devoted to a special subject. On the positive side, Kaźbiaruk reveals a good knowledge of Byelorussian and Polish literature; he is able to throw light on some obscure corners of Byelorussian literary history and occasionally to offer insights when dealing with the major works which

ushered in a new age during the *Naša niva* period. There is no bibliography and the footnoting spasmodic and inconsistent, but an index of names is a useful aid for the reader hoping to extract the wheat from the chaff.

Arnold B. McMillin

Molčanova, L. A. *Narodnaja metrologija (k istorii narodnych mer dliny)*. 'Navuka i technika', Minsk, 1973. 84 pages.

Skurat, K. U. *Daŭnija bielaruskija miery (leksičny analiz)*. 'Navuka i technika', Minsk, 1974. 192 pages.

Metrology is a fascinating but highly complex subject. It embraces both the science of measuring and the history of this science. In the latter sense it is an ancillary discipline of considerable importance to historical research. An understanding of the forms of measurement and the terms used for them in earlier periods is often of crucial importance in clarifying the meaning of a given text. Unfortunately it is always difficult to establish precise equivalents and sometimes quite impossible. One of the chief problems is the fact that until the introduction of a unified, state-controlled system of weights and measures, every region had its own system. The same term could refer to measurements of widely differing dimensions, depending on the area in which it was used. Dimensions could also differ from one century to the next. In addition to this, the number and variety of terms used is truly bewildering. Many of these terms, drawn for the most part from the physical environment, daily occupations and, of course, the human body itself, have very ancient origins. Not surprisingly, corresponding terms can be found in most parts of the world. In the Slavonic world, as in most other countries, there came a time when certain of these terms were crystallised as it were, given precise definition in an officially-controlled, standardised system which gradually pervaded all spheres of society. From this point onwards the problems of historical metrology become considerably less, for there then comes into existence a body of material which deals with this very question of the establishment and definition of norms. At the same time, many of the terms used in earlier periods continued to be used after the introduction of a

standard system and relics of them often survive to this day in proverbs and folk sayings.

In a field so wide and so fraught with unresolved problems there is always room for new research. In the East Slavonic world in particular metrology is still a somewhat neglected subject and much remains to be done. Both these new books, therefore, are very welcome. Each in its own way has a valuable contribution to make. Both, unfortunately, have drawbacks which could easily have been rectified, thereby making them of much greater use. Molčanova's book is the more general: it purports to be a study of 'folk' measurements of length, presumably Russian, though this is never made very clear. Russian terms are generally taken as the starting point for a discussion but much is made of Byelorussian or Ukrainian terms and cognates from other Slavonic languages. Another point which is not satisfactorily clarified is the use of the term *narodnaja metrologija*. There is an attempt to define it in the introduction, but the result is by no means conclusive. The author posits an opposition between an official (*gosudarstvennij*) system, externally imposed, and a native (*narodnij*) system that developed spontaneously from man's environment. This is surely too simple a view. It is true that a standardised system of weights and measures becomes something of an abstract concept and loses its immediate contact with the physical world; it also entails a degree of simplification, since the number of terms used is relatively small, yet in most countries the official system developed out of commonly used 'folk' measurements, as the author herself later points out, and the

process of standardisation is merely a further stage in their history. Furthermore, how does one define an official system? The author makes no attempt to answer this question and her argument, therefore, lacks point. If one is to assume from her use of the word *gosudarstvennij* that she is in fact referring to the state of Muscovy and to the standardisation of the system of weights and measures set in train by Ivan the Terrible from the middle of 16th cent. onwards, then one must conclude that by *narodnij* she means everything that went before. This is hardly tenable: the systems used by Novgorod and Pskov, to mention only a couple, were as firmly regulated as any used later in Muscovy. If, on the other hand, *gosudarstvennij* is used in a general sense to indicate the governing body of any political entity, one is faced with problems of another nature: terms which were in 'official' use (i.e. used in official documents to refer to the quantities on which taxes and other dues could be exacted) in one area were often not so used in another; it must not be forgotten that most of the terms we know from the earlier periods come under this heading due to the very nature of the documents in which they are found; also, in a book such as this which sets itself no time limits, one is dealing with a constantly changing political scene: as one principality grew more powerful than another, so its terminology gained wider currency. Due partly to this and partly to changing economic patterns words used as standard terms in one century are sometimes scarcely found at all in documents of the next century. A typical example of the complicated history of such words is the fate of *lokot'*: widely used as a standard measurement up to the end of the 15th cent., it gradually gave way to *aršin* in Russia during the 16th cent.; amongst merchants, however, it was still very much in use into the 17th cent., as is shown by *Torgovaja kniga* (1575/1610); in Byelorussia it survived and became one of the basic measurements of length in the 18th cent. In such a fluid situation it is hard to see how a classification is rigid as that suggested by Molčanova could be applied. Again, if she merely intended to draw a distinction between standardised and unstandardised measure-

ments, this too raises certain questions: the systems of measurement used by merchants, by members of certain trades, such as goldsmiths and weavers, for example, even those used by hunters and fishermen do not necessarily coincide with those used by the state (whether the 'state' be a city-state or a centralised empire) and yet they are as standardised as those decreed by the government. They may well be a case for classifying certain terms as 'folk measurements' but the whole question needs to be approached with greater circumspection than has been shown here.

