FRANC HOČEVAR — TEXTBOOK AUTHOR

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Abstract: From the years 1886 to 1902, Hočevar wrote the first edition of his textbooks for all classes of the upper secondary schools. When the school curriculum changed, he quickly adapted the contents of his textbooks, keeping a good balance between theory and practice. By incorporating useful exercises, historical notes, and linguistic remarks, he was able to keep the attention of his students. Furthermore, although he wrote his textbooks with other authors, as is commonly still done today, his books were still the most popular. It is my intention to explain the reasons for this within the article.

1 Introduction

1.1 Schools

It is necessary to first explain the school systems of Hočevar's time. In the year 1869 *The Third School Law* was introduced, establishing a unitary primary school that lasted eight years. In some regions, this period was shortened to six years, and a new category of *bourgeois schools* was created for those children who finished the fifth grade of primary school.

After children finished the fourth grade of primary schools, they could enter the gymnasium (lower or *untergymnasien* and upper or *obergymnasien*) or the *realschulen* (which initially lasted four years but was later extended to eight years after 1869).

When Hočevar published his textbooks, the school curriculum specified both the topics that students were required to learn in addition to the methods that teachers could use.

1.2 Teaching Language

Generally, classes were taught in German or Latin. As a school counselor, Franc Močnik proposed having eight hours of Slovenian in the first grade, with fewer hours in the second and third grades. In 1851, this proposal was formalized.

Starting in 1854 all subjects in the first and second grade were taught in Slovenian. At the same time, Slovenian and German were jointly used in the third grade, and in the fourth grade, German was used for all subjects (since the language in secondary schools was German). Starting in 1856 some of the math terms used were Slovenian, as demonstrated in Močnik's textbooks.

1.3 The First Slovenian *Realschule*

With great e orts, the first *Realschule* was established in Idrija in 1901. Teaching solely with the Slovenian language, the first class had 55 students and served as an important resource for the whole region, including the local mercury mine. In 1902, lessons began in a new school building and after 1910, Slovenian gradually became the teaching language in all upper secondary schools.

Figure 1. The first Slovene *Realschule* in Idrija.

2 Hočevar as a Textbook Writer

At the time that Hočevar's textbook [1] was first published, it was not easy to introduce new textbooks into the schools, as demonstrated by the fact that only four were in use at the time (by the authors Gerneth, Wittek, Wallentin, and Močnik). All new textbooks or editions intended for use within schools or professional journals had to undergo a thorough review by well-known experts. If confirmation was granted then the textbook was allowed for use within the schools and teachers could choose one of the confirmed books pending further approval by the superior education authorities. Often times, these books were translated into other languages for use in di erent countries. Among the most popular textbooks of the time were those by Močnik for use within lower secondary school, and those by Hočevar for use within the lower and upper secondary schools.

The first of Hočevar's textbooks were published in 1886 for the teaching of geometry [1]. Firmly endorsed by both reviewers and teachers alike, these textbooks were proclaimed to be an unequivocal success. Following the directives specified within the school curriculum, he used clear and professional language alongside geometric proofs that could be solved using arithmetic or algebraic calculations. Ultimately, by utilizing sometimes uncommon but e ective methods to explain basic principles and problems, Hočevar changed the way in which geometry was taught.

Examining more closely Hočevar's geometry and arithmetic textbooks, it is useful to demonstrate his interpretations of some topics.

2.1 Comparison with Modern Day Textbooks

At the present time, the following topics are not taught in secondary schools:

- coordinate geometry such as equations of a straight line (circle, ellipse, hyperbola, parabola)
- reshaping geometric figures
- special solid bodies (*prismatoid*)
- spherical geometry
- map (chart) projections

It is interesting to note that Hočevar used the same notation for expressing the length of a side and the area or perimeter of a polygon (from the contents it is easy to determine the meaning of this notation). We shall use the symbol (■) at the end of the examples to separate our comments from Hočevar's text.

2.2 Some Geometry Examples (1889)

Figure 2. Cover page and first page of the Geometry book.

Each topic is presented with the same structure. The first step is determination, followed by an explanation, simple proofs (using both symbols and words), a worked example with commentary, and a practice problem.

Let us see some examples which could be of use to us in the present day.

