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**A REAPPRAISAL OF THE FIRST PUBLICATION
OF STIRRUP JAR INSCRIPTIONS FROM TIRYNS
BY JOHANNES SUNDWALL:
PHOTOGRAPHS, LOST SHERDS AND THE
'A-NU-TO/NO-DI-ZO WORKSHOP'**

JARI PAKKANEN

Transport stirrup jars were exported into the Aegean from Crete quite soon after their first manufacture on the island in the Middle Minoan III period, though they only appear in larger numbers outside Crete in the Late Bronze Age.¹ They were used to transport and store liquids, most probably olive oil. Inscribed stirrup jars (ISJs) are a small sub-group of this type of vessels produced in Crete during the Late Bronze Age III period and they have painted inscriptions with Linear B signs, typically on the shoulder or body: the earliest ISJs are dated to the LB IIIA2 period and the peak in the production continues into LB IIIB1.² As such, ISJs form the largest group of Greek Bronze Age textual material after the Linear B tablets. It is quite generally held that the primary function of the inscriptions

¹ Haskell 1985. This paper grew out of the introduction *Johannes Sundwall and the Decipherment of Linear B* presented at the 2014 Sundwall lecture given by Bernard Knapp on maritime transport containers of the East Mediterranean. The lecture series is held at the Finnish Institute at Athens and it is funded by a grant from Stiftelsen för Åbo Akademi, the endowment fund of the Swedish-language university in Turku. In the decipherment of Linear B Ventris and Chadwick (1973, 12) highlight the importance of both Evans's and Sundwall's publications in the period before 1944 over any other scholar. I wish to express my gratitude to the anonymous referee, Ann Brysbaert, Mika Kajava, Elina Kardamaki and Bernard Knapp for reading the manuscript and many valuable comments. Anne Fohgrub and Joachim Heiden from the Photoarchive of the German Archaeological Institute at Athens provided invaluable help with Figures 1–3 of this paper.

² Zurbach 2006, 49–54; Haskell 2011, 10; Sacconi 2012, 127. For ISJs produced in LB IIIB2, see nn. 36 and 48 below.

was administrative and related to their place of manufacture in Crete – the vessels discovered in the mainland, such as the ones from Tiryns, would in this case be indicators of trade of Cretan oil from the island to mainland Greece.³ Alternative hypotheses for the inscriptions are that they record the name of a member of the elite giving the oil as part of gift-exchange or that the Cretan communities were vassals of particular mainland palaces and sent the stirrup jars as part of a tribute.⁴

Most of the painted Linear B inscriptions of the ISJs discovered in the excavations at Tiryns in 1909 and 1910 were first published by Johannes Sundwall in the 1915 *Jahrbuch* of the German Archaeological Institute.⁵ He was given permission in Berlin by Kurt Müller, Hans Dragendorff and Georg Karo to use photographs of the vases and report the findings in his article.⁶ Sundwall stresses that the vessels are technically different from other Tirynthian pottery; he correctly identifies them as originating from Crete and from a centre other than Knossos. ~~He disputes Evans' vague suggestion that the inscriptions are an earlier form of a Cretan script and correctly interprets them as Linear A or B signs. Sundwall hesitates in which script the texts were written, but he does propose that the script is a developed, local and late type of Linear A.~~ He interprets the inscriptions as Linear A or B signs: he hesitates in which script the texts were written, but he does propose that the script is a developed, local and late type of Linear A.⁷

The main aim of this paper is to re-examine the material published by Sundwall. I will present the ISJs in the order they are in his article and give an update on the current state of research on these artefacts. Emmett Bennett has suggested that several of these ISJs can be attributed to the same workshop⁸ which I discuss here as the '*a-nu-to/no-di-zo* workshop'. Their production is studied at the end of the paper and I suggest a chronological framework for these stirrup jars.

All the inscriptions drawn by Sundwall can be matched with published texts with a high degree of confidence, but his full list of noted signs from Tiryns has not subsequently received any attention.⁹ Sundwall's illustrations, the pub-

³ For recent overviews of ISJs, see van Alfen 2008; Haskell & al. 2011a; Judson 2013.

⁴ Gift-exchange: Duhoux 2010; tribute: Maran 2005, 427–9.

⁵ Müller 1913, 90; Sundwall 1915, 63–4; Sacconi 1974, 35–42.

⁶ Sundwall 1915, 63.

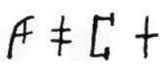
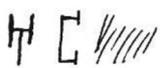
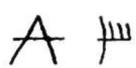
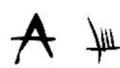
⁷ Sundwall 1915, 63; for short mentions of the Tiryns inscriptions and their script, see also Evans 1912, 282; Müller 1913, 90.

