyuh prā tirantu jīvāse

‘Let the gods make our lifetime [safely] reach [its natural end], for life.’

By contrast, the *ā*-root *trā* ‘protect, rescue’, probably based on the transitive-causative usage of the *C*-root *tarⁱ* (*tṛ*) (‘protect, rescue’ ≈ ‘carry across’ = ‘make pass’),³⁵ is only attested in transitive constructions, for instance, in the class IV present formation *trāyate* ‘protects, rescues’, cf.:

(25) (RV 7.16.8c)

tāṃs trāyasva sahasya druho nidāḥ

‘Protect them from deceit, from blame, O powerful one (= *Agni*).’

³¹ Or: he extended (non-passive?).

³² I am much indebted to Werner Knobl for discussing with me the interpretation of this passage.

³³ Note that the accusative noun in such constructions refers to the goal of motion, not to a patient (= “affiziertes Objekt”, in Gotō’s (1987) terms; see Haudry 1977: 318ff.). Accordingly, these constructions should be qualified as intransitive with an accusative. For a general discussion, see, in particular, Jamison 1983: 26ff.

³⁴ See Gotō 1987: 161ff.; Kulikov 2012: 469–471. On the causative opposition between class I and class VI presents, see also Gotō 1987: 57f.; Kulikov 2000: 277f.

³⁵ See Mayrhofer, EWAia I, 679f. (“Ir. **traH* ‘schützen’ wird vielfach als idg. **treh₂* neben **trah₂* (*TARⁱ*) gestellt ...; doch bleibt dies aus formalen und semantischen Gründen unsicher”).

***dah* // *kṣā* ‘burn’**

The verb *dah* ‘burn’ is fundamentally transitive. However, the intransitive present *dahya-te*, attested both with root (non-passive) and suffix (passive) accentuation,³⁶ becomes quite common at the end of the early Vedic period, from the Atharvaveda onwards. Importantly, for many of its occurrences both passive (‘X is burned’) and non-passive intransitive, or anticausative (‘X burns, is on fire’) interpretations are possible, as in (26-27) (for details, see Kulikov 2012: 390-396):

(26) (AVŚ 12.4.3)

vaṇḍáyā dahyante grhāḥ

‘By [giving] a crippled [cow] the houses [of the giver] are burned / burn down.’ (unpleasant consequences of giving defective cows to the Brahmins)

(27) (ŚB 14.2.2.54)

sá yád vānaspatyáḥ syāt, prá dahyeta; yád dhiraṇmáyaḥ syāt, prá līyeta

‘If it (sc. the vessel) were made of wood, it would burn; if [it] were made of gold, it would melt.’

Thus, by the end of the early Vedic period, *dah* behaves as a diffuse, rather than as a predominantly transitive, verb. See also rich evidence for the intransitive (diffuse or even labile) syntax of the Iranian cognates (Proto-Ir. **daǵ-* ‘burn’: Av. *daž-* id. etc.) in Cheung 2007: 53-54.

By contrast, the *ā*-root *kṣā* (< **dʰgʷh-eh₁-*; see Mayrhofer EWAia I, 430; LIV 133f.), attested, for instance, in the class IV present *kṣāya-ti* (AVP+; see Kulikov 2012: 532-533), is fundamentally intransitive. Causative formations of *kṣā* appear from the late Ṛgveda onwards (injunctive of the causative aorist *cikṣipas* RV 10.16.1; pres.caus. *kṣāpāya-ti* AV+; see Jamison 1983: 140).

***drav* (*dru*) // *drā* ‘run’**

The synonymous roots *drav* (*dru*) and *drā* are clearly related and, as some scholars suggested, could even form one suppletive paradigm, with the class I present of *dru* (*dráva-ti*), on the one hand, and the root and sigmatic aorist of *drā* (3sg.subj.act. *drāsat* etc.), on the other hand; see Gotō 1987: 178; Kümmel 2000: 254; LIV 129, but see serious criticism against this assumption in Casaretto 2002: 45–49. The syntactic relationships between the formations derived from the roots of this pair essentially reproduce the pattern of *gam* // *gā*. The *C*-root *dru* is mostly employed intransitively, but its causative *drāváyati* is twice attested in the RV (on its antiquity, see Jamison 1983: 114). The causative of *drā*, *drāpayati*, first appears in middle Vedic, in the Śatapatha-Brāhmaṇa (9.1.1.24).³⁷

³⁶ *dāhya-te* in the RVKh.; *dahya-te* in the Yajurveda and Śatapatha-Brāhmaṇa (Kāṇva recension).

³⁷ There is yet another *C*-root, *dram*, but the Vedic evidence for its syntactic type (intransitive?) is meagre. The only form attested in Vedic, intensive participle *dandramyamāṇa-* ‘running (around) (in a rush)’, appears in Upaniṣads (KāṭhU and MaitrU), i.e. in the late Vedic/post-Vedic period (see Schaefer 1994: 47; LIV 128; Kulikov 2012: 302, with fn. 777).

***dhamⁱ* // *dhmā* ‘blow, inflate’**

The members of this pair are usually taken as root variants, not as separate roots. The majority of formations built on the *C*-variant³⁸ (foremost, the class I present *dhāma^{-ti}*,³⁹ for which see Gotō 1987: 180f.) are employed transitively, except for the present passive *dhamyate*,⁴⁰ a Vedic hapax, attested in the late RV:

(28)(RV 10.135.7c)

iyām asya dhamyate nālīḥ

‘This flute of his (sc. Yama) is (being) blown (by Yama).’

The *ā*-variant is scarcely attested in early Vedic. Its syntactic type can tentatively be determined as (predominantly) transitive. The only attested finite form is the sigmatic aorist *-adhmāsam* found in the Paippalāda recension of the Atharvaveda (see LIV 153):

(29)(AVP 1.59.6ab)

prāhaṃ glāvam adhmāsam ' nir ahaṃ glāvam adhmāsam

‘I blew away the swelling, I blew out the swelling’.⁴¹

Apart from this form, we only find non-finite derivatives: 1) verbal adjective *dhmātā-* ‘blown’ (RV 7.89.2); 2) agent noun *dhmātar-* ‘the one who blows; wind player’; and 3) action noun *dhmātār-* ‘fan; blower’ (both in stanza RV 5.9.5). While the passive built on the *C*-variant, *dhamyate*, is a Ṛgvedic hapax, present passive *dhmāyā^{-te}* first appears in late Vedic (JB, Up.; see Kulikov 2012: 125-130).

***dhayⁱ* (*dhī*) // *dhyā* ‘consider, think (about), reflect’**

The verb *dhayⁱ* (*dhī*) mainly appears in the perfect *dīdhaya* (also pluperfect *ādīdhet* and reduplicated present created on the basis of the perfect subjunctive), well-attested in early Vedic and employed in transitive usages; for a detailed discussion of the attested formations and their semantics, see Kümmel 2000: 257-261. The *ā*-root *dhyā* appears, in particular, in the class IV present *dhyāya^{-ti}* ‘think of, meditate, contemplate’ (construed with the accusative), which first occurs in late early Vedic (AVP 9.21.1-12), but becomes common only in middle Vedic (YV^p); for its attestations and genesis, see Kulikov 2012: 565-568.

***pay⁽ⁱ⁾* (*pī*) // *pyā* ‘swell’**

The *C*-verb *pay⁽ⁱ⁾* (*pī*) [*pay* (*pi*)?]⁴² is well-attested both in intransitive and transitive-causative usages; see, in particular, Thieme 1929: 40–41, 43, 49. The syntax of the thematic nasal present

³⁸ On the linguistic reality of the *C*-variant (questioned by Anttila (1969: 62-63)), see especially Beekes 1972: 74.

³⁹ For a historical explanation of the root grade *dham-* as secondary, see fn. 1 above.

⁴⁰ On the short root vowel of this formation (*dhamyate* instead of the expected ***dhāmyate*, see Anttila 1969: 62), presumably due to the suffix accentuation, see Kulikov 2012: 125-127; Kulikov forthc. [2025].

⁴¹ I would like to thank Th. Zehnder for valuable comments on this passage.

⁴² Evidence for the morphophonological type of the root, i.e. *aniṭ* (*pay/pi*) or *seṭ* (*payⁱ/pī*), is controversial. In particular, the *-nv*-present (*pinv-*) rather pleads for the *aniṭ*-type (see also Joachim 1978: 106, fn. 278). For a summary of

pínva^{-ti/te} depends on the diathesis: middle forms typically occur in intransitive constructions (‘swell’), as in (30), while active forms are transitive-causative (‘make swell’), as in (31):

(30) (RV 9.64.8c)

samudráḥ soma pinvase

‘You swell [like] the ocean, O Soma.’

(31) (RV 1.64.5d)

bhūmim pinvanti páyasā párijrayaḥ

‘[The Maruts] running around make the earth swell with milk.’

Cf. also the labile (albeit predominantly intransitive) syntax of the active perfect (see Kümmel 2000: 298-304):

(32) (RV 1.181.8c)

vṛṣā vām meghó vṛṣanā pīpāya

‘O (two) bulls, your raining cloud has swollen.’

(33) (RV 1.116.22)

staryām pipyathur gām

‘You (two) have filled [= made swell] a dry cow.’

By contrast, the *ā*-verb *pyā* ‘swell’ (*-ya*-present *-pyāya*^{-te} etc.) only occurs in intransitive constructions in the RV, as in (34);⁴³ the *-āya*-causative *pyāyāyati* first appears in the Atharvaveda (see Jamison 1983: 149):

(34) (RV 10.85.5)

yāt tvā deva prapibanti ' tāta ā pyāyase pūnaḥ

‘When one drinks you off, O god, then you (sc. Soma) swell again.’

***bhan* ‘speak’ // *bhā* ‘shine’**

The roots *bhan* ‘speak’ and *bhā* ‘shine’ (cf. also *bhāṣ* ‘speak’ and *bhāś* ‘shine’) are usually taken as etymologically related in the Indo-European scholarship, in spite of a considerable semantic distance between their meanings.⁴⁴ The syntactic features of the *ā*-verb *bhā* resemble much those of *gā*, the *ā*-member of the formally similar pair *gam* // *gā* (see above). The only early Vedic (RV+)

discussion, see Mayrhofer, EWAia II, 83-85 (“Die Argumente für eine *Seṭ*-Wurzel sind wohl stärker”) and Kümmel 2000: 298, fn. 487 (“Sichere Hinweise auf *aniṭ*-Wurzel fehlen im Verbalparadigma”).

⁴³ On formations derived from this root, see Kümmel 2000: 316-317; LIV 465; Kulikov 2012: 557-558, 330-332.

⁴⁴ Cf. also Gr. φημί ‘declare’ and φαίνομαι ‘appear’; see Mayrhofer, KEWA III, 494; EWAia II, 244, 260; LIV 68-70, lemmata “1. **b^heh₂*- ‘glänzen, leuchten, scheinen’ ” and “2. **b^heh₂*- ‘sprechen, sagen’ ” (“morphologisch homonym ... wohl urspr. identisch (semantische Entwicklung etwa ‘leuchten’ → ‘hell machen’ → ‘klar machen’ → ‘sagen’)”), see already Prellwitz 1897 and, more recently, Pozza 2024: 248. For the semantic association ‘shine’ ↔ ‘sound’, see also Kronasser 1968: 148, 151 as well as numerous studies on the phenomenon of synaesthesia; see, e.g., Galeyev 2002 and Ramachandran & Hubbard 2003, among many others.

formation of *bhā*, root present *bhāti*, is employed intransitively, as in (35);⁴⁵ causatives of this root are lacking in Sanskrit.

(35) (RV 6.48.3ab)

vṛṣā hy āgne ajāro ' mahān vibhāsy arcīṣā

‘Since you, O Agni, being a great unaging bull, shine with your flame ...’

By contrast, the verb *bhan*, in spite of its rather scant attestation in Vedic (which amounts to four occurrences of the class I present *bhāna*-*ti/te* in the Ṛgveda), exhibits a much greater variety of syntactic patterns. The active forms (3sg.act. *bhānati* at RV 6.11.13 and 3pl.act. *bhananti* at RV 4.18.6) are employed transitively, as in (36); the middle form *bhananta* appears in the reflexive (RV 7.18.7; cf. (37)) and reciprocal (RV 4.18.7) usages; see Gotō 1987: 222f., with fn. 472-473.

(36) (RV 4.18.6c)

etā ví prcha kím idám bhananti

‘Ask them, what do they tell here.’ (or: ‘why do they tell this’)

(37) (RV 7.18.7ab)

ā pakthāso bhalānāso bhanantālināso viṣāṇīnaḥ śivāsaḥ

‘The Pakthas, Bhalānas, Alinas, Viṣāṇins called themselves [Indra’s] good [friends].’

***bhas* ‘devour’ // *psā* ‘chew’**

Both the *C*-verb *bhas* ‘devour’ (RV+) and the etymologically related *ā*-verb *psā* (< **b^hs-ā*-; see Mayrhofer EWAia II, 198, 257 and LIV 82, 98) ‘chew’ (AV+) are fundamentally transitive; passives are unattested.

***man* ‘think, believe; respect’ // *mnā* ‘mention’**

The verb *man* is attested in transitive usages of two types:

(i) The class IV present *mānya*-*te* and the sigmatic aorist (*āmaṁsta*, *maṁsi* etc.) mostly occur connected with the direct speech construction, meaning ‘X [nom.] thinks (that) P’ or with two accusatives (‘X [NOM] considers/believes Y [ACC] to be Z [ACC]’), as in (38):

(38) (RV 5.9.1c)

mānye tvā jātāvedasam

‘I believe you to be Jātavedas.’

(ii) The present *manuté* (class VIII in the traditional classification, originally, a *-nu*-present: **mṇ-nu-tai*) is typically construed with the accusative or genitive of the deity or his/her aspects, meaning ‘respect, remember with respect’. The root aorist (*āmata*, *āmanmahi* etc.) is most commonly employed in this latter usage (‘respect’ etc.), although type (i) usages are possible as well.⁴⁶

⁴⁵ For a detailed discussion of the meaning and syntactic patterns of *bhā*, see Roesler 1997: 78-90.

⁴⁶ For a discussion of attested formations and syntactic patterns, see Oertel 1941: 88ff. [= *Kl. Schr.* II, 1457ff.]; Joachim 1978: 121; Gotō 1997: 1016ff.; Kümmel 2000: 360-364; Kulikov 2012: 336-344; Hettrich 2004.

The *-ya*-present *mánya-te* is also common in intransitive (reflexive) usages, meaning ‘X [NOM] considers/believes him-/herself to be Z [NOM]’, as in (39):

(39) (RV 8.48.6)

áthā hí te máda á soma mánye revám iva

‘... and because of now being intoxicated by you, O Soma, I consider myself as rich.’

The secondary *ā*-verb *mnā*, traditionally regarded as an extension of *man* (see, e.g., Mayrhofer, EWAia II, 385; LIV 447), is attested from the middle/late Vedic period onwards (*ā-mnāta*- Br., *ā-mnāyá*- Ār., etc.; see Gotō 1987: 239; 1997: 1025). This verb is fundamentally transitive; its present passive first appears in the (post-Vedic) Bhāradvāja-Śrautasūtra (3pl. *ā-mnāyante*).

marⁱ (mṛ̥) ‘crush’ // mlā ‘wither, wilt’

The verb *marⁱ (mṛ̥)* ‘crush’ is fundamentally transitive (the rare passive present *-mūryá-te* occurs only in ŚB 1.7.3.21 ≈ 1.7.4.12). The historically related *ā*-root *mlā* ‘wither, wilt’,⁴⁷ attested, in particular, in the class IV present *mlāya-ti* (AVP, ŚB; see Kulikov 2012: 599-600), is fundamentally intransitive; its causative *mlāpāya-ti* first appears in the Atharvaveda (see Jamison 1983: 143).

śar (śṛ) // śrā ‘become ready; cook’

The only early Vedic occurrence of a present form (part. *śrāyant*-⁴⁸) of the *ā*-root *śrā*⁴⁹ appears in a rather difficult construction (40), which can be tentatively interpreted as intransitive, adopting Karl Hoffmann’s translation of the passage:

(40) (RV 8.99.3ab)

śrāyanta iva sūryam ' víśvéd indrasya bhakṣata

‘Wie gar werdende (= sich erhitzende) Leute (Anteil) an der Sonne (haben), so haben sie Anteil an allen (Gütern) des Indra.’ (Hoffmann apud Joachim 1978: 162 and Narten 1987: 272f. [= Kl. Schr. 1, 342f., fn. 3])

The *-āya*-causative *śrapāyati* ‘cooks, prepares’ first appears in the Atharvaveda (attested, in particular, at AVŚ 11.1.4; see Jamison 1983: 145). The reduplicated causative aorist first occurs in the Brāhmaṇas (ŚB-Mādhyandina 3.8.2.28 = ŚB-Kāṇva 4.8.2.21 *áśiśrapāma* ‘we have cooked’)

Evidence for the syntactic type of the *C*-root *śar/śṛ* (aniṭ type) is scant. It is only attested in the verbal adjective *śṛtá*- ‘cooked; ready’ (RV+), which might be based either on a transitive (‘cook’) or on an intransitive (‘become ready’) verb.

⁴⁷ *mṛ̥* and *mlā* are connected with two Indo-European roots, **melh₁-* (**melh₂-?*) ‘grind’ and **merh₂-* ‘seize; crush’ (see Mayrhofer, EWAia II, 319f., 388f.; LIV 432f., 440), which probably fell together by the time of the RV.

⁴⁸ For this *-ya*-present and its post-Ṛgvedic attestations, in the Maitrāyaṇī Saṃhitā and Taittirīya-Āraṇyaka, see Kulikov 2012: 641-642.

⁴⁹ Etymologically unrelated to *śrī* ‘make perfect’, pres. *śrīṇāti*; see Narten 1987. For etymological connections and possible cognates of *śar (śṛ) // śrā*, see LIV 323.

havⁱ (hū) // hvā ‘call’

The verb *havⁱ (hū)* is fundamentally transitive (presents *hávate* and *hváyati* ‘calls’, pf. *juháva* ‘has called’, etc.; see Gotō 1987: 347ff.; Kümmel 2000: 606ff.), but its passive (pres. *hūyá^{-te}* RV+; passive aorist participle *huvāná-* RV;⁵⁰ cf. (41-42)) is well-attested from early Vedic onwards (see Kulikov 2012: 306-310):

(41)(RV 8.65.1ab = 8.4.1ab)

yád indra prāg āpāg údan¹ nīyāg vā hūyāse nībhīh

‘When you, O Indra, are invoked by men in the East, West, North, or South ...’

(42)(RV 10.112.3c)

asmābhir indra sākhibhir huvānáh

‘Called by us, friends, O Indra ...’

The root variant *hvā* (= full grade II), has probably arisen on the model of some *ā*-roots which form *-áya*-presents, such as *dhā – dháyati* ‘sucks’ and *dā – dáyate* ‘distributes’ (i.e. *dhā : dháyati* = X : *hváyati*).⁵¹ All formations built on the root variant *hvā*, viz. agent noun *hvātar-* JB, fut. *-hvāsyā^{-ti/te}*, caus. *-hvāpayati* ŚrSū., etc., first appear in late Vedic texts, thus being of little comparative value (though cf. Late Avestan *zbātar-*); see Gotō 1987: 350, fn. 863; Kümmel 2000: 608; LIV 180-181 for a discussion. All these formations attest the transitive syntax.

4. SYNTACTIC FEATURES OF THE *Ā*-VERBS: A RECAPITULATION

The results of the present study are summarized in Table 1 below. The members of the above-discussed verbal pairs are distributed across five syntactic classes in accordance with their transitivity features. Two non-diffuse classes include (1) intransitive verbs causatives of which are unattested or exceptional in early Vedic texts (i.e. in the RV and AV); and (5) transitive verbs passives of which are unattested or exceptional in early Vedic. Three diffuse classes consist of (2) basically intransitive verbs *-áya*-causatives of which are attested from early Vedic onwards (weak-diffuse intransitives); (3) verbs which are well-attested in both intransitive and transitive (causative) usages; and (4) fundamentally transitive verbs intransitive (passive) derivatives of which are well-attested from early Vedic onwards (weak-diffuse transitives). Verbs of these five syntactic classes can be arranged in accordance with their degree of diffuseness/non-diffuseness in terms of the following Diffuseness Hierarchy (41):

⁵⁰ On the participles of the passive aorist, see Kulikov 2006a: 64ff.; 2006b.

⁵¹ Such was probably also the origin of yet another secondary *ā*-root, *vā* (// *av(u)*) ‘weave’; see Hoffmann 1974: 23 [= 1975: 335], fn. 17; Mayrhofer EWAia I, 275f.; II, 538; LIV 224 and p. 30–31 above.

(41) Diffuseness Hierarchy

<div style="display: flex; justify-content: space-around; align-items: center;"> (3) (2), (4) (1), (5) </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 5px;"> ← diffuse weak-diffuse non-diffuse </div>				
(1) <u>Non-diffuse</u> (intransitive)	(2) (weak-diffuse)	(3) <u>Diffuse</u>	(4) (weak-diffuse)	(5) <u>Non-diffuse</u> (transitive)
only intransitive usages; causatives are unattested/exceptional or late	basically intransitive verbs; -āya-causatives are attested	both intransitive and transitive (causative) usages are attested	basically, transitive verbs; intransitive (passive) usages are attested	transitive verbs; passives are unattested/exceptional or late
pattern <i>CaC</i> // <i>C(C)ā</i>				
<i>yā</i> ‘drive’		<i>ay</i> (i) ‘go’ <i>kan</i> ⁱ ‘be pleased’ <i>kās</i> ‘appear (?)’; see’	<i>kṣā</i> (<i>khyā</i>) ‘look at’	<i>kā</i> ‘yearn’
<i>gā</i> ‘tread’	<i>gam</i> ‘go’	<i>tan</i> ‘stretch’	(<i>tā</i>) ← <i>dah</i> ‘burn’	
<i>drā</i> (// <i>dram</i> ?) ‘run’	<i>kṣā</i> ‘burn’ <i>dru</i> ‘run’	<i>pay</i> (<i>pay</i> ⁱ ?) ‘swell’		
<i>bhā</i> ‘shine’	<i>pyā</i> ‘swell’		<i>bhan</i> ‘speak’	<i>bhas</i> ‘devour’ // <i>psā</i> ‘chew’ <i>av</i> (<i>u</i>) // <i>vā</i> ‘weave’ (<i>mnā</i> ‘mention’)
	<i>śrā</i> ‘become ready’	<i>man</i> ‘think, respect’ (<i>śar/śr</i> (?))		
pattern <i>CR̄</i> (<i>CaR̄</i>) // <i>CRā</i>				
		[<i>jan</i> ⁱ ‘be born’ <i>tar</i> ⁱ (<i>tṛ</i>) ‘pass, carry across’	<i>jñā</i> ‘know’] <i>dham</i> ⁱ ‘blow’	<i>trā</i> ‘protect, rescue’ (<i>dhmā</i>) <i>dhay</i> ⁱ (<i>dhī</i>) // <i>dhyā</i> ‘think, reflect’ <i>prā</i> ‘fill’ <i>mar</i> ⁱ (<i>mṛ</i>) ‘crush’ (<i>hvā</i> ‘call’)
	<i>mlā</i> ‘wither’	<i>par</i> ⁱ (<i>pṛ</i>) ‘fill’	<i>hav</i> ⁱ (<i>hū</i>) ‘call’	

Table 1. Syntactic types of verbs belonging to *C*//*ā*-pairs

However variegated the syntax of the *C*- and *ā*-verbs might appear, there is at least one remarkable feature (tentatively formulated in Section 2) which is shared by nearly all *ā*-verbs and makes this distribution non-random. The *ā*-verbs (shown in the boldface in the table) generally attest much less syntactic flexibility, being employed either mostly/exclusively in intransitive usages, or mostly/exclusively in transitive usages, and thus belong to the **non-diffuse syntactic type**. The corresponding base verbs (*C*-verbs) show a great variety in syntax, but typically are **more diffuse** (= more flexible in transitivity), cf. especially *yā* (intransitive) // *ay* (*i*) (intransitive and transitive), *trā* (transitive) // *tar*^{*i*} (*tṛ*) (intransitive and transitive), *drā* (intransitive) // *drav* (*dru*) (intransitive and transitive-causative).⁵² Within the pair *pyā* // *pay/pi* (*pay*^{*i*} / *pī*?), *pay*^(*i*) (*pī*) is well-attested in both intransitive and transitive usages already in the RV, while *pyā* is predominantly intransitive; *-āya*-causatives first occur in the AV (4x)); thus, the *ā*-verb is clearly less diffuse (weak-diffuse) than the base verb, at least in the language of the RV. There are also a few pairs where both members belong to the same syntactic class, cf. *dhyā* // *dhay*^{*i*} (*dhī*) (both transitive) and *psā* // *bhas* (both transitive). The only pair where the *ā*-verb can be considered (somewhat) more diffuse than the corresponding *C*-verb is *mlā* // *mar*^{*i*} (*mṛ*). *mlā* is fundamentally intransitive, whilst *mar*^{*i*} (*mṛ*) is transitive, but the causative of the former, *mlāpāya*^{-*ti*}, is a bit older (AV+) than the passive of the latter, *-mūryā*^{-*te*} (ŚB). In fact, this seems to be an exception that proves the rule: due to the difference in final sonants (*l/r*) (probably a dialectal feature), the historical relations between *mlā* and *mar*^{*i*} (*mṛ*) are more blurred than those between the members of any other root pair, and synchronically they clearly do not belong together.

As far as more specific correlations between the syntactic characteristics of the verbs and the type of formal relationship between *C*- and *ā*-roots are concerned, the following regularities can be observed.

(i) Within the pairs which follow the schwebeablauting pattern *CaRⁱ (CṚ)* // *CRā* (i.e., in diachronic terms, **CaRH-* // **CRaH-*), the *ā*-member is often **transitive**, as opposed to the (more) diffuse *C*-verb; cf. especially *tar*^{*i*} (*tṛ*) ‘pass, carry across’ // *trā* ‘protect, rescue’ and *par*^{*i*} (*pṛ*) // *prā* ‘fill’. It is interesting to note that present passives with the suffix *-ya-* and passive aorists (*i*-aorists) are unattested in Vedic for most of these *ā*-roots. Thus, *aprāyi* is a hapax, which only appears in the RVKh. and Atharvaveda; *dhmāyate* first appears in late Vedic; pass. *trāyate* ‘is (being) protected, is (being) rescued’ does not occur before Classical Sanskrit; for other *ā*-roots *-ya*-passives and *i*-aorists are unattested.

(ii) By contrast, many *ā*-verbs which follow the pattern *CaC // C(C)ā*, i.e., in diachronic terms, contain the root enlargement (suffix) *-ā-* (< PIE **-eH-*), are (predominantly) **intransitive**, as opposed to the (more) diffuse *C*-verbs. Note, in particular, that present causatives with the suffix *-(p)āya-* (well-attested in early Vedic for some roots in *-ā* such as *sthā* ‘stand’ and *dhā* ‘suck’) are (relatively) late or entirely lacking for the *ā*-verbs (*ā*-roots) of the *CaC // C(C)ā*-pairs. Thus, causatives of *yā* and *drā* first appear in the Brāhmaṇas; causative of *gā* is unattested. The intransitivizing effect of *-ā-* is also fairly obvious in the pair *dah* // *kṣā* ‘burn’: unlike *dah*, which is basically transitive but later is drifting into the diffuse type, *kṣā* is a predominantly intransitive verb, which forms an *-āya*-causative.

⁵² Correlations between certain root extensions and transitivity types are not something unheard of. Some of these correlations were noticed in earlier work such as Solta 1974 or Kulikov 1993.

5. CONCLUDING REMARKS: HISTORICAL SOURCES OF THE *C//ā*-ALTERNATION AND ITS SYNCHRONIC STATUS

Much remains unclear about the origins of the above-formulated correlations between the formal patterns of the *C//ā*-alternation and the syntactic features of the verbs in question. In general, evidence from Indo-European languages outside Indo-Iranian furnishes few parallels to the syntactic patterns described in the Section 4. Moreover, many of the *ā*-verbs have no reliable cognates outside Indo-Iranian, and, thus, we have to look for the origins of this syntactic patterning on Indo-Iranian (or even Indo-Aryan) ground.

There may have been several sources of the correlations between the attested formal patterns and syntactic features.

(i) In the case of the *CaC//CCā*-type, the (predominantly) intransitive character of some *ā*-verbs may be a vestige of the intransitive/stative function of the hypothetical Proto-Indo-European suffix **-ē-* (**-eH-*). In fact, as mentioned above, evidence for reconstructing this ‘stative’ suffix in *ā*-verbs is scant: while in the ‘stative’ suffix **-ē-* we have to reconstruct *h*₁ (**-eh*₁-; see Beekes 1995: 230), in most of the above-discussed *ā*-roots we are probably dealing with the reflex of another laryngeal, *h*₂. The full evidence can be summarized as follows (the reconstruction mostly follows Mayrhofer’s EWAia and LIV):

- | | |
|-------------------------|---|
| <i>h</i> ₁ : | <i>kṣā</i> < <i>*d^hg^{uh}-eh</i> ₁ - ‘burn’ (intransitive with <i>-āya</i> -causatives) |
| | <i>prā</i> < <i>*pleh</i> ₁ - ‘fill’ (transitive) |
| | <i>mlā</i> < <i>*mleh</i> ₁ - ‘wither, wilt’ (intransitive with <i>-āya</i> -causatives) |
| <i>h</i> ₂ : | <i>kā</i> < <i>*k^hh</i> ₂ - (?) ‘yearn, enjoy’ (transitive) |
| | <i>gā</i> < <i>*g^heh</i> ₂ - ‘go, tread’ (intransitive) |
| | <i>trā</i> < <i>*treh</i> ₂ - ‘protect, rescue’ (transitive) |
| | <i>drā</i> < <i>*dreh</i> ₂ - ‘run’ (intransitive) |
| | <i>bhā</i> < <i>*b^heh</i> ₂ - ‘shine’ (intransitive) |
| | <i>mnā</i> < <i>*mn-eh</i> ₂ - ‘mention’ (transitive) |
| | <i>yā</i> < <i>*(H)ie</i> ₂ - ‘drive’ (intransitive) |
| <i>h</i> ₃ : | no reliable examples |
| <i>H</i> (unknown): | <i>kṣā</i> < <i>*k^hk-eH-</i> ‘see, consider, reckon’ (transitive with passives) |
| | <i>dhmā</i> < <i>*d^hmeH-</i> ‘blow, inflate’ (transitive) |
| | <i>dhyā</i> < <i>*d^hieH-</i> ‘consider, reflect’ (transitive) |
| | <i>pyā</i> < <i>*pieH-</i> ‘swell’ (intransitive) |
| | <i>psā</i> < <i>*b^hs-eH-</i> ‘chew’ (transitive) |
| | <i>vā</i> < <i>*HueH-</i> ‘weave’ (transitive) |
| | <i>śrā</i> < <i>*kl-eH</i> ⁵³ ‘become ready’ (intransitive (?) with <i>-āya</i> -causatives) |
| | <i>hvā</i> < <i>*g^hueH</i> ⁵⁴ ‘call’ (transitive) |

⁵³ **kl-eh*₁- ? (see LIV 323).

⁵⁴ Probably *h*₂ or *h*₃; see Mayrhofer, EWAia II, 811; LIV 181.

Apparently, there are as few as one or two root pairs where the intransitivity of the *ā*-verb can be explained as a direct reflex of the intransitive function of the PIE suffix **-eh₁-*. Note, however, that the development of the syntactic features ('non-diffuseness') of the *ā*-verbs should probably be dated to Proto-Indo-Iranian, where the three PIE laryngeals have fallen together. Accordingly, it cannot be ruled out that just a few (derived) roots with the reflex of the PIE 'stative-intransitive' suffix **-eh₁-* > PIIr. **-aH-* (**d^hg^{uh}-eh₁-?*, **kl-eh₁-?*) could trigger and/or support the development of similar syntactic properties of the verbal forms derived from all **CC-aH-* roots, irrespective of the quality of the PIE laryngeal.

(ii) In some cases, the syntactic features of the formations built on different grades of one verb/root (cf. the transitive aorist *aprāt* as opposed to the intransitive present *pūryate* and transitive-causative present *prṇāti*) could be associated with the corresponding (*C-* vs. *ā-*) root variants. Subsequently, one paradigm could split in two sub-paradigms, and, accordingly, one lexical unit (verb) gave rise to two different (albeit etymologically and derivationally related) verbs. Thus, the transitive syntax of the root aorist *āprās* could be generalized for all formations built on the full grade (II) of the root *pṝ* // *prā* 'fill', as opposed to formations derived from the zero grade (pres. *pūrya^{-te}*, *pūryā^{-te}*, *prṇāti*, *prṇā^{-te}*), which, eventually, has led to the split of one single lexical unit in two, *tarⁱ* (*pṝ*, *pūr*) 'become full; fill' and *prā* 'fill' (see Albino 1999; Kümmel 2000: 325-328), differing in syntactic features: diffuse vs. (predominantly) transitive. This difference in syntax could be expanded to another root pair following the same pattern (*CaRⁱ* // *CRā*), *tarⁱ* (*tṝ*) 'pass, carry across' // *trā* 'protect, rescue'. In some cases, this syntactic difference could be supplemented with idiomatic shifts (cf. *tarⁱ* (*tṝ*) 'pass, carry across' // *trā* 'protect, rescue'; *man* 'think, believe; respect' // *mnā* 'mention'), but their character is of a less regular nature than the above-discussed syntactic oppositions.

(iii) Finally, it cannot be ruled out that the difference in syntactic properties between some historically (and semantically) unrelated but formally similar roots has contributed to the development of the functional (syntactic) value of the *C//ā*-alternation. Particularly instructive is the case of *janⁱ* 'be born; generate' // *jñā* 'know'. In spite of the lack of semantic and historical connections between these two roots (see above), their formal similarity and the remarkable difference in syntactic behaviour (*janⁱ* is diffuse; *jñā* is fundamentally transitive) could have supported the syntactic model of the etymological *CaRⁱ* // *CRā* pairs such as *parⁱ* (*pṝ*) // *prā*.

To conclude, a few remarks on the status of the *C//ā*-alternation within the system of verbal categories and transitivity oppositions will be in order. Although its connection with such syntactic features of the verb as transitivity or lability does not raise any doubt, at least for a considerable number of root pairs, it would be incorrect to consider this morpho(phono)logical phenomenon as a valency-changing category. The idiomatic character of changes observed for several verbal roots does not allow to characterize this morphological operation as one of (in)transitivizing derivations known from typology. Rather, we are confronted here with quite a complex phenomenon relevant both for the semantics of the verbal roots and for its paradigmatic properties, and the function of this operation should be qualified in terms of quite vague tendencies, rather than in terms of strict rules. Such synchronic 'vagueness' of the *C//ā*-alternation must be due to the heterogeneity of its

origin (see above) as well as to its diachronic instability. Before it had rooted in the Old Indian verbal system, it started to lose its functional features as early as by the end of the early Vedic period and, especially, in middle Vedic – most probably, due to drastic changes in the system of valency-changing categories and, foremost, because of the increasing productivity of morphological causatives (with the suffix *-áya-*) and passives (with the suffix *-ya-*; see, in particular, Kulikov 2006a: 75ff.). Nevertheless, the importance of this phenomenon for establishing the Old Indo-Aryan system of transitivity oppositions, especially in the early Vedic period, is quite obvious. Although the *C//ā*-alternation was operating for a relatively small part of the verbal dictionary, and its status should be qualified as submorphic,⁵⁵ rather than as morphological, it played an important role for establishing the syntactic potential of the vast fragments of verbal paradigms, influencing some basic trends within the Vedic verbal system. The status of such submorphic phenomena and their diachronic typology, both in Indo-European and beyond, is poorly studied and represents one of the most interesting domains of research in historical linguistics in general, and in Indo-Iranian and Indo-European linguistics, in particular.

SYMBOLS AND ABBREVIATIONS (TEXT SIGLA)

□+	(attested) from [text] □ onwards
AĀ	Aitareya-Āraṇyakas
Ār.	Āraṇyaka(s)
AV(Ś)	Atharvaveda (Śaunakīya recension)
AVP	AV, Paippalāda recension
Br.	Brāhmaṇas
JB	Jaiminīya-Brāhmaṇa
KaṭhU	Kaṭha-Upaniṣad
MaitrU	Maitri- (Maitrī-), Maitrāyaṇa-, Maitrāyaṇīya-Upaniṣad
□ ^p	prose part of [text] □
RV	Ṛgveda
RVKh.	Ṛgveda-Khilāni
ŚB	Śatapatha-Brāhmaṇa
ŚrSū.	Śrauta-Sūtras
Up.	Upaniṣads
VS	Vājasaneyi-Saṃhitā
YV	Yajurveda(-Saṃhitā)

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⁵⁵ For the notion of submorph, considered as one of the types of “quasi-linguistic units” (phonemic sequence or morphological operation without a clearly definable function), see especially Mel’čuk 1997/2001: vol. IV, Pt. V, Ch. 2, §5, 6 [245-251]; see also Mel’čuk 1985: 191 (with references to Jakobson’s pioneering work in the field), Mugdan 2015: 238 and Tokar 2012: 44-46, 50-52, with examples of submorphs from English.

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BIBLIOGRAPHICAL ABBREVIATIONS

EWAia	<i>Etymologisches Wörterbuch des Altindoarischen</i>
HS	<i>Historische Sprachforschung</i>
IJ	<i>Indo-Iranian Journal</i>
JAOS	<i>Journal of the American Oriental Society</i>
JIES	<i>Journal of Indo-European studies</i>
KEWA	<i>Kurzgefaßtes etymologisches Wörterbuch des Altindischen</i>
Kl. Schr.	Klein(er)e Schriften
KZ	<i>Zeitschrift für vergleichende Sprachforschung auf dem Gebiete der indogermanischen Sprachen (Kuhns Zeitschrift)</i>
LIV	<i>Lexikon der indogermanischen Verben</i>

OBSERVATIONS ON THE REFLEXES *k*- AND *h*- FOR INITIAL **k*- IN HUNGARIAN

JAN HENRIK HOLST

Abstract

Hungarian has a well-known sound law **k*- > *h*- before back vowels, which is seen e.g. in Hungarian *hal* ‘fish’, cognate with Finnish *kala* ‘fish’. Old Hungarian exhibits *ch*-, i.e. IPA [x-], which represents an intermediate stage. This paper presents a couple of reflections on the sound law. First of all, another intermediate stage **q*- (voiceless uvular plosive) is reconstructed in order to arrive at phonetically plausible developments. Moreover, the investigation treats the law’s consequence that inherited words usually show either *k*- + front vowel or *h*- + back vowel, and how this state of affairs was blurred. In addition, the relation between diachronic change and synchronic systems is briefly looked at. Finally, the text investigates interrogative pronouns with former **k*- in Hungarian and draws attention to interrogative pronoun systems from other languages which developed in a parallel way – and it is here where things become interesting for long-range comparison.

1. Introduction
2. Specification of the phonetic development
3. Main consequence of the development of **k*-
4. Sound laws and morphophonology
5. The Hungarian interrogative pronouns and their wider context

1. INTRODUCTION

Uralic initial **k*- is represented in Hungarian in two ways, as is well known: partly as *k*-, partly as *h*-. There is a sound law: under certain conditions **k*- was shifted, and today’s result is *h*-. If, however, the conditions were not met, **k*- was preserved as *k*-. The overall event is therefore a split: from a single sound, two reflexes arise. The conditioning for the sound law is known as well: it applied before back vowels, while before front vowels the shift did not apply. (The development of medial **-k*- in Hungarian is different; it ends up as *-v*-, with a different result or with no reflex

at all, see Sammallahti 1988: 516, but the present paper will not be concerned with medial **-k-*. A new medial *-k-* arises from Uralic **-kk-*.)

There are numerous examples for what has been said; the facts can be illustrated by comparison with Finnish, which preserved *k-*:

**k- > k-*:

Hungarian Finnish

<i>kéz</i>	<i>käsi</i>	‘hand’
<i>könny</i>	<i>kyynel</i>	‘tear’
<i>kő</i>	<i>kivi</i>	‘stone’
<i>köt</i>	<i>kytke-</i>	‘to tie’
<i>kettő</i>	<i>kaksi</i>	‘two’

**k- > h-*:

Hungarian Finnish

<i>hal</i>	<i>kala</i>	‘fish’
<i>hal</i>	<i>kuole-</i>	‘to die’
<i>három</i>	<i>kolme</i>	‘three’
<i>hall</i>	<i>kuule-</i>	‘to hear’
<i>hat</i>	<i>kuusi</i>	‘six’

In ‘two’ Finnish exhibits a back vowel, but what counts is what was present in Hungarian (to be more precise: present in Hungarian at the time when the law applied), and that was a front vowel. In Old Hungarian, instead of *h* a voiceless velar fricative appears, IPA [x]; hence in the oldest documents, e.g. the Halotti Beszéd, *chomuv* is found for *hamu* ‘ashes’ and *chod* rather than *had* ‘army’ (the orthographic representation as *ch* is the same as in Czech and German). The second word is cognate with Finnish *kunta* ‘municipality’.