There is a wealth of material in this book, drawn from an impressive number of sources. In a study of the term *šag*, for example, comparison is made not only with Ukrainian and Polish equivalents, but also with Arabic *kadam*. Similarly, *perestrel* is compared with equivalent terms in Estonian and the Turkic languages. The grouping of the terms is interesting: they are classed as a) terms for distances defined by the ability of the eye and ear to distinguish objects and sounds respectively, b) terms for length defined by members of the human body, c) terms for distance defined by the routine of harnessed animals (for example, the distance that a horse carrying a rider can travel without pausing for rest), d) terms for length defined by specific occupations such as ploughing and weaving, e) terms for distance defined by time (a journey taking so many days and nights, for example). As an illustration of the way in which metrology came into being through man's need to bring order into his existence, to express time and distance, length and weight in a system of equivalents based first on his own body, then, gradually, on more sophisticated concepts, this book is extremely interesting. In concentrating on this general approach, however, attention is frequently distracted from the Russian, even the Slavonic world. Terms such as Kazak *two kut* 'the distance a camel can travel without pause', Turcoman *bir yatymlyk* 'the distance between one (night's) encampment and the next' and Japanese 'horse's slipper', the distance a horse can travel before the straw slipper tied to its shoe has to be changed, to mention but a few, are cited and discussed at some length. These terms certainly support the

author's thesis that metrology the world over is bound to man's environment (a thesis that has never been disputed, incidentally) but they add nothing to the Russian material, since for most of them there is no possible equivalent, except in the most general sense, in the Russian experience. There is not, however, sufficient material of this sort for the book to stand as a general survey of the subject: indeed, its very size precludes this. Much of the Russian material is extremely good. Words such as *aršin*, *lokot'*, *pjad'* and *sažen'* are very fully discussed. A few more references to contemporary sources would not have come amiss, though, and a more systematic attempt to define them in terms of modern measurements would have been much appreciated. A serious drawback to this book is the lack of an index. Books on metrology are rarely read by any but a reviewer from cover to cover: consequently, an index is an essential requisite, for without it, the finding of a given word becomes a matter of pure chance. A separate bibliography would also have been helpful. The footnotes contain a large number of useful references, but again, they are impossible to find without a careful perusal of the whole book.

If Molčanova's book can be said to exemplify the anthropologist's approach to metrology, then Skurat's certainly illustrates that of the lexicographer. His interest in the words is primarily linguistic: there is an abundant use of illustrative quotations drawn for the most part from 16th cent. sources (though where a word has survived to modern times this too is shown); grammatical derivatives and set phrases are also noted. The title of the book *Daŭnija biełaruskija miery* defines clearly the field the author has chosen to study. He lists a large number of words (approx. 160) and the result is an admirably comprehensive survey of every possible term of measurement used in Byelorussia up to the 18th cent. The words are well set out in groupings under the following headings: a) terms for measurements of length and area, b) terms for measurements of grain and liquids,

c) terms for weights, d) terms for set quantities, e) terms indicating numbers (eg. *sorok* 'a bundle of forty pelts'). There is an index and a list of sources that contains useful bibliographical material. The one fault of the book is that it gives so little practical information on the measurements. Ideally, a book on metrology should provide tables giving the relative size of measurements and, where possible, modern equivalents. It is somewhat irritating to look up a word such as *tsal'* and find, as an indication of its length, that it is 1/24th of a *lokot'*. It is true that one can then look up *lokot'* and discover that in 1766 in the Grand Duchy its length was set at 0.649 m. and from there work out for oneself the length of *tsal'*, but how much less cumbersome it would have been to give all such information in tabular form! Where indications of length are given, Skurat uses the measurements laid down by the Sejm in 1766. This can be misleading, as many of the measurements had changed their dimensions quite significantly during the preceding two centuries. This point ought surely to have been given more emphasis. Again, in some cases a term had several different dimensions, depending on the area in which it was used and there frequently existed different forms of one measurement. For example, there was both *malaja* or *prostaja pjad'* and *bolšaja pjad'* but no mention is made of this fact; there were also three different types of *sažen'* (*kosaja*, *machovaja* and *kupeckaja*) which were not only of different length but used for different types of measurement (*kosaja*, for example, was used mainly for vertical measurements); Skurat, however, does no more than mention these three types of *sažen'* in a passing reference to a secondary source. Despite this insufficiency of information concerning the actual nature of the measurements, though, this work is an excellent reference book and will no doubt be gratefully received by all students of Byelorussian historical documents.

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