

**NATUURHISTORISCHE EN ANDERE NOTITIES**  
**NATURAL HISTORY AND OTHER NOTES**

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### **Voorwoord**

Dit vijfde nummer van 'Natuurhistorische en Andere Notities – Natural History and Other Notes' bevat vier korte notities gebaseerd op vondsten, waarnemingen of studies gedaan in Nederland of Israël.

Deze nieuwsbrief is voorlopig gepland als een kwartaal uitgave. Van elk nummer zullen 50 gelijktijdig gedrukte exemplaren verschijnen die voornamelijk bestemd zijn voor bibliotheken van instituten en museums. Daarnaast is elk nummer ook gratis elektronisch verkrijgbaar via de website van mijn collega en vriend Oz Rittner:

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Hoewel deze uitgave geheel voldoet aan de eisen die de 'Internationale Commissie voor Zoologische Naamgeving' gesteld heeft voor een wetenschappelijk tijdschrift, zullen in dit tijdschrift geen artikelen gepubliceerd worden die van invloed zijn op de naamgeving van een of andere wetenschappelijke eenheid.

Artikelen mogen overgenomen worden mits de schrijver daarover geïnformeerd is en de bron genoemd wordt.

### **Preface**

This fifth issue of 'Natuurhistorische en Andere Notities – Natural History and Other Notes' contains four short notes based on finds, observations or studies made in the Netherlands or Israel.

This newsletter is planned for the meantime as a quarterly. Of each number 50 simultaneously printed copies will appear which are primarily intended for libraries of institutes and museums. In addition each issue is downloadable free of charge by means of the website of my colleague and friend Oz Rittner:

[http://israel-nature-site.com/?page\\_id=1872%E2%80%8F](http://israel-nature-site.com/?page_id=1872%E2%80%8F)

Although this publication meets the standards of a permanent scientific journal as stipulated by the 'International Commission for Zoological Nomenclature' no articles will be published in this journal which will influence the nomenclature of a certain taxonomic unit.

Articles may be reprinted on the understanding that the author is informed about it and the source mentioned.

## Great tits *Parus major* feeding on snails in a garden in Netzer Sereni, Israel

Henk K. Mienis

Kibbutz Netzer Sereni, IL-7039500 Israel

[mienis@netzer.org.il](mailto:mienis@netzer.org.il)

### Koolmezen *Parus major* eten slakken in een tuin in Netzer Sereni, Israël

Een studie van de inhoud van de nesten van Koolmezen *Parus major* in de tuin van de schrijver heeft uitgewezen dat de ondersoort uit de Levant: *Parus major terraesanctae*, ook landslakjes eet. De vrouwtjes eten waarschijnlijk grote aantallen huisjes slakken of fragmenten van die huisjes in de periode voordat ze met het leggen van de eitjes beginnen. Zij hebben het kalk uit de slakkenhuisjes nodig voor de produktie van sterke schalen voor de vaak vele eitjes. In totaal werden 318 huisjes of fragmenten daarvan aangetroffen in de onderzochte nesten van de Koolmezen. Onder deze schelp overblijfselen kon de aanwezigheid van 14 verschillende soorten slakken vastgesteld worden, daaronder bevonden zich zes exotische soorten. Vooral de harige slakkenhuisjes van de van oorsprong exotische *Xerotricha conspurcata* waren opvallend veel aanwezig in de nesten van de Koolmezen.

Most ornithologists know that towards the breeding season female songbirds or passerines are in need of calcium rich food in order to build their numerous eggs. One of the main sources of calcium in nature for such birds has turned out to be the shells of land snails (Schifferli, 1977), even if such prey items are not being exploited in the non-breeding season. Birds in need of calcium swallow both living snails and empty shells (Graveland, 1991a; Reynolds, 1997).

As a matter of fact this behaviour is not so surprising because from early days peasants keeping chickens for their eggs took care that always enough shell-grit was present in the hen-run in order to assure that the eggshells should be thick enough.

In the last decennia of the 20<sup>th</sup> Century suddenly numerous papers were being published dealing with poor reproduction success among passerine birds in Western and Central Europe (Drent & Woldendorp, 1989; Graveland, 1991b). Especially in the Netherlands a strong connection was found between the effect of acid rains, the disappearance of calcium from the habitats and the increase of eggshell deformations especially among Great tits *Parus major* Linnaeus, 1758 (Graveland, 1993; Graveland, van der Wal, van Balen & van Noordwijk, 1994; Graveland, 1996b; Graveland & van der Wal, 1996; Graveland & Drent, 1997).