⁸ Bennett 1986, 136–40.

⁹ Both Raison (1968, 156 n. 1) and Sacconi (1974, 78–9, 83, 97) refer very briefly to Sundwall's

lished drawings, their transcriptions and references are summarised in Table 1. Several fragments have since been lost and no photographs or drawings of them exist:¹⁰ the only potential early publication of these sherds' Linear B signs is Sundwall's article, so the matter warrants careful examination. Based on Müller's unpublished manuscript at the German Archaeological Institute we can form an idea of what is currently missing of the ISJs discovered at Tiryns: Anna Sacconi has numbered the lost inscriptions for which no photograph or other representation exists as TI Z 40, 42–48 and 51.¹¹ In addition, 22 ISJs from Müller's excavations are currently only known from a photograph or a drawing.¹² The date of the Tiryns ISJs is LH IIIB.¹³

Table 1. Sundwall's drawings compared with inscriptions from Tiryns.

Sundwall's illustration	Published drawing	Transcription	References
		*56-ko-we	TI Z 27; Sacconi 1974, 97
		u-pa-ta-ro	TI Z 1 (pictured, more complete) and TI Z 2; Sacconi 1974, 77–8
		a-ta-ma-no-we[TI Z 7; Sacconi 1974, 83
	]no-di-zo[TI Z 11 (pictured) and TI Z 17; Sacconi 1974, 86, 91
	]ru[TI Z 39; Sacconi 1974, 106
			Åkerström 1974, 44–47; Döhl 1979, 52, 65

article but they do not analyse its contents.

¹⁰ The Second World War caused serious damage at the Nauplion Museum where the material was kept; Sacconi 1974, 38; for the lost fragments, see Sacconi 1974, 41–2.

¹¹ Sacconi 1974, 42. On Müller's manuscript, see Sacconi 1974, 39–42.

¹² TI Z 2, 3, 7, 10, 12–14, 20–23, 25–26, 32–33, 35, 37–38, 41, 43, 49 and 50; Sacconi 1974, 77–108; she also gives full bibliographies of the inscriptions.

¹³ Sacconi 1974, 35–36.

The first inscription in Table 1 can now be deciphered as indicating a place name in Crete, **56-ko-we*.¹⁴ The general shape of Sundwall's Linear B signs can be identified as the same as in the published inscription, though the sizes of the particular features of the signs can be different: for example, the curves of the reversed *we* are more pronounced in the actual inscription than in Sundwall's drawing. We need to keep in mind that Sundwall was working from photographs



Figure 1. Tiryns-0235: TI Z 2 (left) and TI Z 1 (right).

Photograph: DAI Athens, Neg. D-DAI-ATH-Tiryns-0235. All rights reserved.

¹⁴ The glass plate negatives of the photographs seen by Sundwall are stored at the photographic archive of the German Archaeological Institute at Athens: the ISJ is depicted both on Tiryns-0234 and 0654 (permanent links to the image record: <http://arachne.uni-koeln.de/item/marbilder/3778732> and [3780286](http://arachne.uni-koeln.de/item/marbilder/3780286)). For a thorough discussion of **56-ko-we* on this ISJ, see Killen 2011, 102–3: according to Sacconi (1974, 97) it was accessible to her, but not anymore for chemical analysis. The ISJ is the only known one which gives a toponym without a personal name linked with it; Judson 2013, 84 n. 63. Most recently, see Olsen 2014, 179–80 for the parallels in the Knossos tablets: KN Ap 618 + 623 + 633 + 5533 + 5922 gives **56-ko-we* as the ethnic origin of *ki-nu-qa*; KN G 820 + fr. vi-70 has the feminine ethnic **56-ko-we-i-ja*.



Figure 2. Tiryns-0651: TI Z 7 (left) and TI Z 26 (right).

Photograph: DAI Athens, Neg. D-DAI-ATH-Tiryns-0651. All rights reserved.

and that his aim was to recognise the individual signs and not to document them in minute detail.

The second inscription records a personal name possibly only attested at Tiryns, *u-pa-ta-ro*;¹⁵ the most common form of inscriptions on ISJs is a single personal name, though it has been debated what the exact relationship of these names is with the longer formulas which give a personal name in nominative followed by a toponym and a personal name in genitive.¹⁶ Comparison of Sund-

¹⁵ Ventris – Chadwick 1973, 589. Sacconi (2012, 127) argues that KH Z 9 is a parallel and that the text should be read] *u-pa-ta*[, but Hallager (2011, 415–6) observes that the third sign most likely is *wa* or *su*, not *ta*. For references to different interpretations of the name, see Aura Jorro 1999, 387. Even though same personal names appear both on ISJs and Linear B tablets, the associations between them are not unquestionable; van Alfen 2008, 236. TI Z 1 is among the group of recently chemically analysed ISJs: Haskell & al. 2011b, 13, 95, 98, 115 (their reference is TI01).