The statements and data laid out so far are well-known. They are mentioned in introductions to Uralic linguistics, and they also found entry into a general textbook on historical linguistics (not tied to a specific language family or region): Campbell (1998: 132–137). At first glance it looks as if there was not much to add to the topic. On a closer look, however, a couple of remarks arise, which will be made in the following.

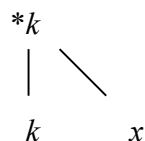
Section 2 offers a specification of the phonetic development, section 3 points out a consequence for the vocabulary of Hungarian, section 4 highlights the relation between the diachronic events and the synchronic linguistic system, and section 5 treats the Hungarian interrogative pronouns in a wider context.

2. SPECIFICATION OF THE PHONETIC DEVELOPMENT

As already laid out, Old Hungarian did not have *h-*, but *x-* (*ch-*). Therefore, when writing **k- > h-*, this is a shortening for **k- > x- > h-*. Abbreviating notations are legitimate with phonetic (and other)

changes since often the goal is merely to focus on the starting-point and the end-point of a development; for a more elaborate presentation the intermediate stage can be inserted.

With $*k > x > h$ the second part $x > h$ is unconditioned: all x are shifted to h , so that x now does not exist any longer. The conditioning to have a back vowel following, addressed in section 1, refers to the first part, $*k > x$. Using a diagram, the split of Uralic initial $*k$ - can be depicted as follows:

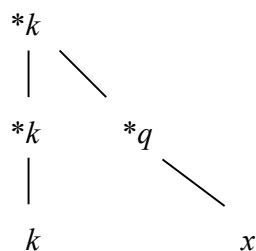


Here the oblique line represents the change before back vowels, while the vertical line stands for the preservation of the original consonant.

At this point a critical reflection can start, based on phonetics. As is well-known, k is a voiceless velar plosive (stop), and x is a voiceless velar fricative. Hence what changes here is the manner of articulation: from plosive to fricative; the other features – in the phonetic sense of the term – remain unchanged. But why, after all, should a plosive develop into a fricative in the neighbourhood of back vowels? Phonetically this is not straightforward. Sound laws are not haphazard, but every sound law has a phonetic background. That this critical questioning arises is due to a way of reasoning which has not been pursued much yet in linguistics, and not either in Uralic studies very much. From time to time the situation arises that a sound law can admittedly be inferred from a formal point of view, but this leaves an aftertaste since the law does not really make sense from a phonetic point of view. In such cases the impression arises that the actual events of language history have not been captured yet in their entirety.

In the Hungarian case at issue the data do not permit doubts on the following circumstance: Uralic $*k$ -, which is preserved in Finnish and many other daughter languages as such and which can be reconstructed unequivocally, is represented in Old Hungarian as x - before back vowels. In such problematic cases the solution can be that an *intermediate stage* should be assumed. This applies here as well, as will be argued now. (This is about an intermediate stage between $*k$ - and x -. The fact that x - is itself an intermediate stage on the way to modern h -, see section 1, is irrelevant in this context.) The task is to find a relation between back vowels and a possible event which may affect $*k$ -.

Back vowels cannot shift a plosive to a fricative; there is no reason for this to happen. What back vowels can do, however, is to shift the consonant $*k$ itself further back; as with so many sound laws this is an assimilation at the end of the day. The result then is a uvular (or post-velar) plosive, which in many linguistic fields, also Uralic studies, is written q . Precisely this event should be assumed for Hungarian. In a second step then, the uvular plosive becomes x ; this is a typical development as well. Seen from the perspective of this view, the diagram given above is only an abbreviation, and the full events are:



Here the first oblique line represents the conditioned rise of **q*, and the second oblique line describes an unconditioned sound change. The literature usually only speaks of **k* > *x* – e.g. Kálmán (1972: 50), Sammallahti (1988: 516), Mátai (2002: 16), and further sources could be adduced. However, **q* is required as an intermediate stage in order to arrive at a phonetically plausible development.

Both parts of the development can be backed up typologically with parallels. Thus, **k* > *q* in the context of back vowels is a sound law which can be found in many languages; it can also be observed, for instance, in various Turkic languages. Since Hungarian was in contact with Turkic it could even be wondered whether this context may be responsible for the development – but *k* > *q* with back vowels is a law so simple and frequent that no such relation needs to be assumed. Moreover, among the Uralic languages themselves there are some which exhibit this law, e.g. among the Samoyed languages and among varieties of Ob-Ugric. For **q* > *x* parallels are found for instance in the history of Georgian (Fähnrich 1994: 36, Holst 2014: 34) and in the history of the neighbouring Zan languages (Holst 2014: 70). In general *q* is a plosive which can easily be shifted to a fricative. This is due to its auditive impression: when releasing the closure, it comes to an acoustic event which reminds of a fricative already. To sum up, the Hungarian development in its entirety is **k* > **q* > *x* > *h*.

3. MAIN CONSEQUENCE OF THE DEVELOPMENT OF **K*-

The main consequence of the development of initial **k*- consists of the fact that phonetically regular, from a historical point of view, are almost only such words which exhibit *k*- + front vowel or *h*- + back vowel, hence for instance *kéz* ‘hand’ and *hal* ‘fish’. This insight should be highlighted. It is relevant for etymological research, especially when it comes to the establishing of inherited words. Moreover, it also contributes to the rise of a feel for the Hungarian language when this knowledge is at one’s disposal.

In fact, Hungarian does have many words with the opposite combinations today, i.e. *k*- + back vowel or *h*- + front vowel, e.g. *kút* ‘well’ (noun), *hív* ‘to call’. It can be investigated why this is so. The observation has mainly three causes:

- a) younger events in sound history
- b) coinages which can be called onomatopoeic, expressive etc.
- c) the adoption of loanwords

On a): The Hungarian vowel *i* has more than one regular source. It can go back to **i*, but also to a back vowel – probably the high back unrounded vowel, IPA [u]. The latter option is shown

by cognate sets such as Hungarian *ín* – Finnish *suoni* ‘sinew’; in addition, there are loanwords such as Hungarian *ír* = Turkish *yaz-*, Chuvash *śır-* ‘to write’ (Hungarian *ír* stems from that branch of Turkic which contains Chuvash). The double nature of Hungarian *i* with regard to sound history can also be seen from the not constant behaviour of *i* in vowel harmony; stems with *i* from a back vowel take back vowel suffixes: *in-ak* ‘sinews’ (nominative plural of *ín*), *ír-ok* ‘I write’, *hív-nak* ‘they call’. It now turns out that a word such as Hungarian *hím* ‘male’ (noun) corresponds with Selkup *qup* ‘man, human’ (with *-p* < **-m* in final position) etymologically. The crucial concept here is that of *relative chronology*: obviously it came first to the sound law **k-* > **q-*, and only later to the shift of the back vowel to *i*. In this way it becomes clear why the predecessor of Hungarian *hím* was affected by **k-* > **q-*: at the time of the law there still was a back vowel.

On b): The fact that onomatopoeic and similar coinages can use new combinations of sounds hardly needs any illustration.

On c): As is well-known, Hungarian took up a large number of loanwords. For generalities about loanwords in Hungarian see Benkő (1972: 176–193). It was within this context that also words beginning with *k-* + back vowel or with *h-* + front vowel entered the language, or that these combinations arose. An example is provided by Hungarian *hörcsög* ‘hamster’ from Slavic, cf. Serbo-Croatian *hrčak* ‘hamster’. Especially interesting with regard to *k-* and *h-* are loans from Turkic languages since they fall into two groups. For the sake of comparison modern Turkish is cited in the following two brief lists. (This was not the specific contact language, but proceeding in this way is ostensive.) In one group, Hungarian has *h-*:

Hungarian Turkish

<i>hód</i>	<i>kunduz</i>	‘beaver’
<i>homok</i>	<i>kum</i>	‘sand’
<i>hajó</i>	<i>kayık</i>	‘ship’ / ‘boat’

In the other group, in contrast, Hungarian exhibits *k-*:

Hungarian Turkish

<i>kapu</i>	<i>kapı</i> (<i>ı</i> < <i>u</i>)	‘gate’
<i>kút</i>	<i>kuyu</i> (<i>y</i> < <i>*δ</i>)	‘well’ (noun)
<i>kos</i>	<i>koç</i>	‘ram’

Two options arise for an interpretation with historical linguistics. With the first group, the donor languages could have been such Turkic languages which exhibited *q-* (or *x-*), so that this led to *h-* later. A different solution would work with different *times*: the words of the first group would have been taken up earlier, while those of the second group would have been taken up later and hence were not affected by the sound law. Research tends towards the latter view (Mátai 2002: 16). The Hungarian words of the first group make the same impression as inherited words with regard to their phonetic shape, while those of the second group illustrate the point that loanwords can exhibit *k-* + back vowel. (Both groups of words bear no relation to Ottoman rule over Southeastern Europe – the loans related to this are considerably younger, and *k-* is always represented as *k-* in them.)

There are only few words with *h-* + front vowel which do not fall under any of the three explanations but which must definitely be considered part of the basic vocabulary of Hungarian. One of these is *hét* ‘seven’. This word also means ‘week’, which is significant, and untypical for Uralic languages. Similar data with ‘seven’ / ‘week’ are found in Iranian languages, and Hungarian *hét* has long been identified as a loanword from an Iranian source. However, the initial *h-* in *hét* is unexpected, since the absence of a consonant would be regular (**ét*). Therefore, influence from *hat* ‘six’ (cognate with Finnish *kuusi* ‘six’) has often been assumed (Honti 1993: 104); as is well-known, neighbouring numerals can influence each other. Another item of the type discussed is *hisz* ‘to believe’. Décsy (1965: 176) mentions this verb in a list of Hungarian words which have no etymological counterparts in other Uralic languages but which cannot be regarded as loanwords either; hence for Décsy these words are etymological mysteries. Many years later Rédei (2001: 503) made an effort to explain *hisz* on the basis of two verbs as a contamination.

At the beginning of this section the view was expressed that knowledge of the facts discussed contributes to the rise of a feel for the Hungarian language. One will then see any word with the initial combination of *k-* + back vowel or *h-* + front vowel with different eyes. Mostly one will be dealing with a rather young word. Thus, for instance, confronted with *kulcs* ‘key’ one will easily arrive at the suspicion that this is a loanword, and one will then rightly be reminded of words from Slavic languages such as Polish *klucz* ‘key’. (In Hungarian a metathesis occurred in order not to have an initial consonant group.) In a similar vein, *konyha* ‘kitchen’ (also here a metathesis is involved, concerning the consonant cluster) belongs with Polish *kuchnia* ‘kitchen’, English *kitchen* etc., Latin *coquīna*. These relations are relevant didactically, and it is in my opinion legitimate to point them out in a linguistic treatment.

Of course, it cannot be concluded in a reverse manner that words with *k-* + front vowel or *h-* + back vowel must necessarily be inherited items. Hungarian *kék* ‘blue’ is a loanword despite the fact that from a structural point of view it does not exhibit anything conspicuous; it belongs with Turkish *gök* ‘sky’.

4. SOUND LAWS AND MORPHOPHONOLOGY

Conditioned sound laws often have consequences for morphophonology. In Balto-Finnic, for instance, there was a sound law **t > s* before *i*, and by this the nominative singular **käti* became Finnish *käsi* ‘hand’, while in the essive case *käte-nä* **t* remained unshifted. The result is a morphophonological alternation of *t* and *s* in the paradigm. (Further forms contain *d < *t* due to gradation – which, however, is a different issue.) For the relationship between sound laws and morphophonology see Bynon (1977: 89f.), Haspelmath (2002: 195), Holst (2009: 147), Holst (2014: 15) and especially Holst (2023: 37, 109–112).

The Hungarian development under study could possibly have left traces in morphophonology. However, it is difficult to obtain examples – hardly any exist. This is due to the fact that Hungarian roots usually do not alter the quality of their vowels – in contrast to typical Indo-European languages, in which ablaut may make *e* and *o* alternate, for instance. Since such vowel alternations

are almost totally lacking in Hungarian in the first syllable, a **k*- preceding the vowel of the first syllable could not split up into *k*- and *h*- within a paradigm or with words linked by derivation.

What does exist in Hungarian is vowel harmony. Thus, suffixes frequently have two or more allomorphs with vowels which are determined by the stem vowels. Such suffixes may begin with *k* or with *h*. An example is provided by *-hat*, *-het* ‘to be able to’, a suffix attachable to verbs: *mond* ‘he says’, *mond-hat* ‘he can say’. The allomorph *-hat* is the one which corresponds to the regular makeup of inherited roots in Hungarian, while the allomorph with *-het* is not of this type. It turns out that this suffix is from a formerly independent word which still exists in the language: *hat-ni* ‘to work, to operate’, cf. also *hat-alom* ‘power’ (Collinder 1969: 413, Bárczi 2001: 57, and other sources). A similar situation exists with a local case called allative whose suffix has the allomorphs *-hoz* *-höz* *-hez*. It turns out that the original vowel in this suffix was *o*, which can still be seen in the corresponding postposition inflected for person and number: *hozzá-m* ‘to me’, *hozzá-d* ‘to thee’, etc. To cite a suffix with *k*, there is *-kor* for references to time – without allomorphy in this instance. This suffix comes from the independent noun *kor* ‘age, time’.

5. THE HUNGARIAN INTERROGATIVE PRONOUNS AND THEIR WIDER CONTEXT

As seen in the previous section, usually initial **k*- did not split up in Hungarian into *k*- and *h*- in one and the same paradigm or in words connected by derivation, the reason being that a difference in vocalism in the first syllable, providing the prerequisite for such a split, usually does not exist.

There is, however, an interesting instance in Hungarian where the split of **k*- did lead to *k*- and *h*- existing side by side in interrelated words. Possibly it is not appropriate to speak of morphophonology here (this would be a matter of definition), but the words in question do indeed belong together. They constitute the major part of the Hungarian interrogative pronouns. Some space must be devoted to discussing this.

In many languages – this is a typological observation – the interrogative pronouns have a characteristic “key consonant” with which all of them or almost all of them begin (Holst 2019: 22). In Georgian, for instance, this is *r*-, cf. *ra* ‘what’, *rogor* ‘how’, *romeli* ‘which’ and others; exceptions are *vin* ‘who’ and *sad* ‘where’. English has as the typical beginning *wh*-, Danish *hv*-, Swedish *v*-, German *w*-, etc. The usual reason for this finding is probably that at an earlier time one interrogative pronoun existed from which then others were formed. This is possible by compounding, for instance. In Turkish, to give an example, *ne zaman* ‘when’ consists of *ne* ‘what’ and *zaman* ‘time’. A different procedure is the use of cases. Hence in Finnish, *mikä* ‘what’ provides the basis for other interrogative pronouns which are formally nothing but case forms of *mikä*: *missä* ‘where’ is its inessive, *miksi* ‘why’ is its translative, etc. The causes can lie back in time to such an extent that certain specific connections are not visible any longer; thus, the Georgian data, for instance, cannot be segmented readily.

What can happen now is that with one pronoun or several a deviation arises by sound change. In Latin the characteristic consonant is *qu*- (i.e. *k^w*-) as in *quis* ‘who’, *quandō* ‘when’, etc.; given that this sound loses its rounding before *u*, however, it appears as *c*- (i.e. *k*-) in *cūr* ‘why’ and *cūius* ‘whose’. In Hungarian many interrogative pronouns exhibited **k*-, and it turns out that exactly that

split is found which would have been expected by sound history. The contrast manifests itself as follows:

– *k-* in *ki* ‘who’, *kié* ‘whose’

– *h-* in *hol* ‘where’, *hová* ‘(to) where’, *honnán* ‘from where’, *hogy* ‘how’, *hány* ‘how many’

Outside this system is *mi* ‘what’ with its derivatives such as *miért* ‘why’. It pays to bring to one’s mind the tracing of the above facts to a system with the consonant **k-*. The alternation *k-* / *h-* arose from the Old Hungarian alternation *k-* / *x-*, this in turn from **k-* / **q-*, and this in turn from uniform **k*.

Now the intermediate stage **k-* / **q-* in the system of the Hungarian interrogative pronouns is interesting. For precisely such a system is attested directly. Examples are provided by the Eskimo-Aleut languages, cf. Greenlandic:

– *k-* in *kina* ‘who’

– *q-* in *qanga* ‘when’, *qaqugu* ‘when’, *qanoq* ‘how’

While for Hungarian related languages are present which point to the once uniform **k-*, in Eskimo-Aleut access to **k* for today’s *k* and *q* is possible only via internal reconstruction (Holst 2005: 212). Also, Yukaghir exhibits interrogative pronouns with *k-* / *q-* (data cited from Maslova 2003: 40f.):

– *k-* in *kin* ‘who’

– *q-* in *qadā* ‘where’, *qan'in* ‘when’ (*n'* is a palatal), *quodī* ‘why’, *quode* ‘how’

Also for Yukaghir, researchers suspect that today’s *k* and *q* go back to **k*, i.e. the uvular split off from the velar under certain conditions (Fortescue 1998: 72, 91 fn. 22). Finally, Classical Mongolian constitutes another example (data cited from Grønbech / Krueger 1976: 41):

– *k-* in *ken* ‘who’, *kedün* ‘how many’, *kejiye* ‘when’, *ker* ‘how’

– *q-* in *qamiya* ‘where’

Hence several languages, independently, developed out of a system with *k-* one with *k-* / *q-*. Based on the insights of the present paper, Hungarian belongs here as well. This language, however, subsequently went two steps further with its development **q-* > *x-* > *h-*.

The split of **k-* depending on the following vowel is not surprising since it is, as laid out in section 2, phonetically commonplace and frequently attested. The question can be raised, however, why the characteristic consonant is **k-* in several language families of Eurasia – and not a different consonant such as the Georgian *r-*. The correspondences between Hungarian (at an early stage), Eskimo-Aleut, Yukaghir and Mongolian even go so far that *k-* is present specifically in ‘who’ and *q-* in some other pronouns. This is a consequence of the fact that in ‘who’ it was a front vowel which followed (**i* or **e*), while in some other pronouns a back vowel followed. As to ‘who’, it is even possible to add further language families with words with a similar structure. One may mention Turkish *kim* ‘who’ / Chuvash *kam* ‘who’ (where *a* is probably new; in Chuvash, innovations in vocalism abound). Furthermore, the Chukotko-Kamchatkan language Itelmen has *k'e* ‘who’

(word cited from Georg / Volodin 1999: 134, *k'* is an ejective). Last but not least, the Indo-European languages with their **k*^w- in interrogative pronouns, including ‘who’, should be mentioned (compare the discussion of Latin above). Frequently the third item in the string of sounds for ‘who’ is a nasal, *n* or *m*. In Indo-European the *m* is found in the accusative: Latin *quem*, etc. As to Uralic, Hungarian does not exhibit a final nasal in *ki* ‘who’, but Finnish does so in its archaic nominative *ken* ‘who’. Note also the irregular plural Finnish *ket-kä* (with *-kä* a suffix), and now compare Finnish *ken* ‘who’, pl. *ket-kä*, with Classical Mongolian *ken* ‘who’, pl. *ked*.

A possible cause for the agreements laid out is that the consequences of distant relationship are present here. This is what Illič-Svityč and Dolgopolsky would advocate with their “Nostratic”, as well as Fortescue with his “Uralo-Siberian”, and Greenberg with his “Eurasianic”. Their publications have brought forth a large number of ideas many of which are rather speculative, but the issue of the interrogative pronouns just discussed is impressive and, together with some other remarkable agreements (e.g. a frequent *m* for 1st person and a frequent *t* for 2nd person), perhaps even by and large probative. Recently it was Georg’s job to give a survey of the possible relations of Uralic to the outside (Georg 2023), but he missed the opportunity to mention the tantalizing data that exist.

At this point the topic cannot be pursued in detail any further. In essence the purpose of the observations was merely to point out in what context(s) the Hungarian interplay of *k*- and *h*- in the interrogative pronouns can be seen – and perhaps *should* be seen.

To sum up, it can be emphasized that the seemingly so simple split of Uralic initial **k*- into Hungarian *k*- and *h*- provided the inducement for rather many trains of thought.

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(DE)CLASSIFYING ARUNACHAL LANGUAGES: RECONSIDERING THE EVIDENCE

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ACRONYMS AND CONVENTIONS

#	quasi-reconstruction
*	regular reconstruction
AD	anno Domini
BC	before Christ
BP	before present
C	consonant
CTB	Common Tibeto-Burman
IPA	International Phonetic Association
kya	thousand years ago
N	nasal
TH	Trans-Himalayan
V	vowel

Abstract

The ‘North Assam’ languages of Arunachal Pradesh represent a major problem in the internal classification of Trans-Himalayan [= Sino-Tibetan] languages. A paper by Blench & Post (2014) argued that we had at that time insufficient data to assign these to the phylum unequivocally. The last decade has seen a major expansion of documentation and the time is appropriate to reconsider the issue. This paper presents basic information about the most problematic languages, based on recent fieldwork, together with some of the hypotheses concerning their genetic affiliation. It argues that if we apply the same standards as are used in other areas of high diversity, such as Amazonia and Australia, we would certainly classify these as either isolates or small phyla. It also suggests that strategies for reconstructing Tibeto-Burman are ill-adapted to ascertaining the position of these languages.

Keywords: Arunachal Pradesh; languages; Trans-Himalayan; classification

“The preceding remarks will have shown there is considerable difference between the North Assam dialects...The home of the North Assam tribes may be considered a kind of backwater. The eddies of the various waves of Tibeto-Burman immigration have swept over it and left their stamp on its dialects.”

Konow in Grierson (1909:572)

1. INTRODUCTION

Exactly what Sten Konow (1909) thought about the classification of the languages of ‘North Assam’, which largely corresponds to the modern-day state of Arunachal Pradesh, may never be clear. However, it is apparent that he did not consider the name to refer to a genetic grouping, but rather used it as a geographical term, lumping together extremely different languages for organisational purposes. Certainly, the phonology and morphology of Arunachal Pradesh languages looks superficially like Trans-Himalayan¹, which explains their placing in the *Linguistic Survey of India* (Konow 1909). Unfortunately, this is where matters have remained; Konow’s geographical grouping is repeated in one form or another in successive overviews of the phylum without any compelling re-examination of the evidence (e.g. Shafer 1966-67; Bradley 1997; van Driem 2001; Matisoff 2003; Thurgood & LaPolla 2003; Bodt 2014; Post & Robbins 2017; Post 2022). Anderson (2014) does construct a narrative based on fieldwork but still asserts that the languages are Tibeto-Burman² and that there are regular correspondences between them.

Repeating something does not make it true, no matter the eminence of the authors who engage in the repetition. Appeal to unpublished and unavailable documents is similarly hardly a procedure to be recommended in historical linguistics. Moreover, another factor comes into play, an intellectual tradition which seeks to include all languages in one phylum or another. South Asia is generally considered to be the home of grand phyla, with only Kusunda and Nahali constituting exceptions (Blench 2008). As a result, evidence which would be considered not even remotely adequate in other regions of the world is accepted without question. Contact linguistics has transformed our understanding of the possibilities of language interaction. In particular, the results of the meeting of Austronesian and Papuan languages have shown that languages may hybridise to such an extent that disentangling their genetic affiliation can remain disputed over long periods (cf. for example, the long-running debate over the Reefs/Santa Cruz languages in Blust 2013). These perceptions have so far to make much of an impact on the world of Trans-Himalayan scholarship. The implication is that a language can effectively be classified by identifying a few words with likely Trans-Himalayan cognates. This method, while it has a certain Greenbergian charm, has problems which will be discussed at more length in §3.

¹ This is the now widely accepted replacement term for Sino-Tibetan, which was based on a cultural classification on Sinitic, rather than a linguistic analysis.

² This is now also a problematic term, since it evolved to group together all the Trans-Himalayan languages except Sinitic, and this is no longer considered a valid subgrouping. In this paper, the term is not used except in reference to other publications.

The purpose of this paper³ is to take issue with this approach through a re-examination of the problematic languages of Arunachal Pradesh. It proposes we should take seriously the underlying presumption that they are isolates. Moreover, it will suggest that even where languages probably are correctly classified as Trans-Himalayan, we can in part attribute their divergent characteristics to substrates or contact with language isolates now vanished or submerged.

2. DATA SOURCES

Much of the data available for these languages does not meet modern standards of documentation. Apart from the recension of sources in Konow, van Driem (2001), Burling (2003) and Bodt (2014, 2021) review the earlier materials. While some languages, like Aka (i.e. Hruso) early drew the attention of scholars, languages like Bugun or Meyor have remained barely known. For the Tani languages, which are certainly Trans-Himalayan, Post (2011) has circulated a modern grammar and dictionary of Galo, a Tani language, and more recently Tangam (Post 2017).

Until recently, the main sources were the ‘Language Guides’ published by the Research Directorate of the Arunachal Pradesh government in Itanagar, included in the references. These can be supplemented by a few related publications by the Central Institute of Indian Languages, which are in the same descriptive tradition. The function of these books is rather opaque; they are part phrase books, part ethnographic guide and part linguistic description. It is not easy to imagine why one would go to one of the most inaccessible mountainous regions of the world and offer a translation of ‘the elephant is the strongest of all animals’ (Simon 1976; Hill Miri).

A source for some previously unknown languages is Abraham et al. (2005, 2021) which provides the data according to a wordlist arranged for lexicostatistic coding. Fieldwork between November 2011 and April 2024 has made it possible to improve both the transcription and lexical database for some languages in Arunachal Pradesh as well as critically remapping the area where they are spoken. Despite the critical tone here, the wordlists in most sources are quite substantial and it is usually possible to isolate key morphemes and determine basic sentence structure from the grammar sketch. As a consequence, it is reasonable to say that we should have enough information to classify these languages, or possibly declassify them in the sense of excluding them provisionally from Trans-Himalayan.

3. EXCURSUS ON METHOD

Trans-Himalayan has a curious status as a phylum: long identified by a small set of widespread common lexical items, it has rarely been subject to attempted proof of its genetic unity (Matisoff 2003). In the languages further west such as Kiranti, many exhibit complex verbal morphology,

³ Since the publication of Blench & Post (2014), Roger Blench has been able to travel to Arunachal Pradesh every year except during covid. The main focus of research has been Idu and Kman in the northeast of the state. Thanks to Mite Lingi, Hindu Meme and Sokhep Kri for collaboration on dictionaries and grammatical work. However, in 2023, the author was appointed Ethnographic Survey Co-ordinator for Arunachal Pradesh, which presented the opportunity to travel more widely in the state. Research is now focused on the Sajolang [= Miji] of Nafra and the Mö or Shertukpen language of Rupa. My thanks to Rijin Deru and Tshering Thongdok for their assistance in bringing teams together for elicitation work.

suggesting the possibility that this was a feature of the proto-language. However, this model depends heavily on the internal structure attributed to the phylum. If the ancestors of Trans-Himalayan moved eastward, they would have gradually reduced this morphology, resulting in the monomorphemic structures in many branches. Indeed, this lack of morphology in many branches is problematic, since the similarity of some lexemes to those in other phyla, notably Daic [Tai-Kadai] and Hmong-Mien, has been responsible for a long history of discarded macrophyla proposals (for discussion of these, see van Driem 2008). Leaving aside constructs such as Sino-Austronesian and Sino-Caucasian, the membership is assumed to be broadly as characterised in Bradley (2002). Recent years have seen the publication of low-level reconstructions (e.g. Sun 1993; Mortensen 2003; VanBik 2007; Wood 2008; Button 2011; Pelkey 2011; Mortensen 2023) which is useful, but a long way from the goal of demonstrating the unity of the phylum. Even a rather fundamental issue, the position of Sinitic, has yet to be resolved in any meaningful way (e.g. van Driem 2008).

There is no unambiguous method for determining the genetic affiliation of a language, but it can be said that the presence of a few lookalikes would not be considered proof in most regions of the world. Resolving the Trans-Himalayan affiliation of individual languages is far from easy due to the problematic nature of the reconstructed forms with which they can be compared. Over the twentieth century numerous scholars have made proposals for Proto-Tibeto-Burman (PTB) proto-forms, which are all conveniently collected in the online database STEDT⁴. The forms display four major characteristics:

- a) They usually privilege the attestations in a small subset of Trans-Himalayan languages, typically Chinese, Written Tibetan, Written Burmese and Lolo-Burmese.
- b) They omit common regional forms attested in the minority languages from Nepal to northeast India if these do not have reflexes in the eastern and/or written languages.
- c) They exclude the possibility of borrowing from the other language phyla intertwined with Trans-Himalayan, e.g. Austroasiatic, despite some rather obvious examples, such as ‘crossbow’.
- d) They reconstruct items which should not be reconstructed on archaeological or historical grounds, such as ‘iron’.

The focus on written languages is as misleading in this part of the world as it is in Indo-European studies. Written languages are not proto-languages and may never have been intended to represent the spoken form. Blench (2014, 2020) has argued that Trans-Himalayan must be older than 6000 BP, in the light of an absence of credible reconstructions for agriculture. In this case, most of the history of the phylum was played out in epochs when transmission was exclusively oral. The conclusion must be that typical published PTB forms are mesolects at best and thus less than ideal for determining the affiliation of languages with more problematic lexicons.

The underlying problem is that the relationships of many minority and isolated languages in the west of the Trans-Himalayan area have never been demonstrated, either with one another or with the wider phylum. The classificatory tradition of Tibeto-Burman studies, which can be traced back at least to Konow, is to assume affiliation based on geography and a few lexical similarities. It is worth

⁴ STEDT Database (berkeley.edu).

pointing out that this is strongly contrary to practice in other analogous regions. The New World is a region of high phyletic diversity and yet there are a number of so-called ‘pan-Americanisms’, widespread lexical or grammatical forms which cross language family boundaries (Campbell 1991). On a more restricted scale, the Amazon is a region encompassing both several large phyla (Arawakan, Cariban, Tupian, etc.) as well as small phyla and isolates. Nonetheless, there are common regional features which have clearly diffused between families along pathways still unknown. Aikhenvald (2012: 70) notes *kuku* ‘mother’s brother’ and the negative affix *-ma* among others as pan-Amazonian features. These are not considered evidence for language affiliation. The same is true for Australian languages; divided between Pama-Nyungan and a cluster of small unrelated language phyla: there are also Australia-wide lexemes which are not used to determine genetic classification (Heath 1978, 1981; Koch & Nordlinger 2014). The Papuan languages of Melanesia again have the same phenomenon. Reesink & Dunn (2018) list some of the widespread forms in Papuan which are not taken as evidence of affiliation, including **niman* ‘louse’.

In the light of this comparative evidence, claiming classifications based on regional lexicons is simply not adequate. Almost any area of the lexicon is subject to borrowing, and if it is the case that many of the inhabitants of Arunachal Pradesh were largely foragers prior to the expansion of Trans-Himalayan (Blench & Post 2014; Blench 2014) then the borrowing of even basic items such as lower numerals cannot be excluded. The principle adopted here is that unless the list of cognates is reasonably extensive, and there is some evidence of regular correspondences, there is no reason to consider a specific language other than an isolate with borrowings.

Even where membership of Trans-Himalayan is credible there can still be evidence for substrates of an unknown affiliation. For example, the Tani languages are usually considered to pass the test of Trans-Himalayan membership in terms of numbers of cognates and at least some regularity of correspondences. Nonetheless, they incorporate significant amounts of divergent vocabulary whose source is unknown⁵. Indeed, in the Milang language, which is usually considered Tani on the basis of a large number of cognates, a high percentage of cognates seemingly has a substrate of a quite different character on which a Tibeto-Burman structure has been superimposed (Post and Modi 2011; also see §8).

The core data for this paper is the comparative wordlist given in the appendix table. It tabulates the lexemes for a variety of basic terms in Arunachali languages (excluding the regions bordering Myanmar) and aligns them with the most Common Tibeto-Burman (CTB) starred forms quoted from Matisoff (2003). Apparent cognates are coded in yellow, while other more local cognate sets are assigned other colours. This provides a convenient rapid visual impression of both the correspondences with commonly accepted Trans-Himalayan and the relationships between individual languages.

⁵ Sun (1993:173) wrote that “beyond the most fundamental core vocabulary, the peculiarity of the Tani lexicon becomes painfully apparent, making it extremely difficult to track down reliable extra-Tani cognates of the PT roots proposed [here]. This means that exhaustively tracing the PT initial and rhyme distinctions back to plausible PTB sources is presently quite impossible.”

4. THE MÖ (= MEY, SHERTUKPEN) CLUSTER

Mö or Shertukpen constitutes a small family of languages spoken in the valley of the Tengapani River south of Bomdila in West Kameng district. The name Shertukpen is a construct, from the settlement of Shergaon and ‘Tukpen’, a Monpa name for the people of Rupa town. The correct name for the Rupa is *Mö* and their language is *Mö nyuk*. A related set of lects are spoken by the Sartang, a people also called ‘But Monpa’ (Dondrup 2010; Bodt 2021). Two other related languages which were formerly classified under the general rubric of ‘Monpa’ are Duhumbi [= Chug] and Khispi [= Lish], spoken in isolated villages north of Dirang, within the Central Monpa area. Dutta (2007) includes a brief comparative wordlist of Lish and Tawang Monpa in his monograph on Central Monpa, notes its differentiation from both, but makes no comment on its possible affiliation. The Khispi live in the village of that name and in Gompatse. Fresh field data collected in November 2011 make it clear that Chug, Lish and Gompatse all are essentially the same language. The people of these settlements deny any connection with the Mey of Rupa and Shergaon. Overall, Rupa consists of three major subsets, as shown in Table 1.

Table 1. Rupa subgroups

Subgroup	Lect
Rupa	Shergaon [sdp]
	Rupa [sdp]
Sartang	Rahung [onp]
	Jergaon [no code]
Northern	Khispi = Lish [lsh]
	Gompatse [lsh]
	Duhumbi = Chug [cvg]

The ISO codes are rather unsatisfactory. Shergaon and Rupa are sufficiently distinct as to warrant their own codes. Sartang is divided into five lects, although they are all mutually intelligible (Bodt 2021). As to Khispi and Duhumbi, they are extremely close and would elsewhere be regarded as dialects of one another.

Linguistic literature on the form of Mö spoken in Rupa town is sparse. The short description by Dondrup (1988) is based on the Shergaon dialect, while Grewal (1997) includes some sentences in the dialect of Rupa. The main source is Jacquesson (2015), which has considerable issues, due to its idiosyncratic transcription. Bodt (2014) is a literature review, and Boro (2024) has published a preliminary phonology.

The text of Abraham & Kara (2021) treats Sartang, Duhumbi (their Chug) and Khispi (their Lish) as separate languages. This is not supported by the comparative wordlist in Table 2, which shows that, allowing for variations in transcription, Khispi and Duhumbi are hardly even dialects of one another. Bodt (2020) is a grammar of Duhumbi, written according to modern linguistic norms. Surprisingly, Rupa is quite distinct from the language of Shergaon. The Sartang forms given below are based on newly transcribed field data⁶. Where the Mö cluster item resembles reconstructed CTB, the line is shaded.

⁶ Roger Blench would like to thank the Gaonbura of Rahung for recording a wordlist of Sartang on January 18th, 2011.

Table 2. Comparison of Mö cluster languages with CTB

Gloss	CTB	Duhumbi	Khispi	Sartang	Rupa	Shergaon
One	*g-t(y)ik	hin	hin	han	han ~ äi	han
Two	*g-ni-s	nij	nes	nij	nik	nit
Three	*g-sum	om	ʔum	um	uŋ	uŋ
Four	*b-ləy	psi	pʰəhi	pʃi	bsi	phsi
Five	*b-ŋa	k ^h a	k ^h a	k ^h u	k ^h u	k ^h u
Six	*d-ruk	ʃyk	ʃ ^h u?	ʃy	kit	ʃuk
Seven	*s-nis	his	ʃis	si?	sit	sit
Eight	*b-r-gyat	sarge?	sarge?	sardʒe	sardʒat	sargyat
Nine	*d-gəw	tʰik ^h u	tʰik ^h u	tʰek ^h e	dʰik ^h i	tʰik ^h i
Ten	*gip	ʃan	ʃan	sou	sō	sō
Head	*d-bu-s	k ^h lo?	k ^h olo?	k ^h ru?	k ^h ruk	k ^h ruk
Nose	*na, *naar	heŋpʰoŋ	hempon	ap ^h uŋ	nəfuŋ	nup ^h uŋ
Eye	*mik	k ^h um	k ^h umu	k ^h aʔby	kivi	khibi
Mouth	*mka	k ^h oʃu	hoʃok	tʰo	nəʃaw	niʃaw
Ear	*r-na	k ^h ut ^h uŋ	k ^h ut ^h uŋ	k ^h ət ^h yŋ	g ^h iŋ	k ^h ut ^h uŋ
Tongue	*s-l(y)a	lo ⁱ	lo ⁱ	le	lapon	laphō
Tooth	*swa	hintuŋ	ʃiŋtuŋ	ni ^h iŋ	tokʃe	nuthuŋ
Arm	*g-lak	hut	hu	ik	ik	ik
Leg	*kaŋ	la ⁱ	le ⁱ	le	la	la
Stomach	*grwat	hiliŋ	hiŋiŋ	fəriŋ	sliŋ	siriŋ
Bone	*rus	ʃukuʃ	ʃukuʃ	ski?	skik	skit
Blood	*s-hywey	ho ⁱ	ho ⁱ	he	ha	ha
Sun	*nəy	nami	nami	nimi?	nini	nini
Moon	*s-la	atnamba	namba	namlu?	namblu	namblu
Star	*s-kar	karma	karma	ʃyɖzy	zik	ʃuzuk
Man	*r-min	pəɖəŋ	bũɖũn	dʒiriŋ	ʃirin	dʒuhu
Woman	*mow	d ^h udma	esma	dʒy ^h my k ^h re	dʒimi	dʒimi
Dog	*k ^w əy	wat ^h i	wat ^h i	pet ^h e	bt ^h a	p ^h it ^h a
Pig	*pwak	ʃaba?	ʃaba	swa?	swok	swag
Tiger	*k-la	lapʃa	p ^h uyam	p ^h uŋ	p ^h uŋ	phō
Water	*ti(y)	k ^h u	k ^h a ^u	k ^h ow	k ^h o	k ^h o
Fire	*mey	be ⁱ	be ⁱ	be	ba	ba
Tree	*siŋ, *sik	ʃiŋ	hiŋ	hiŋ	siŋtiŋ	hiŋ t ^h uŋ
Leaf	*r-pak	ula?	ulap	arap	alap	alap
Name	*miŋ	biŋ	biŋ	adʒen		
Eat	*dzya	tʰa	tʰa	he	tʰu ^h va, ku ^h va	tʰu ^h wa, ku ^h wa

Table 2 shows that Shergaon, Rupa, Sartang, Khispi and Duhumbi form a dialect complex and that resemblances to reconstructed CTB are sporadic.

5. BUGUN AND THE PROPOSED KHO-BWA CLUSTER

The Bugun language [bgg; glottocode bugu1246] is spoken in West Kameng district of Arunachal Pradesh. The Bugun, also known as Khowa, live in some ten villages, were estimated to number 800 in 1981, but current estimates put them at around 1700 speakers⁷. The Bugun language has been barely documented. The only published source is the orthographic Dondrup (1990) which should be used with care; some phonetically transcribed data appears in the Appendix to Abraham et al. (2005) and Madhumita Barbora of Tezpur University has recorded a wordlist and sample sentences as part of an unpublished study of the phonology. Lander-Portnoy (2013) is a thesis based on recorded material. Data for this paper was recorded from Martin Glo, secretary of the Bugun Welfare Society, who is a native of Chittu village, in Tenga in January 2011.

Pandey (1996) is part descriptive ethnography, part hagiography, and again should be used with care. Despite being a small ethnolinguistic group, the Bugun are quite active in promoting their culture with an active Bugun Youth Association. Bugun may be the only language in this region to have contributed a loanword into English. The Bugun liocichla (*Liocichla bugunorum*) is an endemic bird species first described in 2006. Vanessa Cholez (pers. comm.) has completed a dissertation (2024) on the sociology of the Bugun, but it is currently not in circulation.