At the same time they discovered that in areas of the Netherlands criss-crossed by cycle-tracks made of shell-grit breeding success among Great tits was much better than in areas where such cycle-tracks were either absent or where paved with another material (Graveland, 1996a).

In Israel acid rains and acidification of the soil has hardly taken place or only here-and-there on a rather local scale. The author has wondered whether the local subspecies of the Great tit in Israel, *Parus major terraesanctae* Hartert, 1910 according to Shirihai (1996), is also feeding on land snails or their empty shells just before the breeding season starts. Breeding Great tits in the author's garden allowed him to carry out at least a check whether they are collecting shells.

### **Material and Methods**

During four successive years (1993-1996) the contents of two nests of Great tits were checked for the presence of shells or shell fragments of snails. Both nests were in the garden of the author in kibbutz Netzer Sereni, Israel. One nest was present in a wooden nest-box attached to the stem of a Pecan tree *Carya* species. The other nest was present in an aluminium pipe with a length of 160 cm and a diameter of 7 cm, which was attached at an angle of about 70° to one of the lower branches and the stem of a Crape myrtle *Lagerstroemia* species. This pipe was closed at the bottom end, however rainwater could escape through small openings. The two nests were situated at a distance of 16 m of each other.

After the 1996 breeding season the nest box was in such a deplorable state that it was not returned to its place on the Pecan tree. The aluminium pipe remained attached to the Crape myrtle until December 2014. Then it was detached and its content was removed, dried, sieved and checked of remains of snails. The contents covered at least five breeding seasons because five layers of old nests could be clearly recognized.

All the shells and shell fragments were studied with the help of a binocular with a magnification of 10-20 times.

In problematic cases the fragments were compared with complete shells of species known to live in the author's garden in Netzer Sereni or in its immediate surroundings.

### **Results**

The results concerning the first year (1993) has been published already elsewhere (Mienis, 1995). In that year three species of land snails had been exploited by the Tits. Since then the remains of 11 additional species were found in the nests of the Great tit (Table 1).

### **Discussion**

During the period 1993-2014 the nests of Great tits present in a garden in Kibbutz Netzer Sereni contained 318 fragments or complete shells of land snails belonging to at least 202 specimens. All the material could be classified as belonging to 14 different species ranging in size from hardly 2 mm (*Vallonia excentrica*, *Paralaoma servilis* and *Hawaiiia minuscula*) to over 45 mm (*Helix engaddensis*). The tiny species were swallowed in their entirety, of the medium sized species (*Caracollina lenticula*, *Prietocella barbara*, *Monacha syriaca* and *Xeropicta vestalis joppensis*) only fragments or complete juvenile specimens were found, while of the largest species (*Helix engaddensis*) only fragments were found.

Among the 14 species of land snails found in the nests of Great tits six or 45% are of exotic origin (*Gastrocopta rupicola*, *Vallonia excentrica*, *Zonitoides arboreus*, *Hawaiiia minuscula*, *Prietocella barbara* and *Xerotricha conspurcata*). All of these foreign species occur commonly in hothouses and nurseries and are easily distributed to gardens, parks and orchards by means of the growing numbers of garden centres all over Israel.

Interesting is the sudden appearance of *Xerotricha conspurcata*, a species with a "hairy shell", in the author's garden since 1996. During the following years it has become the most abundant species over there of which often hundreds of specimens are adhered to the plastered walls of the house.

**Conclusion**

As could be expected of a passerine bird which produces a very large clutch of eggs (up to seven in Israel, however up to twelve in Western Europe) the local subspecies of the Great tit in Israel is also intensively collecting land snails. The females are swallowing these snails mainly before the breeding season, but most probably males and females are also searching for living snails later on in order to feed them to their young.

Table 1: Remains of land snails recovered from two nests of Great tits *Parus major* in a garden in Kibbutz Netzer Sereni (1993-1996).

Nest 1 = Nest in nestbox fixed to the stem of a Pecan tree.

Nest 2 = Nest in an aluminium pipe attached to *Lagerstroemia* tree.