¹⁶ For the most recent discussion with references, see Judson 2013, 83–96. For different views



Figure 3. Tiryns-0236: TI Z 17 (middle) and lower part of TI Z 11 (right). Photograph: DAI Athens, Neg. D-DAI-ATH-Tiryns-0236. All rights reserved.

wall's rendering with the archival negatives at the German Archaeological Institute shows that his drawing is based on Tiryns-0235 (Figure 1), 0648 and 0650: the first shows both TI Z 1 and 2, the second TI Z 1 and the third TI Z 2.¹⁷

The inscription of the third row in Table 1, *a-ta-ma-no-we*, is also a personal name known only from Tiryns.¹⁸ Sundwall denotes only the first two signs

of the function of the inscriptions, see Maran 2005, 427–9; Duhoux 2010; Judson 2013, 83–93; Driessen – Farnoux – Langohr forthcoming (the text without illustrations is available at www.academia.edu).

¹⁷ Links: <http://arachne.uni-koeln.de/item/marbilder/3778734>, 3780276 and 3780279. Sacconi (1974, 77–9) does not refer to Sundwall in the case of TI Z 1 as she does with TI Z 2 and 3. I do not think Sundwall would have been able to identify correctly the Linear B signs from the fragmentarily preserved TI Z 3.

¹⁸ Ventris – Chadwick 1973, 535; the closest parallel is from Pylos (PY Cn 131.10 and Cn 655.10), *a-ta-ma-ne-u*, a shepherd from *ma-ro* with 140 and 60 male sheep; see Nakassis 2013, 214.

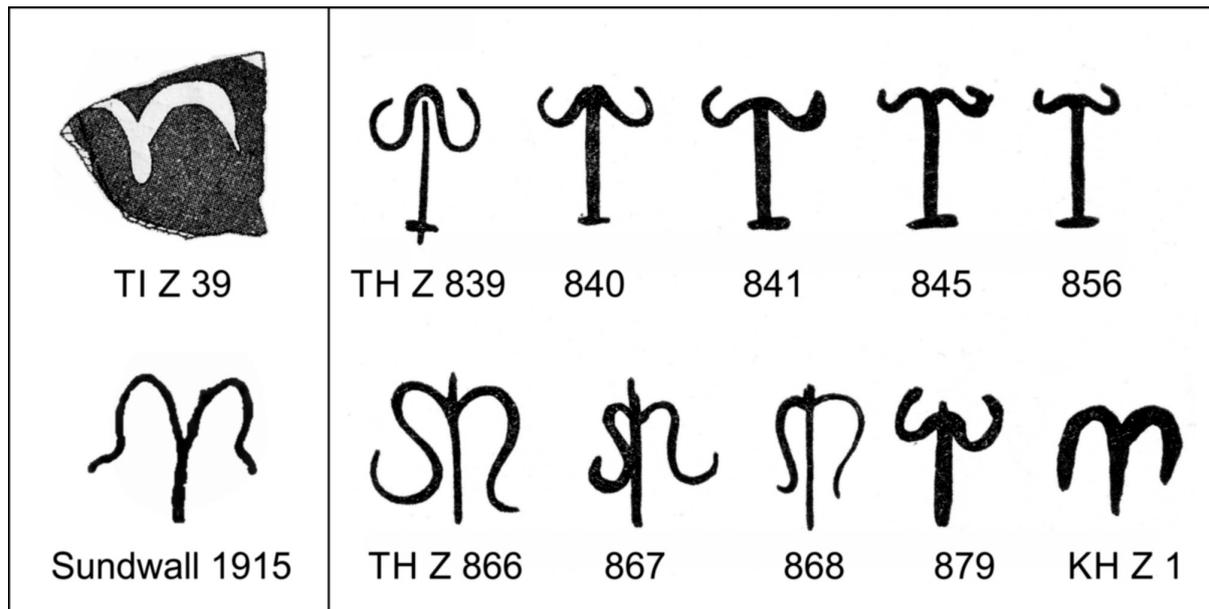


Figure 4. Comparison between Sundwall's drawing of *ru* with TI Z 39 and other ISJs (comparative data based on Sacconi 1974, 106, 196).

a-ta and indicates the rest as a series of diagonal strokes: taking into consideration the state of research at the time, the photograph at Sundwall's disposal would not have allowed him to further try to interpret the signs of the inscription (in Figure 2 on the left).¹⁹

The *no-di-zo* ISJs form a sizable group of vessels produced in West Crete.²⁰ The distinctive form of *no* facilitates recognising a member of the group even on the basis of partially preserved inscriptions.²¹ The reason why Sundwall reads the *no* as two separate signs (fourth row of Table 1) is evident from Figure 3: Tiryns-0236 shows TI Z 17 in the middle and TI Z 11 on the right.²² In the first only the upper part of *no* is preserved and in the second the lower part of the sign can be recognized followed by *di-zo*. The joining top part of the *no* in TI Z 11 was later discovered by Sacconi. The form of the individual elements of *no* in Sundwall's drawing makes the identification of the fragments he studied with Tiryns-0236 certain, and this is further supported by the fact that he also lists *di* and *zo* among the signs he recognised (see below).