Inasmuch as Bugun is mentioned at all, it is assumed to be Trans-Himalayan (e.g. Ethnologue 2024). van Driem (2001:473) originally referred to unpublished and unavailable work by Roland Ruttger relating Bugun to the Shertukpen] cluster suggesting this and names the resultant grouping ‘Kho-Bwa’. This has been enthusiastically promoted by Bodt (2019, 2020, 2022) and even used in experiments to predict relatedness using algorithms (Bodt & List 2019; Wu et al. 2020). However, the existence of this construct is far from proven, and I suggest here it may be a chimaera. Bugun people are often able to speak Mö as a language of intercommunication and the similarities between the two may simply be borrowings. Table 3 suggests neither a regular relationship between Bugun and Mö, nor a strong resemblance to reconstructed CTB. Some words show relations of near-identity, for example ‘head’, ‘water’ and ‘leaf’. /tʃ/ is conserved in ‘eat’ and ‘liver’ but /ʃ/ corresponds to /tʃ/ in ‘mouth’.

On the broader question of whether Bugun and the Mey cluster are Trans-Himalayan, neither language shows many cognates with CTB and some of those are doubtful or possible loans, such as ‘pig’ and ‘iron’. The low number of Tibeto-Burman cognates could just as easily be explained by borrowings as by genetic affiliation. Table 3 shows some of the typical resemblances and a more in-depth search would be likely to uncover great numbers. I have marked the CTB form in the second column; it shows that only a very few forms are shared with the Bugun-Mey pair.

⁷ Glottolog lists no less than six lects of Bugun, which seems unlikely. These are village names.

Table 3. Bugun-Mö cluster resemblances

Gloss	CTB	Bugun	Lish	Sartang	Rupa	Shergaon	Comment
Two	*g-ni-s	neŋ	nes	niʃ	nik	nit	
Three	*g-sum	im	ʔum	um	uŋ	uŋ	
Five	*b-ŋa	kua	k ^h a	k ^h u	k ^h u	k ^h u	
Nine	*d-gəw	dige	tʰik ^h u	tʰek ^h e	dʰik ^h i	tʰik ^h i	
Ten	*gip	suŋwa	ʃan	sou	sõ	sõ	
Head	*d-bu-s	k ^h ruk	k ^h oloʔ	k ^h ruʔ	k ^h ruk	k ^h ruk	
Nose	*na, *naar	əfuŋ	hempon	mapũn	nəfuŋ	nup ^h uŋ	
Mouth	*mka	ʃyam	hoʃok	tʃ ^h o	nəʃaw	niʃaw	
Ear	*r-na	k ^h õõ	k ^h ut ^h uŋ	k ^h ət ^h yŋ	gt ^h iŋ	k ^h ut ^h uŋ	
Leg	*kaŋ	loy	le ⁱ	le	la	la	
Penis	*m.ley	lo			lok		cf. Tani *mrak
Blood	*s.hywey	əfoy	ho ⁱ		ha		
Liver	*m.sin	əʃiŋ		aʃĩ	aʃẽẽ		
Fat	*tsil	eyòó		ayùú	oyo		
Heart	*s.niŋ	ɛliŋ			zli		cf. Miji luŋ
Saliva	*m/s.tswa	tean		tɛɛ	taa		
Child	*za/*tsa	ani			nini	nunu	
Pig	*pwak	wak	ʃaba	swaʔ	swok	swag	
Water	*ti(y)	k ^h o	k ^h a ^u	k ^h ow	k ^h o	k ^h o	
Fire	*mey	boe	be ⁱ	be	ba	ba	
Tree	*siŋ, *sik	hiŋmua	hiŋ	hiŋ	siŋtiŋ	hiŋ t ^h uŋ	
Leaf	*r-pak	arap	ulap	arap	alap	alap	
Eat	*dzya	tʃ ^h a	tʃa	he	tʃuwa, kuwa	tʃuwa, kuwa	

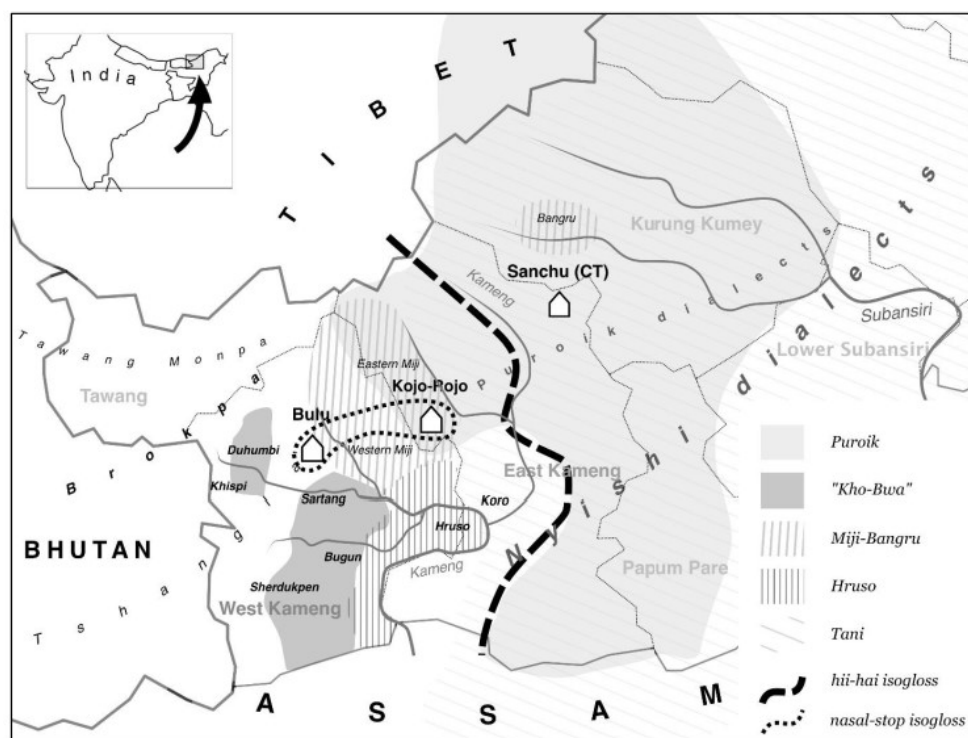
6. PUROIK [= SULUNG]

The Puroik language [suv: glottocodes sulu1241 and west2872] is spoken by a few thousand people in East Kameng and Lower Subansiri districts in Arunachal Pradesh and adjacent parts of Tibet. Previously known as ‘Sulung’, this name has now been rejected by the community as pejorative. The ethnography of the Puroik is described in Stonor (1952) and Deuri (1982). Their basic subsistence system is hunting and gathering with a significant dependence on the sago palm, *Metroxylon*, rather as in Melanesia. All forms of agriculture appear to be recent innovations. The Puroik were formerly in a serf-like relationship with the Tani-speaking Nyishi, for whom they collect cane and labour on farms. Puroik were still being officially liberated as late as 2001 (see appended documents in Remsangphuia 2008:102-102).

The most well-described of the three Puroik varieties is the dialect of Chayangtajo circle, East Kameng, where Sanchu is the biggest and best accessible Puroik village. This variety is described in the major published sources, Tayeng (1990), Li (2004), Remsangphuia (2008) and Soja (2009). The Chinese work is summarised in Matisoff (2009) and reviewed in Jackson (2003). Matisoff

(2009) has an appendix to a paper on the persistence of Tibeto-Burman roots, compares Puroik materials from Li (2004) with his CTB roots and claims numerous cognates. Many of these require the eye of faith but it is notable that there are more resemblances than are evident in southern forms which often have quite different lexemes. Since the Tibetan Puroik apparently also speak Tibetan as a second language, this should make us suspicious at the least. Work by Lieberherr (2017), assuming it is published, is likely to give us a much improved description of Puroik. The dialect of Kojo-Rojo is spoken in two, possibly three villages (Kojo, Rojo, Jarkam), and is different but mutually intelligible with the dialect of other villages in Lada circle. The third dialect is Bulu, west of Kojo-Rojo. Map 1 (from Lieberherr 2015) shows the locations of these dialects as well as neighbouring languages mentioned in this paper.

Map 1. Languages of Western Arunachal Pradesh



Source: Lieberherr (2015)

Although listed both as Kho-Bwa and ‘possibly Austroasiatic’ in earlier versions of the Ethnologue (e.g. 2013), the arguments for this are elusive. Concerning the classification of Puroik, a footnote to Sun (1993: fn. 14) says;

‘Sulung is a newly discovered distinct Tibeto-Burman language showing remarkable similarities to Bugun, another obscure Tibeto-Burman language spoken to the west of the Sulung country.’

This is a considerable exaggeration, and later, reviewing the Chinese source, Sun (1992) assumes that Puroik is Trans-Himalayan, he is pessimistic about finding the evidence for cognates. The most detailed examination of these similarities, as well as a discussion of the dialect situation of Puroik is Lieberherr (2015). This paper takes on the challenge presented in Blench & Post (2014) to show that the apparent cognates with Trans-Himalayan are in fact evidence of genetic affiliation and not simply borrowings. His method is slightly idiosyncratic, since he compares Puroik with reconstructed Kuki-Chin (VanBik 2009) rather than CTB. Kuki-Chin is certainly an authenticated branch of Trans-Himalayan, and Lieberherr's arguments are coherent. As a consequence, I regard the argument for a Trans-Himalayan affiliation as generally convincing and my prior scepticism as refuted.

A separate question is whether Puroik, Bugun and the Mö cluster form a linguistic group. If so, they would then all be Trans-Himalayan. Puroik definitely has some similarities with Bugun and the Mö cluster. Deuri (1982:1) quotes a tradition linking them with the 'Khowas', i.e. Bugun, whose country they are reputed to have left. Table 4 shows a preliminary table of lexical similarities, including Mey cognates (shaded):

Table 4. Puroik comparison with Bugun and Mö

Gloss	Puroik W.	Puroik E.	Bugun	Mö of Rupa
Two	niʔ	nii	neŋ	nit
Seven	mə-lyɛɛ	lyɛɛ	milye	sit
Eight	mə-lyao	laa	m̥la	sargyat
Nine	duNgi	doŋgɛɛ	dige	tʰikʰi
Mouth	səm	sək	ʃyam	ni.ʃaw
Nose	poŋ	pok	e.pʰuŋ	a.pʰuŋ
Leg	a-lɛɛ	lae	loy	la
Stomach	a-lye-[buN]	a-lue [buk]	lui	siriŋ
Man	a-fuu	afuu	b.pʰua	dʒuhu
Woman	məruu	amui	bimi	dʒimi
Water	koo	kua	kʰo	kho
Fire	bɛɛ	bɛɛ	boe	ba
Dream v.	baŋ	bak	baŋ	baŋ

Puroik and Bugun definitely exhibit a strong relationship, much greater than with Mö. Western Puroik often preserves the prefixes exhibited by Bugun in specific semantic fields (numbers, persons). However, there is clearly some past relationship with both Bugun and Mö, which may be the result of contact. If indeed Puroik is Trans-Himalayan as suggested by Lieberherr (2015) this would imply Bugun would have the same classification.

7. HRUSO [=AKA]

The Hruso [roso] (= Aka) language is spoken in Thrizino circle, West Kameng and had 2947 speakers in the 1981 census. Aka may be a term of Assamese origin, while Hruso appears to be an

autonym and should thus be preferred. Ethnically, Hruso has been grouped with the Koro Aka of East Kameng, but linguistically with Miji (Shafer 1947). The divergent nature of Hruso has long been noted (e.g. in Grierson 1909) as has its complex fricative phonology. Shafer considered Hruso had undergone phonetic ‘degeneration’, whatever that might be, although a better description might be that it has an extremely rich consonant inventory. Given that the Hruso regularly intermarry with the Miji, their immediate neighbours to the west, there has been some borrowing. However, Miji itself is of uncertain genetic status, and resemblances with Hruso are surprisingly small, given their long association.

The earliest record of the language of the Hruso is Hesselmeier (1868) who also noted the existence of two languages with this name. Anderson (1896) worked directly with a speaker he names as Japho. The *Linguistic Survey of India* (Volume III, Pt i) has samples of Hruso vocabulary, phrases and text, authored by Payne, collected in Darrang in 1900. Schubert (1964) is a vocabulary, apparently in part collected in the field, but also compiling previous transcriptions of the same word. It has a valuable review of previous references to Hruso in the literature as well as a list of sample sentences, although without word by word glosses. Simon (1993) is an ‘Aka language guide’ published as part of the series published by the Directorate of Research in Itanagar. Grewal (1997: 103 ff.) has an interesting parallel grammar sketch of both Aka (i.e. Hruso) and ‘Miri-Aka’, apparently based on original fieldwork. None of this literature has a transcription resembling modern linguistic standards. Sinha & Barbora (2021) discuss the endangerment of both Hruso and Aka but this contains no linguistic data. Dey (2015) is a discussion of kinship terms in Hruso. Fieldwork in November 2011 has comprehensively improved the database and transcription of Hruso⁸. D’Souza (2015, 2018, 2021) has conducted more recent work in the Hruso area although only the 2018 paper is published and available. The remainder seem to be *in pectore*. Despite this, an alphabet chart has been published, apparently for use in Bible translation.

Konow (1909) may be the first author to offer definite proposals linking some Hruso glosses to other Tibeto-Burman languages, while admitting that ‘radical phonetical laws’ make recognising cognates difficult. Shafer (1947), in the only serious attempt to classify Hruso, distinguishes Hruso A and Hruso B, and notes that they are very distinct. His Hruso B is not Koro, but Miji, which accounts for the occasional idea found in the literature that there is a ‘Hrusish’ group. However, there is a strong perception of ethnic unity between Hruso and Miji, to the extent that a joint dictionary project has been locally mooted, a chimaeric project for two languages with approximately 5% common lexicon. He considered Hruso was Trans-Himalayan on no very good grounds, both because of the poor quality of transcriptions and because his discussion conflates Hruso proper with Miji. Cognates with Trans-Himalayan languages are very few and involve sometimes highly *ad hoc* rules. Koro Aka is quite unrelated to either of these, as the appendix table shows; its affiliation is dealt with in §8. Of all the languages considered here, Hruso has the fewest roots that can plausibly be related to Trans-Himalayan. Shafer’s arguments are fairly weak, and it is more credible to treat these as regional borrowing than evidence for genetic affiliation.

⁸ Roger Blench would like to thank Serwa for being an enthusiastic and patient informant for Hruso.

8. KORO AND THE POSSIBILITY OF A SIANGIC PHYLUM

The references to two Aka languages has been a source of confusion since the earliest period and indeed there are two languages under this label, Hruso proper and Koro. The Koro [jkr: glottocode koro1316] people live in East Kameng district, in Bana and surrounding hamlets, east of Thrizhino on the Seppa road. Although claims were made for its ‘discovery’ in 2010 (Anderson & Murmu 2010), presumably as a consequence of financing by National Geographic, a grammar sketch of this language appears in Grewal (1997) and lexical data can be extracted from Abraham et al. (2005/2021). Further lexical data was collected by the author in December 2011⁹. A brief comparison with Hruso quickly shows that the two have virtually nothing in common, as was also stated by Anderson & Murmu (2010). However, strikingly, Koro does share a number of lexemes with Milang, a language far to the east in Siang district usually identified as Tani (Sun 1993: §3). Milang is spoken in three dispersed villages in East Siang district (Modi 2008). With the exception of Tayeng (1976) almost nothing has appeared in print on this language. Sun noted its divergent character, but treated it as an early branching of Tani. Milang is characterised by both divergent lexicon and highly irregular correspondences with the rest of Tani (Modi 2008, Post and Modi 2011). The hypothesis here is that Milang was a non-Tani language that came under heavy and repeated Tani influence. Milang is spoken a considerable distance from Koro, so shared lexicon is unlikely to be the result of contact. The proposal, set out in more detail in Post & Blench (2011), suggests there was once a chain of languages, tentatively named Siangic, stretching between West Kameng and the Siang river, whose presence can be detected both in Koro, in the substrate lexicon of Milang and in irregularities in other Tani languages now spoken in the intervening area (Table 5).

⁹ Roger Blench would like to thank the headman, Somo Yamde, for taking time to record a sample of Koro in Yangse village in November 2011.

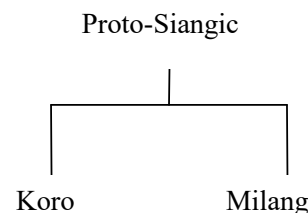
Table 5. Comparative Siangic

Semantics	Gloss	*PS	Koro	Milang	Proto-Tani	Adi (other)	Other TB
food crops	cultivated field rice paddy	*pu *k(h)i	pu kiraka	a-pu du-ki	*rik *ma ~ mo ~ pim ~ am	a-rik amo, ambin, apin	n/a *ma ~ *mey
animals	bamboo chicken egg mithun	*fu *cjo *(cjo)-ci *su	fu co-le cu-ci sù	a-hu a-cu ci-ci a-su	*fiə *rok *pi *a-so	eŋ pə-rok (rok-)pi ə-so	N/A N/A *ʔu, *t(w)i(y) (< water?) N/A
nature	bird sun day yesterday fire	*pju *mə(y) *nə(y) *ba-nə(y) *mi	po-le me-ne me-ne ba-n(e) mi-la	ta-pju məə-run a-nə ba-nə a-mi	*pa-taŋ *doŋ-ni *loŋ *mə-lo *a-mə	pə-ttaŋ doo-ni loŋ-ə mə-lo ə-mə	WT/PLB *bya, Jinuo pyə PLB *məw (Lahu mû) PTB *nə(y) (Tib., Bur.) N/A PTB *mey
numerals	stone two seven	*bu *nə(y) *rVŋ(?)	u-bu (ki-)ne rō	da-bu nə ra-ŋal	*liŋ *ni *kV- nV(t)	ə-liŋ a-ni kənit	PTB *luŋ PTB *ni PTB *ni
	eight	*ra(N)	rā-la	ra-jəŋ	*pri-ni	piŋni	PTB *b-g-ryat (unlikely to be cognate)
body	ear	*raŋ(u)	rā	ra-ŋu	*na(- ruŋ)	no-run	PTB *na (widely attested) Some Tani (e.g. Bokar) has narun, apparently metathesis)
	vagina	*ce(k)	cek	a-cci	*ti(i)	ittə (Galo)	PTB *s-tu (Lai Chin chu) ?
	neck	*laŋ	lā	a-laŋ	*a-liŋ	a-liŋ	Although given as PTB *liŋ, evidence very weak
	beard	*kjaŋ-mV	caa-mi	kjaŋ-ma	*nap- mit	nam-mit	initial N/A, final common *mil/mul/myal
	foot/leg	*bja	ni-bi	a-bja	*bjaŋ 'thigh'	ar-baa (Galo)	N/A
colour	boy green/blue	*ma *ja-caŋ	ma-le jā-ca	jaa-ma jə-caŋ	*meŋ n/a	jaa-meŋ ja-zee (Galo)	N/A? OC səŋ 'fresh', Jingpho tsiŋ 'grass', Garo thaŋ 'alive/green/raw' ?
	red	*laŋ	lā	jə-laŋ	*ja-liŋ	ja-liŋ	N/A
	arrow	*pa	pa	a-ppa	*a-puk	ə-puk	N/A
	ladder	*b(r)ja	i-bi	da-bja	*lə-braŋ	lə-bjaŋ	N/A
functors	negative verb suffix	*-ŋa	-ŋa	-ŋə	*maŋ	-maŋ	PTB *ma
	locative	*la	la	l(a)	*lo	lo	PTB *la
	desiderative ¹⁰	*-mi	-mi	-mi	*-liŋ	-liŋ	?
verbs	cut	*pi	pi	pi	*pa	pa	No cognate forms
	have (be there)	*kjo	ko	cu	*ka	ka-	N/A
	give	*ram	rā	ram	*bi	bi	PTB *bəy
	know	*fu	fu	hu	*ken	ken	PTB *kyən (WT mkhen)
	eat	*tju	to	tu	*do	do	PTB *dzya (unlikely to be cognate)
	imbibe (drink/smoke)	*caŋ	ca	caŋ	*tuŋ	tiŋ	no cognates

¹⁰ Seemingly only when negated in Koro.

Figure 1 represents the configuration of the proposed Siangic phylum. If this argument is correct, then Siangic is a small phylum which is distinct from Trans-Himalayan. Milang underwent heavy cultural influence from Tani (Adi and Padam in particular), making it appear a divergent Tani language, but underlyingly it is unrelated.

Figure 1. Siangic [?]



9. MIJIC

The Miji language (also Sajolang¹¹, Dimai [= Dhimmai]) should not be confused with Dhimal in Nepal. Simon (n.d.) reports that it is spoken in some thirteen villages around Nafra in West Kameng district and that the population was 3,549 in the 1971 census. Fresh fieldwork was undertaken among the Miji of Nafra in February and March 2024¹² which revealed serious errors of elicitation in previous work, which mixed forms from two lects. This is now corrected in more recently circulated documents.

Miji is divided into two lects, representing Nafra and Lada circles, effectively west and east. Weedall (2021) has a more complex division of western Miji into subdialects. Whether these would be naturally mutually comprehensible is hard to determine, since almost all speakers seem to know the equivalent words in the other dialect.

Until recently, the existence of a language known as Bangru [no ISO glottocode, bang1369] was only rumoured. However an ethnographic thesis and subsequent report confirms that this is a genuine ethnic group, but also that it is a language related to Miji (Ramya 2011, 2012). Ramya's transcriptions are orthographic, but the underlying forms are easily seen when compared to Miji. Blench (2015) circulated comparative data on Miji and Bangru in support of this assumption. Bodt & Lieberherr (2015) have published a wordlist of Bangru based on the CALMSEA list, with analysis and comparisons with Miji and Hruso. While this represents a major advance on Ramya, much more remains to be done on Bangru. Separately, I compiled a wordlist with the aid of Mrs. Chera Mekia Mili and family, now resident in Itanagar. Mrs. Mili grew up in a monoglot household, but later married a Nyishi husband and came to speak the language as the main language of her home.

Andrew Hsiu kindly forwarded to me Li (2003) which is a phonology and wordlist of the Bangru spoken in Tibet which was unknown to all previous researchers. Li includes phonemes that seem to have disappeared from the Bangru of India, and also envisages a more elaborate tonal system. This may represent a more conservative form of the language and Bangru in India has undergone heavy influence from the dominant Nyishi language.

¹¹ The name Sajolang has been widely adopted in Nafra in reference to Western Miji, but is not in use among the Eastern Miji in Lada circle.

¹² Thanks to Rijin Deru who both acted as an informant and arranged to drive me to villages to record shrines and other ritual sites.

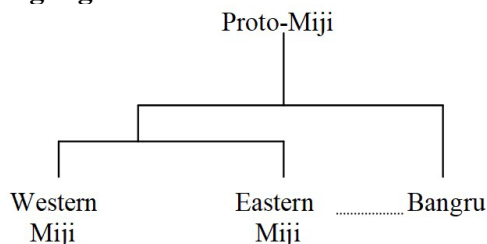
Bangru is undoubtedly related to Miji, as the numerals in the appendix table show, although it has quite a divergent lexicon. In some cases, this is due to borrowing from Nah and Nyishi, both Tani languages. Figure 2 shows a tree of the relationships of Mijiic languages.

There is a persistent idea in the literature that Miji is related to its eastern neighbour Hruso and that there exists a subgrouping ‘Hrusish’. More sur-

prising are the cases where Bangru shows similarities to Hruso. This idea seems to derive from Shafer (1947) but is perpetuated in Bodt (2014) and Bodt & Lieberherr (2015). The evidence for Hruso and Miji having a distinctive relationship seems to be based on a very few similarities, for example the words for ‘sun’, ‘eight’ and ‘nine’, which appear to be exclusively shared. The great majority of basic vocabulary appears to be quite different. Miji, Hruso and Koro share a great deal culturally, but show virtually no linguistic resemblances, except for sporadic loanwords, as might be expected between any two neighbouring languages. This can be clearly seen in the appendix table. The conclusion must be that the purported Hrusish group is spurious, and Hruso is a language isolate.

Miji has long been classified with the ‘North Assam’ languages and this is generally repeated in subsequent publications (e.g. Bradley 1997). However, there is no data in Konow (1909) and Shafer (1947) may be the first citation of linguistic material. As is now a rather familiar pattern, resemblances to Trans-Himalayan are confined to a few lower numerals and some basic body parts. Otherwise, few Miji lexemes resemble reconstructed Trans-Himalayan forms. I therefore argue that the Mijiic languages constitute a small independent phylum.

Figure 2. Relationships of Mijiic languages



10. MISHMIC (~ DIGARISH)

It has been proposed that there is a Mishmic group consisting of two related languages, Idu (Luoba in Chinese sources) and Tawṛā (= Taraon, Digaru, Daruang in Chinese sources). This group has sometimes been known as Digarish, or alternatively grouped together with Kman (= Miju) as Midžuish, a denomination which may go back to Shafer (1955). It is certainly the case that the Idu and the Tawṛā refer to themselves in local English as ‘Mishmi’. In modern times, however, it is the Tawṛā and the Kman who regard themselves as a single culture, despite the fact that their languages seem to have almost nothing in common. There is a plethora of local publications which compare phrases in both languages. Quite how this cultural convergence came about is unclear, but see speculations in Blench (2024). Kman is treated in the following section as a distinct language whose classification remains unclear.

The Idu [clk: glottocode idum1241] are also known as Chulikata [= Chulikotta, Sulikota], Midu [= Ida, Midhi], Yidu Luoba, Lhoba [Chinese terms]. It is unfortunate that the ISO code is based on the pejorative term Chulikata, now discouraged. The earliest reference to the Idu language is in Brown (1837) and some material can be found in Campbell (1874) and Konow (1909). Pulu (2002) is a brief orthographic introduction to Idu in the characteristic style of Arunachal Pradesh

Government publications. Idu has also been described from the Chinese side [under the name Lhoba], notably in Sun *et al.* (1980), Sun (1983a,b, 1999) and Ouyang (1985).

The Tawrã [mhu; glottocode: diga1241] are also known as Darang 达让僮, Daruang, Deng, Digaro, Digaru, Mishmi, Taaon, Taraon and Taying. The name ‘Digaru’ (vernacular name of a major river) is often used in English conversation. Records of Tawrã go back at least to Robinson (1856). Needham (1886) gives a comparative wordlist of Tawrã, Kman and Tibetan. Recensions of existing data are given in Campbell (1874) and Konow (1909). Modern publications with a ‘practical’ orientation include Chakravarty (1978) and Pulu (1991). Chinese scholars have also worked on Tawrã, which they call ‘Daruang’. The Tawrã language has been briefly described in Sun (1999) and Jiang *et al.* (2013) is an extended grammar of Tawrã in Chinese. Evans & Manyu (2021) is a phonology of Tawrã in India prepared for the purposes of Bible translation, so its reliability is hard to gauge.

Whether Idu and Tawrã actually form the genetic unit claimed in the literature is questionable. They clearly share a significant amount of lexicon in some semantic fields. For example, Table 6 shows the lower numerals, which suggest a strong relationship.

Table 5. Idu and Tawrã lower numerals

Gloss	Idu	Tawrã
One	khògà	khin
Two	kà.nyì	kayin
Three	kà.sǝ	kasaj
Four	kà.pri	kaprayk
Five	màŋá	maŋa
Six	tährō	tahro
Seven	iũ	wě
Eight	ilú	lim
Nine	khriŋi	kijaj
Ten	hũũ	halaŋ

By way of contrast, Table 7 compares Idu and Tawrã terms for body parts, few of which have anything in common.

Table 6. Idu and Tawrã body parts

Gloss	Idu	Tawrã
back	ipindò	phliŋ
body	jóntà	kyaj
breast	nōbrā	ɲèè
eye	ēlōbrā	b.lm
hand	ākhó	hàprè
leg	āŋgēsà	gròn
lip	inūbrū	thánù
mouth	ēkóbà	phùùkě
nail	āhũkò	áppliŋ
neck	sēmbrá	pà hŋ
nose	ēnāmbó	àŋàdùn
palm	lāpū	àtyòpà
skin	kòprà	pô

thigh	hàpū	sàhà
toe	ātāmbó	gròn bràn
tongue	īliná	hèlèṇnà
tooth	tāmbrō	là

Given this divergence by semantic field, making any definitive statement about the relatedness of Idu and Tawrā is problematic. Blench (2024) argues that the two languages are ultimately unrelated, and that there has been intense bilingualism at an unknown period in the past, which resulted in the convergence of the numerals. The grammar of Tawrā is poorly known, so it is difficult to compare it with Idu, which is relatively well-described. Perhaps further in-depth studies will clarify the situation.

Whether Idu and Tawrā are Trans-Himalayan remains doubtful. The appendix data table shows that there are few evident cognates with reconstructed CTB. The pattern is much the same as noted for other languages, i.e. lower numerals, some basic body parts, sun, moon etc. I submit this is inadequate to accept as evidence for membership of Trans-Himalayan.

11. KMAN [=MIJU]

The Kman people [mxj: miju1243] live in villages around Tezu in the extreme northeast of Arunachal Pradesh¹³. Alternative names for the Kman include Eastern Mishmi, Geman Deng, Kaman, Miju. The first record of Kman appears to be Robinson (1856) which is quite accurate for the period, and his transcriptions are recognisable today. Orthographic publications on the Indian side are Das Gupta (1977) and Boro (1978) which are said to be ‘practical’ although the transcription of Kman is highly inaccurate by modern standards. Despite the small number of speakers on the Chinese side of the border, there have been several publications on ‘Geman’, the Chinese version of the name. These include Sun (1991, 1999) and most importantly, Jiang *et al.* (2013) which is a full-length description of the language. Kman has undergone an intriguing development in terms of its orthography; a local system of writing used for communication on Facebook has developed which is also used in a children’s book (Dai *et al.* 2013). Separately, lexical guides have been published covering both Kman and the neighbouring Tawrā [Tar-aon] language (Krisikro 2006; Tawsik 2014) although the orthography bears no resemblance to any other publication. The Kman people have been the subject of an anthropological monograph (Dutta 2012).

The evidence for the affiliation of Kman to Trans-Himalayan is more convincing than for Idu and Tawrā. The appendix table shows many more clear cognates with reconstructed CTB, suggesting a closer affiliation. Another aspect of Kman which shows analogies with more established Trans-Himalayan languages is in the morphology of the verb, verb stem alternation which has numerous parallels in regional languages. In the case of Kman, number marking is indexed to the head through nasal alternation in the stem. This process is only applied to a subset of verbs and is thus not predictable. The output is also atypical, since the result is verbs with final N+C sequences which do not occur elsewhere in the phonology. In Kman grammar, these are verbal nouns or gerunds, since they primary occur with action verbs. A sample of these gerunds is given in Table 8.

¹³ Fieldwork among the Kman began in 2015 and has continued until 2024 in collaboration with Sokhep Kri. A preliminary Android dictionary has been released in the community.

Table 7. Verb stems with nasal incorporation

Singular	Nasal	Gloss
$\emptyset \rightarrow -m$		
dō	dōm	saying
kà	kàm	be, is
tōrà	tōrà̃m	repairing
$-l \rightarrow -m$		
brēl	brēm	falling from a height
gyā	gyām	running
$-y \rightarrow -m$		
tāy	tēm	going
$\emptyset \rightarrow -m-$		
lōp	lōmp	sitting
gyūp	gyūmp	cheating
shūp	shūmp	buying
$\emptyset \rightarrow -n-$		
chawk	chawnk	dwelling
kōt	kōnt	doing
krīt	krīnt	laughing
thūt	thünt	blowing
thōk	thōnk	obeying
$ʔ \rightarrow -nk$		
phlōʔ	phlōnk	being late
phlūʔ	phlūnk	jumping

This type of alternation, which is sporadic and unpredictable, can be compared to verb stem alternation in other Trans-Himalayan languages, for example Tangsa (Morey 2018) and Kuki-Chin (Bedell et al. 2023). This type of morphosyntax is far less likely to be borrowed than the lexicon.

12. MEYOR [ZAKHRING]

The Meyor language [zkr: glottocode zakh1243], also known as Zakhring, is spoken in Lohit District, Walong and Kibithoo circles, Arunachal Pradesh. In 2001 there were some 376 speakers scattered in fifteen hamlets. On the Arunachal Pradesh side, the major published source on the language is Landi (2005) although Jacquesson (2001) includes some data on pronouns. Lǐ & Jiang 李大勤, 江荻 (2001) is a brief overview of the ‘Zha’ language. Sun (1999) has comparative tables of language he calls ‘Dza’ which he relates to ‘Geman’ [Kfman] and assumes it is a ‘mixture’ with Tibetan. Geman (together with Idu-Tawrà) is said to be Kachinic, although no evidence is presented for this. Both Ethnologue and Glottolog put Kman and Meyor together as a subgroup of Trans-Himalayan, but the evidence for this is thin.

Landi (2005: 164 ff.) notes the similarities to Kman, although he conflates genuine shared cognates due to common CTB inheritance with borrowings. Nonetheless, some useful observations can

be extracted from his tables. Table 9 shows a sample of lexical items where Kman and Meyor share a common root. The Dza data shows more cognates with Kman than the material in Landi (2005).

These items are suspiciously similar, whereas Kman and Meyor otherwise have many completely divergent roots, suggesting borrowing. Considerably more Meyor basic lexicon is related to the Brokpa languages, such as Memba and the Senge cluster (represented in the appendix table by Tawang and Memba dialect). These languages have a relatively high proportion of Tibeto-Burman roots, preserved in a constellation very close to the hypothetical proto-form.

Landi also compares Meyor to Turung (Singpho), a Jingpho language spoken in this region, but his comparisons are all either only doubtfully cognate or are CTB and thus not relevant as evidence. Scott Delancey (p.c.) has also presented evidence for some striking grammatical similarities with Kuki-Chin type languages, in the area of pronominal indexing. Yet an examination of the lexicon using the data posted in STEDT did not produce a single example of a specific link to the Naga/Kuki-Chin languages. Meyor must definitely be left unclassified at present and indeed represents a broad problem for the usual procedures of historical linguistics.

Table 8. Kman-Meyor common roots

Gloss	Meyor	Kman
arrow	lowat	roowat
ask	want	wat
bear	ʈʂam	ʈʂim
beer	si	si
bird	awa	oowa
blood	awi	iwi
claw	ʈʂan	ʈʂan
comb	sipin	sipin
granary	keetam	katam
hair	sam	syam
honey	ʃam	ʃamti
lock	dimik	dʒimik
melt	yulo	yu
mouse	aʃi	si
meat	ʈʂin	ʃin

13. SYNTHESIS

The emerging synthesis is quite strikingly at variance with the received and published classifications. Arunachal Pradesh languages are extremely diverse, not only in relation to common Trans-Himalayan but also to one another. As we learn more about their grammar, it is clear that although they are synchronically isolating languages with eroded morphology, they reveal remarkable and isolated traits, quite unlike their neighbours. Idu, for example, has a complex verbal system with lengthy stacked extensions, similar to Bantu languages of Central Africa.

The usual explanation for a low incidence of CTB vocabulary is the gradual loss of lexemes over time. What is striking here is that the presumably innovative forms—the diachronically *secondary* forms, according to the received view—are both (a) far greater in number than the attested CTB forms

and (b) not (or not obviously) relatable to any other known language. The implications of this linguistic model for proto-historical reconstruction are extreme, and should be made plain: we are asked to believe that individual Tibeto-Burman language groups repeatedly encountered populations which so overwhelmed them that they adopted forms from these mystery languages on such a scale that the overwhelming majority of their lexicons were wholly replaced, and that these mystery languages subsequently died out, leaving only the previously marginal genetically Tibeto-Burman languages to reflect their past existence in the form of an overwhelmingly massive substrate. Why precisely this model is more persuasive than one in which it is rather a suite of non-Tibeto-Burman languages which, coming into contact with different Tibeto-Burman languages at various points in their history, adopted a handful of Tibeto-Burman forms, remains to be demonstrated. The model adopted here is more in tune with modern contact linguistics, assuming borrowing unless inheritance is demonstrated.

In the light of this, Table 10 (next page) synthesises the new proposals presented here, omitting a detailed listing of Tibetic, Tani and Naga languages.

This represents a fairly radical departure from the conventional view of these languages. In another way, this is far from surprising. Arunachal Pradesh is highly dissected, remote and inaccessible and was bypassed by major East-West trade routes. That language isolates should have persisted here long after they were assimilated elsewhere in SE Asia is quite credible. The challenge for the future will either be to build on these hypotheses or disprove them on the basis of improved evidence.

14. CONCLUSIONS

The impetus behind this paper is the re-examination of the evidence for a Trans-Himalayan affiliation proposed for the languages of Arunachal Pradesh, in the light of the practice of repeating the work of previous scholars without an evaluation of the actual data. The conclusion is that a number of languages or clusters could well be isolates, and that the Trans-Himalayan roots they do evince may well be borrowings. Obviously, each topic requires a full-length paper, and these will be undertaken in due course, especially as better-transcribed data becomes available. Meanwhile, provisionally we may well consider Konow's summary quoted in the epigraph to be a useful image. Arunachal Pradesh consists of a chain of isolated languages, which have been on the southern edge of the core Trans-Himalayan area. A plethora of different contact situations have allowed both lexical borrowing and sometimes striking grammatical and phonological restructuring. But perhaps it would be useful to begin considering this region as more similar to the Amazon or Northeast Asia than Tibet.

In view of this, the languages of Arunachal Pradesh should be treated as a major priority on a global scale. Languages such as Basque and Burushaski have attracted high levels of scholarly interest over many decades precisely because of their status as language isolates. Those in Arunachal Pradesh have been completely bypassed. Moreover, although these languages are presently still spoken, their populations are small and pressure to switch to Hindi, promoted in both the media and via the school system, is growing. Probably by no coincidence, Arunachal Pradesh is also a major centre for biodiversity, something which attracts worldwide attention and resources. It is suggested that the little-known languages of Arunachal Pradesh should be given similar priority due to their uniqueness and endangered status.