Year	Nest No.	Snail species	Number of fragments	Minimum number of specimens
1993	1	<i>Euchondrus</i> species	3	1
		<i>Monacha syriaca</i>	13	3
1993	2	<i>Paralaoma servilis</i>	1	1
		<i>Monacha syriaca</i>	3	1
1994	1	<i>Microxeromagna lowei</i>	5	5
		<i>Monacha syriaca</i>	1	1
1994	2	<i>Granopupa granum</i>	1	1
		<i>Vallonia excentrica</i>	1	1
		<i>Euchondrus</i> species	2	1
		<i>Microxeromagna lowei</i>	3	3
		<i>Helix engaddensis</i>	1	1
1995	1	<i>Euchondrus</i> species	1	1
		<i>Monacha syriaca</i>	4	1
1995	2	<i>Xeropicta vestalis joppensis</i>	3	1
1996	1	<i>Monacha syriaca</i>	3	1
1996	2	<i>Prietocella barbara</i>	1	1
		<i>Monacha syriaca</i>	1	1
		<i>Xerotricha conspurcata</i>	4	4
		<i>Helix engaddensis</i>	1	1
1997-2014	2	<i>Gastrocopta rupicola</i>	1	1
		<i>Paralaoma servilis</i>	12	12
		<i>Zonitoides arboreus</i>	7	4
		<i>Hawaiiia minuscula</i>	2	2
		<i>Caracollina lenticula</i>	5	2
		<i>Microxeromagna lowei</i>	69	42
		<i>Monacha syriaca</i>	12	3
		<i>Xeropicta vestalis joppensis</i>	21	13
<i>Xerotricha conspurcata</i>	137	93		

Table 2: Systematic list of land snails found in two nests of Great tits *Parus major* in a garden in Kibbutz Netzer Sereni (1993-1996). Exotic species are preceded by an asterisk (\*).

Family Chondrinidae

1. \**Gastrocopta rupicola* (Say, 1821)
2. *Granopupa granum* (Draparnaud, 1801)

Family Valloniidae

3. \**Vallonia excentrica* Sterki, 1893

Family Enidae

4. *Euchondrus* species [= *Euchondrus ovularis* auct. not (Olivier, 1801)]

Family Punctidae

5. *Paralaoma servilis* (Shuttleworth, 1852)

Family Gastrodontidae

6. \**Zonitoides arboreus* (Say, 1816)

Family Oxychilidae

7. \**Hawaiiia minuscula* (Binney 1840)

Family Trissexodontidae

8. *Caracollina lenticula* (Michaud 1831)

Family Cochlicellidae

9. \**Prietocella barbara* (Linnaeus, 1758)

Family Hygromiidae

10. *Microxeromagna lowei* (Potiez & Michaud, 1838)
11. *Monacha syriaca* (Ehrenberg, 1831)
12. *Xeropicta vestalis joppensis* (Schmidt, 1855)
13. \**Xerotricha conspurcata* (Draparnaud, 1801)

Family Helicidae

14. *Helix engaddensis* Bourguignat, 1852

**References**

- Drent, P.J. & Woldendorp, J.W., 1989. Acid rain and eggshells. *Nature*, 339: 431.
- Graveland, J., 1991a. Kalkrijk material is noodzakelijk voor de aanmaak van goede eischalen. *Vogels*, 11 (64): 137-139.
- Graveland, J., 1991b. Problemen met de eischaalvorming bij koolmezen en andere hollenbroeders in de Nederlandse bossen. Rapport Nederlands Instituut voor Oecologisch Onderzoek (NIOO). 48 pp.
- Graveland, J., [1993] Verzuring, kalkgebrek en problemen bij de eischaalvorming bij vogels in de Nederlandse bossen. 80 pp. Nederlands Instituut voor Oecologische Onderzoek-Centrum voor terrestrische oecologie.
- Graveland, J., 1996a. Avian eggshell formation in calcium-rich and calcium-poor habitats: importance of snail shells and anthropogenic calcium sources. *Canadian Journal of Zoology*, 74: 1035-1044.
- Graveland, J., 1996b. Eggshell defects in forest passerines caused by decline of snail abundance on acidified soils. *Vogelwelt*, 117: 67-73.
- Graveland, J. & Drent, R.H., 1997. Calcium availability limits breeding success of passerines on poor soils. *Journal of Animal Ecology*, 66: 279-288.
- Graveland, J. & Wal, R. van der, 1996. Decline in snail abundance due to soil acidification causes eggshell defects in forest passerines. *Oecologia*, 105: 351-360.