¹⁹ On the left side of Tiryns-0651; <http://arachne.uni-koeln.de/item/marbilder/3780281>.

²⁰ Most recently, see Killen 2011, 93, 95, 99 with references.

²¹ Sacconi 2012, 129; Judson 2013, 79, 100–3.

²² Tiryns-0236; <http://arachne.uni-koeln.de/item/marbilder/3778735>. TI Z 11 and 17 are both among the group of chemically analysed ISJs: Haskell & al. 2011b, 14, 22, 95, 97–9, 106, 115 (their reference for TI Z 11 is TI02 and for TI Z 17 it is TI12).

It is perhaps conceivable that Sundwall's drawing of the sign *ru* matches with the unique form of *ru* in the vases of the *i-ru* group²³ (TH Z 866–68 in Figure 4): in that case an *i-ru* ISJ would have been excavated by Müller at Tiryns already before the three vessels discovered by Keramopoulos at Thebes in 1921.²⁴ The results of the chemical analyses carried out indicated that this particular group of vases was produced in Central Crete or Boeotia, and only one of the eighteen ISJs analysed from Tiryns matches this classification – all the other ones were produced in West Crete.²⁵ However, a more likely explanation is that Sundwall's drawing is based on TI Z 39 (*[ru]*):²⁶ even though the sign is only partially preserved, it is possible to see how the details of Sundwall's rendering could be matched with the features of the sign. Therefore, this sherd and its sign fit squarely with the ISJs produced in West Crete.

The final two signs illustrated by Sundwall (fifth row in Table 1) are a dipinto and an inscribed graffito from two handles of a LH IIIB piriform jar. The first is possibly a potter's mark²⁷ and even though the second resembles the Linear B sign *se*, it does not have exact parallels.²⁸ Åke Åkerström rediscovered the fragments in the Nauplion Museum storerooms: he was able to trace the photograph of the sherds at the German Archaeological Institute and assign their provenance to Tiryns.²⁹ However, he was not aware that Sundwall had published the inscriptions already in 1915; Hartmut Döhl also misses this fact in his very thorough discussions of graffiti from Tiryns.³⁰ Due to Sundwall's publication we know that the photograph Tiryns-0562 was among the set he was shown by Müller.³¹

²³ For the most recent discussions of the *i-ru* group (TH Z 866–68), see Killen 2011, 101 and Judson 2013, 78: the first describes the shape of *ru* as 'most idiosyncratic' and the second as 'incompetent', though in quotation marks.

²⁴ Sacconi 1974, 144–145.

²⁵ The chemical analyses were carried out using atomic absorption spectrometry; see Jones 2011, 29–39; for a discussion of analysed pottery with Linear B inscriptions, see Killen 2011, 91–107.

²⁶ Sacconi 1974, 106; in Tiryns-0653 on the bottom row; <http://arachne.uni-koeln.de/item/marbilder/3780285>. TI Z 39 is among the group of chemically analysed ISJs: Haskell & al. 2011b, 95 (their reference is TI07).

²⁷ Raison 1968, 213 n. 3, fig. 179; Åkerström 1974, 46; Döhl 1979, 65.

²⁸ Åkerström 1974, 46; for possible parallels and a discussion, see no. 88 in Döhl 1979, 52.

²⁹ Åkerström 1974, 44.

³⁰ Åkerström 1974; Döhl 1978; 1979.

³¹ The two piriform jar fragments are on the second lowest row of Tiryns-0562 (<http://arachne>).

In addition to the illustrations discussed above, Sundwall gives a list of signs he read on the sherds and it can be transcribed as follows:³² *56-ko-we-u-pa-ro-ta-ka-a-di-zo-wa. Is it possible to assign all these to published inscriptions?