Table 9. Proposed classification of Arunachal languages

Phylum	Branch	Language	ISO	Also
Trans-Himala- yan	Jingpho	Turung	sgp	Singpho
Trans-Himala- yan	Tibetic	Memba	mmc	But see text notes
	Tibetic	Brokpa	sgt	
	E. Bodish	Monpa of Tawang	dka	Dakpa, including Senge, Jang
	E. Bodish	Monpa of Zemithang	dzl	? Dzala (van Driem 2007)
	Tshangla	Monpa of Dirang, Murshing and Kalaktang	andtsj	Sharchop, Tshangla
Isolate	Unclassified	Meyor	zkr	Zakhring
Trans-Himala- yan	Tani	Numerous		Adi, Galo etc.
Trans-Himala- yan	Tangsa Naga	Numerous		Lunchang, Jugli, Moklum, Changlang, Wancho, Nocte
Siangic [?]	Milang-Koro	Milang	none	Mala, Holon, Dalbøŋ [village names]
Isolate		Koro	jkr	Koro Aka
Isolate		Bugun	bgg	Howa
Mö		Mö of Shergaon	sdp	Shergaon
		Mö of Rupa	sdp	Shertukpen
		Sartang	onp	But Monpa
		Khispi [= Lish]	bqh	dialect cluster with Duhumbi
		Duhumbi [= Chug]	cvg	forms a close dialect cluster with Khispi
Isolate		Idu	clk	Idu Mishmi
Isolate		Tawrā	mhu	Digaru, Taraon
Mijiic		Miji	sjl	Sajalong, Dhimmai? northern di- alect
		Bangru	none	
Trans-Himala- yan		Puroik	suv	Sulung (pejor.)
Trans-Himala- yan		Kman	mxj	Kaman, Geman, Miju
Isolate		Hruso	hru	Aka

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Appendix: Comparative wordlist for Arunachal Pradesh

Gloss	CTB	Koro	Mö	Bugun	Puroik	Hruso	Miji	Milang	Tawrä	Idu	Kman	Dirang	Tawang	Memba	Meyor	Nah	PT
One	*g-...	e-ce	han, äi	dʒio	hwi	ä	uj	a-kan	khin	khəgə	kume	tʰur	tʰi	ʃk	ʃak	akim	*kon² ~
Two	*g-ni-s	ki-ne	nɪk	nej	ni	ksi	gni	nə	kayin	kənyɪ	kinin	nitsin	ne¹	pi	ni	api	*ni²
Three	*g-sum	kala	uj	im	heik	ðə	gʰən	ham	kasəŋ	kə.sə	ksam	sam	sum	sum	som	aum	*fum¹
Four	*b-ləy	ko-	bisi	vi	rei, wai	pɪ	bli	pə	kəprəyk	kə.pri	kəmbəran	bɟi	bli	ʃi¹	dʒee	appi	*pri¹
Five	*b-ŋa	plē	kəu	kua	u	pom	buŋu	pə-ŋu	məŋa	məŋa	klin	tʃa	leŋa	tʃe	tʃa	aŋtʃo	*tʃo¹
Six	*d-ruk	su-fi	kʰit	rab	reik	ʒɛ	re	sa-ap	təhro	təhrə	katam	kʰuŋ	gro	du	trok	akke	*krə(ŋ)¹
Seven	*s-nis	rō	sit	milye	lye	mɾə	mya	rə-ŋal	wɛ	ɪt	nin	zum	tʃis	din	dun	kani	*ka-nə¹
Eight	*b-r-	rə-lá	sargyat	mɪa	la	s.kzə	sige	rə-ŋəŋ	lim	ɪlɪ	grin	yen	get	gey	zat	pini	*pri¹-pi²
Nine	*d-gaw	gəyé	dɪkʰi	dige	donge	s.tʰə	sʰən	ka-ŋəm	kɪŋəŋ	khɪnɪ	natmo	gu	q̄lgu	gu	gu	kyowa	*KV-
Ten	*gip	fā-la	sō	suŋwa	ʃuat	ɾə	lin	həŋ-tak	hələŋ	hū	kyapmo	se	ʃiŋ	ʃu thum	ʃu	ərit	*cam¹ ~
Head	*d-bu-s	ke-pe	khuruk	kʰuk	*a-kəŋ	usʰ	wuu	dum-	kru pom	ikrūyā	ku	ʃarəŋ	got	go	aku	nap¹iŋ	*kon² ~
Nose	*na, *mik	ni-	nup¹uŋ	ep¹uŋ	pok	əpi	nyubyuŋ	ɲokun	həpəgəŋ	ənə(mbó)	mnuŋ	na uŋ	naʃ	nogun	na¹	nik	*mik
Eye	*mka	ŋi-	khɪbi	meyak	kak	sək	mugə	a-mik	blom	əlō	mik	miŋ	meləŋ	mi	mik	gam	*nap,
Mouth	*mka	sapu	nɪfaw	ʃyam	sək	unzū	mugə	ra-pu	threndom	əkóbə	ʃu	nowəŋ	kʰa	kʰa¹	ʃipay	gam	*na-p,
Ear	*r-na	rā	kʰut¹uŋ	ekʰ	*a-kun	ufū	m.ʒo?	si-dal	kruna	əkóná	ɪŋ	ney	neləp	namdʒo	ʃiŋ	ɲirun	*na-run
Tongue	*s-l(y)a	səlɛ²	laphō	rhi	ruyi	əzlbra	dʒaksi	si-dal	thelepna	ɪlíná	b.lay	le	leŋ	ʃoli	bro	ryu	*ryo
Tooth	*swa	fi	nup¹uŋ	sinen	kotuwaŋ	utu	tʰu	sip-pa	lyā	təmbō	sey	ʃa	wəŋ	sow	ʃu	hikun	*fi
Arm	*g-lak	lā	ik	wat	gəit	opə	p¹əŋ,	a-lak	apri	əkʰó, áto	rawk	garəŋ	lah	lak	arak	lak	*lak
Leg	*kaŋ	ni-bi	la	loe	lae	əʃi	lap² E.,	a-byaa	grō	əŋgəsa	pla	bi	lemi	kʰaŋ	tepro	ləpa	*lo

Gloss	CTB	Koro	Mô	Bugun	Puroik	Hruso	Miji	Milang	Tawra	Idu	Kman	Dirang	Tawang	Memba	Meyor	Nah	PT
Stomach	*grwat	gay	siŋj	lui	loye	əwəkəʔ	lun		yan kawē	khəpó	dak	pʰolɔŋ	kepa	dogo	pʰuko	kipo	*kri
Bone	*rus	pirá	skit	ezen	aɟay	əkabe	məlyan		reb buŋ	rumbó	rak	kʰaŋ	ro/ba	rugo	fʰeek	alo	*lɔŋ
Blood	*s-	evi	ha	afoc	huŋ	ə	ɟay		haŋweyɟ	iyū	iwii	ʒi	kʰra	tha	awi	oyik	*vii
Sun	*nay	me-	nini	hanayan	kiri	drū	ɟgo?	mə-	riŋ	inyi	amik	ŋam	pləŋ	ŋim	mik	doni	*ni
Moon	*s-la	a-la	nambul	habia	ambu	hubye	lūu, lu	poo-luʰ	hallo	elā	lay	lapi	lei	dager	lo	polu	*polo
Star	*s-kar	dogre	ɟuzuk	satɔŋ	pəɟeik	litsi	dutsun	ta-kar	kadiŋ	āndikrū	ŋalci	karma	karma	kareŋ	karma	taker	*kar
Man	*t-min	mur	ɟuɟu	biphua	apʰu	nəna	ni, nuvu	ma-lu	me	məyá	coŋ	soŋa	miŋ	kʰyog	giɟoŋ	ji	*mi
Woman	*mow	msn	ɟimi	bimi	amwi	mim	nəmrə?	ma-mi	miyá	yákū	kamay	jiɟa	ámah	neɟa	mainaŋ	jimə	?
Child	*za/*tsa	ŋwá	nunu	ani	aɟuan	sa	amay		a	ā	?	za	tukto	tukto	neŋe	hemi	*fiə
Old man	*bow	...	ɟiɟman	fricɔŋ	amayin	mukʰrɔʃ	vu kʰraŋ		mowaa	miŋiprā	kanaŋ	ata	im, seŋ	im, seŋ	giɟoŋ	jiɟo	?
Dog	*kʰəy	ékɛlè	pʰitʰa	ɟʰey	kayu	ʃʰu	ɟaɟi?		kuak	ikū	kui	kʰu	kʰi	kʰi	kwi	əki	*kii
Pig	*pwak	lele	swag	wak	mədow	vo	3o?	ayek	beleyg	ili	lii	pʰakpa	pʰa	pʰa	lik	ərik	*ryek
Tiger	*k-la	ɟaru	phō	muŋua	ɟeray	ɟ.ɟi	tʰuŋgrəŋ	paa-tiʰ	tamya	āmā	topow	goŋtak	ɟen	taʰ	zikteha	abiŋ	*mro,
Water	*ti(y)	si	kʰo	kʰo	kua	kʰu	vu?	a-si	macey	māfi	tii	ri	ɟi	ɟʰu	ati	ɟi	*si
Fire	*mey	mi-la	ba	boe	bawe	mi	may?	a-mi	naaməŋ	āmū	mai	mi	meŋ	meʰ	mi	əmə	*mə
Stone	*r-luŋ	vuvu	liŋ	l.baw	*ka-luŋ	kun	guluŋ?		phiā	ālaphrá	laʰwŋ	luŋ	gor		ələŋ		*luŋ
Tree	*siŋ,	lā	hiŋ	hiŋmua	ɟə(mua)	ɟō	wuu?	han-sa	masaŋ	āsimbō	saŋ	ɟiŋ	ɟyaŋ	ɟiŋ	dunpu	seŋnə	?
Leaf	*r-pak	nino	alap	arap	məŋay	ɟere	le?		na	ná	lap	java	palap	lemah	alap	nane	*nə
Name	*miŋ	niraŋ	azeŋ	eben	*a-byen	apiŋi	m.rin		amaŋ	āmū	amaŋ		meŋ		meŋ	?	*mun
Eat	*dzya	to	ɟuwa,	ɟʰa	ɟina	tʰa	tsu?	tu	tha	hā	ɟa	za	sasuŋ	sale	ɟoem	də	*do
Culture																	
Mithun	none	sū	smu	syá	ɟa	fu	fu?	a-sū	aɟya	sā	cal	menɟa		bamin	piyee	se	
Iron	*syal	kasa	sē	yun		si	sā	arəm	say	ɟi	tangli	perr	ɟe	ɟaʰ	ɟak	tagi	*ryok
Dao	*sta	gerdɟi	handu	mudua	ɟfe	vetsi	vay tsən	ayok	tara	éécé	sut	ɟowaŋ	kʰyop	papja	kunak	oriyuk	(a)-ryok
Banana	none	gerdɟi	musuŋ	tsyum	kapak	rulon	r.laŋ		payɟ	adɟi brū	hambyoon	leysi	lam rep		sanuŋ	kupak	*kopak
Arum,	*grwa	lām	ɟu	ɟawkw	ɟuwa	tʰɔ	tea?	aar	sam	sonā	gal	bozoŋ	blu	solum		əŋi	
Millet	none	gicam	ɟu	ɟo	tanayi	kʰə	ɟg.roo		haabra	yāmbā	muuŋ	koŋpu	kowp	temi	turo	tami	
Paddy	*ma(y)	kí	nise	nisi	aman	olgi	ā?		ke	kə	ha, maŋ	ra	dep	deyso	sipu	am	*pim
Rice	*ma(y)	kí	nudob	nyin	ambin	ō	ā?		ke	kə	haku	kʰu	dep	dey	andek	am	
Cooked		mām	ha?		aman	zara	tsavo			kəri	syat	toŋʰaŋ			man	aŋiŋ	

OLD NORSE *YGGDRASIL*. AN ETYMOLOGICAL RE-EVALUATION

GREGORY HAYNES¹

Dedicated to Michael Witzel on his 80th birthday (July 18, 2023)

Abstract

The etymology of Old Norse Yggdrasill is disputed. While sometimes taken to mean “Odin’s Horse,” this interpretation involves a number of difficult assumptions and furthermore cannot be resolved into known Proto-Indo-European roots. This paper discusses earlier etymological attempts and then presents an alternative etymology that reflects both the mythical axis-mundi function of Yggdrasill as well as the Indo-European origins of its name. The appropriateness of invoking nature symbolism in mythical interpretation is addressed through an analysis of the Greek myth of Leda and the Swan.

Key words: Yggdrasill, Etymology, Old Norse, Proto-Indo-European, Mythology, Leda and Swan, Greek Myth, Scandinavian Myth, Milky Way, Tree of Life, Max Müller, Andrew Lang, Michael Witzel.

THE AXIS MUNDI

Every day the sun rises in the east, ascends to the meridian, and then sets in the west. At night the moon, the planets, the stars, and the Milky Way all follow the same course. That their paths are

¹ Correspondence can be addressed to the author at haynes@sonic.net. An earlier version of the first part of this paper (Yggdrasill) was presented by the author at a conference (Myth, Language, and Prehistory: A Celebratory Conference in Honor of Prof. Michael Witzel), which was held at Harvard University on September 6-8, 2019. An earlier version of the second part (Nature Symbolism in Mythical Interpretation) was presented by the author at the 17th annual conference of the International Association of Comparative Mythology, held in Tokyo on August 27-30, 2024. The author wishes to thank Prof. Joseph C. Harris for reviewing an earlier version of this paper and for making numerous suggestions, most of which have been incorporated into this revision. Thanks are also due to Michael Witzel, who read an even earlier version, made some helpful suggestions, and offered encouragement for the project. Any remaining errors are my own responsibility.

circular is apparent from the motions of the circumpolar stars. These never set below the horizon, but can be seen tracing out their circular tracks around the pole star in the north.

This apparent motion of the heavenly bodies posed one of the first and fundamental mysteries to early human beings. Over millennia they developed myths to account for the celestial movements, and naturally they employed objects from daily life as symbols for what they observed in the heavens. The circular motion of whirlpools, carts, mill stones, butter churns, potter's wheels, and spindles were often chosen as analogues for the rotating motion of the stars.²

Most of the technologies mentioned here were late developments, but the earliest and most widely distributed throughout the world is the hand-spindle. This tool consists of a wooden shaft, approximately 12" long, which is pointed on one end so that it can spin freely. In order to increase the angular momentum, a weight (Sanskrit *tarkupinḍa*), often of fired clay, is placed near the bottom of the wooden shaft. This assembly can then be forcefully twisted and set in rotation, and will continue spinning like a child's top until its momentum is exhausted. While it spins, it twists raw fleece into a yarn composed of many individual strands.³

Since spindles, and all tools in the ancient world exhibiting circular motion, had wooden shafts at the central axis, early people assumed that the rotating heavens were no exception. The myths that they created typically describe a massive tree at the center of the world which acted like the axle of the spinning universe. In cultures that did not employ arboreal symbolism, this axis was conceived of as an enormous mountain, a pillar, or as a god who held up the sky. Regardless of the symbols employed, anthropologists call this mythological world-axis the "axis mundi".

YGGDRASILL, THE NORSE AXIS MUNDI

In the Old Norse tradition, this axis mundi was an ash tree bearing the name, Yggdrasill. It was said to be the largest of all trees; its branches spread out over the whole world and reach up over heaven.⁴ A serpent or dragon lurks at its base, and two birds, an eagle and a hawk,⁵ perch in its branches. Two swans live in the spring beneath⁶. The tree is splattered with white clay, and anything that enters the spring of water at its root becomes as white as the skin that lies within an eggshell. In *Völuspá* it is said that the tree is "moist with white dew." Three spinners, called Norns, live near the tree. They spin out the destinies of all human beings, whether for good or for ill. At the top branches, a goat nibbles the buds of the tree, and from her teats runs an inexhaustible stream of heavenly mead.

² By way of extension from "spinning," the concept "weaving" is sometimes also employed in myth to symbolize the axis-mundi rotation of the stars. This is because spinning is such a large component of the over-all weaving process.

³ Clay spindle whorls (*tarkupinḍa*) have been found in Europe from the 6th to 5th millennia BC, indicating that spinning was known at least by that time, although the earlier use of (perishable) wooden spindle whorls is probable. See Gimbutas, *Language of the Goddess*, 67.

⁴ Sturluson, *Prose Edda*, trans. Young, 42-46.

⁵ *Prose Edda*, trans. Young, 45.

⁶ *Prose Edda*, trans. Young, 46.

THE MILKY WAY GALAXY

Michael Witzel was one of the first to call attention to the important significance of the Milky Way galaxy in world mythological symbols.⁷ He pointed out many common features in ancient religious cosmology, including the two birds that are so often described in the branches of the Tree of Life and which appear in the Rgveda as well as here in the Norse myths.

The galaxy appears as a dense band of translucent white pinpoints of light that surrounds the earth. It rises up from the horizon as a single column and then divides into two branches at mid-heaven. These branches then reach down from the zenith again to the opposite horizon, covering the entire central portion of the night sky with their brilliance. At the point where the two branches diverge from the central column, two bird asterisms are found, the constellations *Cygnus*, the swan, and *Aquila*, the eagle. The galaxy passes near the poles, and was therefore often seen as the central axle of celestial rotation, this being symbolized by the presence of the Norns who *spin* out human destinies. The arboreal branching form of the galaxy supported the notion that it was a tree, and its white color gave rise to the descriptions of Yggdrasill as “splattered with white clay” and “moist with white dews.” Near the limits of the branches of the galaxy, as seen from the European latitudes, is the constellation *Capricorn*, the goat. This then corresponds to the mythical goat that eats from the highest branches of Yggdrasill. At the other end of the galaxy lies the asterism, *Hydra*, the serpent, which corresponds to the serpent located at the base of the celestial tree as described in the myth.⁸

Other parallels could be cited, but from the above it is clear that the galaxy symbolism associated with Yggdrasill is transparent. One would also expect that the name assigned to the cosmic tree would somehow be related to its important function as axis mundi. But this has not been seen to be the case.

THE TRADITIONAL ETYMOLOGY FOR “ASKR YGGDRASILS”

In the Eddas, the name, Yggdrasill, is almost always coupled with the word *askr* ‘the ash tree.’ The entire phrase is typically translated as “the ash, Odin’s horse.” Ygg is undoubtedly an epithet

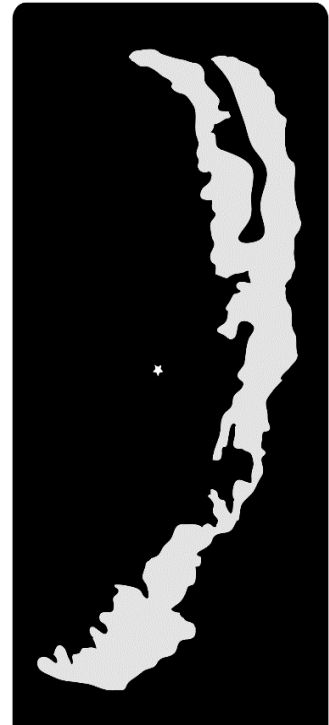


Figure 1: The portion of the Milky Way galaxy visible in the Northern Hemisphere, showing the relative position of the pole star, Polaris. The galaxy continues in both directions to form a complete circle around the earth. Illustration by the author.

⁷ Witzel, “Sur le chemin du ciel,” 213-279; Witzel, *The Origins of the World’s Mythologies*, 133, 135. For a detailed comparative study of the Tree of Life myth and its Milky Way symbolism, see Haynes, *Tree of Life, Mythical Archetype* (Foreword contributed by Michael Witzel).

⁸ For a precise depiction of the Milky Way galaxy and its neighboring asterisms, see *Times Atlas of the World*, xxviii-xxix; Compare Haynes, *Tree of Life, Mythical Archetype*, 119.

for Odin, as can be seen in numerous passages in the Eddas.⁹ The word, *drasill* (or an alternate form: *drösull*) is a poetic term meaning ‘horse.’¹⁰ This is a fitting name for the World Tree—so the argument goes—because the gallows tree is sometimes referred to as a horse in Norse poetry, and because Odin was supposed to have been hanged on Yggdrasill as if on the gallows.¹¹

PROBLEMS WITH THE TRADITIONAL ETYMOLOGY

Although this traditional etymology is widely repeated, not all authorities accept it.¹² Other suggestions have included “the terrible tree” and “the yew support”, neither of which have found wide acceptance. The following are some of the deficiencies in the traditional etymology:

1. The texts are clear that Odin already has a horse, ‘Sleipnir,’ which is clearly distinct from the world-tree.¹³
2. This traditional etymology rests on the authority of one mention alone in all of Norse Eddic literature (Hávamál 138 and 139), and that passage does not state that Odin hung on Yggdrasill, only that he hung on a windy tree.¹⁴
3. It is doubtful that Yggdrasill, one of the most significant elements in ancient Norse religion, would be named for this one incident only, i.e. Odin’s hanging. Such a name has nothing to do with the form, function, or characteristics of the actual tree itself.
4. The connection between the axis mundi tree and the supposed etymology of its name rests on three oblique metaphors: (a) That Yggdrasill was considered a gallows tree and that it was, in fact, the tree upon which Odin hung. (b) That ‘horse’ is a metaphor for gallows. and (c) That ‘riding a horse’ is a metaphor for ‘hanging from a gallows tree. Yes, there are arguments in favor of these assumptions, but one must follow a rather tortuous path to get there.
5. Old Icelandic ‘*drasill*’ is a linguistic isolate; no cognates are known in any of the other Germanic languages that signify ‘horse.’ Phonetically, the nearest apparent cognate is Old

⁹ deVries, *Altnordisches etymologisches Wörterbuch*, s.v. “ygggr,” 677; Völuspá 28, 29, in *Poetic Edda*, trans. Hollander, 6, 64.

¹⁰ For *drasill*, see deVries, *Altnordisches etymologisches Wörterbuch*, s.v. “drasill,” 81; Egilsson, *Lexicon Poëticum*, s.vv. “DRASILL, DRÖSULL,” 104, 109; Kellogg, *Concordance to Eddic Poetry*, s.v. “drasill,” 69. Kellogg cites *Atlakviða* st. 4 and 32 as examples of *drasill* in the texts. In st. 4, “*daðar darraðar, drösla mēlgreypa*,” which Larrington translates, “lances with pennants, coursers gnashing at their bits.” In st. 32, “*dynr var í garði, dröslum of þrungit*,” which Larrington translates, “There was a noise in the courtyard, crowded with horses.” See *Poetic Edda*, trans. Larrington, 211, 215.

¹¹ For the traditional etymology, see *Poetic Edda*, trans. Hollander, 4n16, 36n67; *Poems of the Elder Edda*, trans. Terry, 9; and Sturluson, *Prose Edda*, trans. Byock, 120. For the episode of Odin’s hanging on Yggdrasill, see *Poetic Edda*, Hávamál 138-139, trans. Hollander, 36; see also Krause, *Reclams Lexikon*, s.v. “Yggdrasill,” 317; Crossley-Holand, *The Norse Myths*, 187; Puhvel, *Comparative Mythology*, 194.

¹² For doubts about the traditional etymology, see Sturluson, *Prose Edda*, trans. Brodeur, 266; Andrén, *Tracing Old Norse Cosmology*, 28; deVries, *Altnordisches etymologisches Wörterbuch*, s.v. “Yggdrasill,” 676; Simek, *Lexicon der germanischen Mythologie*, s.v. “Yggdrasill,” 494-96; Davidson, *Gods and Myths of Northern Europe*, 194; and Hagen, “The Origin and Meaning of the Name Yggdrasill,” 57-69.

¹³ For *Sleipnir*, see *Grimnismál* 45; *Baldur draumar* 2; *Völuspá hin skamma* 13; *Sigrdrifumál* 17. All references are to *Poetic Edda*, trans. Hollander; In Sturluson, *Prose Edda*, trans. Brodeur, see The Beguiling of Gylfi XLI, 53.

¹⁴ *Poetic Edda*, Hávamál 138 and 139, trans. Hollander, 36; see also Magnússon, *Odin’s Horse Yggdrasill*, 21.

High German *drāhsil*, which does not signify ‘horse’ at all, but rather a person who works with spinning wooden shafts as in ‘wood spinner, or wood turner.’¹⁵

6. No cognates exist in any of the other Indo-European languages that are phonetically and semantically equivalent to *drasill* ‘horse.’ The common PIE term for *horse* is **h₁ékʷos* as attested, for example, in: Latin *equus*, Greek *hippos*, Sanskrit *ásva-*, etc.¹⁶
7. Strong evidence exists that the episode described in *Hávamál* 138 and 139, which is the only basis for connecting “Odin’s horse” to the World Tree, Yggdrasil, is an instance where later Christian influence has entered the corpus of Norse mythology.

The myths were only first written down in the thirteenth century, two or three hundred years after the voluntary conversion of Iceland to Christianity. Consequently, nearly all of the accounts that we have concerning Old Norse religious beliefs were written by Christians who were interpreting the pre-Christian traditions of their ancestors.¹⁷ To be sure, some aspects of the episode in *Hávamál* may be original. For example, it was not unusual in mythical accounts for axis mundi gods or heroes to hang on some form of the world pillar.¹⁸

But the parallelism between the episode in *Hávamál* and the account of the crucifixion of Jesus in the New Testament is far too close for the one not to have been seriously influenced by the other. Consider the similarities:

- Both Odin and Christ are gods who hang on trees, or posts made from trees.
- Both suffer protracted ordeals of agony.
- Both ordeals are self-chosen. Christ, being God, presumably could have avoided the crucifixion if he had desired to do so. In Norse myth, Odin says, “I wot that I hung on the wind-tossed tree all of nights nine, wounded by spear, bespoken to Óthin, bespoken myself to myself....”
- Both were wounded by a spear. For Odin, see above. For Jesus, we are told, “But one of the soldiers with spear pierced his side, and forthwith came there out blood and water.”¹⁹
- Both suffered hunger and/or thirst, but no one offered them food or drink. Odin says, “Neither horn they upheld nor handed me bread.” The New Testament says, “After this, Jesus knowing that all things were now accomplished, that the scripture might be fulfilled, saith, ‘I thirst.’ Now there was set a vessel full of vinegar: and they filled a sponge with vinegar [undrinkable sour wine], and put it upon hyssop, and put it to his mouth. When Jesus therefore had received the vinegar, he said, ‘It is finished’: and he bowed his head, and gave up the ghost.”²⁰

¹⁵ Pokorny, *IEW*, s.v. “*terk,” 1077; Kluge, *Etymologisches Wörterbuch*, s.v. “drechseln,” 141.

¹⁶ Mallory and Adams, *Oxford Introduction to Proto-Indo-European*, 139.

¹⁷ Andrén, *Tracing Old Norse Cosmology*, 14-17.

¹⁸ Haynes, *Tree of Life, Mythical Archetype*, 74-79.

¹⁹ John 19:34 (Authorized Version).

²⁰ John 19:28-30 (AV).

- Both cry out. Odin says, “I looked below me—aloud I cried—caught up the runes, caught them up wailing, thence to the ground fell again.” The New Testament relates, “And at the ninth hour Jesus cried with a loud voice, saying, Eloi, Eloi, lama sabach thani?, which is, being interpreted, My God, my God, why hast thou forsaken me?”²¹

From this comparison, it is evident that the story in *Hávamál* has been altered to conform to the details of the Christian crucifixion so as to make the new religion seem familiar and acceptable to the northern heathens. The unknown is how much of the story is original, and how much was changed to fit evangelical aims. Unfortunately, we do not know the answer to that question, and so the whole episode is suspect.²²

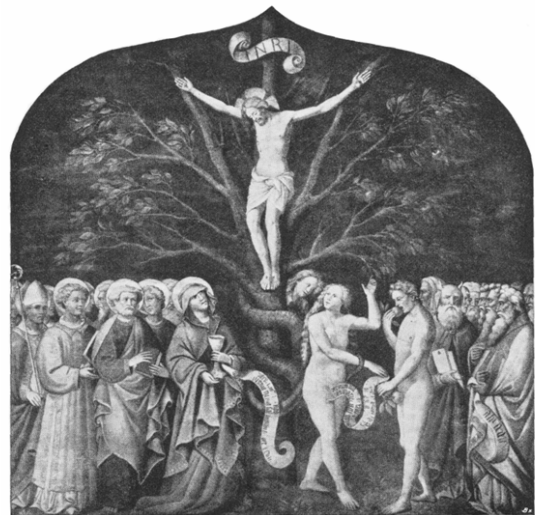


Figure 2: Christ crucified on the Tree of Life, Adam, Eve, the Serpent, and the Saints. Giovanni da Modena; from a fresco in the church of San Petronio, Bologna, Italy.

A SUGGESTION FOR AN ALTERNATIVE ETYMOLOGY

Given these problems with the traditional etymology for Yggdrasil, I offer the following alternative for consideration:

The name *askr Yggdrasil(s)*²³ is composed of four distinct Old Norse words: *askr* — *Ygg* — *dra* — *sill*, each derived from a Proto-Indo-European (PIE) root. The first two are not controversial: *askr* is the ash tree, *Ygg* is a frequent epithet for Odin and means ‘the terrifying one.’²⁴

The next element, *dra*, is a reflex of PIE **terk^(w)* (with optional labiovelar) meaning ‘twist or spin.’ PIE cognates include: Latin *torqueō* ‘twist, wind,’ Old English *præstan* ‘turn, twist, writhe,’ Old High German *drāhsil* ‘roller, wood turner, wood spinner,’ Old Prussian *tarkue* ‘reins,’ Old Church Slavonic *trakŭ* ‘band, belt,’ Russian *tórok* ‘reins,’ Albanian *tjerr* (<**terkne/o*) ‘spin,’ (also

²¹ Mark 15:34 (AV).

²² Sophus Bugge (1881—9:399 ff.) cited in Andrén, *Tracing Old Norse Cosmology*, 35. Bugge was one of the first to call attention to the problem of Christian contamination of the Norse myths; cf. Hagen, *Origin and Meaning of the Name Yggdrasil*, 62; See also Magnússon, *Odin’s Horse Yggdrasil*, 17, 27; Compare the episode where Zeus hangs Hera from Olympus by golden bracelets. See Haynes, *Tree of Life, Mythical Archetype*, 207.

²³ The (s) is the Old Norse “genitive of identity.” See Gordon, *An Introduction to Old Norse*, 310: “In addition to the ordinary possessive use, there was a commonly employed gen. of specification (of amount or identity): ...Yggdrasil askr ‘the ash Yggdrasil’.”

²⁴ Mallory and Adams, *EIEC*, s.v. “trees,” 599; deVries, *Altnordisches etymologisches Wörterbuch*, s.vv. “askr,” “ugð,” and “agi,” 15, 632, 3; Egilsson, *Lexicon Poëticum*, s.v. “UGGR,” 830.

tjerr ‘flax yarn spun with a spindle’), Greek *ἄτρακτος* ‘spindle,’ Hittite *tarku(wa)-* ‘turn oneself, dance,’ Sanskrit *tarkú* ‘spindle,’ Tocharian B *tärk-* ‘twist around, work wood.’²⁵

Julius Pokorny includes, as cognate to this root, Old Icelandic *þari* ‘seaweed.’ This seems semantically odd until one recognizes the characteristic of seaweed to twist itself around other seaweed strands until a thick, strong, rope-like tangle is created.

Pokorny gives the Proto-Germanic form for this word as **þarhan-*, which can be explained as the normal reflex of PIE **terk-* resulting from the action of Grimm’s Law:²⁶ Initial PIE /t/ became /þ/, and final /k/ became /h/. But Proto-Germanic /h/ was lost in Old Icelandic except at the beginning of words (hence *þari*).²⁷ The first syllable of the Old High German form, *drāhsil*, is also the expected reflex of PIE **terk*. Final /k/ became /h/, and initial /t/ became /þ/, again by Grimm’s Law. But then /þ/ became /d/ as a result of the High German Consonant Shift.²⁸ So, the initial /d/ in Old High German *drāhsil* is expected.

The expected form in Old Icelandic, which lost /h/ but retained initial /þ/ is *þra*. A related word in Old Icelandic, either a reflex of PIE **terk^(w)* or from a closely related form **terh₁-*, is *þraðr* ‘thread’, from the concept, ‘*spun fibers*.’ The modern English word, *thresh*, is derived from the same PIE root (via Old English *therscan*), and has an Old Icelandic cognate, *þryskva*.²⁹

Standing alone then, PIE **terk^(w)* would, in Old Icelandic, be *þra*. But in situations where an Old Icelandic word beginning with þ forms the second part of a compound (immediately following a voiced sound) it is apt to be changed into the voiced interdental fricative ð, as in Eng. *the* or *than*. And not infrequently the ð (originally þ) further changes to a /d/. This can be seen clearly in names, for example: Hall-dórr from Hall-ðórr, originally from Hall-þórr. The personal pronoun, *þu*, becomes *du* when suffixed to another word.³⁰ A similar process can be seen in Old Icelandic *apaldr* ‘apple tree.’ The normal word for *tree* in Old Icelandic was *tré*, but in this compound, where *tré* occurs as the second element following directly after a voiced consonant, the /t/ has become voiced

²⁵ Mallory and Adams. *EIEC*. s.v. “textile preparation,” 572. Note that Mallory and Adams use the notation /w/ to signify the sound typically written /u/ in the linguistic literature. The authorities vary in their analysis of this root: Mallory and Adams **terk^(w)*; Rix **terk_y*; Pokorny **terk*.

²⁶ For the development of PIE into Proto-Germanic, see Ringe, *From Proto-Indo-European to Proto-Germanic*.

²⁷ Gordon, *An Introduction to Old Norse*, 279: “h remained only at the beginning of a word. In other positions h disappeared.” This process can also be seen, for example, in the change from PIE **spek^h* ‘to see, to spy out’ as in Eng. *spectacles*, *spectator*, *inspect*, etc. Its reflex in Old High German is *spehōn*, and in Old Icelandic *spā* ‘to see the future, to prophesy’ as in Old Icelandic *Völuspá* ‘the visions of the prophetess.’

²⁸ Fortson, *Indo-European Language and Culture*, 366: “High German is also characterized by the shift of West Germanic **d* to *t* and **þ* to *d*: compare Eng. *deed* with German *Tat* and Eng. *thing* with German *Ding*.”

²⁹ Pokorny calls **terk-* 1077 an extension of **ter-* 1071 (modern form **terh₁-*). Indeed, both are semantically equal. PIE **terk^(w)* is more about spinning and spindles, whereas **terh₁-*, in addition to spinning includes the concept of boring, drilling, or threshing. But since nearly all ancient boring and drilling were performed with a friction stick rotated by means of a bow with a string under tension (like the primitive fire-drill), the concept of spinning (either fiber or friction stick) is central to both actions. Threshing was typically done by leading animals in rotational motion (turning) around a threshing floor. See note 53 infra.

³⁰ Cleasby-Vigfusson, *Icelandic – English Dictionary*, s.v. “þ,” 729; Noreen, *Altisländische und altnorwegische Grammatik*, 161.

to /d/. Since this change obscured the etymological sense of the word, a fresh pleonastic compound was formed: *apaldrs-tré* ‘apple tree.’³¹

Part of the reason for these sound changes is that the Icelandic /d/ was pronounced with the point of the tongue against the teeth, as in French and German, not with the point of the tongue against the gums, as in English. The pronunciation of Yggdrasil (with /d/) and of Yggðrasill (with ð) were identical when spoken at the speed of normal speech, and as long as the final /g/ of Ygg is clearly pronounced.³²

While still reading ‘horse’ for drasil, Professor Sophus Bugge believed that its original source was *þrasa* ‘blustering.’ While this is unlikely, still it illustrates Bugge’s belief that the /d/ of drasil was originally /þ/.³³ Eiríkr Magnússon, also reading ‘horse’ for *drasil* states that

The old name of the steed was doubtless Ygg-þrasill; a form that was bound to go to Ygg-drasill by reason of ... [the preceding gg].³⁴

The purpose in quoting the above opinions is to point out that these two scholars both view the initial /d/ of drasil as a normal reflex of PIE /t/ in this particular environment, lending support to the suggestion that, phonetically, *dra* may well have originated from PIE **terk^(w)* as I propose.³⁵

In the traditional etymology for Yggdrasil, *drasil* was taken for ‘horse’, a nominal rather than a verbal form. If we tentatively follow that same course, considering that Ygg may actually be a hidden possessive (as it would be if ‘Odin’s horse’ were the correct reading) then nominal forms listed for the PIE root **terk^(w)* are either: (1) products of the spinning process: ‘belt, reins, yarn, (2) agents (spinners, turners), or (3) the primary tool of thread-spinning: the spindle.

The Sanskrit word, *tarkú* ‘spindle’ carries considerable weight in anchoring this reading of **terk^(w)* at the heart of a conservative eastern IE culture. Greek *ἄτρακτος* ‘spindle’ does the same for the center. Old High German *drāhsil* ‘spinner, turner’ is semantically close in that, while a spinner of yarn spins the shaft of the wooden spindle, the wood-turner spins a wooden shaft on his lathe. Conceptually, the two actions are strongly related, and so, I believe, provide an additional linguistic anchor in the west.

³¹ Cleasby-Vigfusson, *Old Icelandic—English Dictionary*, s.v. “apaldr,” 22

³² Gordon, *An Introduction to Old Norse*, 267. Another important factor is that orthographical practices in Iceland have changed over time. “Most old vellum manuscripts use þ and ð indiscriminately (bloþ and bloð). ...At the beginning of the 14th century ð prevailed, but again lost its sway, and gave place to d, which marks both the hard and soft d sound in all manuscripts from about A.D. 1350 sqq. Thenceforward ð was unknown in Iceland print or writing till it was ...finally introduced by Rask in common Iceland writing about the beginning of this [19th] century.” From Cleasby-Vigfusson, *Old Icelandic—English Dictionary*, s.v. “D,” 93. The text mentions that there was also a very limited use of ð in an edition of *Njala* in 1772.

³³ Related in Magnússon, *Odin’s Horse Yggdrasil*, 59; also mentioned in Hagen, *The Origin and Meaning of the Name Yggdrasil*, 61.

³⁴ Magnússon, *Odin’s Horse Yggdrasil*, 59-60. Magnússon suggests a connection with Lat *terō*, so that the meaning of drasil would be “tearer, wearer, grinder, bruise, sweeper.” Latin *terō* acquired secondary meanings such as rub, thresh, grind, wear down, etc., but these all appear to be based upon the notion of grinding or boring a hole in something hard using a spinning friction stick and bow (see note number 29 above).

³⁵ One cannot completely rule out the possibility of a continental borrowing (e.g., from Old Saxon or Old High German) where a form similar to OHG *drāhsil* came into Old Norse with the initial /d/ already present. Joseph C. Harris, personal communication.

If this be granted, then we have discovered an etymological source for the first element of the compound *dra-sill* that fits nicely with the function of the World Tree/axis mundi of Norse religion. That the axis mundi could be viewed symbolically as a cosmic spindle is not hard to accept given the apparent rotation of the stars and the other heavenly bodies.

Further evidence that this view may be correct is provided by the myth of Er, related by Plato. Er was a warrior who had been slain in battle, but after twelve days his body was found still uncorrupted. At the moment they laid him on the funeral pyre and prepared to kindle the flame, he awakened and related to those present his experience in the other world. The story is a long one, but the essential element that is relevant to the present investigation is as follows:

But when seven days had elapsed for each group in the meadow, they were required to rise up on the eighth and journey on, and they came in four days to a spot whence they discerned, extended from above throughout the heaven and the earth, a straight light like a pillar, most nearly resembling the rainbow, but brighter and purer. To this they came after going forward a day's journey, and they saw there at the middle of the light the extremities of its fastenings stretched from heaven, for this light was the girdle of the heavens like the undergirders of triremes, holding together in like manner the entire revolving vault. *And from the extremities was stretched the spindle* [ἄτρακτος] *of Necessity, through which all the orbits turned.*³⁶

In Plato's account the axis mundi is represented as a spindle. If our present etymological analysis is correct, the name of the Norse axis-mundi-tree contains the word *spindle* as the first element of a compound.

The second element, *-sill*, is a reflex of PIE **suel-*, **sel-* 'plank, board, wooden post.' Attested forms include: New English *sill* 'window sill, door sill'; Greek *σέλα, ἔλατα* 'beam, planking, decking'; Old High German *sūl* 'pillar'; Lithuanian *suolas* 'bench.'³⁷

The forms that this root exhibits in Old Icelandic are: *syll*, *svill* 'sill, door sill'³⁸; and *súl*, *súla* 'column, pillar.' Vigfusson connects *súla* to Modern German *Säule* 'column,' Old English *sýl*, and Old High German *sul* (as in *Irmin-sul*).³⁹ This last connection is important because the *Irminsul* was a cultic axis-mundi pillar, held sacred by the ancient Saxons, which was destroyed in the eighth century during the reign of the Emperor Charlemagne.⁴⁰ We thus encounter the same word

³⁶ Plato, *The Republic*, Book 10:614b, trans. Paul Shorey, 839-840 (Emphasis added).

³⁷ Mallory and Adams, *The Oxford Introduction to Proto-Indo-European*, 227; Mallory and Adams, *EIEC*, s.v. "plank," 431; and Pokorny IEW 2*suel-, *sel- 898. Some authorities prefer to place Old High German *sul* or *sūl* with PIE **ksúlom* (Greek *ξύλον* 'wood'), but here I follow deVries and Vigfusson; see note 37 infra. See also Kluge, *Etymologisches Wörterbuch*, s.v. "Säule," 627.

³⁸ deVries, *Altnordisches etymologisches Wörterbuch*, s.v. "syll," 573; Cleasby-Vigfusson, *Old Icelandic—English Dictionary*, s.v. "syll," 614.

³⁹ deVries, *Altnordisches Etymologisches Wörterbuch*, s.v. "súl," 560; Cleasby-Vigfusson, *Old Icelandic—English Dictionary*, s.v. "súla, súl," 605.

⁴⁰ For the *Irminsul*, see Puhvel, *Comparative Mythology*, 200; Witzel, *Origins of the World's Mythologies*, 72, 135; Grimm, *Teutonic Mythology*, 799: "It seems to me that the notion, so deeply rooted in Teutonic antiquity, of the *Irminsúl*, that '*altissima, universalis columna, quasi sustinens omnia*', is likewise nearly allied to the world-tree *Yggdrasil*"; see also Davidson, *Gods and Myths of Northern Europe*, 196. The first element of the compound *Irmin-sul* denotes 'universal, immense, great, whole'. The Old Norse form of this word, *jǫrmunr*, has the same force, but as nominal, *Jǫrmunr*, it is an epithet for Odin. See deVries, *Altnordisches etymologisches Wörterbuch*, s.v. "*Jǫrmunr*," 295; see also Bosworth and Toller, *Anglo-Saxon Dictionary*, s.vv. "*eormen*" and "*irmen*," 254, 599.

in two separate cultures denoting the post or column, believed to stand at the center of the world and to function as the cosmic axis of rotation.

It should be noted again that in the old manuscripts, the word *drasill* was frequently written using its alternative form: *dr̥sull*.⁴¹ It is apparent that the vowel in the last element of this compound was somewhat fluid during the Old Norse period. Probably forms with the long vowel (*súl*, *súla*) were primary, with the alternate forms (*syll*, *sill*) being secondary via weakening.⁴²

From the foregoing, it would seem correct to translate the phrase *askr Yggdrasils* as: —*The Ash, Odin's Spindle Post*

WHY ODIN'S?

At the beginning of this investigation, we noted the striking correspondence between descriptions of Yggdrasill in the myth, on the one hand, and observable characteristics of the Milky Way galaxy on the other. Again, in Plato's account of Er, we encounter a description of the axis-mundi spindle that strongly evokes galaxy imagery. It was, we are told,

“a straight light like a pillar, most nearly resembling the rainbow, but brighter and purer.”