Graveland, J., Wal, R. van der, Balen, J.H. van & Noordwijk, A.J. van, 1994. Poor reproduction in forest passerines from decline of snail abundance on acidified soils. *Nature*, 368: 446-448.

Mienis, H.K., 1995. Remains of landsnails in nests of Great tits *Parus major* in Kibbutz Netzer Sereni, Israel. *The Papustyla*, 9 (4): 3.

Reynolds, S.J., 1997. Uptake of ingested calcium during egg production in the Zebra finch (*Taeniopygia guttata*). *The Auk*, 114: 562-569.

Schifferli, L., 1977. Bruchstücke von Schneckenhäuschen als Calciumquelle für die Bildung der Eischale beim Haussperling *Passer domesticus*. *Ornitologische Beobachter*, 74: 71-74.

Shirihai, H., 1996. *The Birds of Israel*. 692 pp. Academic Press Limited, London & Academic Press Inc., San Diego.



## Een vondst van de Donkere landplatworm *Microplana terrestris* in Heeremastate, Joure, Friesland

Henk K. Mienis

Kibboets Netzer Sereni, IL-7039500 Israël

[mienis@netzer.org.il](mailto:mienis@netzer.org.il)

### A find of the terrestrial flatworm *Microplana terrestris* in Heeremastate Joure, Friesland

During fieldwork carried out in the park Heeremastate in Joure, Friesland, the Netherlands, on 23 September 2014, an adult specimen of the terrestrial flatworm *Microplana terrestris* (Müller, 1773) was found under a part of a fallen tree trunk. This is the first record of it from that part of Friesland.

In de afgelopen herfst had ik de gelegenheid om het park Heeremastate in Joure nogmaals te onderzoeken op de aanwezigheid van slakken. Helaas viel mijn bezoek op 23 september 2014 samen met de opbouw van de Jouster Merke, een van de belangrijkste folkloristische evenementen, die elk jaar in Joure gehouden wordt. Het gebied dat onderzocht kon worden was daardoor vrij beperkt. Hoewel toch twee nieuwe slakkensoorten voor het park geregistreerd konden worden, bestond de voornaamste vondst uit een volwassen exemplaar van de Donkere landplatworm *Microplana terrestris* (Müller, 1773), Fam. Rhynchodemidae, onder een stuk boomstam. Naast de platworm zaten ook *Deroceras laeve* (Müller, 1774) en *Deroceras reticulatum* (Müller, 1774), twee algemeen voorkomende naaktslakken onder de boomstam. Beide soorten naaktslakken worden door de Donkere landplatworm als voedsel beschouwd.



*Microplana terrestris* (Photograph: David Fenwick)

*Microplana terrestris* komt waarschijnlijk in Nederland vrij algemeen voor in een vochtig biotoop. Het feit dat nog steeds weinig over de verspreiding van deze en andere landplatwormen in Nederland bekend is, komt omdat het een slecht onderzochte groep is. Tot nog toe was deze landplatworm uit Friesland bekend van de omgeving van het Heegermeer tussen Woudsend en Indijk (de Hartog, 1962) en van bosjes nabij de fortificaties ten westen van de Lorentzsluizen op de Friese Afsluitdijk (Mienis, 1991). Joure moet dus als een nieuwe vindplaats beschouwd worden.

### Geraadpleegde literatuur

Hartog, C. den, 1962. The distribution of the land planarian *Rhynchodemus terrestris* in the Netherlands. Koninkl. Ned. Akad. Wet., Proc. Ser. C, 65 (4): 369-379.

Mienis, H.K., 1991. Een vondst van de landplatworm *Microplana terrestris* op de Friese Afsluitdijk. Vanellus, 43 (1): 15-16.



**A possible record of predation on snails by Savi's pygmy shrew *Suncus etruscus***

**Henk K. Mienis**

The Steinhardt Museum of Natural History and Israel National Center for  
Biodiversity Studies, Tel Aviv University, IL-6997801 Tel Aviv, Israel  
[mienis@netzer.org.il](mailto:mienis@netzer.org.il)

**Een mogelijk geval van predatie op slakken door de Wimperspitsmuis *Suncus etruscus***

Tijdens veldwerk uitgevoerd in het National Park Apollonia (Tel Arshaf) werden twee stukgebeten slakkenhuisjes van *Buliminus labrosus labrosus* aangetroffen in de schuilplaats van een Wimperspitsmuis *Suncus etruscus*.