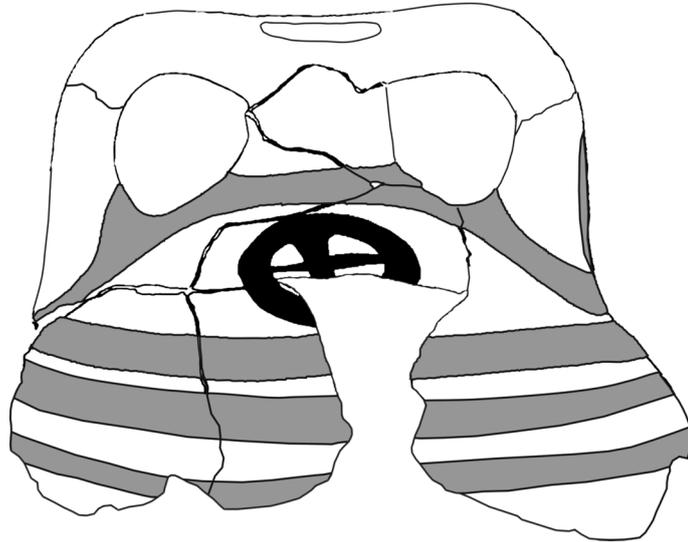


Figure 5. TI Z 10
(J. Pakkanen based on Tiryns-0649A).

The first seven are derived from TI Z 27 (*56-ko-we) and TI Z 1 (*u-pa-ta-ro*). The eighth sign *ka* is not illustrated by Sundwall, but the publication of the now lost inscription TI Z 10 is based on photograph Tiryns-0649A which was certainly seen by him.³³ Sacconi omits the inscription from her corpus as a potter's mark,³⁴ but I disagree with her: the highly prominent location of *ka* on the shoulder of the vessel suggests (Figure 5) that its function was the same as the so-called 'producer' names. However, the short inscription is perhaps better explained in terms of tribute or gift-exchange than administrative purposes:³⁵

uni-koeln.de/item/marbilder/3780187).

³² Sundwall 1915, 63; the order of the signs in my list is the same as Sundwall's.

³³ Tiryns-0649A; Raison 1968, 168; Döhl 1979, 66.

³⁴ Sacconi 1974, 209.

³⁵ Cf. Maran 2005, 427–9; Duhoux 2010. Judson (2013, 83–93) argues for a primary administrative purpose of the inscriptions. The proposal that ISJs are guest-gifts recording the names of persons and their actual visits and travels is perhaps pushing the limits of the archaeological material (Driessen – Farnoux – Langohr forthcoming): there is no need to assume that the donor would have personally accompanied the jar.



Figure 6. Photomontage matching TI Z 8 with TI Z 26 (a-nu) – the outlines of the Linear B signs are enhanced, and TI Z 8 is the triangular sherd in the middle (J. Pakkanen based on Tiryns-0651, 0653 and Sacconi 1974, 84).

in order for an ISJ to function as a reminder of the donor it would be enough to abbreviate his name with a single sign. MY Z 713 provides the most apparent parallel: the first line of the preserved part of the inscription reads]*mā-pu*[and on the second line *ka* stands alone with space on both sides of the sign.³⁶ The names in which the sign itself is repeated, such as *ka-ka-* (KH Z 17) and *ka-ru-ka* (KH Z 1), are perhaps the most likely candidates for an abbreviation with a single *ka*, though several other attested ISJ names also start with *ka*.³⁷

³⁶ Sacconi 1974, 73. An ISJ from Midea with a single sign *ka* on the shoulder (catalogue number 650, M90Nb5–307C) is possibly a direct parallel of TI Z 10: it also has three decorative bands on the shoulder, though based on the drawing its body shape is slightly more ovoid than TH Z 858 and Thebes 902 (Walberg 1998, 217, pl. 87; cf. Raison 1968, 101–2, figs. 130–2); I wish to thank Elina Kardamaki for pointing out to me the Midea vessel and its late context. MI Z 4 is another ISJ which can highly likely be dated to LB IIIB2; Demakopoulou – Dinari-Valakou 1994–5, 326–7, pl. 2; Demakopoulou 2009, 248–9, 251, fig. 5d. Raison's 'Groupe de TH Z 867' (*i-ru*) also includes TH Z 860 with a single *ka* painted on the body of the ISJ; Raison 1968, 87–91 and esp. 91 for further references to ISJs with single signs *ka*.