Space limitations here do not permit us to survey the innumerable instances where axis-mundi characteristics in world myth parallel features of the Milky Way galaxy, but many more could be cited.⁴³ General Germanic myth, however, provides additional information about Odin, and this may help to account for the fact that the axis-mundi spindle-tree belongs to him. This god has a large number of epithets that provide hints about his character and function in ancient religion. We have already examined Ygg, ‘the fearsome one,’ but another is Ýrúngr, which in Old Norse signifies ‘wild or stormy.’

Several compound words containing this epithet, from Old High German and Old English, are particularly illuminating. Old English *Iringesweg* ‘Odin's Way’ and Old High German *Iringis-strāza* ‘Odin's Road’ both signify the Milky Way.⁴⁴ Therefore, the galaxy as *axis mundi spindle post*, and the galaxy as *celestial pathway*, both belong to Odin.

WHY THE ASH?

The PIE word for the ash tree, **h₃es(k)* occurs in at least eight, possibly nine of the known Indo-European daughter languages. Pollen deposits and local referents reveal that two principal species were those designated as ash by PIE tribes between c 5000-3000 BC: *Fraxinus excelsa* and *Sorbus aucuparia*.⁴⁵ *Fraxinus excelsa* is a tall tree (up to 120 feet high) with conspicuous panicles of white

⁴¹ deVries, *Altnordisches etymologisches Wörterbuch*, s.v. “dr̥sull,” 86; Egilsson, *Lexicon Poëticum*, s.v. “DRÖSULL,” 109.

⁴² Joseph C. Harris, Professor Emeritus, Harvard University, personal communication.

⁴³ For a more extensive listing, see Haynes, *Tree of Life, Mythical Archetype*.

⁴⁴ deVries, *Altnordisches etymologisches Wörterbuch*, s.v. “Ýrúngr,” 680. See also note 39 *infra* for an additional epithet of Odin, *Jǫrmunr*, suggesting another possible identification of Odin to the axis mundi through the Irminsul of the Saxons.

⁴⁵ Mallory and Adams, *EIEC*, s.v. “Trees,” 599-601.

flowers. *Sorbus Aucuparia*, known widely as *European Mountain Ash*, or *Rowan*, is smaller, 20, 40, rarely 60 feet tall, also covered with showy clusters of small white flowers in spring. It thrives well in cold northern climates where hardly any other flowering tree will grow.⁴⁶

Could it be that the Milky Way galaxy, with its arboreal form, its enormous size, and its myriads of densely clustered stars most closely resembled the *Fraxinus excelsa* with its extremely tall stature and its innumerable clusters of small white flowers? The rowan, smaller but equally profuse in flower clusters, would have stood out all the more for being the only flowering tree in the far north. Certainly, the Rowan's prominent place in northwest European folklore (as a protection against witchcraft, etc.) suggests the possibility of an ancient mythological connection.⁴⁷

AXIS-MUNDI ASSOCIATIONS WITH HORSES IN INDO-EUROPEAN MYTH

The evidence cited above suggests that Old Norse *drasil* (or *drǫsull*) originally referred to the spindle post believed to exist at the center of the rotating cosmos, and that this word was inherited, either directly or via a continental borrowing, from a Proto-Germanic source. A later development, attested exclusively within Old Norse, came to associate this word with the concept 'horse' in mythological or poetic contexts.

The source of this identification most likely goes back to the ancient Indo-European tradition linking horses with the rotational motion of the heavenly bodies and thence to the axis-mundi. Elsewhere in the Norse tradition, two horses, *Árvakr* and *Alsviðr*, pull the chariot of the sun across the sky each day. Both Day and Night ride around the world every twenty-four hours in chariots pulled by horses named *Skinfaxi* and *Hrímfaxi* respectively.⁴⁸ In the Vedic traditions, the *Atharvaveda* (19.53.1 and 11.4.22) explicitly associates the concept *horse* with the diurnal rotation of the heavenly bodies as represented by a chariot.⁴⁹ Later Indian epic also associates the concept *horse* with the World Tree, which in the *Bhagavadgītā*, is called *Aśvattha*. Monier-Williams analyzes this name as a compound, the second element of which, *-ttha*, is derived from *-stha* 'stand,' so that *Aśvatthá* is the tree 'under which horses stand.'⁵⁰ The Greek tradition also tells of horses that draw the chariot of the sun.⁵¹

These instances may well represent a PIE tradition, still practiced in the rural areas of modern Nepal, where horses were used for threshing grain. A team of horses is harnessed to a metal ring that is placed over a wooden post anchored at the center of a threshing floor. The horses are driven around and around, stamping the raw sheaves as they go, threshing out the kernels of grain. The

⁴⁶ Bailey, *Standard Cyclopedia of Horticulture*, s.vv. "Fraxinus" and "Sorbus," 1274-76, 3194-95. Some authorities use the species name, "excelsa," others "excelsior."

⁴⁷ Sturluson, *Prose Edda*, trans. Young, 107, for the story in the *Skáldskaparmál* describing how Thór pulled himself up out of the river Vimur by grabbing hold of a rowan tree. Snorri says, "This is why we say that the rowan is Thór's salvation."

⁴⁸ Gylfaginning in Sturluson, *The Prose Edda*, trans. Young, 38.

⁴⁹ Jurewicz, *The wheel of time*.

⁵⁰ *The Bhagavadgītā in the Mahābhārata*, 37[15].1, 129; Monier-Williams, *A Sanskrit-English Dictionary*, s.v. "Aśvatthá," 115; Sauv  , "The Divine Victim," 187.

⁵¹ *Homeric Hymns*, XXVII.14 and XXXI.14, in Hesiod, *Homeric Hymns, Epic Cycle, Homerica*, 455, 459.

rotation of the animals around the central axis is analogous to the rotational movement of the heavenly bodies around the axis mundi, hence the ancient association.⁵²

Perhaps the most likely source for this motif lies in Mesopotamian astronomy where the circumpolar constellation, Cassiopeia, was seen as a horse.⁵³ Because it lies so close to the north celestial pole, this constellation never sets and was seen in antiquity as a celestial horse that eternally runs around the pole. A portion of the Milky Way galaxy passes through Cassiopeia, providing an additional link to the notion of a horse that rotates around the axis mundi. Mesopotamian astronomy was pervasively influential in ancient times, profoundly affecting the astronomical views of many surrounding cultures.

Whatever the source, it is clear that the association of horses to the axis mundi goes back to the Indo-European common era, so that when the etymological origins of *drasill* had become lost, this now mysterious term was taken for a horse-referent in Old Norse. Once this mistaken association was established, the word *drasill* came to be employed in the poetic register as a term for horse, much as modern English employs the terms “steed, charger, or courser” to refer to that animal outside of the common vernacular usage.

Finally, in modern times, when scholars began looking for the etymological source of Old Norse *Yggdrasill*, they observed the poetic use of *drasill* signifying ‘horse,’ and assumed therefore that the term, *Yggdrasill*, meant ‘Odin’s horse.’ This being somewhat counterintuitive, they then attempted to justify that assumption by recourse to the chain of oblique metaphors associated with the verses found in *Hávamál* 138 and 139.

It is interesting to note that, in the ancient Greek language, the central post of the threshing floor (as well as the celestial axis) was called the *πόλος*. This is the source for modern English *pole*, which is the current scientific term for the axis mundi.⁵⁴ We have seen that Eng. *thread* (< ‘spun fibers’) and Eng. *thresh* (< ‘rotating animals’) both stem from the PIE root **terk^(w)* (or a closely related form **terh₁*), which is the source of Old Norse *dra-(sill)*, and which signifies spinning or rotational motion.⁵⁵ It is evident that threshing, spinning, and the rotational motion of the heavens were somewhat unified concepts in the ancient Indo-European world. It is therefore not surprising that the name *Yggdrasill* (as axis mundi) should have somehow become associated with the horse-motif in Old Norse.

⁵² For an example of this practice, see: <https://www.youtube.com/watch?v=5TERz4ohZfk>

⁵³ Hunger and Pingree, *Astral Sciences in Mesopotamia*, 60, 273.

⁵⁴ Liddell, Scott, and Jones, *A Greek-English Lexicon*, 1436, s.v. “πόλος.”

⁵⁵ For an analysis of PIE **terk^(w)*- and **ter(h₁)*-, demonstrating their common underlying semantic value “rotational motion,” see Haynes, “Resonant Variation in Proto-Indo-European,” 151-222.

NATURE SYMBOLISM IN MYTHICAL INTERPRETATION

Michael Witzel's pioneering study of Milky Way symbolism in world mythology (1984) and his more recent reference to these relationships in *The Origins of the World's Mythologies* (2012) deserve to be taken very seriously by those approaching world myth from a comparative perspective. Once the original referent of these myths is recognized by its galaxy symbolism, the remaining mythological details typically reveal themselves as coherent and transparent confirmations of the underlying mythical complex.

But the use of nature symbolism in mythical interpretation is controversial. The reasons for this are largely based on a historical misunderstanding that cries out for clarification. In order to do so, we will first consider one well-known myth that clearly illustrates the need to consider natural symbolism in order to arrive at a comprehensive understanding of its contents.

LEDA AND THE SWAN

The Greek myth of Leda and the Swan illustrates a relationship between myth and nature that is revealing. In Euripides' play *Helen*, Helen says,

Zeus took the feathered form of a swan, and that being pursued by an eagle, and flying for refuge to the bosom of my mother, Leda, he used this deceit to accomplish his desire upon her.⁵⁶



Figure 3: Leda and the Swan. First half of the fifth century BC, Capitoline Museum, Rome.

⁵⁶ Euripides, *Helen*, in *Euripides: The Bacchae and Other Plays*, Vellacott, Philip, trans., 136. Arthur Sanders Way (Loeb Classical Library, vol. 1, 466-69) gives the following translation of this text: "The tale telleth that to my mother Leda flew Zeus, who had stolen the likeness of a swan, and fleeing from a chasing eagle, wrought by guile his pleasure." See also: Hyginus, *Astronomica* ii.8.1-2, where the story is told with minor variations but confirms that the constellation, Cygnus, is the swan whose form Zeus took in this legend. For references to Helen as a tree goddess, see *Oxford Classical Dictionary*, s.v. "Helen" and Puhvel, *Comparative Mythology*, 141.



Figure 4: The rape of Leda by Zeus in the form of a swan (detail). Garreau, L.P.F., circa 1787, after Nicolaas Verkolje (1673-1746), British Museum.

archaic galaxy goddess, with the twin branches of the galaxy representing her legs, then the constellation Cygnus would be positioned directly in her lap. The constellation Aquila (Eagle) is located immediately adjacent to Cygnus, also in the area of the Great Rift.

The rape of Leda is of interest because its imagery is so unmistakably related to the galaxy. The reference here to a swan pursued by an eagle exactly parallels the position of the two constellations, Cygnus and Aquila, at the dividing point of the Great Rift, the branches of which in ancient times were sometimes seen as the legs of a celestial god or goddess.⁵⁷

This discussion has employed observations about the natural world in order to make sense of a myth that is otherwise obscure. The rape of Leda by a swan consists of five mythical elements:

1. Goddess (Leda)
2. Swan (Zeus)
3. Eagle
4. Chase of swan by eagle
5. Sexual violation of the goddess by swan

Natural features that correspond to the myth are:

1. The portion of the Milky Way galaxy that looks like a human torso with spreading legs, and which was personified as the lap of a goddess

Artistic representations of this myth typically omit the eagle that is described by Euripides, but this element is essential for a full understanding of the myth. That is because the natural referent of this story consists of an astronomical relationship between the Milky Way galaxy and two asterisms that are located at the galaxy zone of the Great Rift.

The constellation Cygnus (Swan) is located between the two branches of the galaxy, precisely at the point where the Milky Way divides (see Figure 5). So that if Leda were an archaic galaxy goddess, with the twin branches of the galaxy representing her legs, then the constellation Cygnus would be positioned directly in her lap. The constellation Aquila (Eagle) is located immediately adjacent to Cygnus, also in the area of the Great Rift.

⁵⁷ For a precise depiction of the Milky Way Galaxy and its neighboring asterisms, see *The Times Atlas of the World*, xxviii-xxix; Compare: Haynes, *Tree of Life, Mythical Archetype*, 119.

2. The constellation Cygnus (swan)
3. The constellation Aquila (eagle)
4. The relative positions and order of these natural features are in conformance with the mythical chase motif: eagle—swan—personified lap (eagle chases swan into lap).
5. The position of Cygnus at the location where the sexual organs would be expected if the portion of the galaxy that appears as a torso and legs were personified as the lap of a deified woman. The inference is therefore: Swan at location of female genitals = Swan copulates with female.

In addition to these observations, we have it on good authority (Hyginus, *Astronomica*, ii.8.1-2) that the ancients regarded the constellation Cygnus as the swan whose form Zeus took in order to perpetrate the rape of Leda. Given all of this evidence, it is hard not to conclude that this myth reflects the natural features suggested here.

But this raises a number of questions: Is there precedent for interpreting myth by appealing to natural phenomena in this way? Would drawing such conclusions be advocating a view of mythology that has long been discredited? G. S. Kirk, for example, refers to “the defunct nature-school of mythology.” Mallory and Adams refer to the “defeated naturist school.”⁵⁸ Are these characterizations entirely accurate? Was the view that associated mythology with natural phenomena ever really defeated, as these scholars suggest?

SYSTEMS OF MYTHICAL INTERPRETATION

Mallory and Adams (1997) describe what they consider the historical succession of significant mythological schools, along with their principal advocates:

1. **The Naturist School** (Max Müller 1823-1900) “In the mid-nineteenth century, the major approach to comparative mythology was underpinned by the assumption that the key to interpreting myth lay with natural phenomena, especially the sun, thunder and lightning... The naturist or solar school of mythology was ultimately defeated by its own excesses... and has been generally abandoned as the primary interpretive key to IE mythology. On the other hand, that some IE mythology must relate to natural phenomena cannot be denied, especially as the few names of deities which are sufficiently widespread among the different IE stocks to posit a PIE linguistic form relate to natural phenomena such as the Sun, the Dawn, and the Sky.”⁵⁹
2. **“The Ritualist School**, championed by such scholars as Sir James Frazer (1854-1941) in his *Golden Bough*, emphasized the close relationship between myth and ritual. Its central



Figure 5: A portion of the Milky Way galaxy showing the locations of the two asterisms, Cygnus (Swan) and Aquila (Eagle), at the zone of the Great Rift. Illustration by the author.

⁵⁸ Kirk, *Myth*, 90; Mallory and Adams, *EIEC*, 116-17.

⁵⁹ Characterizations of the schools of myth-interpretation are quoted from Mallory and Adams, *EIEC*, 116-23.

focus was the belief that rituals were undertaken to manipulate, largely rejuvenate, the universe and that myth was merely the narrative accompaniment to such rituals.

3. **The Functionalist School** “[M]yths may serve to express the underlying charter for societal behavior and its construction. This approach was particularly emphasized by Emile Durkheim (1858-1917) who regarded religion as ‘society personified’ and the various deities or sets of deities might be seen as collective representations of the various social classes of society. The relationships between deities might then serve to reinforce the expected relationships that operate with societies or illuminate areas of structural conflicts. For example, the inferior social position of the lower orders in society is frequently “justified” in the mythic traditions of various IE stocks that relate how in some primeval contest the lower social orders were incorporated into society of the higher...”
4. **The Structuralist School** (as advocated, for example, by T. Gamkrelidze and V. Ivanov) which involves “... analyzing myths in terms of binary oppositions which the content of the myths seeks to resolve. It assumes for all human beings there is a deeply embedded mental structure that sets up opposing patterns to achieve a resolution of conflicting elements.”
5. **Tripartition** (Georges Dumézil 1898-1986) “Tripartition is regarded as basic and central to an IE system or ‘ideology’... Myth, either intact or reflected (or disassembled) is brought forward as an illustration or illumination of this ideology. The systematic association of three fonctions or Functions—accepted as Sovereignty (F1), Guardianship or the Warrior Function (F2), and the Function of Fertility (health, sexuality, etc.) (F3)—is sought out in terms of statements of or concerning founding myth, religious structure, and belief, in socio-political organization...”

Several other “schools” could be added to the above list as, for example, that of C. G. Jung and his follower, Karl Kerényi. This view takes as its basis the belief that,

All human beings possess similar inborn tendencies to form certain general symbols, and that these symbols manifest themselves through the unconscious mind in myths, dreams, delusions and folklore.⁶⁰

Although this view has attained a fairly large popular following, it has not been well accepted among scholarly investigators because of its reliance on mystical forms of perception.⁶¹

The voice of reason, on the other hand, would argue that what is wrong about all of these theories is their dogmatism—the idea that any one approach could account for all mythological content. The fact is that myths often:

- involve elements of nature symbolism.
- reflect social norms or provide charters for social behavior.
- relate to or account for religious rituals.
- express social tensions and suggest possible resolutions.

⁶⁰ Kirk, *Myth*, 275

⁶¹ Jung and Kerényi, *Essays on a Science of Mythology*, 16–17, 92.

- reflect the basic physical and psychic structure of the human being.

The essential task of the mythologist, then, is to unravel these various threads and to analyze each element in order to explicate both its outward form and its latent motivation.

THE “DEFEAT” OF THE NATURIST SCHOOL

In his book, *Myth* (1978), G. S. Kirk asserts that the “naturist school” or “nature-myth school” was vanquished, along with its primary proponent, Max Müller, by the scathing critique of the folklorist, Andrew Lang.

The classical attitude to myth, after being rescued by Mannhardt from Creuzer, by Andrew Lang from Max Müller, has been dominated in this century by the trends initiated by J. G. Frazer... [A]nd the idea that the motives of custom and myth in primitive societies could illuminate those of more developed cultures, including that of the ancient Greeks, became the driving force behind works of manifold learning and amazing ingenuity.⁶²

and again:

At its best the anthropological approach brought a fresh vitality to the study of classical religion and myths, and enabled its followers to recover from the lethargy that had overtaken them once the nineteenth-century fallacies of the animists, the symbolists, the nature-myth school... had been exhaustingly laid to rest.⁶³

MÜLLER’S APPROACH TO MYTHICAL INTERPRETATION

Müller, a Sanskrit scholar who had spent much of his academic career writing on the subject of world mythology, favored an approach that saw nature symbolism as being preeminent for understanding the meaning of myths. To arrive at this underlying (and often obscure) nature symbolism, he resorted to an etymological analysis of the names of gods involved in the myths. These were very frequently the night, the dawn, and above all, the sun.

It must be said at the outset that it is misleading to refer to Müller and his colleagues as the “Naturist School” or the “Nature-Myth School” as Mallory and Adams (and G. S. Kirk) do. Müller typically referred to his approach as “Linguistic Comparative Mythology.” Andrew Lang correctly uses the term, “Philological School” to describe Müller’s system. These terms result from the tendency of Müller and his fellows to employ etymological analysis as their primary tool to decipher myth. In *Contributions to the Science of Mythology*, Müller explicitly describes his approach to the problem of mythical interpretation as the recognition of the following:

1. That the different branches of the Aryan family of speech possessed before their separation not only common words, but likewise common myths;
2. That what we call the gods of mythology were chiefly the agents supposed to exist behind the great phenomena of nature;
3. That the names of some of these gods and heroes, common to some or to all the branches of the Aryan family of speech, and therefore much older than the Vedic or Homeric periods,

⁶² Kirk, *Myth*, 2-3

⁶³ Kirk, *Myth*, 3. For a brief discussion of the Müller-Lang controversy, and for an opposing view on some of the more modern approaches to mythological interpretation, see Friedrich, *The Meaning of Aphrodite*, 30-31.

constitute the most ancient and the most important material on which students of mythology have to work, and

4. That the best solvent of the old riddles of mythology is to be found in an etymological analysis of the names of gods and goddesses, heroes and heroines.”⁶⁴

Müller had argued for a relaxation of the generally accepted rules of etymological derivation in the case of divine names. He considered these to belong to an extremely old stratum of language that had preserved earlier forms in a more or less petrified state that had resisted the otherwise prevalent linguistic changes. He claimed, for example, that the name of the Vedic god, *Varuna*, was cognate to the Greek god *Ouranos* and that both words could be traced back to the PIE period. And while he acknowledged that the well-established phonetic laws that described sound changes between Vedic Sanskrit and Classical Greek did not yield an exact correspondence between *Varuna* and *Ouranos*, still he believed them to be equivalent, especially given their similar characteristics as ancient sky gods.⁶⁵

Regardless of any possible merits to this argument, the etymological license that Müller gave himself provided him with an unbounded flexibility in his determination of divine cognates. He claimed to have found Sanskrit cognates to the majority of Indo-European mythological divinities, and through an etymological analysis of those Sanskrit words, he would pronounce the meaning of the divine name and therefore the fundamental significance of the myth. The glibness by which he arrives at these correspondences, the often-implausible appearance of his etymologies, and the nearly unflinching reduction of the divinity to some type of sun-symbolism all leave the distinct impression that Müller is continually forcing the evidence to fit his pre-existing theory.

Müller had repeatedly expressed his view that mythology had arisen originally from a “disease of language.” By this he meant, for example, that ancient people must have described the sun as *bright*, and that this adjective *bright* had come to be accepted, over time, as the actual name of the sun. Later, since it was assumed that a name always denotes a being, stories were invented to account for a god who lived or expressed himself through the medium of the sun. And since most words in the PIE lexicon carry grammatical gender, the sex of the gods (male or female) was taken from the grammatical gender of the words that had come to be accepted as their names. Thus, much or all of mythology could be traced back to the misapplication of language to natural phenomena.

CRITIQUE OF MÜLLER BY ANDREW LANG

This is precisely what Lang disputes. He states his position emphatically:

We proclaim the abundance of poetical Nature-myths; we ‘disable’ the hypothesis that they arise from a disease of language.⁶⁶

⁶⁴ Müller, *Contributions to the Science of Mythology*, 21.

⁶⁵ Müller, *Contributions to the Science of Mythology*, 416.

⁶⁶ Lang, *Modern Mythology*, 135.

It is chiefly to this hypothesis about the “disease of language,” and to Müller’s etymological emphasis, that the criticism of Andrew Lang was addressed. Lang had criticized some of these methods in a series of newspaper articles that had ridiculed what he considered some of the excesses of Müller’s approach. In 1897, Müller retaliated with his *Contributions to a Science of Mythology*, which ran to over 800 pages in two volumes, and which repeatedly criticized Lang and his fellow members of the “anthropological school.” Andrew Lang then responded with a volume of his own, *Modern Mythology* (1897), which although shorter in length than Müller’s work, was expressly intended as a reply to it. In that book, Lang refers to the polemic between him and Müller as a “guerilla kind of warfare.”

G. S. Kirk’s characterization of this last publication as a decisive defeat of the mythological school championed by Müller is probably accurate. Lang’s critique is an academic blitzkrieg that spares no effort to discredit Müller’s arguments, his lapses in citing sources, and his faulty characterizations of both his opponents and his claimed supporters.

Although virtually everyone at the time agreed that some myths could be traced back to the Proto-Indo-European (“Aryan”) period, Max Müller believed that the number of myths that could be so traced was much greater than those conceded by Lang and his group. The one case about which there was no disagreement was that the father of the gods was called in Latin *Jupiter*; in Greek *Zeus*; in Sanskrit *Dyaus*; etc. That all of these words are cognates of each other implied therefore that the myths about them must be so as well. Similar sets have been adduced for the sun and the dawn, for example, but much beyond these has always been disputed territory. Lang rightly criticized Müller’s loose etymological methods that allowed him to expand his list of “proven” PIE myths to unreasonable lengths.

The second of Müller’s four tenants above is the principle that has led to his approach being labeled the “Naturist School,” but here again, the issue was always one of degree. It was not that Lang and his anthropological school of mythologists disputed the fact that many myths refer to natural phenomena, but only that Müller had succeeded in finding solar (and dawn) symbolism in the vast majority of his mythical interpretations. Nearly every mythical god analyzed by Müller was declared to be reducible to solar symbolism, and this appeared excessive in the extreme to Lang and many others. But the recognition of the general prevalence of nature symbolism in myth was never under dispute. Lang wrote, for example,

“No anthropologist, I hope, is denying that Nature-myths and Nature-gods exist. We are only fighting against the philological effort to get at the elemental phenomena which may be behind Hera, Artemis, Athene, Apollo, by means of contending etymological conjectures. We only oppose the philological attempt to account for all the features in a god’s myth as manifestations of the elemental qualities denoted by a name which may mean at pleasure dawn, storm, clear air, thunder, wind, twilight, water, or what you will... Departmental divine beings of natural phenomena we find everywhere, or nearly everywhere, in company, of course, with other elements of belief—totemism, worship of spirits, perhaps with monotheism in the background. That is as much our opinion as Mr. Max Müller’s. What we are opposing is the theory of disease of language, and the attempt to explain, by philological conjectures, gods and heroes whose obscure *names* are the only sources of information.”⁶⁷

⁶⁷ Lang, *Modern Mythology*, 133

THE NATURE-MYTH SCHOOL WAS NEVER DEFEATED

From this discussion it can be seen that the anthropological school that Lang represented did not defeat the nature-myth school, rather it defeated the philological school of mythologizing that had been championed by Max Müller.

- Myth did not arise out of a “disease of language.”
- The etymological methods employed by Müller were mostly inadequate and resulted in gross errors.
- The sun, although it did figure as a central element in some myths, was not the mythological focus to any degree that it was considered to be so by Müller.

Lang did rightfully put these misconceptions to rest.

But while interpretations of myth based on natural phenomena have fallen somewhat out of fashion in recent years, they have never been shown to be *a priori* fallacious. They have never been “defeated,” nor can they honestly be characterized as “defunct.” Although Andrew Lang may correctly be said to have demolished the “philological conjectures” of Max Müller, he never challenged the claim that much of mythology can be explained by reference to natural features. On the contrary, he acknowledged that this is very widely and correctly seen to be the case.

The conclusions offered above concerning Leda as a galaxy goddess in her interaction with Zeus stand as a paradigmatic example of how myth can be meaningfully interpreted by reference to natural phenomena. Probably this story served as a mnemonic device for sailors who relied on the stars for navigational purposes, and who must, therefore, recognize the orientation of the constellations despite their ever-changing diurnal motion. In this respect, the Milky Way Galaxy has traditionally provided the surest and quickest guide to the positions of the stars.

Such an example as this would argue for a fresh evaluation and renewed appreciation for the use of nature symbolism as one valuable approach to be employed in the comparative interpretation of world myth.



Figure 6: Leda and the Swan by Adolf Ulric Wertmüller (1751-1811).

LEDA AND THE SWAN: A DEEPER LOOK

Myth is rarely one-dimensional. The story of Leda and the Swan carries multiple meanings, none of which negates the other. The following may stand as an initial attempt to summarize its various levels of meaning:

1. As described above, it provided mnemonic material for a comprehensive mental map of the stars, probably primarily for navigational purposes.
2. It provided moral guidance to young women. Zeus was forced to employ deception because, “Proper girls do not give themselves to men who lust after them outside of socially-sanctioned marriage.” This is an example of the social tensions that arise from the fact that men are typically less discriminating about who they mate with, whereas women must consider the long-term well-being of themselves and their offspring.
3. It provided a warning to young women concerning the devious stratagems that men will employ in order to have their way with them.
4. It provided a charter for the behavior of kings (represented by Zeus), who consider themselves above the normal constraints of law and morality.
5. It provided a mythico-historical antecedent for Helen, the child of Leda by Zeus, who was herself originally a mythical tree-goddess. The branching pattern of the galaxy at the Great Rift was often viewed as the branching of a celestial tree, an alternative to the anthropomorphized legs or outstretched arms of a god or goddess.
6. It provided the “narrative accompaniment” for the rituals and dances performed in Sparta in Helen’s honor as a tree-nymph, and for whatever rituals that were associated with the egg that was said to have been laid by Leda as a result of her impregnation by Zeus, and which hung be-ribboned from the roof of the Sanctuary of Hilaeira and Phoibe.⁶⁸ Helen was said to have hatched from that egg.⁶⁹
7. It provided the back-story to the Homeric epic, where Helen was the cause of the Trojan War and of all the sufferings that the Greeks endured for her sake. This is an example of how myth can be used to justify historical events such as wars. Its implicit claim is that the Greeks did not attack Troy in order to gain control of the trade routes into the Black Sea, but rather they did so to righteously avenge the illegal and immoral abduction of the Spartan princess, Helen, daughter of Zeus and Leda.
8. Because of its vaguely anthropomorphic appearance, its shining luster, and its celestial location, the Milky Way Galaxy served as the physical referent for many of the gods and goddesses of the ancient world. This identification was typically considered an esoteric secret, known only by those who had been initiated into the mysteries, and therefore speaking about such matters directly and openly was prohibited. It was, however, permitted to allude to them indirectly by way of hints and clues as long as these were not too obvious.

⁶⁸ Mallory and Adams, *EIEC*, 164.

⁶⁹ Pausanias, *Guide to Greece*, Levi, trans., vol. 2, 26n42, 28n45, 54, 70; Apollodorus, *The Library*, vol. 2, 25; and Euripides, *Helen*, Vellacott, trans., 143.

The myth of Leda and the Swan provides just such a combination of veiled allusions that would be obscure to the masses, but that were obvious to those who knew the secret.

It is evident from the above that myth is multi-faceted, and that no single methodological approach is adequate to encompass its breadth. This is perhaps a key to the fascination that mythology has exerted throughout the ages and why we continue to concern ourselves with stories that were told two and a half millennia in the past. An important part of the total mythical complex includes the component involved with natural phenomena, and this is often represented symbolically. We would do well to acknowledge and to weigh carefully all available evidence in order to arrive at the most comprehensive understanding possible of these ancient mythical narratives.

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THE PATH IN HEAVEN

MICHAEL WITZEL*

It was nearly 90 years ago that a certain Fritz Bonsens (alias Alfred Hillebrandt), in a pamphlet entitled, *Die Götter des R̥gveda: Eine euhemeristische Skizze*,¹ attacked the method of explaining the mythology of the Veda by “nature mythology,” a method advocated by Müller, Roth, Kuhn, Bergaigne, Bloomfield and Hillebrandt. Bonsens begins by saying:

Once Indra was a great king, just as there still are kings today in India...

and he ends with:

...The R̥gveda knows nothing of natural phenomena that have become gods, it knows only of human beings.²

Since the time of Bonsens, scholars have developed other methods for interpreting Vedic mythology,³ most notably the structural method. Yet, I think that the importance of night sky phenomena in Vedic mythology has not been sufficiently appreciated—although F. B. J. Kuiper is a notable

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¹ This essay, published in Breslau in 1894, was in fact directed against the “medieval” interpretation of the RV by Pischel and Geldner, in their *Vedische Studien* I-III (Stuttgart, 1889-1892).

² A point of view in favor in contemporary India, it seems. See the review of a work on this trend by W. Rau, *IJ* 21, 1979, p. 281; and *Proceedings of the 31st International Congress of Human Sciences in Asia and North Africa*. Tokyo-Kyoto (ed. T. Yamamoto, Tokyo, 1984), p. 534.

³ Roughly parallel to the theories of ethnologists, who sometimes followed the ideas of Indianists (in the 19th century) or linguists (in the 20th century).

exception here.⁴ In the following pages I will try to describe some aspects of Vedic mythology, and I hope that this will result neither in a “euhemeristic sketch,” nor in a new “nature mythology.”⁵

I

We know that the sky is the domain of the Vedic gods and that men hope to go to heaven (for a well-defined period).⁶ Heaven is called *dýáuḥ*. The day-time sky is illuminated by the sun (*sūrya-*), which is also called *svàr* “light, sun” or *svargá-loká-* “the shining world,” as it is usually translated. It is well known that the R̥gvedic Indians attached great importance to certain major phenomena of the sky:⁷ the rising of the sun, preceded by the dawn (*uṣás*), the progress of the moon through the constellations (*nákṣatra-*), and also to the progress of the months and the seasons (*ṛtú-*) of the year. The importance of the first appearance of the dawn of the New Year has also been studied,⁸ but it is less well known that the Indo-Iranians and the (R̥g)vedic Aryans observed many other phenomena of the day-time sky and the night sky, for example the daily rising (and setting) of the sun during the year. In practical terms, this takes place every day at a different place, varying from the northeast (summer solstice), to southeast (winter solstice).⁹ There are a certain number of other observations which are found in the Vedic texts and which have not been well understood.¹⁰ Here, I propose to treat a single

⁴ See in particular his book *Varuṇa and Vidūṣaka*, Amsterdam, 1979, pp. 1-64 passim, and his articles collected in *Ancient Indian Cosmogony* (ed. J. Irwin), Delhi, 1983. These two titles are abbreviated hereinafter as *VaV* and *AIC* respectively.

⁵ “But then, does not a subjective one-sidedness often seem to be a necessary precondition for arriving at new ideas? And should we not acquiesce in this as a necessary part of the *māyā* in which we live?” (Kuiper, *AIC*, p. 27).

⁶ On life after death in the paradise of Yama, see my published article: “On the earliest form of the idea of rebirth in India” (a brief summary can be found in *Proceedings of the 31st International Congress*, p. 145 ff.), hereinafter abbreviated “Rebirth.”

⁷ General information from W. Kirfel, *Die Kosmographie der Inder*. Bonn, 1920 (reprinted: Darmstadt, 1967), pp. 2-53. For the race of sun (for a day and a night), cf. JUB 4.5.1; for movement *nákṣatra* towards the South, cf. TS 5.3.4.5.

⁸ Especially by Kuiper (in *AIC* and *VaV*); see also H.P. Schmidt, *Brhaspati und Indra*, Wiesbaden, 1968, pp. 180, 240, 243. Note that Indra was born in the month of *māgha*, the month of the winter solstice and the New Year, cf. VādhB (in AO 6, 1928, p. 134).

⁹ This observation must date back to the time of the RV. See 7.87.1 *rādat pathó váruṇaḥ sūryāya* “Varuṇa has traced the paths for the sun,” notably the (365) *patháh* (plural: it is therefore not both daily journeys, including the return at night). For the paths of the sun during a year, cf. Kirfel, *Kosmographie*, p. 26; ŚB 8.7.2.13, KB 19.3 (19.1.28) is particularly clear: it races towards North for six months, then stops; and returns to the South, etc.; cf. also TS 6.5.3.3, KS 28.2, KpS 44.2 (*tasmād samvatsaram jyotir upary-upari carati*) and JB 2.25-26 (§ 117).

¹⁰ In particular, the question of forty days (see below, n. 120), the period of the *dyumna* (see previously H.W. Bode-witz, *Jaiminīya Brāhmaṇa* 1, 1-65 (Translation and commentary), Leiden, 1973, p. 32 sq.), the intercalary “month” (“thirteenth month”), the names of certain constellations (with even a “dolphin,” JB § 194), the problem of planets (*graha?*), shooting stars (MS 1.1.6: 124.2), Sirius and Orion (cf. B. Forssman, KZ 82, 1968, pp. 37-65). It is impossible to address all these problems here; I plan to discuss some of them in collaboration with M. P. Nieskens.

aspect of the night sky: that of the movement of the stars in general (well described by the hymn RV 1.105)¹¹ and, in particular, that of the Milky Way.¹²

While *dyáuḥ* represents the bright day-time sky and also that of the night sky (according to RV 1.105.10, cf. n. 9 and Kirfel, *Kosmographie*, p. 34), the sense of *svár* is ambiguous. This word can mean “sun,” and “illuminated sky” as well as “the brilliant paradise (of the gods)” at the firmament (*nāka*) of the sky. In the same way, *svargá-* (*loká*) means the paradise (of light).¹³ The connotation of light/brilliance of these words is contained in their roots **dieu-*, **sh₂uel(g)-*, but the expression *svargá- loká-* which literally means “shining world, shining space,” in fact means—when one reviews the Vedic passages—the Milky Way.¹⁴

The Milky Way “moves towards the east”¹⁵ or “a little bit towards the east and towards the north.”¹⁶ That means, unlike the sun and the moon, it moves *apasalavi* (in the counter-clockwise direction), as one can observe for one of its stars during the course of the year.

¹¹ This hymn offers some safe interpretations: it describes the rising of the moon (1), of the seven stars of the Big Dipper (9 *amí yé saptá raśmāyaḥ*), the setting of the five stars called *ukṣan-* (perhaps the *nakatra hasta*, cf. Kirfel, *Kosmographie*, p. 139; another interpretation in C. Kiehnle, *Vedisch ukṣ und ukṣ /vakṣ*, Wiesbaden, 1979, p. 82 ff. ; cf. A. Scherer, *Die Gestirnnamen bei den indogermanischen Völkern*, Heidelberg, 1953, s.v. “Ochse”), which were in the middle of the high sky (10 *amí yé páñcokṣāno mādhye tasthūr mahó divāḥ*); and the position of the “well-winged” who are “sitting in the middle of the sky” on the (way) rising to the heaven, and who “keep out of the way of the wolf coming across the juvenile waters” (11 *suparnā etā āsate mādhyā āródhane divāḥ / té sedhanti pathó vṛkaṃ tārantaṃ yāhvātīr apāḥ*): perhaps this “wolf” (near our Scorpio) is located in the branch of the Milky Way at the time of sunrise (12). In the Milky Way, we also find the Eagle (singular!), and very close to the “gate,” cf. RV 3.7.7 and infra n. 69. See also “the walk of the high sky”: *divó bhṛatō gātú* (RV 1.71.2).

¹² Kuiper believes that “in the nocturnal aspect of the cosmos the cosmic waters form the night-time sky and are, accordingly, automatically above the earth” (*AIC*, p. 144; cf. also “The bliss of Aśa,” IJ 8, 1964, p. 107 ff. and *AIC*, pp. 37, 74, 78-9, 146, 150). I will show, however, that not all of the night sky corresponds to cosmic waters, but only the celestial river, the Milky Way (but cf. JB 1.5 (§ 1) and ChU 8.4.1). The light of day penetrates the waters during the night: this is to say that they are light during the night (and dark - JUB 1.25 - during the day: night has entered). So the Milky Way is clear, bright like a river during the night: the light of day (*svar*) has entered there, and it is not visible during the day: night has entered into it; it is then too dark to be visible (TS 6.4.2.4). The VS says: *kim samúdrasamaṃ sáraḥ? - dyáuḥ* (23.47-8).

¹³ In cosmogonic terms, no night existed in ancient times. It was only after the death of Yama, the son of Vivasvant, but also the first mortal, whom the gods created at night so that Yamī forgets Yama's death (MS 1.5.12, cf. MS 4.6.7: 89.17; see JB 3.361 for *dyumna*).

¹⁴ An interpretation already put forward by D. Schrapel, in *Untersuchung der Partikel iva und anderer lexikalisch-syntaktischer Probleme der vedischen Prosa...*, Dissertation. Marburg, 1970, pp. 53-6. This thesis (unpublished) is often ingenious, but clumsy in its translation of *iva* as “kontingental,” “having a portion of...”

¹⁵ TB 1.36.5 : *prāñ iva hí svarg lokó*.

¹⁶ JB 2.298 (: 288.9) *prāñ iva ha vā udañ svargo lokah* (misunderstood by Caland, § 156 n. 22).

As the Milky Way is very lightly curved and is situated above the North Pole, and for some months below the polar star,¹⁷ or at the beginning of the Vedic period, the three polar stars around the pole¹⁸ (see Figure 1).¹⁹

For the “rising” of the Milky Way (between winter solstice and summer solstice) a force must be necessary, but not during its descent.²⁰ One can find this force in certain rituals,²¹ such as the *gavām ayana* which occurs on the day when the sun (or a certain part of the Milky Way) attains its highest position: the *viṣūvat* “the (day) of the summit,” the day of the summer solstice. The sun must receive the aid of ritual during the period when it marches northwards (*uttarāyaṇa*, see Figure 3b.) Just as the *agnihotra* daily ensures the sunrise, the *gavām ayana* ensures the passage of two critical moments: the winter and summer solstices, on *mahāvrata* and *viṣūvat* days.²² The Milky Way is continuous (*saṃtata*-): JB 1.85 *saṃtata iva vai svargo lokāḥ* “In truth the shining world is almost continuous.” It forms a cord (*tantu*-).²³ The relationship of the *tantu* cord with the sacrificial ground is evident, already in AV 12.2.38 = PS 17.31.8

ūpāstarīr ākaro lokām etām

¹⁷ Therefore *saṃvatsaró vai svargó lokāḥ* MS 4.67: 90.1.