2.3 Medians of a Triangle

Let us show how Hočevar explained that two medians trisect each other.

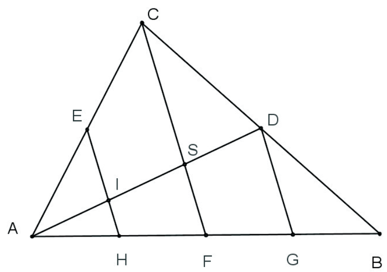


Figure 3. Intersection of the medians in the triangle.

In the triangle ABC, AD and CF are two medians. The point E is the midpoint of side AC. We draw two segments: $EH \parallel CF$ and $DG \parallel CF$. The points H, F, G on the side AB and points I and S divide the appropriate side in to congruent segments.

It follows now that $SD = AD/3$. Let the median EB intersect the median AD in S_1. As is shown before, $S_1D = AD/3$. This means that $S_1D = SD$ and the points S_1 and S *fall together* as Hočevar wrote in his textbook.

We now know that $AS = 2 \cdot SD$, $BS = 2 \cdot ES$ and $CS = 2 \cdot SF$.

Comments: The intersection of the three medians S is one of the most important parts of the triangle (which includes the incenter, circumcenter, centroid, and orthocenter). ■

(Our remark: Hočevar included remarks in which he wrote the number of sections where he explained why the segments are congruent.)

2.4 The Square in the Triangle

A square is to be inscribed in a triangle in such a way that two vertices of the square lie on one side of the triangle and the other vertices of the square lie one on each of the other two sides of the triangle (see Fig. 4).

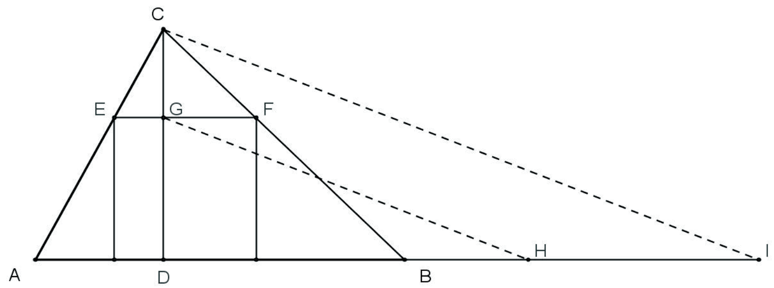


Figure 4. The square in the triangle.

From the two similar triangles follows: $AB : EF = AC : EC = DC : GC$. We denote the side AB with c, the altitude of the triangle with h and the side of the square $DG = EF$ with x. The relationships in the new notation are:

$$c : x = h : (h - x) \qquad ch - cx = hx \qquad ch = (c + h)x \qquad (c + h) : c = h : x$$

From this we can now find x from the last relationship.

Construction: : Drawing the segment $DH = c$, we find point H. From the segment $HI = h$ we create the point I. Draw a parallel line to the segment CI through the point H. The intersection of this line with the segment CD is G. Now it is easy to draw the square because the line that goes through point G is parallel to the side AB of the triangle ABC.

Discussion: According to the form of the triangle (acute, right, or obtuse) we have one, two, or three solutions.

Remarks: If we are looking for the lengths of the sides of the triangle, then we could use the algebraic equations above to find the construction of these sides.

Examples: If we know the sum or the di erence of sides a and b we could find the constructions of these sides from the relationships as in the previous example. ■

As we see, Hočevar's note explains how to find the relationship between the sides of the triangle and how to draw the square, but he also hints that this example could have more than one solution depending on the type of triangle.

2.5 Prismatoid

A prismatoid is a polyhedron where all vertices lie in two parallel planes. Fig. 5 is a passage from Hočevar's book ([2]). What is the volume of a prismatoid?

§ 215. Prismatoid. Das Prismatoid ist gleich der Summe dreier Pyramiden von derselben Höhe, von denen die eine das arithmetische Mittel der beiden Grundflächen, und die beiden anderen den Mittelschnitt des Prismatoides als Grundfläche haben.

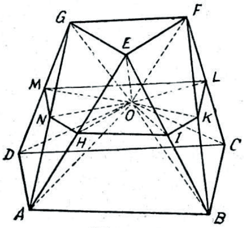


Fig. 169.