³⁷ On KH Z 1 and 17, see Hallager 2011, 415–6 for brief descriptions and further references; for a possible parallel of *ka-ru-ka* at Malia, MA Z 3, see Driessen – Farnoux – Langohr forthcoming. The earliest known ISJ dated to LH IIIA2 also records a name starting with *ka*:

Before starting a more in depth analysis of TI Z 10, Sundwall's list needs to be completed. The ninth sign *a* is likely to be based both on the first syllables of TI Z 7 (*a-ta-ma-no-we*[]) and TI Z 24 (*a-ḏo-wē*[]).³⁸ The tenth and eleventh signs in the list, *di* and *zo*, are quite certainly the second and third signs of TI Z 11 as discussed above (see also Figure 3). This leaves the last sign *wa* unaccounted for. The only attested case of *wa* at Tiryns is in a fragment discovered at the 1972 excavations by Peter Gercke (TI Z 29, *si-ra-]ri-jo wa-na-ka[-te-ro*).³⁹ There are two possible explanations: Sundwall either saw a now lost photograph or misread one of the signs, and the latter is the most likely alternative. His *wa* is best seen as a misinterpretation of TI Z 8 (*a*-[]). In the preserved sherd the lower part of the sign *a* is missing and the correct reading is only possible because of the match of TI Z 8 with TI Z 26 (Figure 6).⁴⁰ Jacques Raison made independently the same mistake as Sundwall by publishing the sign of TI Z 8 also as *wa*.⁴¹

In order to place TI Z 10 in its wider context, it is necessary to study also other aspects of the containers than just the inscription. In his 1968 monograph Raison established the typological groups of ISJs based also on the provenance, shape, size, clay texture, slip, colour and decoration of the jars and comparisons with uninscribed stirrup jars. One of his largest groups is 'Groupe de TH Z 858' (*di-no-zo*): it includes eight inscribed and four uninscribed jars.⁴² The slender ovoid jars have a loop connecting the bases of the handles and the false neck, and a wavy band on the handles going across the disc at the top; the inscriptions are

ka-ra-u-ko (MY Z 717); see Melena 1977; Sacconi 2012, 127. For other names, see e.g. MY Z 202, TH Z 839 and 850 (Sacconi 1974, 69, 121–2, 132). Raison (1968, 215 n. 18) discusses the *ka* in TH Z 860 and TI Z 10 as an abbreviation for *ka-ra-re-we*, an ovoid-conic vase, but he himself is not satisfied with the hypothesis; his other possibilities include *ka-pa* and *ka-po*, but he makes no definitive suggestion. Using an abbreviation could be seen as a parallel with the single sign *wa* in KH Z 16 which could be shortened from *wanax*; Hallager – Vlasakis 1976, 215–8; Hallager 1987, 177 n. 61; cf. also Shelmerdine – Bennet 1995, 130–1; Duhoux 2010, 48. For full references to KH Z 16, see Hallager 2011, 416; for further discussions on *wa* and *wanax*, see van Alfen 1996–97, 255 n. 14, 260; Judson 2013, 73, 84–5.

³⁸ TI Z 7 is discussed above; TI Z 24 is shown in Tiryns-0649B: <http://arachne.uni-koeln.de/item/marbilder/3780278>. Also TI Z 24 is among the chemically analysed ISJs: Haskell & al. 2011b, 13–4, 95, 99, 115 (their reference is TI04).

³⁹ For the supplements, see Godart – Olivier 1975, 38–43.

⁴⁰ For a photograph of TI Z 26, see Figure 2 above.

⁴¹ Raison 1968, 166–7.

⁴² TH Z 842, 857, 858, 863–65, 961, 965 and Thebes 890, 902, 923, 927; Raison 1968, 101–7. Haskell's typegroup IX follows largely Raison's original grouping; Haskell 2011, 13–4.

on the shoulder. Bennett proposes that the jars of the group are best discussed as the produce of a single workshop and that the parallel ISJs from Tiryns should be included in the group.⁴³ He recognises different production batches and the subgrouping in Table 2 is largely based on his observations. Bennett argues that a chronological sequence for the inscriptions of the *no-di-zo/di-no-zo* group can be established. It should also be pointed out that the only ISJ with three bands below the inscription is TH Z 858,⁴⁴ the inscription which is the most different compared with the 'archetype' TI Z 12 and, therefore, the latest⁴⁵ – all the other well-preserved ones have only two bands. A similar development in complexity can be observed in the *a-nu-to* ISJs: TH Z 864 is the simplest with only a single band below the inscription and no neck band. Sacconi attributes TH Z 864 and 863 to the same hand and TI Z 8, TI Z 54 and TH Z 865 to a different one, and on TH Z 961 she is undecided. I place the ISJs with the inscription *a-do-we* in between these two groups: both preserved examples most likely have two bands below the text.⁴⁶ Table 2 summarises the ISJs attributable to the workshop: A01 is the only subgroup with a single band under the inscription and subgroups A09–11 have three, all other ones have two bands. The chronological sequences of the workshop presented in Figure 7 are partially tentative and a more thorough study of the preserved original pieces should be undertaken: for example, it is only possible to place the uninscribed stirrup jars from Thebes in their approximate positions in the sequences. The chronological outline in Figure 7a is based on the assumption that only one hand was active at any given time in inscribing the ISJs.⁴⁷ In Figure 7b the timeline is significantly condensed due to the work of Hands 510, 514 and 502a partially overlapping. In Figure 7a the lifespan of the workshop is five generations of hands and in Figure 7b possibly only three. If Hand 511 inscribed ISJs only late in his career and 502b early in his, also the first model could be fitted into an approximate period length of LB IIIB1 of three generations – however, it

⁴³ Bennett 1986, 136–40. He does not propose that 'batches' 12–15 were the produce of the same workshop, though this could be more clearly stated in the paper; cf. Bennett 1986, 140–3.