¹⁸ Due to precession, the celestial North Pole is today in the Little Dipper, but between 2000 and 1000 BCE, it was between it and the Dragon. In about 1800 BCE, the position of the pole was defined by three remarkable stars of the Little Dipper and the Dragon, which formed a triangle (cf. R. Muller, *Der Himmel über den Menschen der Steinzeit*, Berlin-New York, 1970, p. 137). On these phenomena, as on other facts of astronomy, we can read “Astronomy with the Naked Eye,” by A.F. Aveni, in his work *Sky watchers of Ancient Mexico*, Austin (Texas), 1980, pp. 48-132. Most of the data in this article is calculated for 20 degrees of northern latitude (location of Yucatan, the Mayan territory), but they are better suited to the confrontation of Vedic facts (Delhi and Kuruksetra are located at approximately 30 degrees North latitude) than our maps, which are calculated for approximately 50 degrees north latitude. This study is of extreme value for the assessment of Vedic (and Iranian) phenomena.

¹⁹ The maps are drawn for 30 degrees north latitude (Delhi, the Southern Panjab, Sistan, and also Basra, Cairo). Under our latitudes (about 50 degrees North), we can see a portion of the night sky above the North Pole greater than at 30 degrees North. The Big Dipper is visible in our regions all year round, but not in India. Nowadays it is visible roughly from January to April and from July to October (cf. ŚB 13.8.1.9, Mbh III 11855). The date of heliacal rising of a star depends on the elevation from the equator; it varies about one to two days for one degree. Finally, today, because of the precession, the constellations have a position more Western by 42 degrees compared to that of Vedic times. Concretely, the Pleiades rise earlier today than at the time Vedic (ca. 1000 BCE).

²⁰ *pratīpam iva vai svargo lokāḥ* “partially against the flow, the luminous world (moves)” JB 2.298: 288.8; *pratīkūlām iva hītās svargó lokāḥ* “in fact, from this point, the luminous world (becomes moves) partially against the flow” (i.e. from the initial moment of *gavām ayana*, of the winter solstice) TS 7.5.7.4, JB 1.85, PB 6.7.10, KS 33.7. The counter-current movement is opposite to that of the sun. Similarly, a given star “sinks” below the pole, and then goes up, against the flow, towards the pole, cf. TS 5.4.1.4 *tásmad prācīnāni ca pratīcīnāni ca náḥsatrāṇy a vartante*.

²¹ Cf. JB 2.298 et KS 33.7 cited above.

²² It is impossible to discuss this ritual here. I am happy to indicate the treatment given by TS 7.5, KS 33-34.5, PB 4-5.10 (cf. KB 19.3). We will also notice that the *hotar*, seated on a swing, is balanced from east to west: an image of the movement of the Milky Way (ĀpŚS 21.17.13, AĀ 1.2.4, ŚŚS 17.18). This movement differs from the annual movement of the sun: northeast to southeast to north. But the two “tails” of the Milky Way, including in particular the “gate” (cf. n. 69), is not found in the east (or west) only at the solstices, in the morning (or evening, respectively). They contribute to the movement of the sun during the night (cf. n. 118), and on its return to the east, between the waters of the Milky Way.

²³ The idea of the cord is very important to Vedic ritual and mythology; see “Rebirth.” The Milky Way was considered by the Mayans like an umbilical cord, cf. Aveni, op.cit., p. 97; for a ritual reflection of this conception, see below n. 25. The Vedic Indians also describe an umbilical cord between the earth and the sky (the sun), and compare it with that which connects man to his ancestors, up there, in the paradise of the gods or Yama; cf. note 60.

urūḥ prathatām āsamaḥ svargāḥ
tāsmiṃ chrayātai mahiṣāḥ suparṇo
devā enam devātābhyaḥ prāyacchān

“You have strewn (the ceremonial straw: barhis), you have created this world; may the shining (world), without equal, stretch widely! On this (world) will alight the majestic eagle. May the gods offer it to the deities.”²⁴

The Milky Way is identified here with the straw, which stretches between the terrestrial world (the *gārhapatya* fire), the celestial world (*āhavanīya*) and the lunar world (*dakṣināgni*).²⁵ These examples²⁶ suffice to demonstrate that there is a Vedic notion of the Milky Way, a notion that has up to now been almost ignored.²⁷

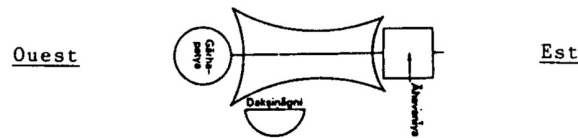
II

The *svargā-lokā*- “shining world, Milky Way” is practically absent in the Ṛgveda: the first occurrences appear in the Atharvaveda, Śaunaka and Paippalāda. In the RV, *svargā-* is attested only once, in an addition to the hymn of Purūravas and Urvaśi: 10.95.18 *svargā u tvám api mādayase* “You also, you will rejoice in the shining (world).”²⁸ What, then, does the RV call the Milky Way?

It is remarkable that mythologists have not recognized²⁹ this phenomenon, which is very much visible in the Indian sky in autumn, winter and springtime (but sometimes also during the monsoon). I think that the Ṛgvedic name for the Milky Way is *Sarasvatī*, etymologically “the possessor

²⁴ The identity of the stars of the Eagle is doubtful, but cf. note 69, on the Milky Way gate, below. According to ŚB 12.2.3.7, the year of *sattrā* is the Eagle; AV 10.8.13 describes the wings of the celestial *haṃsa* (*sahasrāhnyā-*); we read *devayāna-* in the PS(K) version. Cf. note 70.

²⁵ The *vedi* extends between the fires *gārhapatya* (the earth) and *āhavanīya* (the sun, the sky), has the shape of an elongated trapezoid, whose sides are concave:



This position between “earth” and “sky” is symbolic of the Milky Way. According to the same schema, the Kurukṣetra is the *devayajana* (n. 50), and the *doāb* of Gaṅgā and Yamunā is called *antarvedi* — cf. ĀpŚS 4.5.1.

²⁶ RV 1.154.5-6 is also very interesting: *padé paramé* refers to the Milky Way, and *gāvo bhūriṣṛṅgāḥ* at dawn, or at the extremities of the Milky Way?

²⁷ The Milky Way is only rarely mentioned in works that deal with Vedic mythology; and when it is mentioned, it is only very incidentally: cf. Weber, *Abh. der Preuss. Academy Wissenschaften*, Berlin, 1893, p. 84 (Aryaman's Way) and *Festgruss an R.v. Roth*, Stuttgart, 1893, p. 138 (see Whitney's remark on AV 18.2.31); Hillebrandt, *Vedische Mythologie*. Breslau, 1927-1929, I, p. 383 and II, p. 359; on the Rasā, Whitney - AV 4.2.5; Griswold, *The Religion of the Rigveda*, London, 1923, p. 284; Aufrecht, *ZDMG* 13, 1859, p. 498; Hertel, *Die awest. Herrschafts- u. Siegesfeuer*, Leipzig, 1931, p. 15, 51, 119.- Lüders (*Varuṇa*, Göttingen, 1951-1959) has observed the “river of milk” (and other pleasant drinks), but has not come to the conclusion that *svargā-loka-* = *Sarasvatī* = Milky Way, cf. *Varuṇa* II, p. 351 ff. We find absolutely nothing on the Milky Way in the aforementioned book (n. 11) by Scherer: *Die Gestirnnamen bei den indogerm. Völkern*. None of these philologists observed the importance of the movement of the Milky Way (during each night and during the year), with the exception of Schrapel, *loc. laud.*, n. 14.

²⁸ The original dimension of this hymn, which has eighteen stanzas in the RV, is uncertain. According to ŚB 11.5.1.10, it is “the hymn with fifteen stanzas.”

²⁹ With a few exceptions: Hertel, Hillebrandt, etc. (see above n. 27).

of many ponds.” It is a suitable designation.³⁰ Like many other peoples the Indian see a river in this celestial phenomenon; such is also the case in post-Vedic literature, where *svar-nadī* and *svar-gaṅgā* “celestial Ganga” are two common names for it.³¹

If we consider the Vedic passages where Sarasvatī is mentioned, we will quickly see that she is a terrestrial river,³² a goddess governing the fecundity of women,³³ but also that she is the object of descriptions which are considerably less banal. She descends from the mountains (from the Himālayas) but equally from the “high heavens:” RV 5.43.11 *á no divó bṛhatāḥ parvatād á, sárasvatī yajatā gantu yajñám* “May, from the high heavens, from the mountain, Sarasvatī, worthy of sacrifice, come to our sacrifice!” One may recall here that, according to F. B. J. Kuiper, the rock, the mountain is the primordial mount which, turned round and inverted during the night, is situated in the nocturnal sky.³⁴

The proximity of the goddess Rākā, who helps in the formation of the embryo and in childbirth, indicates that Sarasvatī cannot be merely a river: RV 5.42.12 *vīṣṇaḥ pātnīr nadyāḥ ... | sárasvatī bṛhaddivótā rākā, daśasyántīr varivasyatu śubhrāḥ* “May the rivers, the wives of the bull... Sarasvatī of the high heavens and Rākā, splendid ones, be agreeable and cause us to succeed!” RV hymn 6.61 is clearer (cf. verses 1, 3, 5, 6, 14); one can see that the idea of a goddess is crossed with that of a river “with wheels of gold” (*hiraṇyavartani*, verse 7): “She has filled the terrestrial (spaces) and the broad intermediate space” (*āpaprūṣī pāṛthivāny urú rájo antárikṣam*, verse 11). In verse 12 we have, more clearly: *triṣadhāsthā sapṭādhātuḥ, pañca jātā vardháyantī* “She has three stays, she is made up of seven elements (tributaries? -- RV 10.75), she increases the five peoples.” Coming from the sky, she thus crosses the aerial space and runs over the earth with her seven sisters (the rivers of the Panjab). Sometimes there are three Sarasvatīs: AV (Ś) 6.100.1 *devā aduḥ sūryo adād dyáur adāt pṛthivy ādāt | tisráḥ sárasvatīr aduḥ sácittā viśadūṣanam* “The gods have given, the sun has given, the earth has given, the three Sarasvatīs have unanimously given an antidote.” Sarasvatī is once mentioned in a context of great interest for her position in Vedic mythology: AV (Ś) 6.89.3 *máhyam tvā mitrávárūṇau, máhyam devī sárasvatī |*

³⁰ The Milky Way has many minor extensions, and only one important extension: the division into two branches, in the constellations Eagle and Lyre; cf. note 70.

³¹ Other names: Māṇḍakinī, Puṣpodaka Vaitaraṇī, Ākāśagaṅgā, Suranadī, Haritālī, Nāgavīthī, Viyadgaṅgā, Devanadī, Svāsatarāṅginī, Svargamandākinī, Svargasaridvarā, Svargāpagā, Svardhunī, Svarvāpī (“heavenly pond”: “heavenly Ganga”), etc., - cf. Kirfel, *Kosmography*, p. 109 sq.; Lüders, *Varuṇa* I, p. 156 ff. and II, p. 679. It is surprising that Lüders (*Varuṇa* I, p. 138 ff.; II, p. 589 et passim) often evokes the “celestial river” (on his map, loc. cit., one of these “heavenly rivers” is even called Sarasvatī), without however identifying this river with the Milky Way.

³² RV 7.95, 10.75.5, etc. Lommel (*Kleine Schriften*, Wiesbaden, 1978, p. 237 sqq.) defines the Rasā as a river that is both terrestrial and mythical, but he rejects identification with the Milky Way (p. 195 ff.). For Sarasvatī and Arəduuī Sūrā Anāhitā of the Avesta, he admits a form celestial and terrestrial, in addition to the status of goddess (cf.

“Anāhitā –Sarasvatī,” in *Kl. Schr.*, p. 305 ff.); but he also does not accept identification of the Sarasvatī with the Milky Way (p. 407 n. 6).

³³ RV 2.41.17, 10.184.2, etc. For Av. Arəduuī Sūrā Anāhitā, see below note 89.

³⁴ *AIC*, pp. 35 sq., 78, 80, etc. (cf. n. 73). On the course of the sun, we will read JUB 4.5.1: after lying down, he is *aśmasu* “in the stones.” This passage offers a good description of divine activities in relation with the sun during the twenty-four hours of the day. MS (3.11.3: 144.5) says: *patām no aśvina diva, pāhi náktam sárasvatī* (cf. also VS, KS, TB); how can we explain the link between Sarasvatī and the night?

máhyam tvā mādhyam bhūmyā, ubhāv ántau sám asyatām “Towards you, for me Mitra and Varuṇa, for me the goddess Sarasvatī, for me the center of the earth—may they throw together the two confines (of the earth / of the Sarasvatī).” We shall see that Sarasvatī, the Milky Way, appears one time at the center, another time at the confines of the earth (at the horizon): at these points, the Milky Way seems to touch the earth during the night (for several hours, if need be), see Figures 1 and 4.

III

Let us put aside for a moment the Milky Way, and consider several aspects of the Vedic concept of paradise—in the heavens or in the land of the god Yama.

It is well known³⁵ that the life of those who have attained the heavens is very agreeable (RV 9.113): with a perfect body, to which even limbs lost in battle have been restored, the *pitṛ* are seated beneath a tree (*aśvattha*, *supalāśa*) with shadowing leaves and drink *madhu* (AV 5.4.3, 18.4.3) or play at dice (VādhB.).³⁶ This paradise is situated in the sky, which has three³⁷ levels: ŚB 9.2.3.26 “From the earth, I shall rise to the aerial space, from the aerial space to the sky (*dīvam*), from the sky, from the back of the firmament (*divó, nākasya pṛṣṭhāt*) to the light (*svār, jóytir agām*).” It is situated above the Big Dipper (RV 10.82.2. Paradise is identical with the palace of the king Yama, but it can be distinct from that of the gods.³⁸

IV

How is it possible to ascend to paradise? Even the gods were not there at the beginning of the world. They attained the heavens by ascending to them through ritual,³⁹ the Asuras and the Sādhyas

³⁵ See the description in Kirfel, *Kosmographie*, p. 43; and Kuiper, *AIC*, pp. 68 and 82 (“The bliss of Aśa”).

³⁶ Cf. the edition and commentary by Caland, AO 4, 1926, p. 198 (§ 91).

³⁷ This is indeed the post Rgvedic idea. In the RV, we talk about the third sky, but we do not make a distinction between the three levels, cf. Kuiper, *AIC*, p. 44 and *VaV*, p. 38. We find the *pradyāuḥ* (AV 18.2.48), various *loka* (JB § 143), the *varṣman* (KS 36.6), supreme sky. In the Avesta, the supreme paradise (i.e. light) is superimposed on the three others (Vīstasp Yt., 63).

³⁸ But it corresponds to the heaven of Varuṇa (Kuiper, *AIC*, pp. 82-3. The kingdom of Yama is often placed in the southern region, in hells; it is a relatively recent idea, which developed from of the opposition North = *uttara*- “above”: South = X, etc. The pre-Rgvedic concept was North = **savya*- “to the left” (cf. Iranian - MSS 30, 1972, p. 163 ff. -, Umbrian and Old Irish): South = *dakṣiṇa*-; cf. also Kuiper, *AIC*, p. 31 and *VaV*, p. 55 sqq. In Vedic only *uttara*- and *dakṣiṇa*- have subsisted. Furthermore, always according to Kuiper (*AIC*, p. 35 sqq.), the underworld reverses, comes to place itself at the zenith of the night sky. At this moment, the paradise of the gods (above the celestial pole) and that of Yama are neighbors, cf. PS 8.19.5-6: *ye. . . pitaras... ye vā pacante odanam, te vai yamasya rājyād uttare loka āsate* “... (the fathers) are seated in the higher (or northern) world than the kingdom of Yama.” For their *saṃgamana* (cf. the reconstructed **smwid-* by Thieme, “Hades,” in *Studien zur indogermanischen Wortkunde*, Berlin, 1952 -, reproduced in *Indogermanische Dichtersprache* (ed. R. Schmitt), Darmstadt, 1968, p. 133 sqq.), see JB 2.25. Probably, the “paradise” of the gods is permanently located above the Milky Way, higher, at the *nāka* (“summit”) of the firmament, and does not move like does the paradise of Yama, which descends with the movement of the Milky Way towards the west and the south (region specific to Yama in the epic), cf. ŚB 13.8.1.9: from northeast to northwest.

³⁹ TS 7.4.2.1, AB 3.42; according to TS 7.4.2, the gods were once similar to men.

(the *pūrve devāḥ*) had arrived there before them.⁴⁰ Indra and Rudra are among the most recent arrivals.⁴¹ The humans who have been able to arrive there are the *ṛṣi*: like the gods, they are permanent inhabitants of the heavens; they can be seen near the Zenith. The “Seven Ṛṣi” make up the Big Dipper (in Avestan, *haptō iriṅga* “the seven *liṅga*, the seven signs”).⁴² Men can ascend to the heavens⁴³ in the course of certain particular rituals, like the raising of the fire altar (*agnicayana*), whose bricks are stacked in the shape of a bird (the same shape which is later used for tombs), or like the Vājapeya: in the course of this ritual the sacrificer (*yajamāna*) must climb up and seat himself on a wheel at the top of a pole.⁴⁴ During other rituals, like the *sattras*,⁴⁵ the *yajamāna* himself becomes the priest: he is the *gṛhapati* of the other members of the group performing the *sattra*. Through these “sessions” one hopes to obtain livestock, wealth, children: the common desires of the Veda; however, the *sattras* have the peculiar feature of not ceasing until their objective (*utthāna*, *udṛc*, *tīrtha*) has been achieved. For example, the objective will not be achieved unless 100 cows become a thousand, “because that world there (the heavens, *asau lokah*) is worth a thousand” (TS 7.2.4; or equally: “is located at a height of a thousand cows”).⁴⁶ Even if one achieves this goal, one does not stay away, especially if it is a matter of the celestial world: TS 7.3.10.3-4 *yád imám lokám ná pratyavaróheyur úd vā mādye yur yajamānaḥ prá vā mīyeran* “If they did not come back down into our world, the sacrificers would go mad or would perish.”⁴⁷ Among the *sattras* certain are characterised as “pilgrimages along the Sarasvatī;” these are the *yātsattra*.⁴⁸

V

Today, the Sarsuti is a river to the east of the Panjab, situated to the northwest of Delhi and often called Ghaggar in our atlases. In the Vedic period it must have been a considerably more important river, as we are led to assume by the arid bed that skirts the Indus as far as the Rann of Kacch: the

⁴⁰ Cf. Kuiper, *VaV*, p. 242 sqq.; and TS 7.2.1.

⁴¹ TS 7.1.4, 7.2.5, 7.4.6.

⁴² Cf. JB 2.302: *lokānām puṇyatamo yam ... saptarṣaya ārdhnuvan*. In the Avesta, the *hapta srauuō* (plur. acc.) are another constellation, probably the Pleiades (the *Kṛttikāḥ* in India). At 30 degrees of northern latitude, the Big Dipper is visible throughout the year; in the South, only for part of the year, see n. 19.

⁴³ On the path that leads to the gods, cf. RV 10.2.7, 10.14.2, 10.15.14, 10.30.1, 10.51.2; this path is not safe (RV 3.54.5); the gods have closed the sky: ŚB 1.6.2.1, TS 6.5.3.1, AB 3.42.

⁴⁴ Symbol of the movement of the sun (cf. RV 1.164.2 and 12), which we encountered among many peoples: for example, among the Mexicans, four men, their legs tied with ropes to a pole, stood drop and go down, turning around this pole (see the month of September in the UNESCO calendar for 1984). About a path to the ends of the earth, to the paradise of Yama, cf. RV 10.114.10.

⁴⁵ See Hillebrandt, *Ritualliteratur*. Strassburg, 1897, p. 154 ff. (on the *yātsattra*, p. 158 ff.) and Heesterman, “Vratya and Sacrifice,” *IJJ* 6, 1962, p. 1-37.

⁴⁶ AB 2.17: *sahasrāśvine vā itaḥ svargo lokah*; KB 8.9 speaks of twelve days.

⁴⁷ Cf. AB 4.21.4 and Schrapel, op.cit., p. 33. See also TS 7.3.4, 7.4.4.3, 7.5.4.1, 7.5.8.4, PB 4.6.17 and ŚB 4.5.8.11, TS 7.1.7.4, JB 1.87 (§ 11). I can only mention in passing the relationship between the Milky Way, the *tantu* of man (cf. n. 23 and 60), and procreation, relationship evident for Sarasvatī and Av. Arəduuī Sūrā Anāhitā (see Yt. 5, and also Yt. 4.65). Note that in the Avesta the Frauuaši carry the embryo (or possibly the soul?) of men living and unborn *paitii. āpəm*: against the flow.

⁴⁸ JB 2.297 sqq., PB 25.10-13, TS 7.2.1.3-4 ; cf. KS 33-34, AB 2.19, BŚS 16, 29-30, ĀpŚS 23.11.4-13.15, ŚŚS 13.29, ĀŚS 12.6, KŚS 24.5.25-41, LŚS 10.15-19.4 ; et JB 2.339.

Nārā and the Hakra.⁴⁹ The modern Sarsuti and Chautang—the Vedic Sarasvatī and Dr̥ṣadvatī—form the borders of the Kurukṣetra, a toponym that one encounters neither in the R̥gveda nor the AV. But in the time of the YV (MS, KS and TS) Saṃhitās, Kurukṣetra (see Figure 2) is the sacred territory: *devayajanam*—the sacrificial ground of the gods.⁵⁰ It is also the battlefield of the Mahābhārata.

Let us read one of the texts that describe the *sattrā* on the banks of the Sarasvatī (and of the Dr̥ṣadvatī, cf. paragraph VIII below): JB II 297 (paragraph 156) sqq.⁵¹

The consecration [*dīkṣā*] is performed at the place where the Sarasvatī disappears [into the desert sands]. They proceed with the consecration on the southern shore [of the Sarasvatī]... Each day they go as far as they have been able to throw the *śamyā* [the yoke-pin]. These throws of the *śamyā* constitute genuine strides towards the shining world.⁵²

⁴⁹ See *Ecology and archeology of W. India* (ed. D.P. Agrawal and M.B. Pande), Delhi, 1977. The problem of locating the Vedic Sarasvatī is famous. In the period of Middle Vedic texts (the Brahmanas), it is no longer, as in the RV, a majestic river, but it is lost in the sands of the desert (*vinaśana* and *upamajjana*: see below). The two branches of the celestial Sarasvatī, the Milky Way, represent this *vinaśana* well, as we can see on a star map. M. I. Khan's book, *Sarasvatī in Sanskrit Literature* (Ghaziabad, 1978), gives many facts (Veda, Puraṇas, and some passages from classical literature), but not of adequate interpretation. The author conceives Sarasvatī as a goddess and an earthly river. Its interpretation is very dependent on that of exegetes like Sayāṇa, Mahīdhara, and the Indianists of the 19th century; he offers a fanciful discussion (p. 12 ff.) on the Sarasvatī in a geological period where there was a sea in place of the Rajasthan, etc.

⁵⁰ It is notable that the natural appearance of Kurukṣetra does not meet the requirements of the Vedic sacrificial ground. It presents a slope from the northeast towards southwest (gradual, between approximately 200 m at its exit of Siwalik, and 85 m., near Thanesar), while the texts prescribe a slope from the west to the east or the northeast: VadhB (cf. AO 6, 1928, p. 208, § 90), ŚB 2.10, *Śrautakoṣa*. *Encyclopaedia of Vedic Sacrificial Ritual* (Poona, 1958), II (English Section), p. 13, etc. The Kurukṣetra therefore has the nature of a cremation and burial ground. The reason for defining Kurukṣetra as the sacrificial ground par excellence is elsewhere: it is the slope towards the Yamuna, cf. infra.

⁵¹ Texts (where important passages are underlined) : *teṣām sarasvatyā upamajjane dīksā dakṣiṇe tīre dīkṣante* |297| *śamyāparāsaṃ yanti. ete ha vai svargasya lokasya vikramā yac chamyāparāsaḥ. svargasyaiva tal lokasya vikramān kramamānā yanti. ghnanta ākrośanto yanti. etad vai balasya rūpaṃ yad dhatam ākruṣṭam. sarasvatyā yanti. vāg vai sarasvatī. vāg u devayānaḥ panthaḥ. devayānenaiva tat pathā yanti. pratīpam yanti. pratīpam iva vai svargo lokah. svargam eva tal lokam pratipadyate. prāñ ca udāñ ca yanti. prāñ iva ha vā idam svargo lokah. svargam eva tal lokam rohanto yanti. ā Praksāt Prāsravanād yanti. eṣa u ha vai vāco 'nto yat Prakṣaḥ Prāsravanah. yatro ha vai vāco 'ntam, tat svargo lokah. svargam evaital lokam gacchanti. | 298 | ... teṣām etā udṛco: yat samāpayanti, saikā. yad eṣām mriyate, saikā. yad daśa gāvaś ca śatam bhavanti, saikā. yac chatam gāvas sahasram bhavanti, saikā. tena haitena Purāyu Sthūra-grhapatayaḥ. tān ha Trikartānām vā Salvānām vyādhiṇiḥ paryutthāya jigyuḥ. tad dhaisām grhapatim jighnuḥ. tam hemaṃ grhapatim hatam abhitaḥ kṛpayamānā niśeduḥ. tam u ha dhruvagopaḥ sāmkaśinenaiva dravantam nijaiṇau. sa āhavanīyād evordhva svargam lokam ācakraṃ. sa hovāca : mā kṛpayadhve. 'yam vā imaṃ kṛpayadhve, 'yam vai sa āhavanīyād evordhva svargam lokam ākrāmasteti ... | 299 | ... teṣām u teṣām Parīnād iti Kuruksetrasya jaghanārdhe saraskan (?) tam (?) dīksāyai. te prāñco yanti samayā Kuruksetram. etad vai devānām devayajanam yat ksetram. devānām eva tad devayajanena yanti. teṣām Yamunāvabhṛthah. eṣa vai svargo loko yad Yamunā. svargam eva tal lokam gacchanti. ||*

⁵² During the year, each night a different star appears on the eastern horizon: the Pleiades, for example. A year later, the Pleiades reappear. This movement coincides with that of Viṣṇu, who ascends along the pillar, the cosmic tree (cf. n. 73) at the moment of New Year, and which then goes down again (cf. Kuiper, *AIC*, p. 49).

They go striking and shouting. Such is the [well-known] form of power: the blow and the shout.⁵³ They skirt the Sarasvatī. Now, the Sarasvatī is speech,⁵⁴ and the path leading to the gods, that is speech. They take the path of the gods.⁵⁵ They follow the current [of the Sarasvatī].

The counter-current is, so to speak, the shining world, [i.e., the movement of the Milky Way, in the morning from December to June (see Figure 3a)]. It is thus that one attains the shining world. They go towards the east and the north [or else: towards the northeast].⁵⁶

The shining world is partially [iva] to the northeast⁵⁷ [i.e. moves towards the northeast from December to June]. They go, rising towards the shining world. They go as far as the Prakṣa Prāsravaṇa [the center of the world: JUB 4.6.12]. The Prakṣa Prāsravaṇa is the place where speech ends. In the place where speech ends,⁵⁸ there is the shining world. They go so well that they arrive at the shining world. These *sattras* have these accomplishments [*udṛc*; *utthāna* TS].

If they succeed completely, that is one; if one of them dies, that is one; if 100 cows become 1000, that is one.⁵⁹ With this sacrifice, the Purāyu Sthūra-Gr̥hapati sacrificed. The hunters of the Trigarta and the Salva cornered them and conquered them. Then, they killed their *gr̥hapati*. And the *dhruvagopa* [distinctly] saw him running the length of the *saṃkāśina* [the central line of the sacrificial ground].⁶⁰ From above the *āhavanīya* [the eastern fire] he took the path of the shining world. He [the *dhruvagopa*] said: “Do not lament! This [man], for whom you are here lamenting, he has taken, once past the *āhavanīya*, the path of the shining world.”

In these *sattras* there is a [pond] for the *dīkṣā*: Parīṇah, to the west of the Kurukṣetra. They go towards the east, across the whole of the Kurukṣetra. This territory is the sacrificial ground of the gods. They cross the sacrificial ground of the gods. They take their final bath⁶¹ in the Yamunā [river]. Now, the Yamunā is the shining world. They go therefore towards the shining world.

Through such brahmanic identifications, typical of all the literature of the Yajurveda and of the Brāhmaṇas,⁶² the entire Kurukṣetra becomes the sacrificial ground of the gods,⁶³ and the Sarasvatī

⁵³ Cf. Heesterman, *IJ* 6, 1962, p. 35; and for *yāt sattras* in general: “Householder and Wanderer,” in *Way of Life. Essays in honor of L. Dumont* (ed. T.N. Madan), Delhi. 1981, § 3; “Vedisches Opfer und Transzendenz,” in *Transzendenzforschung, Vollzugshorizont des Heils* (ed. G. Oberhammer), Wien, 1978, p. 33 sq.

⁵⁴ A well-known equation, the origin of which is obscure; cf. infra n. 58.

⁵⁵ The gods also ascended into heaven, as did after them the *ṛṣi*, etc. (cf. n. 40 and 41), probably in the manner of the female dog Sarama, passing through the *paritakmyā* (cf. n. 92).

⁵⁶ Schrapel (op. cit., pp. 52-3, 54) considers that *prāṇ ivodān* does not mean that “(kontingental =) ein Stück östlich nach Norden”; but here double insertion of *ca* can indicate a succession: “towards the east and (then) towards the north” — see Figure 2.

⁵⁷ It should read *udān*: the manuscripts have *udām*; the edition of R. Vira and L. Chandra gives *idam*.

⁵⁸ The identification of Sarasvatī with speech (*vāc*) is frequent in post-Ṛgvedic texts. The hymn at RV 10.125 describes *vāc* with terms that evoke Sarasvatī, especially in stanza 7: *māma yónir apsv āntāḥ samudré / tāto vi tiṣṭhe bhūvanānu viśvā, utāmum dyām varṣmānōpa sprṣāmi*; cf. RV 1.164.41-42 and Geldner’s commentary on RV 1.3.10-11 and 7.95. Note that the epic Sarasvatī is called *Plakṣā*, *Plakṣājātā*.

⁵⁹ A Dutch translation by Caland, “Over en uit het JB,” *Mededeelingen der Koninklijke Akademie* Amsterdam, Deel I, 1914, p. 86; cf. also Heesterman, “Vedisches Opfer und Transzendenz” (op.cit. n. 53), p. 34 sq.

⁶⁰ This is significant: the central line forms the connection (cf. *tantu*) between the western fire (*gārhapatya*), representing the earth, and the eastern fire (*āhavanīya*), representing the sun, the sky.

⁶¹ The *avabhṛta* brings back, as the word says, sacrificing him (*yajamāna*) from the celestial world to the earth, in all solemn sacrifices (Soma, etc.); this final bath transforms the *yajamāna*, from a semi-divine person into a normal man (cf. Heesterman, *IJ* 6, 1962, p. 19), who wishes to live his “hundred years,” cf. PB 4.6.19 and n. 47.

⁶² See, in particular, Oldenberg, *Vorwissenschaftliche Wissenschaft*, Göttingen, 1919; Schayer, “Die Weltanschauung der Brāhmaṇa-Texte,” *Rocznik Orientalistyczny* II, 1924, p. 57 ff. ; Witzel, *On Magical Thought*, Leiden, 1979.

⁶³ And the cosmic center of the earth, cf. note 80.

and Yamunā rivers become the Milky Way, the “shining world,” the “heavens.”⁶⁴ In this ritual one goes therefore to the final point (where Sarasvatī vanishes into the sands) along the southern shore of the river, progressing each day a few dozen metres to the east,⁶⁵ and then to the north (towards the Himālayas and the source of the Sarasvatī).⁶⁶ Since the ritual begins in winter,⁶⁷ the progression corresponds to the movement of the western tip of the Milky Way (near to the Aquila constellation), which shifts daily, a bit above the pole, rising slowly from the east towards the south, then from there descending to disappear finally in the west in the month of July. This tip of the Milky Way will not reappear in the morning until December, before sunrise; at the winter solstice, one of the two branches of this eastern part of the Milky Way is distinctly visible (see Figure 3a).

In the morning—an important moment to begin the sacrifice—when the stars are still visible, one turns to the east, for example to perform the *agnihotra* sacrifice which is intended to cause the sun to rise. In winter⁶⁸ one can observe at this moment a characteristic phenomenon: in the east, near the constellation that in our astronomy is called Aquila, the Milky Way divides into two branches (two streams) which form the “doorway to the heavens”⁶⁹ as described in the ŚB. In the ritual, one turns towards the northeast, because “in this direction one finds the doorway to the heavens” (ŚB 6.6.2.4), (see Figure 3c). This doorway appears before sunrise during the several weeks that precede the winter solstice.⁷⁰ In passing by this “doorway” and rising towards the east and the north along the length of the Sarasvatī—the terrestrial reflection of the Milky Way—one

⁶⁴ See also the interpretation of ŚB 12.2.1, where the *sattra* is equivalent to a crossing of the ocean; the first and last days are *tīrtha* “fords;” the middle day (*viśūvat* “summer solstice”) is an island, which is visible in the Milky Way, on the eastern horizon, in the constellation Gemini.

⁶⁵ It is difficult to imagine this practice. The Sarasvatī is 180 km long, at least (Imperial Gazetteer of India 22, p. 97), or 600 km (from the Himalayas to the confluence of the Naiwal). Progression, as prescribed by the PB and JB, should last several years, not half a year (the time taken by the Milky Way to “go back” to the North Pole); but it is necessary to take into account the “accomplishments” mentioned above; see also further, at § VIII.

⁶⁶ The Sindhu also moves towards the north, according to RV 2.15 15.6 (in an astronomical context).

⁶⁷ At the time of the solstice, cf. PB 5.9.1 (*ekāṣṭaka*)—translation of Caland, and TS 7.4. 8 (Keith’s translation).

⁶⁸ As we look at the night sky, we must not forget two facts: the difference between our latitude (50 degrees) and that of Kurukṣetra (30 degrees), and the effect of precession. See the table in the appendix provided by M. P. Nieskens. Therefore, the stars that we see rising at the end of the month of January are those who rose on the winter solstice during the Vedic period (around 1000 BCE).

⁶⁹ See also the description of the *nakṣatra* 14–16 (*torāṇa*), cf. Kirfel, *Kosmographie*, p.139, and for other parts, p.38. Hertel (*Siegesfeuer*, p.15) seems to have been the only one to have observed this phenomenon but he confounds the three *apayāra* of the Avesta with the four rivers of the Veda. For similar phenomena that are visible in (sub)tropical regions, cf. Aveni, *Skywatchers*, p.46. The Indians of Peru speak of “black constellations,” that are visible in the Milky Way, which they call Fox, Pheasant, Llama, Snake, etc. Among them, the Fox and the Pheasant are part of the “gate of heaven.”

⁷⁰ In other words: the whole door is visible (the stars γ of Sagittarius and ζ of Aquila, in 1000 BCE) in the east and northeast. Then, at winter solstice, the sun takes over in the southeast. It can “enter through door” (disappearing to the northeast) and rises after the *paritakmyā*, the solstice. It should be remembered that the “door” is clearly visible in summer in the evening. In looking towards the east, its pointed “summit” appears pointing downward, towards the world of *pitṛ*. At the solstice, it is in the southeast, cf. ŚB 13.8.1.5. The door to the world of the ancestors (*pitṛloka*) is located in the southeast (*prācīm ca dakṣiṇām*). JUB 4.15.4 is particularly clear on this point: *tato vai te svargasya lokasya dvāram anuprajñāyānārtas svasti saṁvatsarasayodṛcam gatvā svargam lokam āyan* “(The *ṛsi*, under the direction of Agastya), after having seen the gate of the shining sky and having walked without damage until the end (*udṛc*, term of *sattra*, cf. § IV) of the year, went to the bright sky.” ŚB 1.6.1.19 says that these two gates are spring (*vasanta*) and winter (*hemanta*).

risers also along the Milky Way, a new portion of which becomes visible in the east and northeast each morning. One goes against the current of the Sarasvatī—and also “against the current” of the Milky Way—since the latter is in the morning at its highest point, almost the zenith, in May and June, before falling again towards the southeast, the south and the southwest in autumn (when the “doorway” is no longer visible in the morning).

The ascent is therefore the path of the gods, and the descent that of the manes, the “fathers,” the *devayāna* and the *pitryāna*.⁷¹ During its ascension the Milky Way requires the *gavām ayana* ritual,⁷² in the course of which the sacrificers use this movement to “go to the heavens.” The ending point of this sacrificial pilgrimage is the Plakṣa Prāsravaṇa tree, the source of the Sarasvatī as the name itself implies. This tree is at the same time the center of the world⁷³ and of the heavens, the *axis mundi*, in the JUB (4.26.12: *plakṣasya prāsravaṇasya pradeśamātrād udak tat pṛthivyai madhyam*) and the VādhPiS (*divo madhyam*).⁷⁴

In fact, the final bath—the end of the sacrifice—takes place in the Yamunā, which lies to the east of the Plakṣa Prāsravaṇa. It is at this point, in summer, that one sees to the north in the morning, the Milky Way, which crowns the eastern edge of the sky (see Figure 4).

Another terrestrial reflection of this celestial situation: the Sarasvatī⁷⁵ and the Yamunā⁷⁶ come “from on high,” from the Himalayas, and flow to the west and to the east respectively (see Figure 5). Through the Yamunā, which corresponds to the “eastern branch” of the Milky Way, one returns

⁷¹ This interpretation corresponds to Rgvedic facts, cf. RV 10.88.15 and 10.17.8 (Sarasvatī with the *pitṛ-* in the same chariot). Ashkun, a Kafir (Nuristani) language, retained *dea wirecu* “the way of the gods, the Milky Way” (Turner, *A Comparative Dictionary of the Indo-Aryan Languages*, London, 1966, 6523). —Manichaeism knows the “column of Glory,” “of light:” Parthian *bāmistūn*. Opinions of late Vedic texts and different Upaniṣads present a new solution: the *devayāna* ends in the sun, the *pitryāna* in the moon, from where the souls must return to earth; for another *devayāna*, cf. Thieme, *Kleine Schriften*, Wiesbaden, 1971, p. 95. Sarasvatī also plays a role in the *anvārambhanīya-īṣṭi*, cf. Krick, *Das Ritual der Feuergründung*, Wien, 1982, p. 496 sq. ; see above n. 47.

⁷² The *gavām ayana* “the walking of the cows” is one of the important rites (cf. already n. 22), which are linked to the course of the year, and especially to its “critical moments,” such as the *agnihotra* (daily), the *dārśa/paurṇamāsa* (semi-monthly), *cāturmāsya* (three times a year), *soma* (once a year). The *gavām ayana* lasts for a whole year. This name was not explained by Caland (PB 4.1.1). There is a necessary correlation with the movement of the sun, which rises every day at a different place. Uṣas, the Aurora (identified with a cow, *gau*) must appear 360 (or 365) times in a different place: these are the 365 *gāvaḥ*, whose annual walk constitutes the *gavām ayana*. We will note that this rite is a “swim on the ocean of the year,” cf. KS 33.5, TS 7.5.3, etc.. The ascension to heaven is done “with the luminous shine (of the stars):” *jyotiṣmatā bhasā* (KS 34.8).

⁷³ Kurukṣetra is therefore the center, the *madhyadeśa*, cf. AB 38.3: *asyām ...madhyamāyām...diśi ye...Kurupa-ñcālānām rājānaḥ*. See Bosch, *The Golden Germ*, The Hague, 1960 and Kuiper, *AIC*, p. 32.

⁷⁴ Madras manuscript, No. R 4375 (*StII* 1, 1975, p. 89). See also VS 16.51: Rudra’s weapon on the highest tree. On the *plakṣa*, the tree as the axis of the world, cf. Kuiper, *AIC*, p. 143 and Thieme, *Kl. Schr.* p. 84 sqq. On the function of the *yūpa*, and in particular its upper part, cf. TS 6.3.4.8. Nothing new at Bharadwaj, “Plakṣa Prāsravaṇa,” *ABORI* 58-59 (*Diamond Jubilee Volume*), 1978, pp. 479-87. By establishing a sacrificial ground, the *yajamāna* and the priest create for themselves a center of the universe (cf. n. 25). There exists a monastery located “in the middle of the world,” at *vhumi-age-majhi* (cf. Schlingloff, *IF* 72, 1967, p. 320—taken up by Eggermont, *IJJ* 14, 1972, p. 82).

⁷⁵ The celestial river is also called *Sindhu* (cf. Lüders, *Varuṇa* I, p. 153); the celestial Sindhu is the mother of the earthly Sarasvatī (RV 7.36.6).