Beweis. Man zerlege das Prismatoid in Pyramiden, welche einen Punkt O des Mittelschnittes als gemeinschaftliche Spitze und die Flächen des Prismatoides als Grundflächen haben. Die Seitenkanten jener Pyramiden erhält man, indem man O mit allen Eckpunkten des Prismatoides verbindet. (Es wird hier vorausgesetzt, daß sich ein solcher Punkt O im Mittelschnitte findet, dafs alle jene Verbindungsstrecken ganz innerhalb des Prismatoides liegen.) Die beiden

Figure 5. Prismatoid

We write the result in a short way: First, we dissect the prismatoid into pyramids. We then intersect the prismatoid along the plane, parallel to the basic plane, going through the midpoint of the altitude of the prismatoid. This plane cuts the basic plane of the triangles of some pyramids into two parts. The area of the smaller part is 1/4 the area of the whole triangles (the basic plane of the pyramids). Now it is not too hard to find the volume of the prismatoid.

Following Hočevar's instructions, we have these relationships:

$$ABEO : HIEO = ABE : HIE = 4 : 1$$

$$HIEO = HIO \cdot \frac{h}{6} \qquad ABEO = HIO \cdot \frac{2h}{3}$$

Then we have:

$$ABEO + BEFO + BCFO + \cdots = (HIO + IKO + KLO + \cdots)\frac{2h}{3} = \frac{2hm}{3}$$

If the areas of the two parallel faces are g and g_1, the cross-sectional area of the intersection of the prismatoid with a plane midway between the two parallel faces is m, and the altitude is h (the distance between the two parallel faces g and g_1). In addition, the volume of the prismatoid is then given by

$$V = \frac{h}{3}\left(\frac{g + g_1}{2} + 2m\right) \qquad \blacksquare$$

This is an interesting and e ective way to calculate the volume of a prismatoid. If we are looking on the internet, we could find the same result on Wikipedia. Now we can also try to find this result with programs for dynamic geometry.

2.6 Ellipse

Quadratur der Ellipse.

§ 258. Lehrsatz. Jeder Ellipsenstreifen, welcher von der großen Achse und zwei Normalen zu derselben begrenzt wird, verhält sich zu dem von denselben Geraden begrenzten Streifen des umgeschriebenen Kreises wie die kleine Halbachse der Ellipse zur großen.

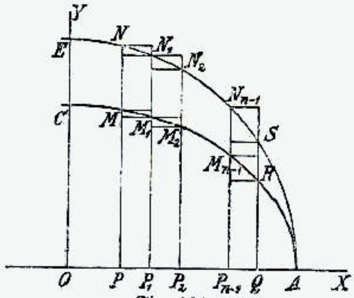


Fig. 204.

Beweis. Es sei OAC ein Quadrant der gegebenen Ellipse, OAE der entsprechende Quadrant des umgeschriebenen Kreises und XOY ein Coordinatensystem, dessen Achsen mit jenen der Ellipse zusammenfallen.

Um die Flächenstreifen $PQRM$ und $PQSN$ zu vergleichen, zerlegen wir PQ in n gleiche Theile ($PP_1 = P_1P_2 = \ldots = \delta$) und ziehen durch die Theilungspunkte die Kreisordinaten P_1N_1, $P_2N_2, \ldots$

Dadurch zerfallen jene beiden Streifen in je n schmälere Streifen, welchen man durch Parallele zur x-Achse Rechtecke ein- und umschreiben kann. Da nun jeder der beiden gegebenen Flächenstreifen zwischen der Summe der ein- und jener der umgeschriebenen Rechtecke enthalten ist, so folgt

Figure 6. The area of an ellipse.