⁴⁴ Raison 1968, 101, fig. 132.

⁴⁵ Bennett 1986, 138–9.

⁴⁶ Haskell (2011, 14) points out that the clay fabric of TI Z 25 is different from the other two fragments, so it should be excluded from the subgroup. Bennett also notes that the shape of the *do* is different.

⁴⁷ The attribution of the hands is based on Bennett 1986, 136–40 and Sacconi 2012, 129. I have divided Sacconi's Hand 502 into 502a and 502b, though based on Bennett's argument three different hands could have been involved in inscribing the *no-di-zo/di-no-zo* ISJs.

Table 2. Subgroups of the stirrup jars produced by the a-nu-to/di-no-zo workshop.

Subgroup	ISJs	Inscription	References
A01	TH Z 864	<i>a-nu-to</i>	Bennett 1986, 139–40; Raison 1968, 106, figs. 137–8; Sacconi 1974, 142; 2012, 129
A02	TH Z 863	<i>a-nu-to</i>	Bennett 1986, 139–40; Raison 1968, 104–5, figs. 135–6; Sacconi 1974, 141; 2012, 129
A03	TH Z 865 & 961, TI Z 8 (+ 26) & 54	<i>a-nu-to</i>	Bennett 1986, 139–40; Raison 1968, 106–8, figs. 139–40; Sacconi 1974, 84, 143, 162; 2012, 129
A04	TH Z 842, TI Z 24	<i>a-do-we</i>	Bennett 1986, 139; Raison 1968, 103–4, fig. 134; Sacconi 2012, 129
A05	Thebes 923, 927	uninscribed	Bennett 1986, 136–7; Raison 1968, 101, figs. 129
A06	TI Z 12	<i>no-di-zo</i>	Bennett 1986, 137–9; Raison 1968, 170, fig. 170
A07	TI Z 11, 13–23, KH Z 27	<i>no-di-zo</i>	Bennett 1986, 138–9; Raison 1968, 169–76, figs. 170–4; Sacconi 2012, 129
A08	TH Z 857	<i>di-no-zo</i>	Bennett 1986, 137; Raison 1968, 103, fig. 133
A09	TH Z 858	<i>di-no-zo</i>	Bennett 1986, 137; Raison 1968, 102, fig. 132
A10	TI Z 10, Midea 650?	<i>ka</i>	Raison 1968, 168, fig. 169; Walberg 1998, 217, pl. 87
A11	Thebes 890, 902	uninscribed	Bennett 1986, 136–7; Raison 1968, 101–2, figs. 130–1

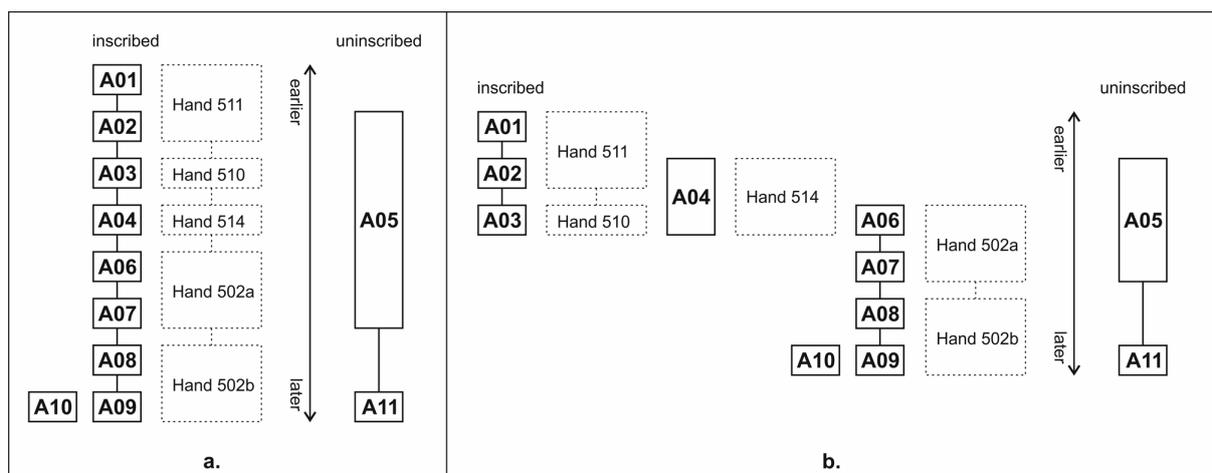


Figure 7. Two alternative chronological sequences of the subgroups produced by the a-nu-to/di-no-zo workshop.

