



HISTORY OF ITALIAN METROLOGY

Legal metrology in the city of Naples during the Aragonese domination (1442–1503)

SILVANA IOVIENGO, W&M Officer, Ufficio Provinciale Metrico e del Saggio di Metalli Preziosi di Napoli, Italy

The Aragonese were faced with a complex situation in the field of weights and measures in so far as the ancient traditional measures used in trade were very disparate due to the presence of a number of “independent” measurement standards, to the lack of any effective control on the part of the authorities and even, in some cases, to outright abuse by these authorities in implementing checking procedures.

To remedy this situation and hence ensure uniformity of measurements, King Ferdinand I of Aragon issued a legislative act in April 1480. He even had a monument carved to ensure not only that word got round about this act but also that it was actually put into practice, and additionally sent details of the act to the appointed head magistracy. Even though the monument became damaged over time, it was nevertheless preserved up until the last century in the Castelcapuano courtyard in Naples, which was the office of the Royal Court of the Weights and Measures Mint. The marble stump bore Aragonese insignia and the Latin inscription:

**FERDINANDUS. REX. INUTILITAT
EM. REI. P. HAS. MENSURAS. PER. MAGIST
ROS. RATIONALES. FIERI. MANDAVIT**

The monument was engraved with the linear and capacity measures in force at that time. Some samples were also conserved by the church, in line with an ancient law of Giustiniano that was, by then, becoming a tradition since in a Christian society the church was considered as being the best place to confer absolute and indisputable values to measures that were derived from the human body, such as the palm of a hand or the foot.

Ferdinand’s legislative act is not conserved in published collections, but was recorded thanks to the transcription made by the humanist Melchiorre Delfico in 1787 [5].

Ferdinand’s edict was of note because it led to order being restored in the field of weights and measures that remained untouched for the next four centuries.

Unfortunately, there is no historical record of how the weights and measures that he imposed as being legally binding under his reign were actually determined.

At the beginning of the 19th century a Committee of Learners was charged by Gioacchino Murat (King of Naples from 1808 to 1815) to compare the Aragonese measures with the Parisian metre, to inquire into the origins of the system of measures being used and to establish if a scientific principle existed that had inspired the inventors of the Neapolitan system of weights and measures [2].



Castelcapuano, which was the site of the Royal Court of the Weights and Measures Mint



King Ferdinand I of Aragon

This comparison showed that the Parisian meter was in fact bigger than the Aragonese “four palm” measure by 1/200 m, but the sample examined was not in a good state and was marred by the intensive use that had been made of it over the four centuries during which it constituted the sole legal basis.

The committee found no reference as to the origins of the system of measurement used in Naples, despite having searched right through the Royal Archives.

Moreover, it is curious to note that since the Aragonese era the mile (the unit of the customary survey measure used in Naples) was defined to be 1/60 of a degree of the earth’s meridian and the palm (the unit of linear measure used in Naples) as 1/7 000 of the mile; it can therefore be affirmed that since the time of Alfonso I of Aragon, linear measurement was strictly related to the length of the earth’s meridian.

The fact that in 1811 the Committee found such a small and “wonderful” [5] difference between the Aragonese measure and the French metre led the scientific establishment in the last century to consider that the palm originated as an aliquot part of the earth’s meridian almost four centuries before the invention of the metre. It would have been a major achievement for the illustrious (and unfortunately ignored) Committee of Naples at the Aragonese court to have proved this!



View of the Castel Nuovo (also called “Maschio Angioino”), site of the Aragon Government

T A V O L E

D I

R A G G U A G L I O

DELLE VECCHIE MISURE E PESI DELLA CITTÀ DI NAPOLI

CON QUELLI NUOVI A TERMINI DELLA LEGGE DE' 19 MAGGIO 1811.

PUBBLICATE D'ORDINE DI S. E. IL SIGNOR MINISTRO DELL'INTERNO.



N A P O L I

NELLA STAMPERIA DEL MONITORE DELLE DUE SICILIE
1813

(10)

CORRISPONDENZA

Delle attuali misure e pesi di Napoli con quelli del sistema decimale francese.

MISURE e pesi di Napoli.	MISURE litri franc.	MISURE di capacità fra.	PESI franc.
	Milva.	Liri.	Grammi.
Misura lineare, palmo . . .	0,2637		
Caraffa di vino, detta di vendita a minuto		0,66419	
	Caraffa di vino detta di botte		0,779097
Misura di capacità Misura da olio, detta quarto		0,619534	
Misura per gli acidi, detta tomolo		55,234	
Peso Libbra			320,759

Approvato, GIOACCHINO NAPOLEONE.
Per certificato conforme,
Il Ministro Segretario di Stato,
firmato, PIGNATELLI.

Measure conversion table from the “Monitore del Regno delle due Sicilie” (Official journal of the Kingdom of Naples) published in 1813 under King Gioacchino Murat

It can be noted from the analysis of the instructions King Ferdinand gave to his treasurers that an “ad hoc” structure for regular control of every weight, measure and instrument that the sellers used to weigh and measure was created for the first time in the Reign of Naples.

During Ferdinand’s reign the law also established a hierarchy of primary standards, to render it easier to compare these with the standards used by instruments in trade.

