

## Appendix

A regular feature of ASTM's monthly publication *Standardization News* has been a short contribution called "Terminology Update." A collection of these informal articles follows. They appear in the chronological order in which they have appeared in the magazine. The articles have not been subjected to the peer review process used for the papers in this volume. Nevertheless, they offer insights that have been of value to many ASTM members. They have been indexed in the back of the book for the convenience of the reader.

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## TERMINOLOGY UPDATE

### Some Thoughts on the Term "Quality"

The term "quality," noun, has been defined by the American Society for Quality Control as "the totality of features and characteristics of a product that bear on its ability to satisfy given needs." As such, the term is valueless.

In the marketplace much is being said about quality, but in the rush to make favorable impressions on customers, ad agencies and others often abuse the term by using it as an adjective. A "quality product" supposedly implies a product that is highly desirable. Admittedly, language changes and there is nothing that can be done to stop it. But at a time when the U.S. economy so much depends on everyone fully understanding the meaning of quality, it is unfortunate that its meaning is being eroded through misuse.

In describing goods or services, the term quality should be used with one or more modifiers in such a way that it is possible to get a sense of the relative level of quality implied. A product advertisement that frequently runs on television says, "The quality goes in before the label goes on." Of course it does. The problem with that slogan is that it gives no indication as to whether the quality that went in was good, bad, or indifferent.

If quality is said to be high, the implied opposite modifier is low. Other pairs of such modifiers are good and bad, superior and inferior, satisfactory and unsatisfactory, acceptable and unacceptable, best and worst, top and bottom, perfect and imperfect. A two term system of modifiers, however, does not carry enough information for one to judge what is typical. Coherent systems of modifiers or scales of three, five, or more terms, which are balanced around a middle term, are easier to understand and are more precise. The following list suggests ten such scales.

- low, intermediate, high
- unsatisfactory, borderline, satisfactory
- below average, average, above average
- worst, poorer, good, better, best

- very poor, poor, fair, *good*, very good
- very low, low, average, high, very high
- fair, *good*, better, best, very best
- poor, fair, *good*, very good, excellent
- very bad, bad, average, *good*, very good
- worst, much poorer, poorer, average, better, much better, best

From these examples, note that any particular modifier, *good*, for example, must be used and understood in the context of its complete scale if it is to have meaning. *Good* could mean that the quality is at its lowest level. For years, beef has been graded as good, choice, and prime, and a large retail chain has used the three term scale good, better, best. Terms, such as select and superb, supposedly connote excellence but have little meaning otherwise because there is no basis for comparison.

Quality, as the term is used in writing advertising copy, is superficial and seldom addresses the various elements of quality. As quality is defined here, these elements are: conformance to specification, fitness for use, service, and selling price.

Conformance to specification deals with the extent to which a product is manufactured by a specified process and its characteristics are at an agreed upon nominal value and within a specified range. Fitness for use is quality from the customer's viewpoint. Is the product suitable for its intended use? Does it do what it is supposed to do? Service is a measure of the degree to which the customer is satisfied with all aspects of the sale transaction. Was the product delivered on time? Was the billing correct? Was the sales person efficient? When combined, the various elements of quality integrate to value in use, namely product worth perceived by the customer or product user as opposed to monetary or exchange value.

Herbert T. Pratt

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## TERMINOLOGY UPDATE

### **The International System of Units means just that.**

It is a system developed by an international body of measurement experts. The United States has always been an influential member of this group of more than 40 nations who maintain outstanding measurement laboratory facilities and personnel. Since the predecessor for the International System, SI, is close to 200 years old, the present system has reached a high level of maturity and stability. At this time, major questions have been debated, compromised, and agreed upon by consensus process.

It appeared inevitable that the United States would be the last holdout in the world for its own system; and so it happened. By default, we remain the sole owners of the inch-pound system (I-P), formerly called the English system and sometimes the conventional system. The nations of Brunei and Burma, the next to last holdouts have made a commitment to SI.

There was a time when proponents of the I-P system seriously suggested that the rest of the world convert to the I-P system; somewhat akin to requiring the rest of the world to use English. The I-P proponents are still with us, but with a different approach. This time the strategy is to Americanize the International System of Units. If we do not like the rules of football, baseball, tennis or what have you—that is o.k.—on our turf we will adopt our own local rules. Along this line, the U.S. metric conversion act of 1975 speaks of interpreting the International System of Units for U.S. usage. Problems arise when we attempt to move terminology or concepts used with the I-P system into the International system.