is quite probable that the latest subgroups A09–A11 can be dated to the LB IIIB2 period.⁴⁸

Now it is time to return to TI Z 10 (Figure 5). It is a late production of the *a-nu-to/no-di-zo* workshop. The closest typological parallel for the jar is TH Z 858: both have three bands on the shoulder, a wavy band connecting the handles over the top (visible in Tiryns-0649A on the left side of the left handle) and a loop around the false neck and the handles; also, the wide expressive brush strokes of the signs are similar. To sum up, seventeen ISJs from Tiryns, seven from Thebes, one from Khania, four uninscribed stirrup jars from Thebes and probably also one from Midea can be attributed to the workshop. TI Z 10 fits well into the tail end of this group and I see no reason for omitting this inscription from the corpus of Tirynthian ISJs.

Some interesting further observations can be made on the basis of Table 2 and Figure 7. Two individuals, *a-nu-to* and *no-di-zo*, are the prominent persons connected with the early and the late vessels produced by the workshop. If the hypothesis that the ISJs were connected with gift-exchange or tribute rather than local administration in Crete is correct, these persons were sending quite a few jars inscribed with their names and filled with olive oil to Thebes and Tiryns. Two other persons are also documented in the inscriptions: *a-do-we* and an individual with his name starting with *ka*. The latter can be connected with the breakdown of paleographic tradition in the workshop: in the late vessels the name of *no-di-zo* is misspelled twice and elements of the individual signs are misplaced in the final one; only the first syllable of the name is painted in TI Z 10 and Midea 650 – was there no one available to guide the painter how to denote the complete name of the person commissioning the ISJ?⁴⁹ Even if the inscriptional tradition is fading, the products of the workshop are finding their way to Thebes and Tiryns.

Although no new textual evidence arises from the detailed inspection of the very first publication of the Tirynthian stirrup jar inscriptions, it is now more certain that the lost sherds from Müller's excavations did not contain any easily decipherable material. With one exception Sundwall's list covers all the known

⁴⁸ The context of the ISJ from Midea (650, M90Nb5–307C) discussed above in n. 36 can be taken as further support of a LB IIIB2 date for subgroups A09–A11; I have tentatively assigned this vessel as a second member of subgroup A10 in Table 2, though for a more certain attribution a direct comparison with the other products of the *a-nu-to/di-no-zo* workshop should be carried out. For the context at Midea, see Walberg – Giering 1998, 85.

⁴⁹ The differences in the *no-di-zo/di-no-zo* inscriptions indicate rather a paleographic tradition than a single hand; Bennett 1986, 137–9; Haskell 2011, 14. However, Sacconi (2012, 129) attributes the inscriptions to a single hand.

published complete Linear B signs from the early 20th-century excavations at Tiryns:⁵⁰ the missing sign is a *do* in TI Z 25 (*ja-do-we*), but the very faint *do* would have been difficult to render on the basis of the existing photograph.⁵¹ We can confidently propose that Sundwall had full access to Müller's photographs of the pottery with Linear B signs and that the negative archive at the German Archaeological Institute at Athens is complete in this regard. Currently, Sundwall's contribution to the decipherment of Linear B often tends to be overlooked,⁵² but as the study of the Tirynthian signs shows, his pioneering work should not be forgotten: Sundwall's observations are quite remarkable considering how little of the Linear scripts was known at the time and that he was only working from photographs of the objects. Re-examination of TI Z 10 has prompted a suggestion for the chronology of the production of the '*a-nu-to/di-no-zo* workshop' and reinstatement of the inscription back to the corpus of inscribed stirrup jars from Tiryns.

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⁵⁰ For an overview of published inscriptions from Müller's excavations, see Sacconi 1974, 77–108. For references to TI Z 10 (*ka*), see n. 33 above.

⁵¹ The sherd can be seen in Tiryns-0653 on the second row from the bottom; <http://arachne.uni-koeln.de/item/marbilder/3780285>. The identification of *do* in TI Z 25 is largely based on comparison with the later discovered same inscription TH Z 842; cf. Sacconi 1974, 96, 124. On TI Z 25, see also Haskell & al. 2011b, 14, 39, 95, 99–100, 106, 115 (their reference is TI09).

⁵² For example, Pope (2008) omits Sundwall from his recent account of the decipherment of Linear B.

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