It provided for the creation of a register containing details of anyone using instruments to weigh and

measure for trade purposes (in the Middle-Age Italian language: “quinterni lucidi et clari”); this register enabled the Central Administration to examine the behavior of the appointed head magistracy for instrument control.

Ferdinand also laid down that every instrument had to be marked with the Royal insignia to certify its accuracy; the owners of instruments had to re-mark them in the presence of a Royal official after any repairs were carried out.

Many dispositions that Ferdinand laid down are still present in the Italian regulations currently in force, with some modifications made of course.

Lastly, the punishment for offenders who did not observe the law was a fine of 1 000 golden ducats payable to the Crown - an amount so high that breaching the law was effectively discouraged [1].

King Ferdinand I of Aragon set up the basic legal metrology system so well that his directives were left untouched over four centuries until Gioacchino Murat introduced the French decimal metric system in Naples. ■



Cover page of the book referred to as [1] in the Bibliography

✽(XXVI)✽

quod faciatis divulgare per omnes civitates nostras & loca dicte Provincie bannum nostrum publicum omni qua decet solemnitate vallatum, quod item vobis mittimus. Et quos inveneritis post equationem dictarum mensurarum & ponderum ac dicti banni divulgationem in totum vel in partem, predictis nostris ordinationibus contravenisse, cogatis & compellatis, ad solvendum penam in bannum ipso adjectam juxta ipsius formam & tenorem: quoniam in premissis & circa premissa vobis concedimus vices, voces, & potestatem nostras, plenarie per presentis mandatis earundem tenorem universis & singulis Ducibus, Marchionibus, Comitibus, Baronibus, Gubernatoribus, Capitaneis, Syndicis, Universitatibus, & hominibus dicte Provincie, & omnibus aliis ad quos spectabit, & presentes pervenerint, & fuerint quomodolibet presentate: quatenus in predictis vobis pareant, pro quanto gratiam nostram caram habent, & penam mille ducatorum cupiunt evitare, in quorum testimonium presentes fieri fecimus, & parvo nostro sigillo muniti = Datum in Castello novo Neapolis die vi. Aprilis 1480.

REX FERDINANDUS

Cur. XXXVIII.

Doninus Rex mandavit mihi
ANTONELLO DE PETRUTIIS.

✽(XXVII)✽

Istruzioni date per lo Signore Re al magnifico Vincilio de Campicello Thesaurario de Calabria superiore le infrascripte Copie per ipso da eseguirse in le Terre della sua jurisdictione super ponderibus, & mensuris: (ibid. fol. 39. a r.)

IN primis considerando la Majesta del Signore Re li grandi dampni & jucture, quali pervenono ad soj sudditi & vaxalli, & anco alli negozianti in lo suo Regno per la varietà delli pisi, & misure diverse li quali so in dicto Regno; intendendo ad quilli opportunamente providere ha deliberato, che in tutto questo suo Regno se habia ad usare da qua in nante lo tomolo, rotolo, marcho, bilance, & canna, le quale se usano in questa Città de Napoli, & per questo ve e stata espedita la commissione super ciò necessaria, & per la espeditione de quella ve facimo le infrascripte istruzioni vj.

In primis ve se manda le infrascripte misure vj. thomolo, mezo thomolo, quarto de thomolo, mezo quarto de thomolo, rotolo, decina ciò è quarto de rotolo, mezo rotolo uno terzo de rotolo, uno quarto de rotolo, marcho, e bilance, canna mezza canna, & ulterius ve se manda lo marcho, cott lo quale debeate merchare, & fare merchare le misure suprascripte, & volimmo, che essendone vui in le Terre de vostra jurisdictione farrite dare ad ciascuna de dicte Terre un thomolo austato, & merchato, uno mezo thomolo similiter, uno quarto de thomolo, & uno mezo quarto de thomolo similiter

D s alu-

The Latin text of King Ferdinand's Weights and Measures Act dated 4th April 1480, as reported by Melchiorre Delfico

Bibliography

- [1] Melchiorre Delfico: “Memoria sulla necessità di rendere uniformi i pesi e le misure del regno” (Naples, 1787)
- [2] Saverio Scrofani: “Memoria delle misure e pesi d'Italia” (Naples, 1812)
- [3] Cavalier Cagnazzi: “Memoria sui valori delle misure e dei pesi degli antichi Romani desunti dagli originali esistenti nel Real Museo Borbonico di Napoli” (Naples, 1825)
- [4] De Ritis: “Il nostro sistema metrico sanzionato con la Legge del di 6 di aprile 1840” (from the 1841 Annals)
- [5] Afan de Riveira: “Sulla restituzione del nostro sistema di misure, pesi e monete alla sua antica perfezione” (Naples, 1838)
- [6] Ceva Grimaldi: “Sulla riforma de' pesi e delle misure ne' Reali Domini al di qua del Faro, considerazioni di Ceva Grimaldi” (Naples)
- [7] F. de Luca: “Esame critico di alcuni opuscoli pubblicati intorno al sistema metrico decimale della città di Napoli” (Naples, 1839)
- [8] Col. V. Ferdinando: “Del sistema metrico uniforme che meglio si conviene ai domini al di qua del Faro del Regno delle due Sicilie” (Naples, 1832)
- [9] Vladimiro Valerio: “Società uomini ed istituzioni cartografiche nel mezzogiorno d'Italia” (Istituto Geografico Militare Eds.)