For example, "head" as an indication of pressure. In I-P, there are many terms, such as inches of mercury, inches of water, feet of water, which were probably used because of convenience for early instrumentation. These units as well as psi are supplanted by a single unit in SI. The idea of using mass in lieu of weight for local (U.S.) usage promises to provide material for arguments for years to come. A structural engineer in one state attempted to promote the use of the kilogram as a unit of force. What an opportunity for misunderstanding and what an opportunity for lawsuits!

At least one international technical society has taken a leadership stand on this issue. The American Society of Heating Refrigerating and Air Conditioning Engineers (ASHRAE) decided that in its handbooks published in SI the words "weight," "head," and "bar" would not be used. The stand was accepted by technical authors and the membership with little or no objection.

To derive maximum benefits from the International System of Units, we must take it as it is or work through our representative to the International Conference on Weights and Measures to propose any changes. If we are to have a true international system we must abide by the international rules.

Oliver K. Lewis

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## TERMINOLOGY UPDATE

### Is Flat on the Level?

Some think that level means flat. On the level means that all points are at the same distance from the center of the earth. An instrument called level has in it a small transparent tube almost filled with a (usually) nonfreezing liquid that when the level is placed horizontally the remaining space, the bubble, moves to the center of the tube. Hence, when the level is moved over an area that causes no movement of the bubble, that surface is said to be level. But is it flat? Technically it is not because areas away from the starting point follow the curvature of the earth. Since the curvature of the earth is only about  $\frac{1}{6}$  in. (3 mm)/mile (1.6 km), usual constructions that are level are considered to be flat, but facilities are available to indicate the deviations.

On roofs, two materials tend to flow when the surface is not level, one is water from rain or industrial overflow, and the other is certain bitumens used in installing conventional roofs. Rainwater should flow readily to drains while bituminous coatings should remain in

place. To emphasize the concern for coatings to remain in place, roofers often refer to surfaces with very little slope as dead-level and the special bitumens as dead-level asphalts.

As others have written, we have words that are pronounced alike but have different spellings and meanings. All of these variations are given special names, such as homonym, to differentiate their complexities. But to many readers and listeners they are not words of endearment but words of confusion that may lead to costly mistakes.

In the construction industry, some refer to flat roofs when they mean that there are no gables or hips. In other disciplines, the meaning of flat is that there are no deviations from a true plane, and the degree of flatness is described in terms of deviations from that plane. In the past, the ultimate in flatness was optically flat, but now facilities enable definitions of small deviations to be evaluated.

Floors had not been considered matters of specific flatness until recent years when floors of warehouses became items of flatness requirements. Such evaluations are not merely matters of instrumentation, but also of interpretation of data, that is, a procedure to rate a surface for flatness. ASTM committees are working on standards in this field of rating flatness of industrial surfaces.

For years, roofs were built with single or multiple slopes so that rain or spilled water would run off. Water runoff is still very necessary to ensure long life roofing. For various reasons, in recent years some roofs were built with only slight slopes, and these were called flat roofs. Some designers believed that if all column heights were identical so that purchase orders would avoid detailing of fabrications and erection-site identification of columns and connectors for specific installation locations, costs would be reduced. Overlooked was the probable unequal settling of footings, even though insignificant structurally, and the deflections of support from deadweight and other loads, so that the surface, over time, was far from flat or level.

A natural phenomenon on roofs that is not recognized as often as it should be is that a pond of water on part of a roof makes that area much cooler than the dry area. At the interface of the dry and wet areas, stresses are induced within the roofing membrane. These stresses migrate as the pond recedes, so that in a few years, cracks that leak develop and are costly to repair.

Moreover, when water ponds on a roof, the actinic rays of the sun, combined with the thin films of water induce deteriorations of bituminous coatings and other materials sensitive to sun action; black bitumens turn brown.

There was a time when little attention was given to height of roof drains, just so they were flush with the roofing surface. But those who were making the mistake of ignoring ponding quickly reversed their opinion of the harm when they found that a dead-level roof could be defined as a roof on which the drains were the high points.

Ev Shuman

## TERMINOLOGY UPDATE

### Second Symposium on Standardization of Terminology

"An interesting and provocative mix of anecdotal, tutorial, and analytical terminology" is how one participant characterized the recent Cincinnati, OH, symposium sponsored by the Committee on Terminology. Eleven papers were presented, including one from the Netherlands Free Univ., and one from the International Information Center for Terminology, in Vienna, Austria.