Basic Relationships

OAE is 1/4 of the circle with radius $r = a$

OAC is 1/4 of the ellipse with length $2a$ and width $2b$

He draws lines parallel to the y-axis at equal intervals of δ units and compares the sum of the areas of n rectangles under and over the curve (ellipse and circle) with the area of ellipse (or circle)

$$(P_1M_1 + \cdots + QR)\delta < PQRM < (PM + P_1M_1 + \cdots P_{n-1}M_{n-1})\delta$$
$$(P_1N_1 + \cdots + QS)\delta < PQSN < (PN + P_1N_1 + \cdots P_{n-1}N_{n-1})\delta$$

Than he substitutes PN with

$$PN = \frac{a}{b}PM \qquad P_1N_1 = \frac{a}{b}P_1M_1 \ldots$$

and finds

$$\frac{a}{b}(P_1M_1 + \cdots + QR)\delta < PQSN < \frac{a}{b}(PM + P_1M_1 + \cdots P_{n-1}M_{n-1})\delta$$

Finally, he obtains

$$PQRM = \frac{b}{a}PQSN \qquad OAC = \frac{b}{a} \cdot \frac{\pi r^2}{4} = \frac{\pi ab}{4} \qquad \blacksquare$$

Here we can see some sort of limit process.

The area of a sector of an ellipse

§ 260. Ellipsensector, Ellipsensegment. *a)* Um den Flächeninhalt des Sectors $OAUM$ zu berechnen, verlängert man die Ordinate PM bis zum Durchschnitte mit dem umgeschriebenen Kreise und zieht den Radius ON. Es ist dann $OAUM = OPM + PAUM = \frac{b}{a}\,OPN + \frac{b}{a}\,PAVN = \frac{b}{a}\,OAVN = \frac{b}{a} \cdot \frac{\pi a^2 \alpha}{360} = \frac{\pi a b \alpha}{360}$.

Der Winkel α wird aus der Gleichung $\cos\alpha = \frac{OP}{ON} = \frac{x}{a}$ berechnet.

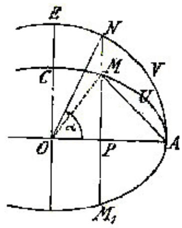


Fig. 205.

Figure 7. The area of a sector of an ellipse.

No additional comments are necessary.

b) The area of a segment

$$M_1AM = 2PAUM = \frac{2b}{a}PAVN = \frac{2b}{a}(OAVN - OPN)$$

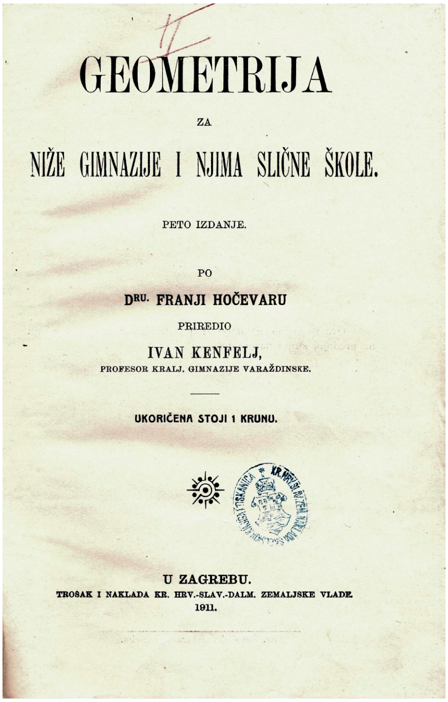
$$M_1AM = \frac{2b}{a}\left(\frac{\pi a^2}{360} - \frac{x\sqrt{a^2-x^2}}{2}\right) = \frac{\pi ab}{360} - \frac{bx\sqrt{a^2-x^2}}{a}$$

c) The area of a segment AUM

$$AUM = OAUM - OAM = \frac{\pi ab}{360} - \frac{a}{2}\frac{b\sqrt{a^2-x^2}}{a}$$

$$AUM = \frac{b}{a}\ \frac{\pi a}{360} - \sqrt{a^2-x^2}\Big)$$

2.7 One of Hočevar's Translated Book Covers


GEOMETRIJA

ZA

NIŽE GIMNAZIJE I NJIMA SLIČNE ŠKOLE.

PETO IZDANJE.

PO

DRU. FRANJI HOČEVARU

PRIREDIO

IVAN KENFELJ,

PROFESOR KRALJ. GIMNAZIJE VARAŽDINSKE.

UKORIČENA STOJI 1 KRUNU.

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TROŠAK I NAKLADA KR. HRV.-SLAV.-DALM. ZEMALJSKE VLADE.

