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**Artikel:** MODERN FUNDAMENTAL OPERATIONS IN AN EARLY ARABIC FORM: 'ANAB'S HEBREW COMMENTARY ON IBN LABBN'S KITB F USL HISB AL-HIND  
**Autor:** Levey, Martin / Petruck, Marvin  
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we say  $5 \times 5$ , or multiplied by something other than itself, and in the case of division." [28]

Terms of interest include *nelām*, "to record a symbol". It is so "because in Arabic *alama* is equivalent to *rōshem*, a sign.

The Arabic *tansīf*, "duplication", is called in Hebrew *dōmeh*. The fractional portion or remainder of the quotient in Judaeo-Arabic is *alqūshūr*, in Hebrew *yitrōn*. The integral part of the quotient is in Judaeo-Arabic *sīkhakh*. The square root is *jadr* in Judaeo-Arabic, *jadhr* in Arabic, and in Hebrew *shōresh*.

In determining the square and cube roots, every second or third numeral of the number is marked off. In the case of the square root, the first numeral on the right and all of its alternates are called in Hebrew *medaberet*, in Judaeo-Arabic *mintakh*; the next one and its alternates are called *elemet* in Hebrew, in Judaeo-Arabic *asā*. *Yitrōn ha-yitrōn* is the remainder of the remainder.

## 7. ARABIC TEXT.

The Hebrew commentary was compared and checked with ibn Labbān's Arabic text after the former had been studied. It is planned to publish a completely collated version of these two manuscripts. The text was found in the Aya Sofya Library in Istanbul (number 4857).

## NOTES AND REFERENCES

- [1] M. L. is indebted to the National Science Foundation and the National Institutes of Health for research grants which aided in the preparation of this paper. He is also indebted to the American Philosophical Society for aid in investigating the Arabic MS.
- [2] Aldo MIELI, "La Science Arabe" (Leiden, 1938), p. 108.
- [3] J. LELEWEL, "Géographie du Moyen Age" (Bruxelles, 1852-7), I, XLVIII, III;  
A. MIELI, *op. cit.*, 21; P. LUCKEY, "Die Rechenkunst bei Gamsīd b. Mas 'ūd al-Kašī" (Wiesbaden, 1951), p. 73;  
H. SUTER, Die math. u. astron. d. Araber in *Abh. z. Gesch. d. math. Wiss.*, 10, 83-84 (1910); Nachträge Vol. 14, 168; C. SCHOY, *Isis V*, 395;  
L. IDELER, "Hand. der math. und tech. Chronol." (Berlin, 1825-6), I, p. 263; *Zeit. d. Deut. Morgen. Ges. XXIV*, 375.