The current level of the development of science and engineering and the use of electronic computers in planning, accounting, and management of the national economy have raised the question concerning the need for regulating and standardizing medical scientific and engineering terminology. This is a necessary condition also for the mechanization and automation of information processing.

The lack of a generally accepted, scientifically founded terminology causes confusion when using terms in standard, project-design, and technological documentation, in scientific and technical educational literature, and in official documents.

Standardization of terminology is acquiring enormous importance owing to increasing international scientific and economic collaboration and development of foreign trade.

The USSR Council of Ministers on January 11, 1965 passed the resolution "Improvement of Work on Standardization in the Country," in conformity with which state standardization has been extended also to scientific, technical, and technical-economic terms.

The Ministry of Health of the USSR created a commission for regulating the terminology of medical equipment, apparatus, and instruments (Chairman A. M. Geselevich).

For the successful conduction of this work it is necessary to solve a number of theoretical, methodological, and organizational problems. It is necessary, for example, to establish the level of standardization of terminology, i.e., to select from the large number of terms being used those to which the strength of a state standard should be given. Furthermore, no less important are the systematization and classification of types and forms of terms and a study of the regularities of the term-formation process.

With the development of international relations it is also necessary to determine the limits of permissibility of using foreign terms and to select foreign equivalents (English, French, and German) to the Russian terms.

The All-Union Research Institute of Surgical Equipment and Instruments (VNIIKhAI) has begun work on the classification and regulation of the names of surgical instruments and equipment.

An analysis elicited the following faults in the terminology of these items.

1. Lack of Sharply Defined Limits of the Concept Rendered by the Term. So far, for example, there is no clarity in what we should understand by the terms "apparat," "pribor," "ustanovka," "ustroistvo," "prisposoblenie," "instrument," (apparatus, device, assembly, equipment, appliance, tool), etc.

In the terminology of surgical instruments the boundaries have not been determined between the concepts "shchiptsy" and "zazhim" (forceps, clamp); "shchiptsy," "kusachki," and "vykusyvateli" (bone-cutting forceps); "nozh," "skal'pel," "lantset," and "bisturi" (knife, scalpel, lancet, bistoury); "nasadka" and "nakonechnik" (cap), etc.

2. Polysemy of Terms, i.e., the different significance of the same term. For example, the term "kanyulya" (cannula) is used in the meaning of "head of a hypodermic needle" and in the meaning of "hole for introducing drugs or x-ray contrast media into an organism". The term "zerkalo" (mirror, speculum) serves to designate an instrument having a smooth shiny surface intended for obtaining the reflected image of an investigated organ, and also in the meaning of a dilator not having reflecting surfaces ("zerkalo rektal'noe provolochnoe" [anal wire speculum]). An instrument shaped like a spoon or loop in-
tended for scraping is called a "kyuretka" (curet) in gynecology, whereas in otorhinolaryngology a curet is an instrument of the bone-cutting forceps type intended for cutting away portions of tissue ("kyuretka gortannaya" [laryngeal curet]).

3. Synonymy of Terms, i.e., expression of the same concept by different words. For example: "zazhim" and "klemma" (clamp), "pod'emmnik" and "elevator" (elevator), "zashchitnik" and "protektor" (protector), "dilyatator" and "rasshiritel'" (dilator), "trepan" and "kolovorot" (trephine). It would seem that synonyms representing essentially foreign equivalents of Russian terms are harmless; however, an analysis of terminology shows that when there are two words for designating the same idea a narrower or, conversely, broader content is gradually applied to one of them than to the other, or, finally, a completely different meaning altogether. Thus, we have for an example the terms "klemma" (German for zazhim [clamp]), "elevator" (English for pod'emmnik), and "pintset" (French for shchiptsy [forceps]): In Russian medical terminology only blade-shaped spring clamps have come to be called "klemma," "elevator" (elevators) have received the special interpretation as dental or bone "pod'emmnik" (elevators), and only "shchiptsy" (forceps) designed as two flat springs rigidly connected at one end have come to be called "pintset."

4. Discrepancy between the Term and its Content. As a rule, all modern medical terms are constructed on the basis of other terms or words of a common language. Therefore, in each new term we can distinguish a literal and actual meaning. Depending on to what extent the literal meaning of a term coincides with its actual meaning, terms are usually divided into: a) correctly orienting, i.e., those in which the literal meaning creates the correct idea of the concept itself; for example, "dilator," "retractor," "bone-cutting forceps," "tongue holder," "urethrotome," etc.; b) falsely orienting (misleading) terms which include those in which the elements of the terms in their literal meaning contradict the actual meaning of the term. We will give several examples: "gynecologic conchotome" and "neurosurgical conchotome" create the impression of an instrument intended for surgical removal of the concha, although this does not correspond to reality, since no conchae are surgically removed either in gynecology or in neurosurgery. The term is derived from otorhinolaryngology due to similarity in the design of the instruments and, unquestionably, is misleading.

To construct a correctly orienting term we must take into account all necessary and sufficient characters, determining its physical essence (or technical idea) and establishing its relation with all related concepts, and abandon all unessential, secondary characters of the idea or object. Usually the characters forming the content are divided into direct and indirect.

On direct characters are imposed the requirements of an exact, specific characteristic of the idea which would free the term from the possibility of false conclusions. For example, for an operation on the liver, surgeons use three types of retractors: "renal retractor," "retractor for drawing aside the liver," and "retractor for the left lobe of the liver." It is easy to note that the term-element "liver, renal" used to describe this retractor is clearly too broad in its meaning and does not reflect the character determining the specific difference of the term.

The indirect characters include the so-called "name" and "arbitrary" characters.

Eponymic (familial) terms have become widespread in medicine (especially foreign medicine). For example: "Kocher's forceps," "Pean's forceps," "Luer's bone-cutting forceps," "Liston's forceps," "Voyachek's probe," "Kassirskii's needle," etc. These terms have some favorable quality: They donot cause any extraneous notions, and thus are close to the neutral type of terms. However, this quality of theirs is at the same time adverse, since in most cases they do not reflect the relation between a given concept and others. Therefore, we should apparently do away with the wide use of eponymic terms. Yet when the "familial" character is related with a person who has directly worked out the procedure of an operation or an operation or an investigation for which the article is intended, as well as the basic elements of the article's construction, the creation of familial terms is completely permissible and is convenient for surgeons and scrub nurses.*

Examples of arbitrary indirect characters are the term-elements "type I," "type II," or "type A," "type B" ("neurosurgical breathing tube, type I", etc.). Terms with such characters are difficult to learn, and therefore we should decisively abandon their use.

*Familial (eponymic) terms are confirmed by special resolution of the Committee on Matters of Inventions and Discoveries under the USSR Council of Ministers.