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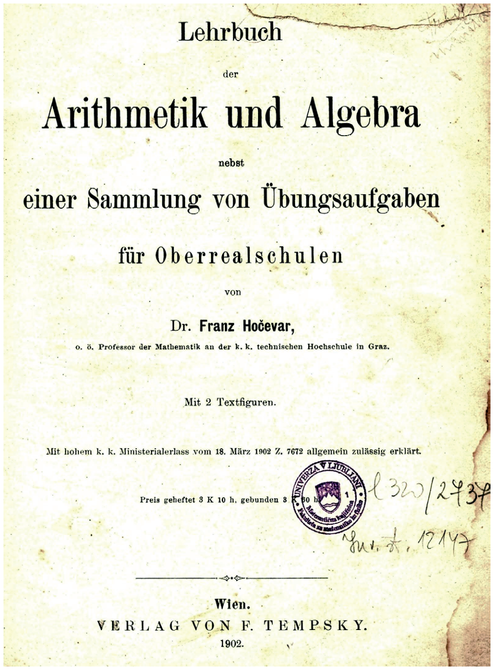
Lehrbuch

der

Arithmetik und Algebra

nebst

einer Sammlung von Übungsaufgaben

für Oberrealschulen

von

Dr. Franz Hočevar,

o. ö. Professor der Mathematik an der k. k. technischen Hochschule in Graz.

Mit 2 Textfiguren.

Mit hohem k. k. Ministerialerlass vom 18. März 1902 Z. 7672 allgemein zulässig erklärt.

Preis geheftet 3 K 10 h, gebunden 3 K 80 h.

Wien.

VERLAG VON F. TEMPSKY.

1902.

Figure 8. The translated cover from the textbook for Geometry and the cover from the textbook for Arithmetic and Algebra.

3 Algebra

We examine directly from Hočevar's book [3], where he underlines within his preface that the base of arithmetic is not axiomatic like geometry but based on definitions. He not only pays great attention to the four basic operations but also on irrational numbers, logarithms, and on the powers of real numbers with rational and irrational exponents. He tries to introduce elements of calculus in upper secondary schools and he succeeds. When the school curriculum was changed, he updated his textbooks and included more about functions, di erentiation, integrals, combinatorics and probability.

For the time, the contents of Hočevar's textbook were very modern.

The methods used within the book are similar or the same to the ones used in schools today. It is interesting to read the text of the examples, because you can find the prices of everyday articles, the areas of the regions of the Austro-Hungarian Monarchy, profits from forestry, personal incomes of workers, and so on.

Druck von Gebrüder Stiepel in Reichenberg.

Figure 9. The contents of the Arithmetic book.

3.1 Method of solving the system of equations

The following page from Hočevar's book is very illustrative and needs no further explanation.

3. Man multipliziert die beiden Gleichungen mit so gewählten Zahlen, daß eine Unbekannte in beiden Gleichungen gleiche Koeffizienten erhält, und addiert oder subtrahiert hierauf die Gleichungen, je nachdem die gleichen Koeffizienten in beiden Gleichungen verschiedene oder gleiche Vorzeichen haben (Methode der gleichen Koeffizienten). Z. B. Die gegebenen Gleichungen seien

$$a_1x + b_1y = c_1 \qquad\qquad 5x - 12y = 3$$
$$a_2x + b_2y = c_2 \qquad\qquad 10x + 9y = 39.$$

Nach der Komparationsmethode erhält man

$$y = \frac{c_1 - a_1x}{b_1},\ y = \frac{c_2 - a_2x}{b_2} \qquad\qquad y = \frac{5x - 3}{12},\ y = \frac{39 - 10x}{9}$$
$$\frac{c_1 - a_1x}{b_1} = \frac{c_2 - a_2x}{b_2} \qquad\qquad \frac{5x - 3}{12} = \frac{39 - 10x}{9}$$
$$x = \frac{b_2c_1 - b_1c_2}{a_1b_2 - a_2b_1}, \qquad\qquad x = 3;$$

nach der Substitutionsmethode

$$y = \frac{c_1 - a_1x}{b_1} \qquad\qquad y = \frac{5x - 3}{12}$$
$$a_2x + b_2 \cdot \frac{c_1 - a_1x}{b_1} = c_2 \qquad\qquad 10x + 9 \cdot \frac{5x - 3}{12} = 39$$

u. s. w. u. s. w.