⁷⁶ We can speculate on the name of this river: an etymology from *yam-*, of the *yamā* : *yami* couple, is attractive. The suffix *-una-* also appears in *Varuṇa* (cf. Hamp, *IJJ* 4, 1960, p. 64); the Yamunā would therefore be the “twin” of Sarasvatī.

to the earth.⁷⁷ It is necessary to travel by this river if one does not wish to remain in the heavens, at the zenith, or to disappear with the movement of the Milky Way below the horizon, to the southwest, then to the southeast, into the region of the *pitṛs*.⁷⁸

VI

If these observations are correct there are several conclusions to be drawn from them, with ramifications of varying importance to Indian and Indo-Iranian cosmology.

a) Pilgrimage and suicide

We have uncovered the first pilgrimage along a sacred river, in this case, it is the most holy of rivers. Later, in the Mahābhārata, there will be many sacred *tīrthas* on the shores of the Sarasvatī and other rivers.⁷⁹ One spot sacred to all is that of the *triveṇī* at Prayāga/ Allahabad, where the Yamunā, the Ganges, and the celestial river merge invisibly. As we know, the Ganges falls from the heavens onto the head of Śiva and, from a celestial river (*svaṛṇadī*, etc.), is transformed into a terrestrial stream.⁸⁰ We have already seen that the Yamunā is the “shining world,” the “heavens,” “paradise.” The Milky Way—as it is seen each night—falls from the heavens onto the earth in one or in two rivers, for example on December evenings (see Figure 6).

In the northern part of India a similar scenario can be reconstructed for the Yamunā, the Ganges (and also the Brahmaputra?). Prayāga interests us for another reason: it is, in fact, at the confluence of the Yamunā and the Ganges that one commits suicide by hurling oneself into the river from the top of a tree. By performing this act at this place one attains paradise immediately.⁸¹ All of this is reminiscent of the pilgrimage, the *yātsattra*, on the shores of the Sarasvatī: as from the top of the Triplakṣa tree alongside the Yamunā, it is at the Plakṣa Prāsravaṇa that one attains one’s objective or that one becomes “invisible” to the eyes of humans, as is said in the PB.⁸² The Prayāga

⁷⁷ In fact, one becomes mad if one does not step down from heaven, as has been mentioned earlier (n. 47). This explanation also means that the heavenly river flows around the pole in two directions: towards the west (by the force accumulated up to the autumn solstice due to the *gavām aṃana*) and towards the east – because this force, from this moment on, has ceased to work, and because the waters of the Milky Way reflow automatically. Therefore, JB 3.150 perhaps presents an exception: Ukṣṇa Randhra Kāvya (like Uśānas Kāvya) has gained heaven (*svarga-loka*-) by climbing (*āroha*ya-) against the flow (*pratīpam*) of the Yamunā, by discovering in the waters a route for himself (*me vartmāni*, *svavartmāni*) that he has used as a path (*niyānam*); cf. the commentary of Caland. The parallel text, PB 13.9.19, does not offer this particular information.

⁷⁸ Cf. also ŚB 13.8.1.13: waters to the north or west of a tomb. Such pilgrimages are comparable to Bhujyu’s “journeys” of ecstasy (RV 1.116.3-5) and, in the Avesta, of Pāuruua (Yt. 5.61 sqq.): both rise above a vast expanse of water in the sky.

⁷⁹ See, among others, E.W. Hopkins, “Sacred Rivers of India,” in *Studies in the History of Religions offered to C.H. Toy*, New York, 1912, p. 213 ff.; *Epic Mythology*, Strasbourg, 1915, p. 5 sqq.; the index of Sørensen’s Mahābhārata, p. 621: Mbh. IX 35 ff.; M. Biarreau, “Gaṅgā/Yamunā, the River of Salvation and that of Origins,” in *Dictionnaire des mythologies*, Paris, 1981, pp. 442-4; and also D.L. Eck, *History of Religions* 20, 1981, pp. 323-44.

⁸⁰ There are also different epic and puranic mythologies, cf. Kirfel, *Kosmographie*, pp. 109 and 175; see also, for another interpretation of the Gaṅgā and the Yamunā, Kuiper, AIC, p. 32 and Biarreau, loc. cit.

⁸¹ Cf. B. Kölver, *Textkritische und philologische Untersuchungen zur Rājatarāṅgiṇī des Kalhaṇa*, Wiesbaden, 1971, and J. Filliozat, “Abandonment of life by the wise and the suicides of the criminal and the hero in the Indian tradition,” *Asian Arts* 15, 1967, pp. 65-88; see also Oertel, KZ 68, 1944, p. 60 n. 1 (ŚB 10.2.6.7).

⁸² See below § VII, and especially the interpretation of LSS 10.19.11-15; cf. also Heesterman, “Vedisches Opfer und Transzendenz” (cf. n. 53), pp. 33-4, and Krick, *Feuergründung*, p. 498 sqq.

tree is, therefore, like the Plakṣa, the *axis mundi*. In committing suicide there, one can attain the heavens by this “celestial staircase.”⁸³ It seems to me that the medieval tradition does nothing other than continue the beliefs of the Vedic period, while transferring them to the center of the post-Vedic culture, which is to say to Madhyadeśa.

b) Av. *Vourukaša* and *haṇdu*

The “defective” material of the Avesta contains several passages which reflect a cosmological system similar to that of the Veda. To the “shining world” of the Indians (*svarga-loka-*, *Sarasvatī*) corresponds the “lake”—or, better, the “sheet of water”—of the *zraiiāh-Vourukaša*—“the one who possesses wide bays,” just as the *Sarasvatī* has many ponds.⁸⁴ The *Vourukaša* is described as “shining” (*bāmi-*).⁸⁵ Just as the Plakṣa is situated at the center of the earth and of the sky, a *vīspó.biš-* (“all-healing”)⁸⁶ tree marks the center of the *zraiiāh Vourukaša*. An eagle (or falcon)⁸⁷ dwells there: “The divine eagle remains in the world without equal,” as says the AV (cf. footnote 24 above). The eagle is called *Sarasvat* in the RV: 1.164.52 *divyām suparnāṁ vāyasām brhāntam, apām gārbham darśatām ōṣadhīnām...sārasvantam* “The divine eagle, the superior bird, the embryo of the waters and of the plants, pleasant to look at, *Sarasvat*.”⁸⁸ The river that falls from the heavens and the mountains to the earth is, as in the Vedas, a river and a goddess: *Arəduuī Sūrā Anāhitā* “the prospering one, brave, immaculate,”⁸⁹ who grants children as does *Sarasvatī*. Sometimes this river is called the *Raṇhā* (Ved. *Rāsa*) and once the *Vaṇhī* (Ved. **Vasvī*), which is conflated with the ocean encircling the world. The Vedic *Rasā* is described fairly clearly in RV 10.108 and JB 2.440. In the RV, the dog *Saramā*, sent by the gods to seek out the cows of the *Paṇis*, runs to the end of the world, to the points of inflexion, that is to say to the “critical points”

⁸³ This idea which, incidentally, is also known elsewhere (e.g. in the Bible, as Jacob's ladder, Gen. 28.12), appears in India under different forms: Viṣṇu mounts the heavenly tree (Kuiper, *AIC*, p. 53 sq.), or also as the metal band that is suspended from Nepalese pagodas; cf. *Rājatarāṅgiṇī* 7.94.

⁸⁴ The *zraiiāh Vourukaša* has received many interpretations: as the Aral lake, the Caspian Sea, etc. But there also are other possibilities. Actually, the neuter word *zraiiāh* (= Ved. *jrāyas*) is well translated by German *Bahn*, i.e. “large road,” cf. the *jrāyas* “path” of Agni on the earth, in RV 1.140.9 and ŚB Videgha Māthava legend; O.Pers. *draya* (DB 5.23) and Mod. Pers. *drayā* signify “river” (with the exclusion of the case where the Mediterranean Sea is intended). With the exception of the “Lake Hamum” (*zraiiāh Kṣaoiia*), Avestan does not indicate that the noun *zraiiāh* refers to a lake rather than to a river or an ocean. The effluences (*apayžara*) of the *zraiiāh Vourukaša* are: *Haosrauuaḥ*, *Vanhazdāh*, and *Aβzdānuuan* (cf. infra, n. 120).

⁸⁵ Yt. 13.59; cf. the relationship with *xʼarənah-*.

⁸⁶ Yt. 12.17; it is also said *huuāpi-* (V. 5.19): “having pure waves”?

⁸⁷ *saēna* (Yt.12.17) = Ved. *śyenā*. Yt. 12. 16-25 offers a perfect description of the movement of the Milky Way (*Vourukaša*, *Raṇhā*) around the cosmic tree, and the primordial central mountain (*Harā*, *Haraitī*), from where the *Arəduuī* emerges, and where there are no night and darknesses (cf. Ved. *svar aśman*); the stars, the moon, and the sun turn around that celestial mountain. With *xara* (= Ved. *khara*) which is found there (Y. 42.4) one can connect the donkey of Yama at RV 1.116.2 (and 1.162.21, 5.53.5); cf. *gardabha* and *rāsabha* in RV. Is the course (*āji*) of Yama his movement with the night sky?

⁸⁸ JB 3.66 *upari(-) śyena- svarga-loka-* (cf. ASv. *upairi.saēna* for the Hindukush); at JB 3.270, the expression designates the heaven of the Atharvans.

⁸⁹ On the Yt. 5, which is dedicated to him, see the thesis of N. Oettinger (München, 1984). I refer to Lommel's theory (op.cit. n. 32). There river/goddess *Arəduuī Sūrā Anāhitā* is above the sun (Yt. 5.90) and in the middle of the stars (Yt. 5.132). Also note that its waters flow in winter as in autumn—which never happens in Iran and Turkestan. The quantity of water is maximum in autumn, following the thaw and spring rains.

(*paritakmyā*)⁹⁰ near the waters of the Rasā; leaping over the Rasā, she sketches the edges of the heavens (*pāri divó ántān ... pātantī*, verse 5). In the JB, the hiding place of the Paṇis lies on an island of the Rasā: the island formed by the two rivers of the Milky Way, which do not separate except in the Aquila constellation. The JB says: *eṣā ha vai sā Rasā yaiṣārvāk samudrasya vāpāyatī (+vār āyatī)*⁹¹ “It is the (well known) Rasā that, turned at this point, goes towards the water of the ocean.” Like the Avestan Raṇhā, the Rasā comes from the (celestial) *samudra* towards us (*arvāk*), towards the terrestrial world.⁹² It is interesting to note here that the gods, before sending Saramā, had first sent an eagle, who, in the Milky Way, brings to mind the eagle of the AV.

The ocean, the river at the edges of the world, is also called the Vourukaša, but it is never referred to as Sarasvatī in Vedic, only as *samudra* (and Rasā).⁹³ In Avestan one still finds the eastern and western *həṇdu* (Y. 57.29: *ušastaire hənduuō... daošastaire*), which are not the *sapta sindhu* of the Veda (or the *hapta həṇdu* of V. 1.18). Y.10.104 is sufficiently clear: Mitra seizes the liar on the western *həṇdu* and on the eastern *həṇdu*,⁹⁴ at the mouth of the Raṇhā, at the center of the world, which corresponds to the Atharvavedic terminology (6.89.3: *mādhyam bhúmyā ubháv ántau*).

We can thus posit a quasi-identification of the Vedic and Avestan concepts of the nocturnal heavens and the celestial rivers.⁹⁵

c) The *x^varənah-*

These considerations are not without relevance to another extremely interesting problem in Iranian mythology: that of the *x^varənah-* “majesty (of kings),” “glory,” that sits upon kings and sometimes goes to hide in the Vourukaša river (“lake”). In Vedic, the corresponding word, which would be **svarṇas*, does not exist; we do, however, find *svārṇara-* in a half dozen passages. This word denotes a pond, or the source of Soma, situated in the firmament (as Lüders has already remarked).⁹⁶ According to Kuiper,⁹⁷ this is the *kośa* (“barrel”) at the nocturnal solstice, which is tipped by Varuṇa to make water fall, including the water of the rains. I think that this overwhelming

⁹⁰ Chariot racing term, used for points in the “race” of the sun (solstices). In the Avesta, *dūraē.uruuāēša-* (Yt. 13.58) it is a point of the “course” of the stars. On Saramā and the Paṇis, cf. H.P. Schmidt, *Bṛhaspati und Indra*, pp. 241 and 189 sqq.; see also RV 10.114.10.

⁹¹ An old conjecture by K. Hoffmann (in his lectures).

⁹² The movement of the Milky Way also explains that the female dog Saramā does not know where the Paṇis hiding place is (on the “island of Rasā”); cf. H.P. Schmidt, op. cit., p. 189. Often the Rasā appears like a mythical distant river, cf. RV 10.75.6: a small (?) river which flows into the Indus (up there, in the Himalayas); it is also the sixth country, in V. 1.19: *upa aodaēšu raṇhaiiā-*, cf. Figure 13.

⁹³ Sindhu and Rasā are found together at RV 4.43.6.

⁹⁴ Often misinterpreted: “im westlichen und östlichen Indien” (!) according to Bartholomae-Wolff. Thieme includes: “frontier (of the inhabited world),” therefore “sea, ocean” and “border river” (i.e. the Indus). cf. “Sanskrit *sindhu-* /Sindhu- and Old Iranian *hindu-/Hindu-*” in W.B. Henning *Memorial Volume*, London, 1970, p. 447 ff.

⁹⁵ Cf. RV 10.136.5 (eastern and western ocean) and 10.30.10; only one stanza (ĀpŚS 5.11.6) speaks of the two sources of the Sarasvatī “which must kindle themselves.”

⁹⁶ *Varuṇa* II. pp. 396-401.

⁹⁷ *AIC*, p. 138 ff. (“The Heavenly Bucket”). This *kośa* is symbolized in the *mahāvṛata* ritual by a *kumbha* worn by young girls on their heads (JB 2.404: § 165). The head is the symbol of heaven (*divo rūpam yan mūrdhā*). See also AV 10.8.9: a pitcher (*camasa*) with two holes, overturned near the Seven Ṛṣi.

glow represented by *x^varānah-* is situated at the zenith, and that during the night it appears above the northernmost point of the Milky Way, near the North Pole (*nāka*), where—so says an Upaniṣad—the world of the Brahman lies, and from where one can see the turning of the two wheels, that of the day and that of the night.⁹⁸

d) The *sindhus* of the RV

The idea of a celestial river, well known among many peoples, is very important for a correct interpretation of the RV. One recalls immediately the theory of Lüders, which posited that there are streams, lakes or oceans above the visible heavens.⁹⁹ One can find several passages to uphold this theory, such as RV 3.22.3: *agne divó árṇam áchā jigāsy áchā devā ūciṣe dhiṣṇyā yé | yā rocané parástat sūryasya yā cāvástad upatiṣṭhanta āpaḥ* “O Agni, you go towards the flood of the heavens; you have spoken with the gods.../ (you go) towards the waters, the ones that are in the luminous space on the other side of the sun, and towards those that lie above the sun on this side here” (cf. also *divó árṇa-* in 8.26.17). Among other passages one will note the much discussed *pāda* from RV 2.28.4: *vāyo ná paptū raghuyā párijman* “Like birds, they (the celestial rivers) fly rapidly on (their) course.” As Bartholomae noticed, *párijman* is a compound of the words *pári jmán* “around (us) on the earth.”¹⁰⁰ That is a perfect description of the rivers, or the “branches”¹⁰¹ of the Milky Way, which turns around the celestial pole and occasionally forms a horizontal river near the horizon,¹⁰² or even two rivers interrupted by the earth at the horizon (seen from the northern part of India or from Iran): the eastern and western *sindhu/həṇḍu/samudra* of the RV and the Avesta (see Figure 7).

⁹⁸ KU 1.4; cf. Sur le chemin, note 111.

⁹⁹ *Varuṇa* I, pp. 111-21, 138-166, 239 ff., 271-5; II, pp. 351-9, 375-89, 588 sq. See, however, the criticisms of K. Hoffmann, in *Aufsätze zur Indoiranistik* (Wiesbaden, 1975-1976), p. 47 sq. ; and Kuiper, *AIC*, p. 79.

¹⁰⁰ Geldner, *Vedische Studien* II, p. 225 (at RV 9.91.1), cf. TS 7.1.20d; see Bartholomae, BB 15, 1889, p.25; Wackernagel, *Altindische Grammatik* III, p. 243. K. Hoffmann, *Aufsätze* p. 48) refutes the theory of heavenly rivers and translates *pòrijman* by “*ringsherum, allenthalben* (on the earth),” cf. Sur le chemin, note number 102.

¹⁰¹ Hence the idea of the four rivers of the epic and the Purāṇas, which circulate and flow from Mount *Meru/Sumeru* towards the four cardinal points (cf. Lüders, *Varuṇa* I, p. 284 ff.). See the bibliography given by Kuiper, *AIC*, p. 142 n. 1), and Kirfel, who compares RV 1.62.6 (*Kosmography*, p. 40). Hertel did not observe this fact: he thinks of two or three “branches” visible in Central Europe, which “flow” from the North Pole. For the three rivers of the Veda, cf. Lüders, *Varuṇa* II, pp. 692-3). On the four rivers of heaven, see Lüders, *Varuṇa* I, p. 276 ff. We note that the Lüders map (with the Buddhist idea of the four rivers) corresponds more or less to the geographical reality, and also to the astronomy, cf. Figure 1.

¹⁰² At approximately 50 degrees north latitude, we see the *sindhu* and *samudrá* at the end of the world, and below the ground; about *hṛ́dya-samudra*, cf. Kuiper, *AIC* p. 148: “The term *samudra* was used in Vedic times both for the oceans that surrounded the earth in the mythical cosmology and for the cosmic waters under the earth;” see AB 8.15 (*antād ā parādhāt prthivyai samudraparyantasyai*), AV 4.16.3, 13.2.30, and RV 10.136.5 (PS 5.38), cf. *infra*, n. 113. JUB 1.25 describes the ocean (*samudra*) as a border between mortal and immortal, between earth and heaven. The sun rises at the shore of the ocean (thus across a visible “ocean?”): that is why it has a stable position in the immortal world (the “heaven” and the subterranean mountain at the other side of the ocean?); cf. JUB 4.5.1: *supra*, n. 34.

e) The celestial mountain

The idea of the Milky Way also has consequences for the interpretation of the role of Varuṇa and of the “place of *Ṛta*.” We know that Varuṇa goes in the evening into his watery dwelling (RV 2.38.8) in the Sindhu (7.87.16). Kuiper has demonstrated that this god, at the zenith of the nocturnal sky, holds the *aśvattha* tree by the roots, i.e., with the branches pointing downwards (see Figure 11).¹⁰³ Still following Kuiper’s analysis, the primordial mountain (*giri*-) should be similarly inverted during the night, and be situated in the nocturnal sky.¹⁰⁴ But this remains more difficult for us to understand. That being so, I would suggest the following hypothesis: If we accept the idea of a celestial river (called Sarasvatī — *svarga-loka*-) that falls to earth each night (in the positions charted in Figure 8), we can imagine that the mountain is a part of the heavens situated above the Milky Way (see Figure 9).¹⁰⁵ This accords with the description given by AV 10.5.20: *yó va ápo ‘pām ásmā pṛṣṇir divyò apsv àntar* “What of you, O waters, is the heavenly spotted one (i.e. the mountain, the rock¹⁰⁶) of the waters within the waters” (Whitney). The “spotted rock” would be the mountain of the evening sky studded with the stars not contained in the Milky Way. Each night, this mountain revolves: for example, at the critical moment of the winter solstice, at about 6 p.m., the evening sky should appear as depicted in Figure 9.¹⁰⁷ In the morning, in contrast, the position of the mountain is reversed. In fact, the Milky Way at 30 degrees of latitude north (near Delhi, in the Kurukṣetra) is not entirely visible, as at our latitudes. It forms two “streams” (*sindhu*) which seem to emerge from the mountain (see Figure 10) at about 6 am in the winter. In this way the mountain, which is inverted during the night, becomes, gradually, in the morning, the subterranean

¹⁰³ See AIC, p. 35, etc. Let us mention a little-known fact: more than a century ago was discovered in Denmark, in the Skiel marsh (Jutland), an oak post, which was planted upside down in a pile of stones. At the bottom of this pile there were the remains of a manual mill, cf. Feddersen, *Aarbøger f. nord. Oldkynlighet og Historie*, 1881, p. 360. This deposit seems to combine the ideas of the cosmic tree (cf. *irminsul*, *yggdrasil*) and movement of the sky. On the theme of the mill, which is also known in Italy and in post-Vedic India (BhP. 4. 8), see Scherer, *Gestirnnamen*, p. 136. The myth of the churning of the ocean is not a remote concept, cf. Kuiper, AIC, pp. 49, 99, etc. With the ascension of Varuṇa to the zenith of the nocturnal heaven, Yama and his paradise also move. I think the movement of the Milky Way from the left (against the flow: *prasalavi*, and not *pradakṣiṇa*) plays an important role in the sinistaverse tendency in funeral rites and in the rites intended for the *pitr*; cf. Lommel, *Kl. Schr.* p. 101 and Caland, “Een Indogermaansch Lustratie- Gebruik,” *Mededeelingen der K. Akademie ...*, Amsterdam, Reeks IV. Deel II, 1898, pp. 275-325.

¹⁰⁴ AIC, p. 35 sqq. ; cf. also Hertel, *Die Sonne und Mithra im Avesta*, Leipzig, 1927, p. 112; and Reichelt, “Der steinerne Himmel,” IF 32, 1913, pp. 23-57. A similar idea can be found in JUB 1.25, 4.5.1 (cf. n. 34 and 102): the stars are lights shining through the holes of the stone sky; likewise the sun, according to JUB 1.3.1.

¹⁰⁵ It must be remembered that the Milky Way is seen as a heavenly river. The rest of the night sky is of a different nature: the stars are divinities or ṛṣi, or their residence (e.g. Rudra = Sirius, Ved. *tīṣya* / Av. *Tiṣtriia*; the Seven Ṛṣi = the Great Bear, etc.). The virtuous also obtain a residence on this or that star (MS 1.8.6:123.19 sqq., and TS 5.4.1.3) for a well defined period until their descent and their rebirth, cf. Witzel, “Rebirth.”

¹⁰⁶ The Milky Way is said to be *aśmanvatī* in AV 19.2.26-27, cf. RV 10.53.8. There is, in the Kurukṣetra, a river called *dr̥ṣad-vatī* “provided with stone(s),” cf. Mayrhofer, KEWA II, p. 61. The stars are the thousand spies of Varuṇa (AV 4.16.4).

¹⁰⁷ The mountain which is visible below the heavenly river corresponds to the *gairi- us.həṇdauua* of the Avesta “the mountain which (emerges) out of the river,” situated in the middle of the Vouru.kaša; cf. Thieme, *Henning Memorial Volume*, p. 449.

mountain, and its “remainder,” visible on the horizon at the moment of sunrise, is replaced by the *giri* of day: the Himavant, which is often called simply *giri*, *uttara- giri*.

During the night, the *Ṛta* is situated, according to Kuiper, in the mountain, in the firmament (*nāka*) near the North Pole.¹⁰⁸ Many other Vedic images and concepts are related to the notion of the Milky Way and its movement, as also to its diurnal counterpart, the sun and its daily movement. It is enough to recall here the *devayāna* and the *pitṛyāna*.¹⁰⁹

f) The two wheels of the world

Later, in the Upaniṣads, one who has been freed, the emancipated one who has attained the world of the Brahman, circulates between the sun and the moon at the height of a locality “beyond which it is not possible to continue further” (JUB 3.28).¹¹⁰ From this position one can see the day and the night revolve “like two wheels” (KU 1.4).¹¹¹ Such an image cannot be understood unless we remember that the sun has a shining face (during the day) and a dark face (during the night); the other wheel is that of the nocturnal sky, which moves in the opposite direction to that of the day (see Figure 12).¹¹² From his elevated position the one who has been delivered contemplates the movement of the days as a coachman contemplates the wheels of his vehicle. An analogous vision appears as early as the RV, in hymn 10.136: a *muni* who has drunk the philtre (of Rudra) moves across the atmosphere with the gods and the winds, looking at all beings; this *muni* lives at the shore of two oceans, the eastern and the western, which are obviously the two *hṇḍu* of the Avesta.¹¹³

g) The place of paradise

The highest point, higher even than the North Pole, to know the *nāka* (or *divāḥ prṣṭām*) is therefore the paradise of the gods. It lies at the nocturnal zenith, or below it; we know that the terms denoting

¹⁰⁸ AIC, pp. 80-83 ; cf. supra n. 38.

¹⁰⁹ See above n. 71. For the two *yānas* of the Upaniṣad, see ChU 5.10. Against all expectations, the Asura flee towards the North (ŚB 1.2.4.11), and not to the south. I suppose that here the Asura will escape thanks to the movement of the Milky Way towards the north, and then towards the west and the south; cf. also Kuiper, *VaV*, p. 34 sq.

¹¹⁰ *eṣo 'nto 'taḥ paraḥ pravāho nāsti*.

¹¹¹ See translation and discussion by Thieme, *Kl. Schr.* p. 82 ff. ; cf. already RV 1.185.1 and 10.89.4. We find the same idea in ŚB 2.3.3.11; see also Yt. 19.43.

¹¹² Cf. already Sieg, “Der Nachtweg der Sonne nach der vedischen Anschauung,” *Nachrichten der K. Gesellschaft der Wissenschaften zu Göttingen. Phil.-histor. Kl.*, 1923 – referring to p. 3 n. 1 there, in Caland, *WZKM* 26, 1912, p. 119; bibliography at Keith, translation of the AB (on III 44 ann. 2; Caland, on PB 12.9.6; Speijer, *JBRAS* 1906, p. 723. See Kuiper, *AIC*, p. 128: “Upperworld and Underworld are not only situated at the top and the bottom of the world axis but also, we have horizontal plane, to the right and the left of it”; cf. the ascension and the descent of Viṣṇu. Other images: two *samudra* in JB 1.5 (§ 1), the wheel of time in RV 1.164.11, wheels to reach the sky in TS 7.2.2.3, the perpetual *yajña* in AB 34.3, JB 1.258.

¹¹³ The *brahmacārin* is found at the eastern and the northern ocean, at AV 11.5.6; AV speaks to Rudra “from the eastern thou smiteth the northern ocean” (11.2.25, where Whitney declares himself “surprised,” cf. *salilasya prṣṭhe samudre* (AV 11.5.26). ChU 6.10.1 describes the movement of the heavenly *nadī*, from the east (towards the north) and from the west (towards the south): *samudrāt samudram*; cf. the two *samudra* of Varuṇa, at AV 4.16.3. At BSS 16.30, a *yātsattra*, called *muni-ayana* is described.

“north” mean “up above” cf. Skt. *uttara-* and av. *Upara* (*apāxəδra-*).¹¹⁴ With the descent of the Milky Way, the region of the *pitṛs* and of Yama will be the south even if it is “up above”: Skr. *dakṣiṇa-/adhara-* Av. *aḍara-*. This development is very clear in Iranian: the north is the region of the **daēuua-* (the ancient **daiua-*: Ved. *devá-*), and the south is the residence of Yima, who widened the three worlds in a southern direction (stanza 2).¹¹⁵

VII

We return now to our point of departure: the pilgrimage along the terrestrial *Sarasvatī*. We shall read for this purpose another text, where we will find once again many of the elements already mentioned, namely PB 25.10.¹¹⁶ “They proceed to the consecration at the spot where the *Sarasvatī* disappears. (1) ...The *adhvaryu* throws the *śamyā* (yoke-pin). Where it falls, there is the *gārhapatyā* (fire). (4) ...It is the “march of Mitra and Varuṇa.”¹¹⁷ (9) ...With this (ritual) Mitra and Varuṇa conquered these worlds. Mitra and Varuṇa, they are the day and the night: Mitra is the day, Varuṇa the night. (10) ...With the *Sarasvatī* the gods propped up the sun. She could not support (the sun). She slipped. That is why she is slightly hunchbacked.¹¹⁸ They propped it up with the *Bṛhatī* (a metre). (11) ...They (the sacrificers) progress upstream (on the *Sarasvatī*). It is not possible to attain (the objective) when (one follows) the direction of the river. They go to the eastern shore; that is where the (*Sarasvatī*) receives a single (stream): it is the *Drṣadvatī*.¹¹⁹ (14) At the confluence with

¹¹⁴ PB explains why the priests in the Soma ritual must gain heaven by moving “like serpents” (*sarpanti*); cf. also *Manor avasarpaṇa*, ŚB 1.8.1.6 (on the northern mountain, the Himalaya) and JB 2.243; PB 6.7.9 (with the translation of Caland), JB 1.85. Ē 10.

¹¹⁵ Cf. MSS 30, 1972, p. 163 ff. In the northern hemisphere, orientation during the night is only possible by means of an observation of stars near the North Pole (as well as the Small Dipper). A little south of Delhi, the Southern Cross (near the pole) becomes visible: it can serve as a reference point. See also AV 11.6.11 where the Seven Ṛṣi (the Big Dipper), the divine waters, Prajapati, the *pitṛ* and Yama are invoked all together.

¹¹⁶ Texts (where important passages are underlined) :

Sarasvatyā vinaśane dīkṣante. (1) ... (2) *adhvaryuḥ śamyām parāsyati*, *sa yatra nipatati*, *tad gārhapatyas*, ... *Mitrāvaruṇayor ayanam*. (9) *etena vai Mitrāvaruṇāv imān lokān ājayatām*. *ahorātrau vai Mitrāvaruṇav : ahar Mitro, rātrir Varunaḥ*. (10) ... *Sarasvatyā vai deva ādityam astabhnuvan*, *sā nāyacchat*, *śābhivlīyata*, *tasmāt sā ku-bjimatīva*, *taṃ bṛhatyāstabhnuvan*. ... (11) *pratīpam yanti*, *na hy anvīpam aṣṭavai*, *pūrṇena pakṣasā yanti*. (12) *tad dhi praty ekā āpnoti*. (13) *Drṣadvaty eva*. (U) *Drṣadvatyā apyaye ... atiyanti*. (15) *catuṣcatvārimśad āśvīnāni Sarasvatyā vinaśanāt Plaksah Prāsravanas*. *Tāvad itaḥ svargo lokah*. *Sarasvatī sammitenādhvanā s varga loka yanti*. (16) *etena vai Namī Sāpyo Vaideho rajāñjasā svargam lokam ait ... yadā Plaksam Prāsravaṇam āgacchanty, ath-othhānam*. (21) *Kārapacavam prati Yamunām avabhṛtam abhyavayanti*. (23) - 25.13 : ... *Vyarne Naitandhave 'gnim andhīta samvatsare Parīnahy agnīn ādadhīta*. (1) *sa dakṣiṇena tīreṇa Drṣadvatyā ... śamyāparasīyāt*. (2) ... *etāvatī vāva prajāpater vedir, vāvat Kuruksetram iti ... dakṣiṇena tīreṇa Drṣadvatyāḥ śamyāparāsyeti*, *Triplakṣān prati Yamunām avabhṛtam abhyavaiti*, *tad eva manusyebhyas tiro bhavati*. (4)

¹¹⁷ Difficult to understand: Mitra/the day/the sun does not move towards the northeast, except perhaps during the night, when the sun returns towards the (north-/south-) east showing its black face, cf. next note.

¹¹⁸ This sentence is important: the gods were able to support the sun with the Milky Way because the sun returns to the east placing its black face towards the earth, obviously with the movement of the Milky Way. The PB explains why priests in the rite of Soma must reach the sky by moving “like serpents” (*sarpanti*); cf. also *Manor avasarpaṇam*, ŚB 1. 8.1.6 (on the “northern mountain,” the Himalayas) and JB 2.243; PB 6.7.9 (with Caland's translation), JB 1.85 (§ 10). For the sun and the waters, cf. JB 2.25-26 (§ 117): the annual course “across the waters.”

¹¹⁹ The etymology of this name is interesting: “the one having stones,” this corresponds with AV *áśmanvatī*; cf. infra, note 106.

the Dṛṣadvatī ...they cross over. (15) At forty-four (days)¹²⁰ on horseback from the disappearance of the Sarasvatī stands the Plakṣa Prāsravaṇa. Equally (far away) is the shining world. They go to the shining world along a path that is as long as the Sarasvatī. (16) It is by this means that the King Namī Sāpya of Videha¹²¹ went directly to the shining world... (17) ...When they arrive at the Plakṣa Prāsravaṇa, that is the end (of the ritual) ... (21) ...At Kārapacava¹²² they descend into the Yamunā for the final bath.

[25.13: the *sattra* of the Dṛṣadvatī:] At Vyarna Naitandhava¹²³ he must light the (domestic, and not *śrauta*!) fire ... and at Parīṇah, he must light the (three) (*śrauta*) fires. He must walk along the southern shore of the Dṛṣadvatī ...throwing the *śamyā* ... [Kurukṣetra identified with the *vedi* of Prajāpati] ...He walks along the southern shore of the Dṛṣadvatī ...and descends to Triplakṣa¹²⁴ in the Yamunā for the final bath. That is where he becomes invisible to men.”¹²⁵

This disappearance from the eyes of men could be accomplished through a ritual suicide in the Yamunā. The texts are silent on this subject, as always on the subject of violence and the fate of victims.¹²⁶ But those who are killed during the *sattra* go automatically to the heavens. In consequence, the one who kills himself in the Yamunā (i.e. the Milky Way, the shining world) should himself also go to the heavens.¹²⁷ This region exhibits other astounding properties: it is in the Śaiśava of the Sarasvatī (an arm of the river) that the one named Cyavana was rejuvenated.¹²⁸ This word is derived from *śiśu*- “baby” and recalls the pond of the Apsaras in the Kurukṣetra, where the son of Purūravas and Urvaśī was born; it recalls also the role of the birds (identified with the Apsaras of Purūravas in ŚB 11.5.1.11) in the Indo-Iranian representation of the human cycle of rebirth.¹²⁹ The Kurukṣetra region, i.e. “the island in the Rasā,” “the doorway to the heavens” is therefore a land where it is equally possible to be rejuvenated and to be reborn.¹³⁰

¹²⁰ The number forty (or forty-four) plays an important role in Indo-Iranian mythologies; it is also found in ancient Greece. A “natural” or “rational” explanation of the forty-four days on horseback is not possible (see n. 10 and 113). According to Hesiod (Works, 385), this is a fact relating to astronomy, which will be discussed elsewhere. For the Scythians, cf. Herodotus, 1.202 and 4.53, 73; In the Avesta see Yt. 5.2 and Y. 65.4. In the Bible, cf., among others, Ex. 24.18, 34.28 (“Moses remained with the Lord 40 days and 40 nights”), Nu. 13.25, Matt. 4.2, Mk 1. 13, Lk 4.2.

¹²¹ Note that one comes on pilgrimage to Kurukṣetra from Videha, 1000 km away.

¹²² Can we imagine an etymology for *kāra*- and *pac*- with a root **pacu*-? For the suffix *-u*, cf. Thieme, *Henning Memorial Volume*, p. 450 and Debrunner, *Ai. Gr. II/2 (Die Nominalsuffixe)* § 287 p. 469.

¹²³ Cf. Caland, translation of PB 25.3.

¹²⁴ How to explain this name? We can recall that in around 1800 before our era, the North Pole was defined by the neighborhood of three stars (see above n. 18); but our text is much more recent.

¹²⁵ Cf. LŚS 10.19.11-15; see Heesterman, *Vedisches Opfer und Transzendenz* (cf. n. 53), p. 34.

¹²⁶ See Heesterman, *IJ* 6, 1962, pp. 1-37; especially pp. 18 sq. and 34 sq. Cf. also ŚB 11.8.4.6 (*tāto haivā sā utsasāda*: the *sattra* of Keśin), with Eggeling's comment.

¹²⁷ See, the bibliography in Heesterman, op. cit., n. 53.

¹²⁸ JB 3.120-128 § 186.; see also my article on rebirth, mentioned earlier.

¹²⁹ Cf. n. 47 and 71.

¹³⁰ Cf. supra, note 47, for the relation between Ved. *tantu* and Av. *Frauuāši*, and notably, the movement of the souls (*ruuan*), who pass over the bridge (*pəṛətu*, Ved. *setu*, JB 1.5 and ChU) which separates day and night. Otherwise, TS speaks of a *setu* (7.5.8.5), a ship (7.5.3.2) or a chariot (7.2.2.3) used to gain heaven (in a *sattra*). The goddess Sarasvatī plays a role in the life after death (see AV 18), in the celebration of marriage (cf. Caland, A Vaidic wedding song, *AO* 7, 1929, pp. 305-11), and in the procreation of children (already in the RV). All of this will be discussed elsewhere.

VIII

In conclusion, we can state:

1. The sattras on the shores of the Sarasvatī are a reflection, a symbol of the path used by the gods, the *ṛṣi* and the souls in the heavens to travel to this “shining world” visible in the nocturnal sky.
2. Up there (*uttara-*, *upara-*), in the firmament of the heavens, and above the Milky Way, lies the residence of the gods and also (later on) the world of the Brahman, from which one who has been delivered can see “the two wheels of the day and the night,” i.e. the sun and the Milky Way.
3. The doorway of this world is to the northeast, at the spot where the bifurcation of the Milky Way (in the Aquila constellation) becomes visible on winter mornings, around the time of the solstice.
4. The ascension that proceeds slowly and by stages, symbolized by the pilgrimage along the shores of the Sarasvatī, corresponds to the upward movement of the “doorway” of the Milky Way, which is visible from winter into summertime. This movement in the direction opposite to that of the stars (and also of the particular stars visible in the Milky Way), this movement of the Milky Way—conceived of as a river—in its entirety, is advanced by the sacrifice of the *gavām ayana*, which culminates at the time of the two solstices, i.e. on the *viṣūvat* day in summer and the *mahāvratā* day in winter.
5. In June and in July, at the summer solstice, when the sun reaches its highest point, the “doorway” of the Milky Way disappears to the west.
6. This “doorway” must therefore be situated “up above” the earth, and must be moving towards the east, where it reappears in the winter during the morning hours. This movement corresponds to the path of the ancestors, the *pitr̥s*.
7. This concept is the basis of a number of cosmological and religious notions in Iran and in India. The territory between the Sarasvatī and the Dṛṣadvatī becomes the *vedi* of the gods and of men, the place where the centre of the earth and of the heavens is situated, the *axis mundi*: at Plakṣa Prāsraṇa at the foot of the Himalayas. This concept also lies behind the post-Vedic *Meru* (Sumeru), recognizable in the *Harā* (*bərəzaitī*) of the Avesta and the *giri/aṣman* of the RV. If one lets one’s imagination roam,¹³¹ one can apply these ideas to the region of the Amu Darya (the Oxus), or even of the Volga (Gr. *Rhā* < **Rahā*) and of the Dniepr, the Borysthénēs of the Scythians (Herodotus 4.20, 26), see Figure 13.

¹³¹ Where should the ancient *airiianqm vaēja* be located? According to V. 1.2, it is a northern territory, very cold (cf. Herodotus 4.28). The testimony of the texts is insufficient, but Yt. 15.27 gives *guḍa-Raṇhaiiā*; see Herodotus, 4.51 ff. and other ancient geographers. For the Sindói of the Kuban, in the North Caucasus, cf. again Herodotus 4.28. The Sistān is indeed the sacred territory of late Zoroastrianism (cf. Yt. 19.66-68); note that the seed of Zaratuštra is preserved miraculously in Lake Kāsaia of this region, which is comparable to the Kurukṣetra with its *śaiśava* (cf. n. 128). For Danu “river,” see Kuiper, *AIC*, p. 121. Between the Iranian and the Indian, we have the following correspondences: Harōiiuua = Sarayu, Harax³aitī = Sarasvatī, Raṇhā = Rasā, Həndu = Sindhu, Haētumant = *Setu-mant; see M. Mayrhofer, *Ausgewählte kleine Schriften*, Wiesbaden, 1979, pp. 72-99 for some of these names of rivers and peoples.

8. The movement of the nocturnal sky is fostered by rites like the Agnihotra, the Agniṣtoma of springtime, the *gavām ayana*, or other *sattras*, including the *yātsattra* on the banks of the Sarasvatī, which have as their objective the achievement of immortality and attainment to the heavens.

IX

I hope that I have sufficiently demonstrated how important the observation of the night sky is to our comprehension of Vedic and Avestan texts. We should note that specialists in Vedic mythology and ritual have not been attentive to this phenomenon, perhaps because it is not as easily observed in the West as in the Near East or in India.

In the past few decades many explanations have been proposed for Vedic mythology. I think that it is necessary to ask whether the Vedic man did not think on the origin and end of his existence, on his life after death,¹³² and, as a result, on one of the paths of access to the heavens, to paradise, which I have attempted to describe.