Five of the papers concentrated on the management of terminology in standards committees:

In Committee E-7 on Nondestructive Testing, McKee ("Reverse Expansion—The Unification of Seven ASTM E-7 Glossaries"), described the pain and the joy of merging into a single terminology standard the individual glossaries of seven disparate subcommittees. The work encompassed merging eight definitions standards and the definitions from 11 other standards. A detailed plan of terminology management has been adopted covering a two year period, during which administrative management by the editorial subcommittee is recognized, without infringing on the technical jurisdiction of the subcommittees.

A concerted international project to prepare a comprehensive vocabulary of chemical terminology was described by Loening ("The Road to a Truly Authoritative Chemical Dictionary"). The International Union of Pure and Applied Chemistry (IUPAC), through its Interdivisional Committee on Nomenclature and Symbols (IDCNS), commenced the work in 1983, which has culminated successfully in the 1987 publication of the *Compendium of Chemical Terminology: IUPAC Recommendations*. It contains about 2,500 terms from more than ten diverse fields of chemistry. The IDCNS, composed of nomenclature experts representing the seven divisions of IUPAC, managed the harmonization of the terminology, defined the objectives of the project, and shepherded the manuscript through the complex IUPAC publications procedure.

Nine "rules for success" were offered by Sullivan and Interrante ("Terminological Inexactitude: Philosophy and Ethics—Theory and Practice"), based on experiences in Committee E-24 on Fracture Testing in developing a glossary of terms and definitions. In an ordered approach to the task, based on answers to the reportorial questions—what are you writing?—why are you writing it?—for whom are you writing it? the authors identified four classes of "for whom:" those within their own discipline, scientists in other disciplines, educated people not scientists, and all of the above who live in language groups other than English.

The committee experience included such vagaries as task groups wanting "their own (different) definitions for the same term. . . . The authors of these standards saw no incongruity . . . and were most reluctant to change. . . ." The rules for success concluded with these: scientists "a bit further down the 'expert' scale" should make a final review, for comprehension; and authors should be encouraged and helped to use the standard terminology.

In the development of standard definitions, at least in Committee E-11 on Statistical Methods, the use of notes appended to a concept explanation is essential, said Freund ("Quality and Statistical Terminology"). An example cited: the definition for "quality" describes the concept tersely in two lines, but appended are seven numbered notes requiring more than 25 lines. In a detailed rationale it is explained that each note is a vital addition

"essential to more universal interpretation of the definition," and notes "reflect various elements that are of major importance to those taking part in the consensus process."

The paper by Sonneveld and Loening ("A Terminologist's and a Chemist's Look at Chemical Neologisms") brings together the expertise of two different, but potentially synergistic, fields. The problem of controlling neology (the activity of creating new terms) in the science of chemistry is particularly important because of its need for new terms to characterize new concepts. The authors described the creation and development of scientific terms from the linguistics point of view; and then described how the application of sound terminological principles can lead to the rejection or acceptance of chemical neologisms.

The history of terminology activity in ASTM was related by Ellis ("Management of Technical Terminology in Standards Organizations"). The paper also described experiences of several ASTM committees in standardizing their terminologies. They learn that a uniform system of terminology management can develop terminology standards useful both to experts in the disciplines and to others who do not have specialized knowledge in the field.

Moving on to other areas of terminology, the symposium audience learned of a different kind of dictionary portrayed by Burger ("The Wordtree: An Add-On, Binomial Brancher of Process Words"). This ingenious and unique work in some 380 quarto pages provides an alphabetical listing, mostly of active verbs in a branching arrangement, which allows the searcher to pinpoint rapidly the exact word to express a process concept. *The Wordtree* is more than a thesaurus of synonyms; it leads directly from a root term of entry on a path of cause-and-effect to the precise action word sought. The book will be reviewed in next month's issue of *SN*.

"The term, weight, has served for centuries without undue hardship," according to Uri Gat ("The Weight of Mass or the Mess of Weight"). Although, in technical language, the term is restricted to the force of gravity, the differences between *weight* and *force* are no longer insignificant. Therefore, the term, mass, is to be preferred because it is "a clearly-defined entity, and is an invariable basic quantity;" while *weight* is ambiguous and "at best, defined only on earth." Because, in the common language, *weight* is sometimes used when *mass* is intended, *weight* "should be avoided in any language and wording that intends to convey a precise or important meaning."

Terminology interpretation can entail "far-reaching, pervasive consequences for licensing and general regulation of nuclear plants," claimed one of the parties in a dispute over language in a regulatory document. Forscher ("A Case Study of Practical Semantics") reviewed the record of the inconsistent interpretation of the terms, "important to safety" and "safety-related." Contradictory rulings by the agency on the meanings of these terms that determine safety classifications for nuclear power plant equipment have stirred the Nuclear Regulatory Commission to initiate a new rulemaking proceeding to resolve the confusion. Technical terminology must be clear, explicit, and not liable to misinterpretation (ASTM Policy on Terminology).

