SOME CONTRIBUTIONS TO HUNGARIAN MAGNETIC DECLINATION DATA IN HISTORICAL TIMES

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Collecting values of magnetic elements from various places and epochs is more than of national, it is, in fact, of international interest, for the laws of magnetic variations can be established this way only. Bock and Schumann (1948) deserve appreciation for having collected annual averages of magnetic observatories. Sorrily enough their work goes back to the forties of the last century only, thus it cannot contain e.g. the D measurements of the University of *Buda* in the last two decades of the eighteenth century.

Barta (1970) called the attention to the ancient Hungarian endeavours in a historical review from 1696 to our days. Fig. 1 (from Barta, *op. cit.*) shows, after Cristopher Hansteen (1819), who gives no reference to his source*, that the D in *Buda* in 1696 was $-10°00'$ (western). Hansteen, for the same year, gave $-9°30'$ for *Eger*, $-10°00'$ for *Szeged*, and $-10°19'$ for *Baja*. According to the 3, 7, 1765 number of the newspaper *Pressburger Zeitung*, the value of D then in *Vukovár* was $-12°15'$.

The latter report does not confirm the 1696 *Buda* value, for a linear interpolation in Fig. 1 gives for *Buda* in 1765 $-14°15'$, and being *Vukovár* almost on the same

Fig 1
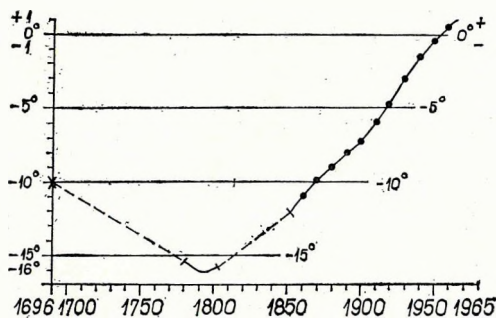*1. ábra*
Рис. 1.

longitude as *Buda*, its value could not differ by 2°. One of the data should be assumed as erroneous.

The decision is, however, easy enough, as soon as one takes a review of the famous *Epistola* of MIKOVINY (1732), the great Hungarian engineer of the eighteenth century. The cited work, namely, gives a value for 1732 for *Pozsony (Pressburg, Bratislava)*: −12°30′.

Interpolating in Fig. 1 for 1732 one obtains abt. −12°10′ for *Buda*, well correlating with the *Pozsony* data. (Better correlation cannot be expected anyway.)

Considering that MIKOVINY made meridian-determinations of *secundum* order, the mentioned value must be accepted as reliable. If so, the value −10°00′ for 1696 for *Buda* must be accepted as correct, and the 1765 *Vukovár* data most be rejected, as erroneous. All the more so, for longitude-difference between *Pozsony* and *Vukovár* is abt. 2 degrees altogether, and it is rather out of probability to assume that *D* became levelled between *Pozsony* and *Vukovár* 30 years later only.

It is worth mentioning that *D* values previously published in the Hungarian periodical *Bányászati és Kohászati Lapok (Mining and Metallurgical Transactions)* should be regarded sometimes with doubt, as referred to earlier (TÁRCZY—HORNOCH, 1952). Sometimes, however, LIZNAR and KURLÄNDER deserve some dubitation as compared to the periodical cited.

An example: according to the *Bányászati és Kohászati Lapok (Mining and Metallurgical Transactions)*, Vol. 1890 (p. 48), the *D* value at *Selmecbánya* ventilation-shaft, on 1 January, 1890, 8^h p.m. was − 7°57′. LIZNAR (1895), on the other hand, referring to KURLÄNDER, stated it to have been −8°17,3′. *D* value for Selmecbánya had been published by CSÉTI (1888) too, in 1888, as 8°16′, assumed to decrease by 0,16° in an annual average. It must, consequently, be impossible for *D* in 1890 to exceed the 1888 value. CSÉTI was not only an excellent surveyor, but a famous instrument-constructor, too. Consequently, his report, confirmed, by the way, by the *Bányászati és Kohászati Lapok (MMT)*, Vol. 1890 (8°16′ − 2.0,16,60′ = 7°56,8′) is reliable.

The data at disposal are, sorrily enough, insufficient as yet for an exact determination of the periods of magnetic secular variations in Hungary. *D* values could, in principle, be completed by archaeomagnetic data, but the latters' accuracy is less by orders.

There is, however, a better way to determine *D* values as far back as the sixteenth century. In Hungary, namely, mine-maps have been prepared since the second half of the sixteenth century, far ahead of those times (TÁRCZY-HORNOCH, 1963). The measurements having been made with magnetic compasses, with the aid of *D* values of old mine-maps, relatively reliable *D* values may duly be expected even from before 1785. This data is namely, the oldest among those of SCHENZL (LIZNAR, 1895).

A search for such old maps and the analysis of their data is suggested to check up old reports and to trace the magnetic secular variations in historical times.

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