It is a well-known fact that Shrews belonging to the family Soricidae are often eating almost the whole day round because of their high rate of metabolism. Therefore they are taking as prey almost any small edible animal crossing their path. Among these prey species are sometimes also land snails.

In the past I have enumerated several cases of predation on land snails by *Crocidura suaveolens* (Pallas, 1811) in Israel (Mienis, 1987, 1992 & 1993). However it does not seem to be the only shrew feeding occasionally on terrestrial snails in Israel.

On 3 February 2015 fieldwork was carried out together with my colleague Oz Rittner in and around Apollonia (Tel Arshaf), just north of Herzliyya. We were looking for snails among the ruins of the Crusader castle and town in order to update a manuscript dealing with the land snails of that National Park (Mienis & Rittner, 2015).

While turning large stones in the moat south of the promontory carrying the ruins of the Crusader fortress we came across numerous living specimens of *Buliminus labrosus labrosus* (Olivier, 1804), Fam. Enidae. Apollonia is well out of the natural range of that rock-snail, which is confined in its distribution in Israel to limestone hills characterized by Mediterranean vegetation. Although Apollonia is situated in the same climatic zone it is well outside the influence of the limestone hills.

The area in the vicinity of Apollonia consists of kurkar-outcrops (a local type of soft sandstone) separated from each other by areas consisting of sand or hamra. Yet *Buliminus labrosus labrosus* managed to get a foothold in Apollonia most probably by the transfer of stones quarried in the hills to the Crusader's fortress. In a similar way and maybe at the same time also *Levantina spiriplana caesareana* (Mousson, 1854), Fam. Helicidae, and *Paramastus episomus* (Bourguignat, 1857), Fam. Enidae, two other land snails typical for limestone hills, managed to settle in Apollonia.

Under one particular stone not only four living adult specimens of *Buliminus labrosus labrosus* were attached to the underside of the stone but two damaged empty shells (Fig. 1) were laying in a small depression together with some dry grasses, several parts of black beetles and ..... a single living Etruscan shrew\* *Suncus etruscus*\*\* Savi, 1822, Israel's smallest shrew. The latter fled immediately. Without doubt the depression formed the hideout of the shrew and that tiny mammal has to be considered most probably as the predator of those two snails.



Fig. 1: *Buliminus labrosus labrosus* most likely predated upon by *Suncus etruscus* at Apollonia (SMNH MO 79697 – height 25.9 mm). Photo: Oz Rittner.

According to Mendelssohn & Yom-Tov (1999: 60) Savi's pygmy shrew is mainly preying on insects, but eats also small snails and other invertebrates. Therefore I am quite convinced that *Suncus etruscus* preyed also the *Buliminus* snails at Apollonia.

### **Acknowledgement**

I like to thank my colleague and friend Oz Rittner for the fine photograph illustrating this note.

### **Additional remarks**

\* *Suncus etruscus* is also known as Etruscan shrew, Etruscan pygmy shrew and White-toothed pygmy shrew.

\*\* An error in the identification of the shrew is ruled out since the author has handled on numerous occasions both *Suncus etruscus* and *Crocidura suaveolens* in Kibbutz Netzer Sereni.

### **References**

Mendelssohn, H. & Yom-Tov, Y., 1999. Fauna Palaestina – Mammalia of Israel. 439 p., 37 plts. The Israel Academy of Sciences and Humanities, Jerusalem.

Mienis, H.K., 1987. Predation on terrestrial snails by the White-toothed shrew in Israel. *Mitteilungen der Zoologischen Gesellschaft Braunau*, 5 (1-4): 59-60.

Mienis, H.K., 1992. Additional notes concerning predation on landsnails by White-toothed shrews in Israel. *Malacological Newsletter*, 11: 47-49.

Mienis, H.K., 1993. Two additional cases of predation on landsnails by shrews in Israel. *De Kreukel*, 29 (3): 42.

Mienis, H.K. & Rittner, O., 2015. A note concerning the land snails of the National Park Apollonia (Tel Arshaf), Israel. *Triton*, 31 (in print).