"There is little doubt that ASTM terminology groups desire to achieve excellence in their output" said Strehlow ("Definitions as Data Base Records"). He proposed that the *Compilation of ASTM Standard Definitions* in the future be restructured as a database to provide computer-aided terminology management. Once established in machine-readable form, the *Compilation* could easily evolve into a comprehensive term bank. Important benefits flowing from a database *Compilation* include increased accessibility, simplified updating, basic support for committee terminology management, and a structure for artificial intelligence uses of ASTM products. The paper described details of database structuring based on the British term bank model and concluded that "dealing with terminology for ASTM needs requires sophistication and the continual developing of new tools."

Taking a broader view of technical terminology, Galinski and Nedobity ("Special Lan-

guages, Terminology Planning and Standardization") dealt with language for special purposes (LSP). Subject communication can be facilitated if standardized terminology is used. A concept can be defined only if its exact place within the system of concepts and its type of characteristics are known. This is one of the tenets of the theory of terminology.

Terminologists collect, classify, and manage terminologies. Today, computer-aided terminography plays a central role. Many large organizations, such as the United Nations, the European Community, and the Department of State of Canada, have established terminological data banks to aid them in the compilation and use of special subject field vocabularies.

Terminology standardization is one of the prerequisites for technical standardization. Standard terminologies must be prepared on the basis of principles and methods derived from the findings of terminology science, and from the practical experience of terminology work.

The breadth of topics in this symposium indicates that ASTM is becoming a focus in the United States for standardizing technical terminology. The *Special Technical Publication* (STP) will soon be available carrying the complete proceedings of the symposium.

Wayne Ellis

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## TERMINOLOGY UPDATE

### Word Branching

*The Wordtree*, by Henry G. Burger, author, compiler, and editor, Merriam, KS 1984, \$149.00

Participants in ASTM's June 1987, Symposium on Technical Terminology Standardization were introduced to this intriguing work by its author, Henry Burger. The author adeptly eclated (that is publicized and acclaimed, or, more accurately, ballyhooed) *The Wordtree* as "An add-on binomial brancher of process words." That it is, but in those unfamiliar (to ASTM) terms, comprehension dawned slowly of the scope and promise of a quite important tool for writers who want to select the exact action word to characterize exposition. Writers of ASTM standards and other publications should cozy up to *The Wordtree*.

When I composed the second sentence above, I was going to use just *publicize*, but consulting *The Wordtree* I was quickly put on to *eclat*, a branch word more explicit and colorful.

This "pinpointing of concepts," as Burger puts it, is one example of the versatility of the "transitive cladistic for solving physical and social problems"—the subtitle of *The Wordtree*. If you wonder, as I did, what that means, my *Webster's Ninth New Collegiate Dictionary* indicates it to be an evolutionary classification system for active linking [transitive] verbs. It is this sort of turgid prose found throughout the documentation that obfuscates the nonexpert in linguistics (at least this one). Nevertheless, after digesting Chapter II, "Directions for Using This Book," the reader begins to realize the great range of helps available, and may not be able to cope with the wealth of dissertation on theory, history, criteria, and statistics

and may simply scan these absorbing sections without losing the benefits of the meat of the work, Chapter X—Hierarchy of *The Wordtree*, and its 188 page alphabetical index.

"The *Hierarchy* section of the book arranges the 24,600 transitives from simple to complex. The *Index* alphabetizes them. Thus the user can trace any process, phrase by phrase, back toward its components (its causes), or forward toward its potential effects. There are a quarter-million words, including all parts of speech. Thereby the reader can pinpoint any idea, then skip-branch (instead of plodding) to its causes or effects." These are the words of Burger, and a nutshell characterization of *The Wordtree*. It is an excellent book for browsing. If you have a feel for the nuances of word meanings coupled with curiosity about the interrelationships of concepts, you will find much pleasure in grazing in this word pasture.

Although seemingly written as a language research tool, *The Wordtree* can be enormously useful to the writer or speaker who seeks to avoid the hackneyed and the trite. Far from the bald offerings of the usual dictionary or thesaurus, the tree-like format of this work leads the searcher forward into more complex word relationships, or backward to the simpler word roots. Every action word is divided into two parts (the binomial branching), so that it is defined in the classic genus-and-differentia mode, thus avoiding the circular definition paths often found in dictionaries and thesauri.