und nach der Methode der gleichen Koeffizienten

$$\begin{array}{rcl|r|r} a_1x + b_1y &=& c_1 & b_2 & -a_2 \\ a_2x + b_2y &=& c_2 & -b_1 & a_1 \end{array} \qquad\qquad \begin{array}{rcl|r|r} 5x - 12y &=& 3 & 3 & -2 \\ 10x + 9y &=& 39 & 4 & 1 \end{array}$$
$$(a_1b_2 - a_2b_1)x = c_1b_2 - c_2b_1 \qquad\qquad 55x = 165$$
$$(a_1b_2 - a_2b_1)y = a_1c_2 - a_2c_1 \qquad\qquad 33y = 33$$
$$x = \frac{c_1b_2 - c_2b_1}{a_1b_2 - a_2b_1},\ y = \frac{a_1c_2 - a_2c_1}{a_1b_2 - a_2b_1}. \qquad\qquad x = 3,\ y = 1.$$
$$a_1b_2 - a_2b_1 \gtrless 0.$$

Figure 10. Method of solving systems of equations.

One comment must be made about this page. It is very good in a methodical way because Hočevar describes three methods.

- The method of isolation using the same variables from both equations.
- Substitution method
- The addition/subtraction method

3.2 The set of prime numbers is not nite

c) Die Anzahl der Primzahlen ist unbegrenzt. Denn gäbe es eine größte Primzahl, etwa p, so müßte die Zahl $N = (2 . 3 . 5 . . . p) + 1$, welche größer als p ist und durch jede der Primzahlen 2, 3, 5, . . . p dividiert den Rest 1 gibt, entweder selbst eine Primzahl oder aus Primzahlen zusammengesetzt sein, welche größer als p sind. Beides widerspricht der Annahme, daß p die größte Primzahl ist.

Figure 11. Proof: The set of prime numbers is not finite.

Put succinctly: if p is the greatest prime number, we construct a natural number as follows:

$$N = (2 \cdot 3 \cdot 5 \ldots p) + 1$$

If we divide number N with the prime numbers from 2 to p the rest is always 1, so it means that all these prime numbers are not the divider of the number N. It follows that N is a prime number and greater than p. In this way, we find that there is a greater prime number than p.

Is this familiar to us? Of course it is, as this is still taught in the same way in schools.

3.3 Limits

Hočevar includes the calculation of limits for some of the functions used within his textbook, which at the time was a new topic in the school curriculum.

Let us see one example:

2. Läßt man den Wurzelexponenten m unbegrenzt wachsen, so hat $\sqrt[m]{a}$ die Einheit zum Grenzwert. Oder:

$$\lim \sqrt[m]{a} = 1 \text{ für } \lim m = \infty.$$

4 Historical notes in the textbook

From the book, one is able to learn something about the inhabitants and lifestyle of the region, as well as about the units of measurement used in those times.

a) Inhabitants of Austro-Hungarian Monarchy

Anhang II. Statistische Daten über die österreichisch-ungarische Monarchie.

Namen der Länder	Flächeninhalt in km^2	Einwohnerzahl nach der Zählung vom Jahre	
		1880	1890
Niederösterreich	19.824·2	2,330.621	2,661.854
Oberösterreich	11.996·7	759.620	785.831
Salzburg	7.165·7	163.570	173.510
Steiermark	22.454·0	1,213.597	1,282.708
Kärnten	10.373·3	348.730	361.008
Krain	9.988·3	481.243	498.958
Küstenland	7.988·6	647.934	695.384
Tirol und Vorarlberg . .	29.326·8	912.549	928.769
Böhmen	51.955·8	5,560.819	5,843.250
Mähren	22.229·6	2,153.407	2,276.870
Schlesien	5.147·5	565.475	605.649
Galizien	78.496·8	5,958.907	6,607.816
Bukowina	10.451·0	571.671	646.591
Dalmatien	12.827·6	476.101	527.426
Ungarn und Siebenbürgen .	282.806·8	13,812.446	15,122.514
Fiume mit Gebiet . . .	20·1	21.634	29.001
Croatien und Slavonien . .	42.504·2	1,904.902	2,298.190
Bosnien und Herzegowina .	51.100	—	1,472.000

Figure 12. The inhabitants of some countries in Austro-Hungarian Monarchy.

b) Old units

IV. Gewichtsmaße.

1. Im metrischen System. 1 *g* (Gramm) ist das Gewicht von 1 cm^3 Wasser bei 4^0 C. 1 *g* = 10 *dg* (Decigramm) = 100 *cg* (Centigramm) = 1000 *mg* (Milligramm). 10 *g* = 1 *dkg* (Dekagramm), 1000 *g* = 1 *kg* (Kilogramm), 100 *kg* = 1 *q* (Metercentner), 1000 *kg* = 1 *t* (Tonne).