This ritual activity,¹³³ counterbalanced by faith in an automatic rebirth—in one's great-grandson—after an indeterminate period in Yama's paradise,¹³⁴ is, in my opinion, a fundamental concern of the Vedic man.¹³⁵

KEY TO ABBREVIATIONS

AB	Aitareya Brāhmaṇa
ABORI	Annals of the Bhandarkar Oriental Research Institute
Ai. Gr.	<i>Altindische Grammatik</i>
AO	Acta Orientalia
ĀpŚS	Āpastamba Śrauta Sūtra
ĀŚS	Āśvalāyana Śrauta Sūtra
AV	Atharvaveda
BhP	Bhāgavata Purāṇa
BŚS	Baudhāyana Śrauta Sūtra
ChU	Chāndogya Upaniṣad
DB	The Behistun Inscription
IF	<i>Indogermanische Forschungen</i>
IJ	<i>Indo-Iranian Journal</i>

¹³² See "Rebirth."

¹³³ According to well-marked degrees: "first rebirth" (*dvija*) by *upanayana*, the second by the *ahitāgni*, the *dīkṣā* of the sonic ritual, then by other rituals, which aim to reach heaven after death (thus, among others, JUB 3.10).

¹³⁴ See again "Rebirth"; and TS 5.4.1.3, MS 1.8.6: 123.19.

¹³⁵ I thank Messrs. E. Pirart and G. Pinault for the correction of the French text. The designs of the maps were developed for publication by Miss. O. Mukherjee (Paris). This conference was followed, the same day, by a presentation on the geographic distribution of the Vedic schools in the medieval period. On this subject, we can now read: "Regional and überregionale Faktoren in der Entwicklung indischer Brahmanengruppen im Mittelalter" (= Materialien zu den vedischen Schulen, 5), in: *Beiträge zur Südasienforschung*, Heidelberg, 1984.

JB	Jaiminīya Brāhmaṇa
JBRAS	<i>Journal of the Bombay Branch of the Royal Asiatic Society</i>
JUB	Jaiminīya Upaniṣad Brāhmaṇa
KB	Kauṣītaki Brāhmaṇa
KpS	Kapiṣṭhala Saṃhitā
KS	Kaṭha Saṃhitā or Kāṭhakam
KŚS	Kātyāyana Śrauta Sūtra
KU	Kauṣītaki Upaniṣad
KZ	<i>Kuhns Zeitschrift (Zeitschrift für vergleichende Sprachforschung)</i>
LŚS	Lāṭyāyana Śrauta Sūtra
Mbh	Mahābhārata
MS	Maitrāyaṇi Saṃhitā
MSS	<i>Münchener Studien zur Sprachwissenschaft</i>
PB	Pañcaviṃśa Brāhmaṇa
PS	Paippalāda Saṃhitā
PS(K)	Paippalāda Saṃhitā (Kashmirian version)
RV	Rgveda
ŚB	Śatapatha Brāhmaṇa
ŚŚS	Śāṅkhāyana Śrauta Sūtra
TB	Taittirīya Brāhmaṇa
TS	Taittirīya Saṃhitā
VādhB	Vādhūla Brāhmaṇa
VādhPiS	Vādhūla Piṭṛmedha Sūtra
VS	Vājasaneyi Saṃhita
WZKM	<i>Wiener Zeitschrift für die Kunde des Morgenlandes</i>
Y	Yasna
Yt	Yasht (Yašt)
YV	Yajurveda
ZDMG	<i>Zeitschrift der Deutschen morgenländischen Gesellschaft</i>

Table

Dates des levers héliaques et des couchers cosmiques de 34 étoiles brillantes
en 1501, 1001 et 501 av. J.-C. par 30° de latitude nord¹⁾

Nom d'étoile	Magnitude	Lever héliaque			Coucher cosmique			Particularités
		1501 av. J.-C.	1001	501	1501	1001	501	
1. α Arietis (Hamal)	2.00	1e 17 mars	27-3	6-4	13-10	23-10	2-11	— l'équinoxe vernal
2. α Aurigae (Capella)	0.05	1e 1er avril	11-4	21-4	28-10	7-11	17-11	
3. La Pléiade		1e 21 avril	1-5	10-5	17-11	27-11	7-12	
4. α Tauri (Aldebaran)	0.78 ^{v2)}	1e 8 mai	18-5	28-5	4-12	14-12	24-12	— le solstice d'hiver
5. α Geminorum (Castor)	1.58	1e 30 mai	9-6	19-6	29-12	5-1	15-1	
6. γ Orionis (Bellatrix)	1.64	1e 2 juin	12-6	22-6	1-1	11-1	21-1	— le solstice d'été
7. ι Geminorum	3.89	1e 18 juin	28-6	8-7	24-12	4-1	14-1	— le solstice d'été — le solstice d'hiver
8. α Canis Minoris (Procyon)	0.37	1e 24 juin	4-7	14-7	30-12	9-1	19-1	
9. α Canis Majoris (Sirius)	-1.43	1e 28 juin	8-7	18-7	3-1	13-1	23-1	
10. β Cancri	3.76	1e 6 juillet	16-7	26-7	11-1	21-1	31-1	
11. ϵ Leonis (Asad Australis)	2.99	1e 6 juillet	16-7	26-7	11-1	21-1	31-1	
12. δ Canis Majoris (Wezea)	1.85	1e 16 juillet	26-7	5-8	21-1	31-1	10-2	
13. α Leonis (Regulus)	1.36	1e 17 juillet	27-7	6-8	22-1	1-2	11-2	
14. α Carinae (Canopus)	-0.72	1e 17 août	27-8	6-9	22-2	4-3	14-3	
15. γ Corvi (Minkar)	2.59	1e 22 août	1-9	11-9	27-2	9-3	19-3	— l'équinoxe vernal
16. α Boötis (Aroturus)	-0.06	1e 29 août	8-9	18-9	6-3	16-3	26-3	— l'équinoxe vernal
17. α Virginis (Spica)	0.91 ^{v2)}	1e 6 septembre	16-9	26-9	14-3	24-3	1-4	— l'équinoxe d'automne
18. α Librae (Zubelgenubi)	2.76	1e 1er octobre	11-10	21-10	8-4	18-4	28-4	
19. δ Serpentis	3.80	1e 26 septembre	6-10	26-10	3-4	13-4	23-4	— l'équinoxe d'automne
20. γ Centauri (Menkent)	2.17	1e 25 septembre	5-10	15-10	2-4	12-4	22-4	— l'équinoxe d'automne

Table (suite)

Nom d'étoile	Magnitude	Lever héliaque			Coucher cosmique			
		1501 av. J.-C.	1001	501	1501	1001	501	
21. η Herculis	3.46	1e 26 septembre	5-10	15-10	3-4	13-4	23-4	— l'équinoxe d'automne
22. γ Scorpii	4.02	1e 10 octobre	20-10	30-10	17-4	27-4	7-5	
23. α Scorpii (Antares)	0.86 ^{v2)}	1e 23 octobre	2-11	12-11	30-4	10-5	20-5	
24. α Lyrae (Vega)	0.04	1e 27 octobre	6-11	16-11	4-5	14-5	24-5	
25. δ Cygni	2.87	1e 15 novembre	25-11	5-12	23-5	3-6	13-6	
26. γ Sagittarii (Alnasr)	2.97	1e 19 novembre	29-11	9-12	27-5	7-6	17-6	
27. ζ Aquilae (Deneb)	2.99	1e 21 novembre	1-12	11-12	29-5	9-6	19-6	— le solstice d'été
28. ϵ Pegasi (Enif)	2.31	1e 31 décembre	10-1	20-1	8-7	18-7	28-7	
29. β Aquarii (Sadalehad)	2.86 ^{v2)}	1e 4 janvier	14-1	24-1	12-7	22-7	1-8	
30. γ Cassiopeiæ (Cih)	^{v2)}	1e 7 janvier	17-1	27-1	15-7	25-7	4-8	
31. δ Pegasi (Schwat)	^{v2)}	1e 13 janvier	23-1	2-2	21-7	31-7	10-8	
32. β Andromedæ (Mirach)	2.02	1e 12 février	22-2	4-3	20-8	30-8	9-9	
33. α Piscis Australis (Pomazhaut)	1.16	1e 17 février	27-2	9-3	25-8	4-9	14-9	
34. γ Persei	2.91	1e 21 février	3-3	13-3	28-8	7-9	17-9	

1. Nous avons tenu compte de la précession générale en longitudes, mais nous avons négligé la nutation et le mouvement propre des étoiles. Toutes les dates sont en calendrier grégorien!
2. L'abréviation v veut dire: étoile variable.

Pour établir la table nous avons consulté: - *Explanatory Supplement to The Astronomical Ephemeris and The American Ephemeris and Nautical Almanac*, London (Her Majesty's Stationery Office), 1977⁴.
- W.M. Smart, *Textbook on Spherical Astronomy*, 6th ed. rev. by R.M. Green, Cambridge - London - New York - Melbourne (Cambridge University Press), 1979 (repr.)

table préparée par M. P. Nienkens, Leiden.

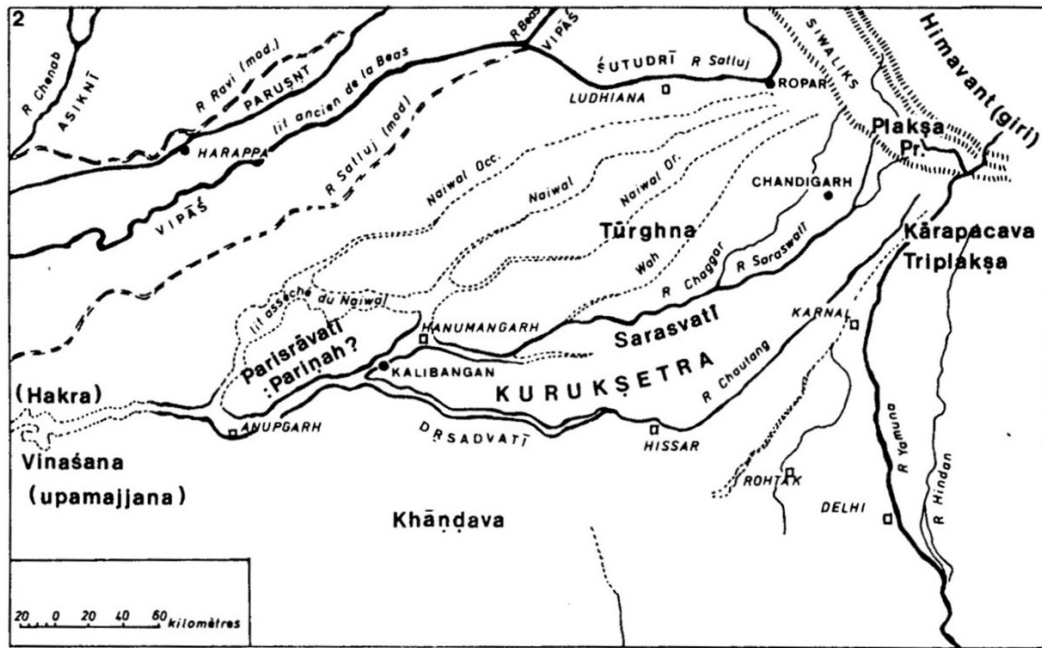


Fig. 2. Le Kurukṣetra, dans le Panjab oriental et l'Haryana moderne.

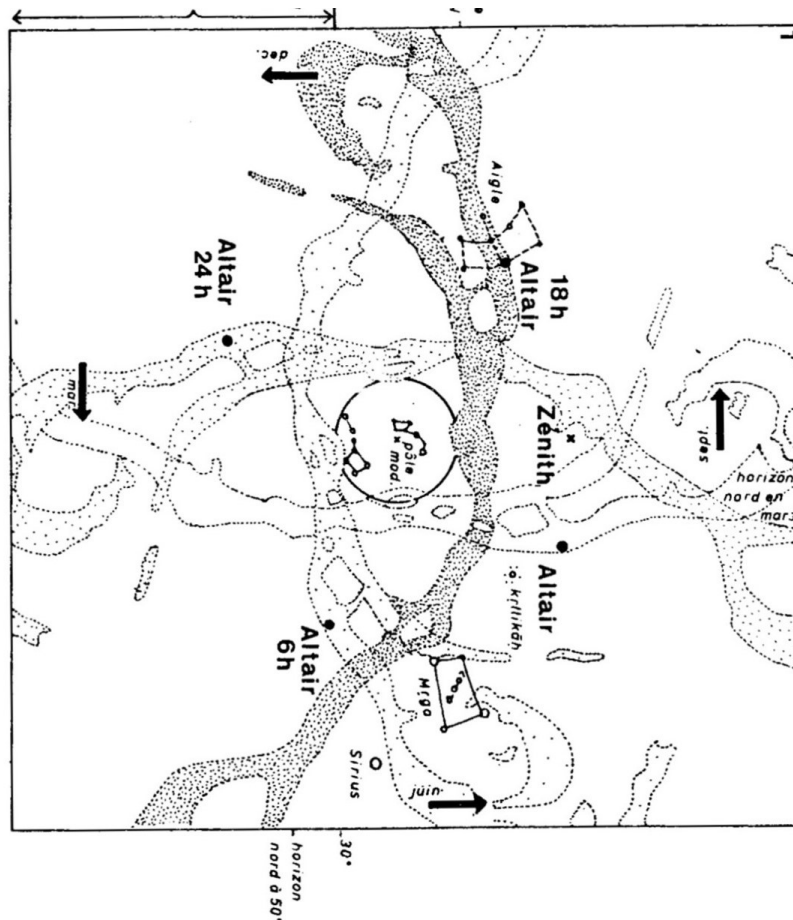


Fig. 1. Le mouvement de la Voie Lactée pendant la nuit et pendant une année.

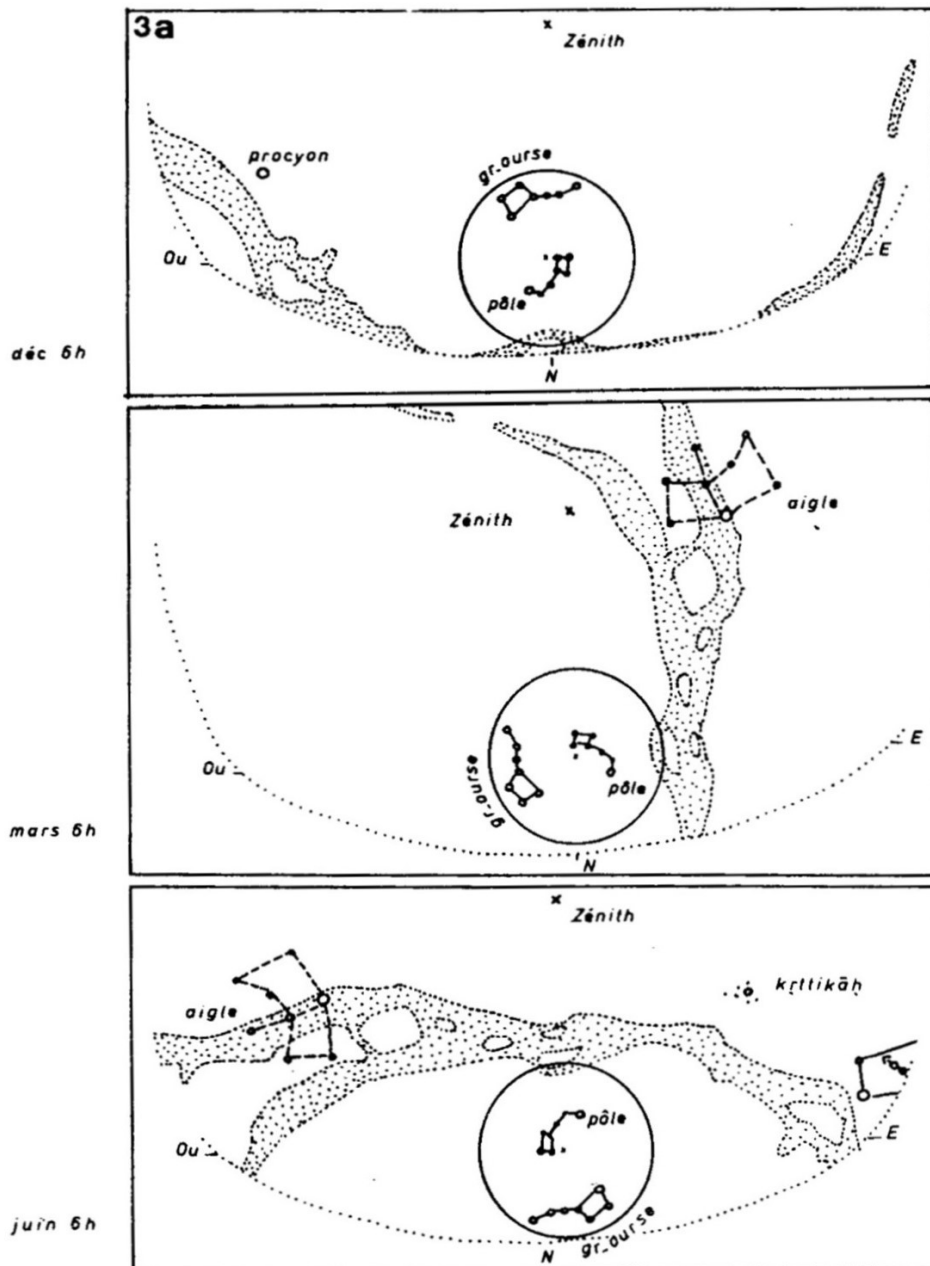


Fig. 3 a. La Voie Lactée visible dans le Kurukṣetra, le matin, avant le lever du soleil, ca. 1000 a.C.

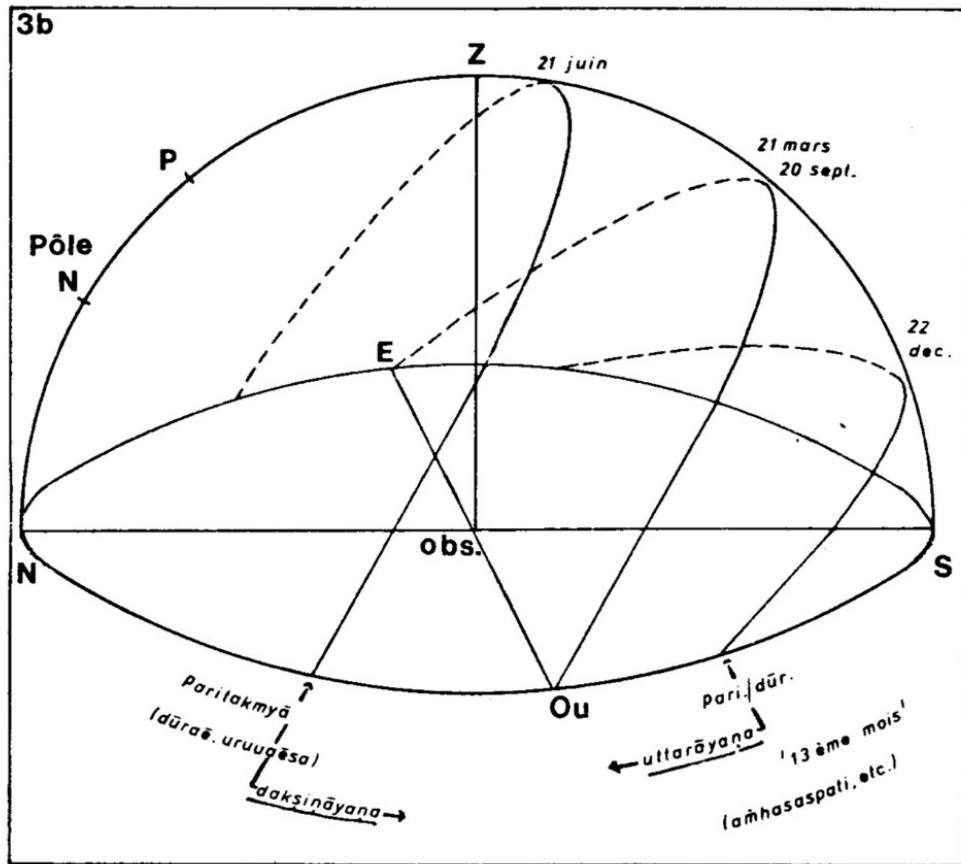


Fig. 3 b. Le cours annuel du soleil. Notez la position du pôle Nord pour le Kurukṣetra (30°).

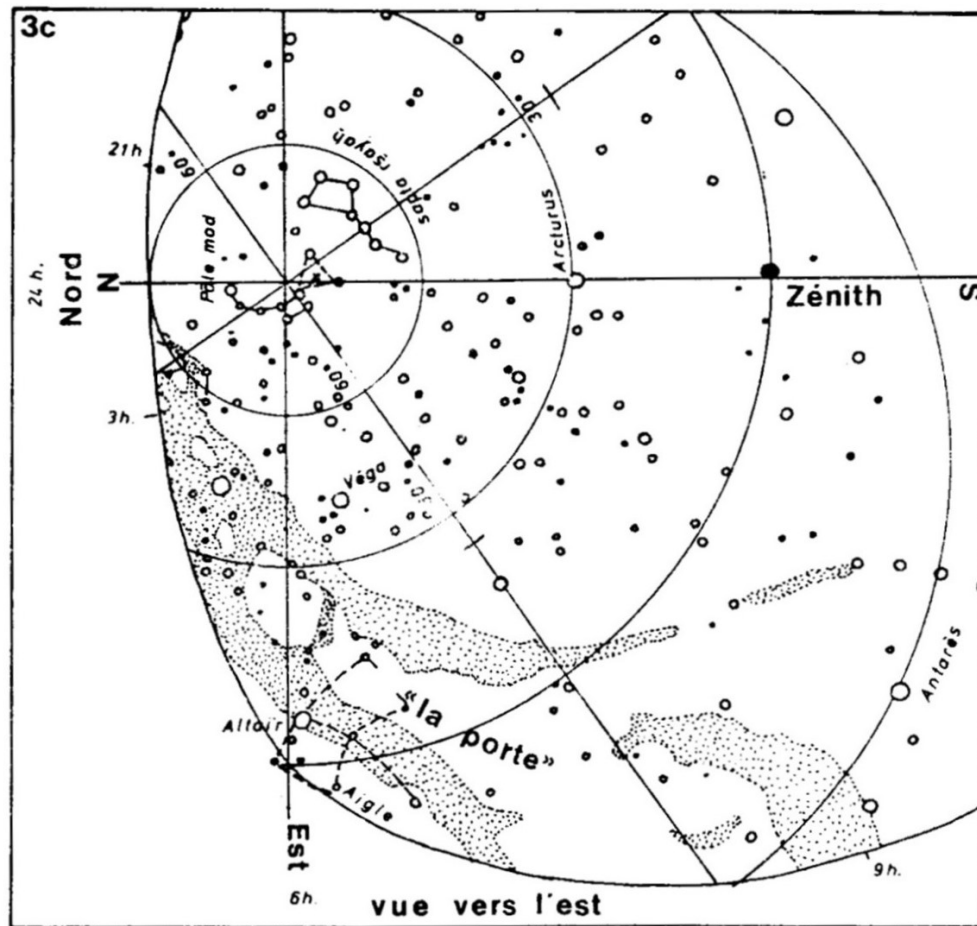


Fig. 3_c. La "porte" de la Voie Lactée,
vue vers la fin de janvier dans le Kuruksetra, ca. 1000 a.C.

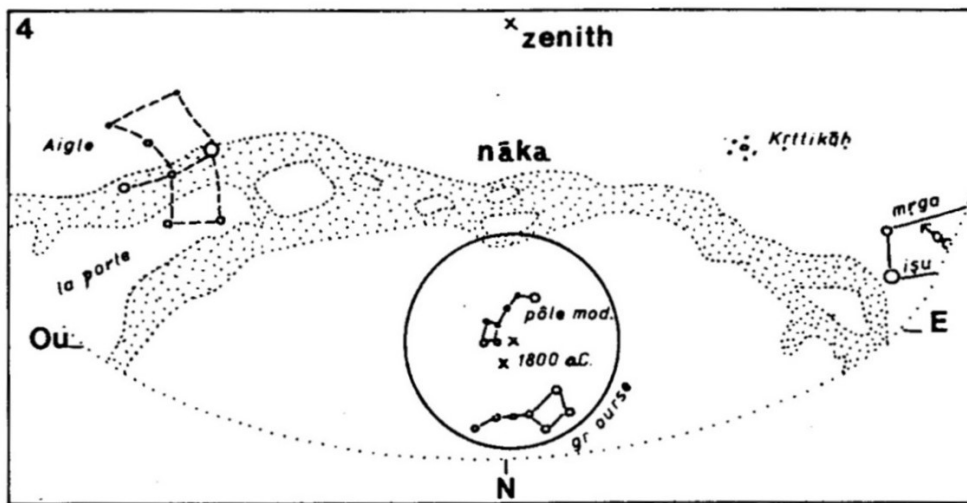


Fig. 4. La Voie Lactée, vue vers le Nord, le matin en été ou le soir en hiver.



Fig. 5. Les rivières du Kurukṣetra.

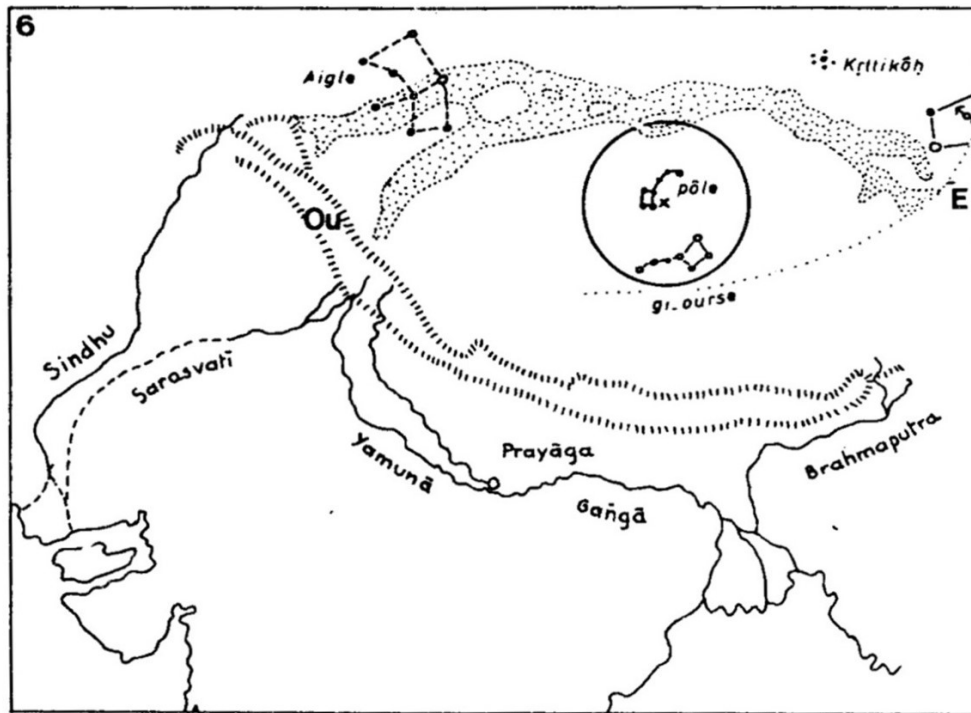


Fig. 6. Les deux branches de la Voie Lactée et ses reflets sur terre : Sarasvatī/Dṛśadvatī, Sarasvatī/Yamunā, etc.

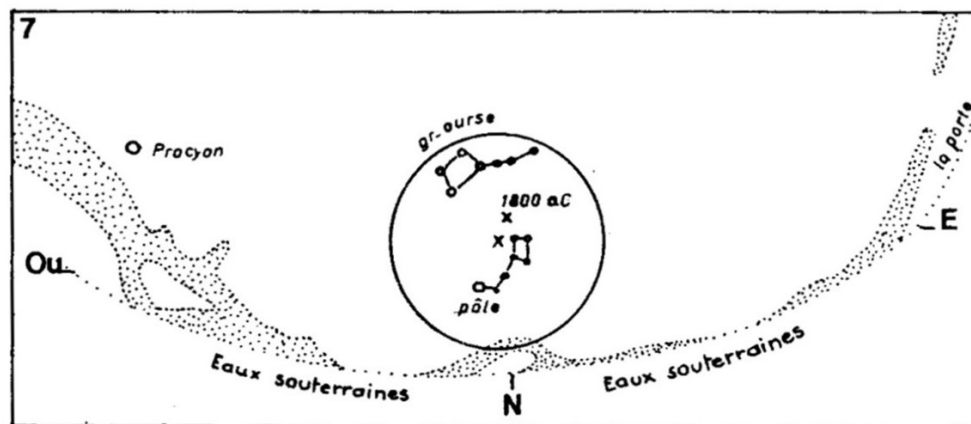


Fig. 7. Les deux sindhu du ciel nocturne, vus en décembre, le matin.

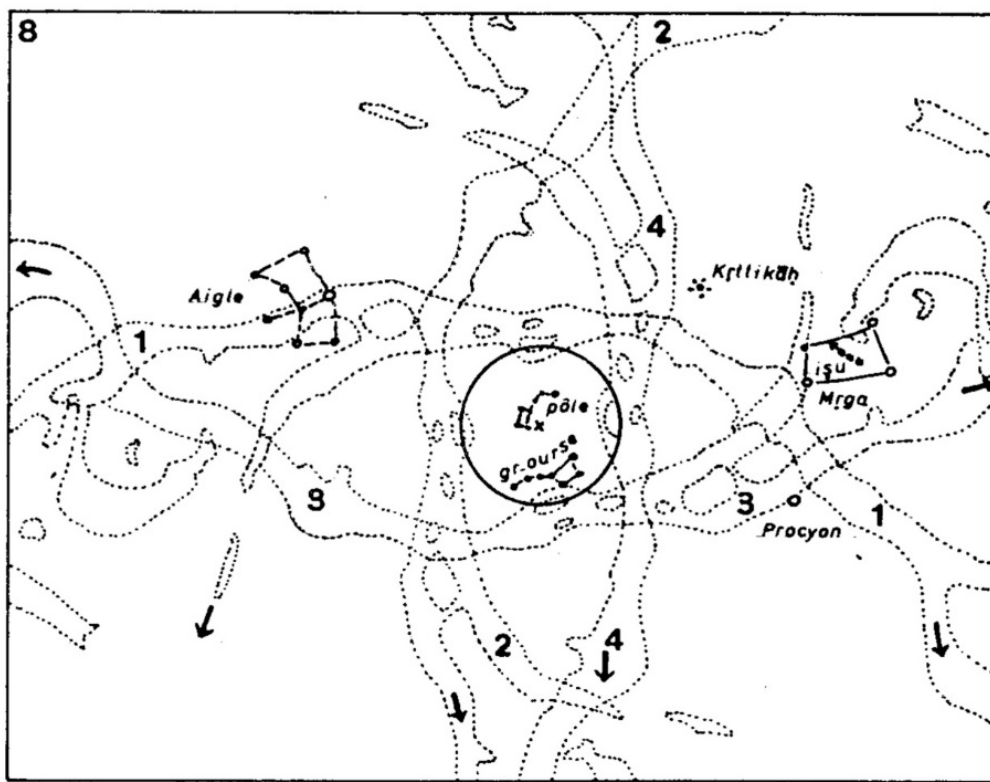


Fig. 8. Les rivières célestes coulant du ciel nocturne, pendant les saisons ou pendant les heures de la nuit ;
1 = décembre, 2 = mars, 3 = juin, 4 = septembre.

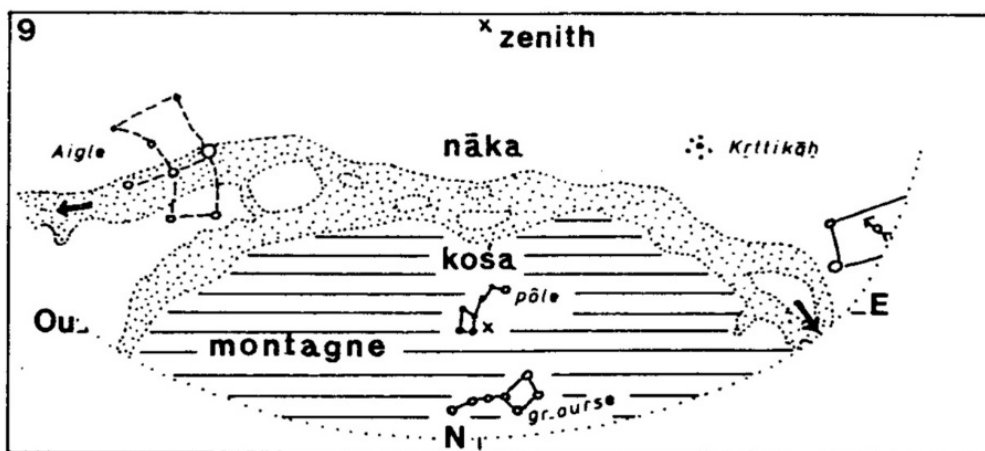


Fig. 9. La montagne du ciel nocturne, vue en décembre, le soir.

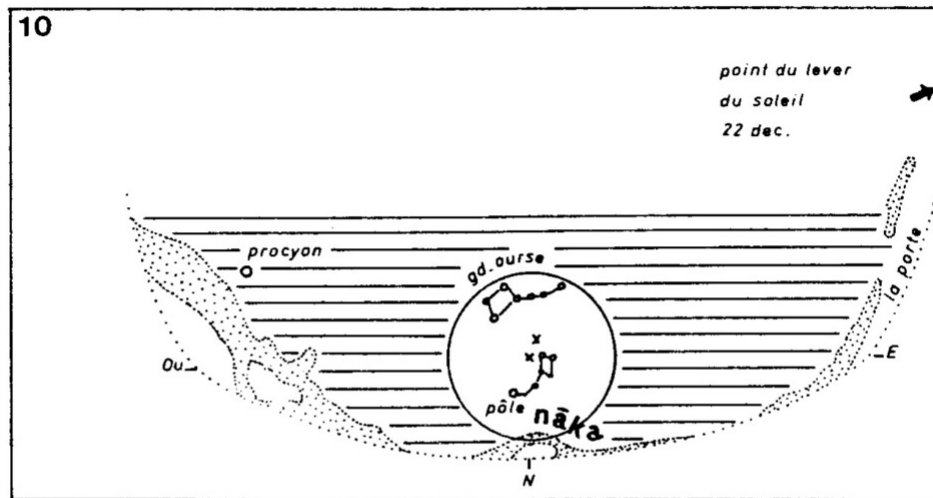


Fig. 10. La montagne du ciel nocturne, visible le 22 décembre à 6 h. du matin, dans le Kurukṣetra, ca. 1000 a.C.

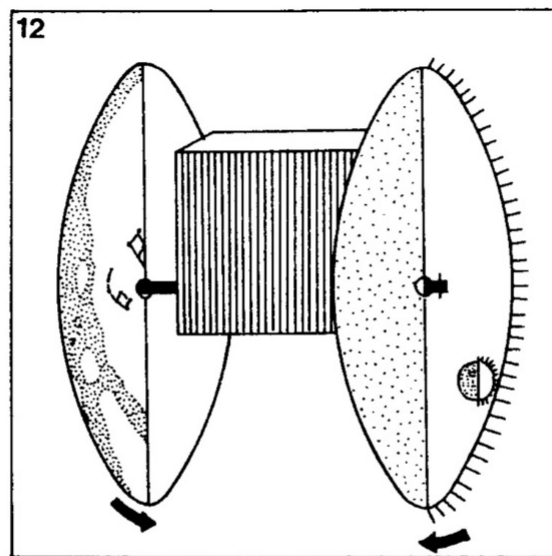


Fig. 12. Les roues du jour et de la nuit selon l'Upaniṣad.

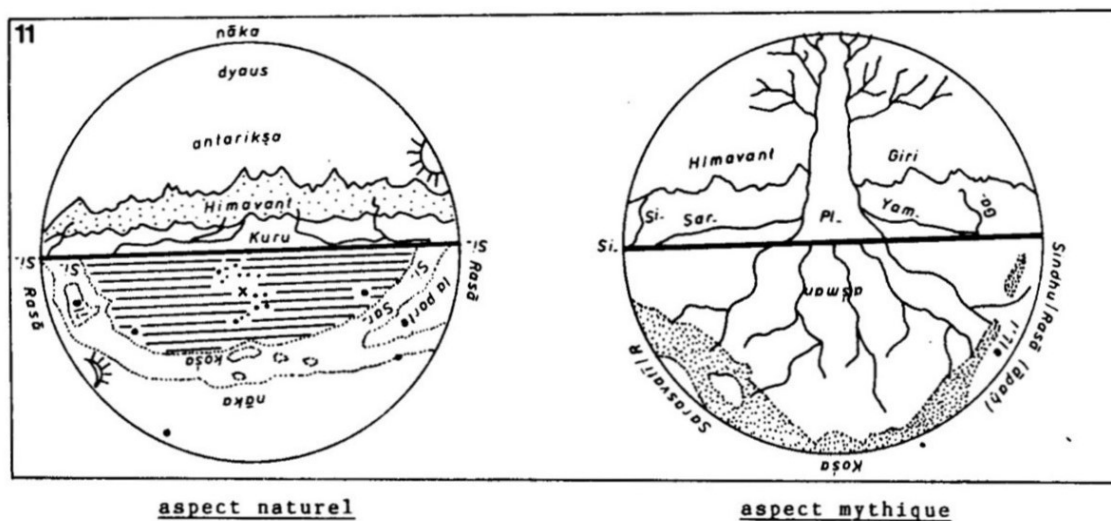


Fig. 11. L'Inde védique pendant le jour et la nuit.

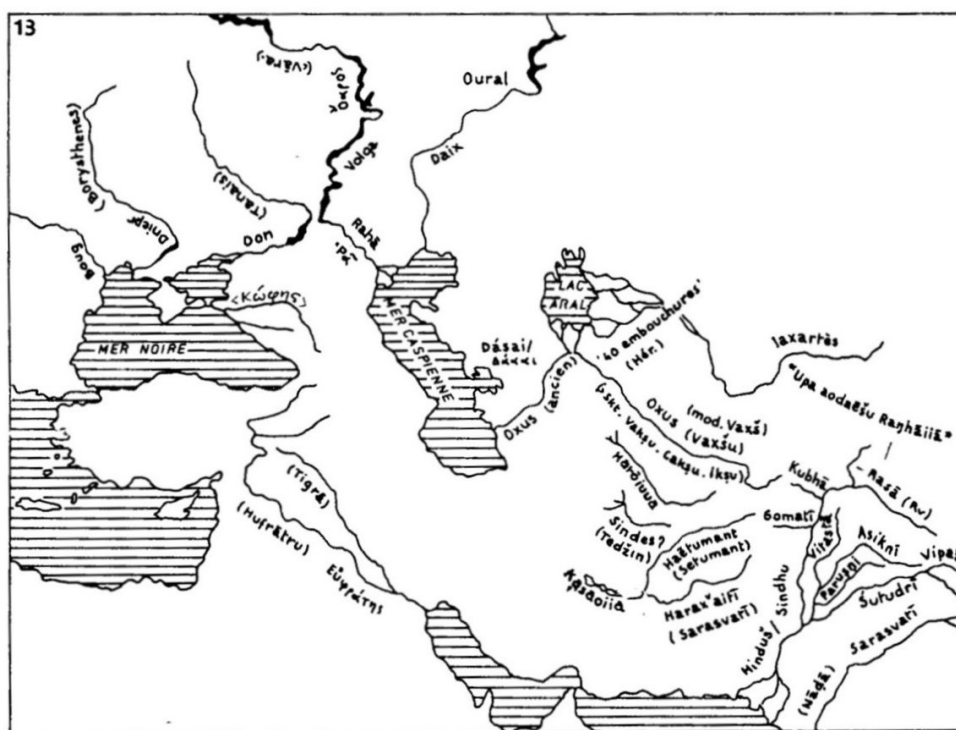


Fig. 13. Les rivières indo-iraniennes.

BOOK ANNOUNCEMENT

Mother Tongue's editorial board is pleased to announce that our editor Pierre Bancel recently published his book *Pris aux mots – De l'origine du langage à l'origine des langues* (in French, in case you did not notice from its title), appeared in April 2024 at Editions Exils, Paris.

It adopts a definitely evolutionary perspective to explain how a speechless ape species, in a series of steps, conquered first the human voice, then a host of *hum* interjections, then the first syllables, then a lot of them, and finally assembled them into narrations before syntax evolved.

He has unearthed several striking facts, some already known to a few long-rangers, like the Proto-Sapiens negative/prohibitive particle ***ma*, some others which had gone unnoticed, like the universality of *hum* interjections in modern humans, and made some stunning observations, such as his granddaughter Celeste, aged 22 months, telling the complete story of their encounter with a singing cuckoo.

Dear readers sadly unfamiliar with *la langue de Molière* (as well as Paul Broca, Louis Pasteur, Ferdinand de Saussure and a few others), wipe your tears and keep an eye out for the English translation of this indispensable book, which is well underway.