## Antique weights found in the surroundings of Ramla, Israel (Part 1)

**Henk K. Mienis & Dana Mienis**

Kibbutz Netzer Sereni, IL-7039500 Israel

[mienis@netzer.org.il](mailto:mienis@netzer.org.il) & [danamienis@hotmail.com](mailto:danamienis@hotmail.com)

### Antieke gewichten gevonden in de omgeving van Ramla, Israël (Deel 1)

In de afgelopen jaren hebben we zes antieke, bronzen gewichten gevonden in zogenaamde stroomgeulen in de velden van Kibboets Netzer Sereni. Het zijn Vroeg Islamitische gewichten die gebruikt werden vanaf het midden van de 7<sup>de</sup> Eeuw tot in de Ottomaanse periode. Hoewel een soort gewichtenstandaard in gebruik was, veranderde deze standaard wel eens gedurende de eeuwen. Bovendien was de samenstelling van het brons niet altijd hetzelfde.

During our irregular walks in the fields of Kibbutz Netzer Sereni, either SW or NE of Ramla, we have found in the past some puzzling bronze objects in the stream gullies left in the fields after very heavy rains. All of them had a hexagonal form with flat upper and under sides. The three largest objects show at the side three rows of polygonal ribs decorated with concentric circles with a dot in the center. The flat upper and lower sides are also decorated with the same circle and dot pattern. The smaller ones show two rows of polygonal ribs without concentric circles, however the upper and lower side are supplied with that pattern.

According to the intriguing form and decoration they were put aside for the meantime as man-made objects with an unknown function.



Fig. 1: Early Islamic weights found in stream-gullies in the fields of Kibbutz Netzer Sereni, SW and NE of Ramla, Israel. (Photo: Oz Rittner)

Only quite recently we came across some illustrations of similar objects (Kletter, 2005; Tal, 2008; Khamis, 2010 & Nenner-Soriano, 2012). It appeared that we were dealing with Early Islamic weights.

In Table 1 we are providing the basic measurements concerning size and weight of the individual weights. They appear rather variable. These differences might have several reasons.

- The composition of the metal: bronze, an alloy of copper and tin, was not always the same.
- Although they were made by means of a mold, these molds were handmade and this may account for the differences in the measurements.
- Wear throughout the ages may be the cause of the slight differences in the weights today.
- The actual weights were in use from the Early Islamic to well in the Ottoman period (Khamis (2010), while weight-standards did not remain always the same.

It is therefore most likely that the six weights found by us in the field from either side of Ramla are from different episodes in the Islamic period.

Table 1: Early Islamic weights found in arable fields of Kibbutz Netzer Sereni, SW and NE of Ramla.

Height (mm)	Width (mm)	Weight (gm)	Remarks
13.11	14.98	13.8	Fig. 1 - left
12.07	13.85	13.7	
14.07	14.24	13.7	
7.22	13.90	8.2	Fig. 1 – centre; clear countermark at one side
6.14	11.32	4.2	Faint counter mark at one side
5.18	11.86	3.8	Fig. 1 - right

**Acknowledgement**

We like to thank our friend Oz Rittner (Tel Aviv University) for the fine photograph of the weights.

**References**

Khamis, E., 2010. The metal artifacts. In O. Gutfeld (Ed.): Ramla Final report on the excavations north of the White mosque. Qedem, 51: 279-285. The Institute of Archaeology, The Hebrew University of Jerusalem, Jerusalem.

Kletter, R., 2005. Early Islamic bronze weights from Ramla. 'Atiqot, 49: 117-119. Israel Antiquities Authority, Jerusalem.

Nenner-Soriano, R., 2012. Metal artifacts from the Cardo and the Nea Church. In O. Gutfeld (Ed.): Jewish Quarter excavations in the Old City of Jerusalem conducted by Nahman Avigad, 1969-1982. Volume V: The Cardo (Area X) and the Nea Church (Areas D and T). Final Report, 426-436. Israel Exploration Society and Institute of Archaeology, Hebrew University of Jerusalem, Jerusalem.

Tal, O., 2008. Early Islamic weights. In O. Tal & Taxel, I. (Eds.): Ramla (South) An Early Islamic industrial site and remains of previous periods. Salvage Excavation Reports, 5: 205-209. Sonia and Marco Nadler Institute of Archaeology, Tel Aviv University, Tel Aviv.