2. Das ältere österr. Gewichtsmaß. 1 (Wiener) Centner = 100 Pfund, 1 Pfund = 32 Loth, 1 Loth = 4 Quentchen.

1 Wiener Centner = 56·006 *kg*.

V. Zeitmaße.

Ein gewöhnliches Jahr hat 365 Tage, ein Schaltjahr 366 Tage. 1 Tag = 24 Stunden, 1 Stunde = 60 Minuten, 1 Minute = 60 Secunden.

Ein Jahr zerfällt in 12 Monate, welche im Verkehre zu 30 Tagen gerechnet werden.

VI. Zähleinheiten.

1 Gros = 12 Dutzend, 1 Dutzend = 12 Stück.

Neues Papiermaß. 1 Ballen = 10 Rieß = 100 Buch = 1000 Lagen = 10.000 Bogen.

VII. Münzen.

1. Österreich. *a)* Österr. Währung. 1 fl. (Gulden) = 100 kr. (Kreuzer). 1 Ducaten = 4·8 Gulden in Gold. *b)* Österr.-ung. Goldwährung (Kronenwährung). 1 Kr. (Krone) = 100 H. (Heller). 1 Kr. = 0·5 fl. ö. W.

2. Deutschland. 1 Mark = 100 Pfennige = 0·5 fl. in Gold = 1·17563 Kr.

3. Frankreich. 1 Franc = 100 Centimes = 0·405 fl. in Gold = 0·95226 Kr. 20 Francs = 1 Napoleond'or.

4. Italien. 1 lira = 100 centesimi = 1 Franc.

5. England. 1 Pfund Sterling = 20 Schilling, 1 Schilling = 12 Pence. 1 Pf. St. = 10·07 fl. in Gold = 24·01741 Kr.

6. Russland. 1 Rubel = 100 Kopeken = 1·62 fl. in Silber.

7. Nordamerika. 1 Dollar = 100 Cents = 2·14 fl. in Gold = 4·9351 Kr.

Anmerkung. Um die Goldmünzen verschiedener Staaten in Bezug auf ihren inneren Wert (Goldgehalt) vergleichen zu können, benütze man folgende Angaben:

1 *kg* feinen Goldes ist enthalten in *a)* 164 Zwanzig-Kronenstücken, *b)* 290·519 Ducaten, *c)* $139\frac{1}{2}$ Zwanzig-Markstücken, *d)* $172\frac{2}{9}$ Zwanzig-Francstücken, *e)* 136·5676 Pfund Sterling (Sovereign), *f)* 664·622 Dollars.

Figure 13. Relationship between units which were used in the Austro-Hungarian Monarchy.

5 Conclusion

If we carefully read Hočevar's textbook it is not hard to realize why they were so popular. They have

- short, sharp, but not exaggerated mathematical determination
- clear, easy, comprehensible explanations
- precise reproductions of concepts and deductions
- connected theory and practice
- many suitable and useful examples used in connection with the text
- interesting and entertaining historical remarks

Hočevar's books were frequently used for over 10 years in secondary schools within Austria, Croatia (until 1944), Bosnia and Herzegovina, Serbia, and Italy. His textbook on geometry was translated and adapted into English and used in England as well. Hočevar's textbooks do not exist in Slovenian because the teaching language used in secondary schools at that time was either German or Latin.

Throughout his lifetime, Hočevar wrote 194 textbooks, including reproductions, reprints, and translations. Subsequent editions of his work quickly followed, but they were not always of greater quality.

Scientists like Hočevar's books, but teachers find them to be too difficult for pupils. However, we believe that the same problems exist in our days too.

References

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