In the three years since publication, *The Wordtree* has been extensively reviewed in many parts of the world. Reviewers hail it as a novel and revolutionary approach to understanding and tracing verb concepts. Experts in the world of linguistics have pronounced it "worthy of every scholarly praise one can utter. Moreover, it is practical, and a lot of fun." This reviewer cannot but agree from his limited expertise. The price of the book will prevent its landing in most private libraries, but as a major and successful venture in terminology it has to be in the collection of every information handling organization. I will refer to it often.

Wayne P. Ellis

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## TERMINOLOGY UPDATE

### A Tale of Two Spellings

An ongoing controversy over the styling of *ground water* illustrates a problem some people have with Merriam-Webster's *Third New International Dictionary* (unabridged, hereinafter referred to as *MW3*)—one of the references ASTM cites in Section G11 of the *Form and Style for ASTM Standards (Blue Book)*. In brief, ASTM D 653, Standard Terms and Symbols Related to Soil and Rock—issued jointly with the American Society of Civil Engineers (ASCE) Geotechnical Engineering Div.—specifies the open (two words) style *ground water*. *MW3* specifies the closed (single word) form *groundwater*.

ASTM's point man on this is Committee D-18 on Soil and Rock past-chairman A. Ivan Johnson. Writing to Paul F. Cappellano, physical sciences editor at Merriam-Webster (MW), Johnson listed two single-space pages of references from many sources supporting the ASTM/ASCE position that *ground water* ought to be styled as two words.

Cappellano's response reflected the MW lexical philosophy which *MW3*'s original editor,

Philip Gove, expressed thus: a dictionary "should have no traffic with . . . artificial notions of correctness or superiority. It must be descriptive and not prescriptive."<sup>1</sup> That is, a dictionary's purpose is to describe English words as they are used, not to prescribe proper usage.

MW determines the current usage by consulting its ever growing file of 13 million citations. According to Cappellano's statistics, the open styled form ground water was prevalent through 1970, but since then has been eclipsed (by a 3 to 1 margin) by the closed style. Two questions occur. Why has usage changed so dramatically since 1970? And why did the closed style groundwater appear in the original edition of *MW3* if the citation file at that time supported the open style?

To the first question, Cappellano suggested that the phrase's pronunciation may have caused it to telescope into one word. Since "water" is not stressed in it, the phrase naturally slid together, as has rainwater, saltwater, and seawater. If water were stressed in the phrase—as in, for example, "brackish water"—Cappellano speculated that it might have remained open.

My own experience suggests a different reason: one that contradicts MW's claim to descriptive objectivity as opposed to prescriptive authority. Last summer I wrote to the editor of *National Geographic*, protesting their use of the closed form groundwater in an otherwise excellent article ("The Great Lakes' Troubled Waters," July 1987, p. 17). I received in reply a letter from Ann Wendt, chief, research, which read in part: "We, of course, use the word as it appears in *Webster's*, our standard reference for spellings and until it is changed there, we will I believe, continue to follow the dictionary."

This is the snake swallowing its own tail, is it not? How many other periodicals follow *Webster's*? In so doing they create citations, which MW uses to justify continued inclusion in *MW3* of the closed style groundwater. MW's questionable original decision to include the closed spelling thus has become self-perpetuating.

Since usage follows it, *MW3* is *de facto* prescriptive whether MW admits it or not. To quote the late Dwight Macdonald, writing in a slightly different context, "the argument has now shifted from whether a dictionary should be an authority as against a reporter (in Gove's terms, prescriptive vs. descriptive) to the validity of the prescriptive guidance that *MW3* does in fact give."<sup>2</sup> Many at ASTM think the advice of the ASTM/ASCE Joint Committee on Terminology is of greater value than the self-generated evidence in Merriam-Webster's citation file.

Matthew Lieff

<sup>1</sup> Dwight Macdonald, *Against the American Grain: Essays on the Effects of Mass Culture* (1962; Reprint ed., New York: Da Capo, 1983) p. 290.

<sup>2</sup> *Ibid.* p. 304.

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## TERMINOLOGY UPDATE

### A Model for Other Committees

The Committee on Terminology (COT), in the newly revised Part E of the *Form and Style for ASTM Standards*, requests that each of the ASTM technical committees "publish and

maintain a general standard that contains all terminology published in all standards under the jurisdiction of the committee."

Committee E-7 on Nondestructive Testing has 10 technical subcommittees which have issued over 90 standards, including eight definition standards. The editorial subcommittee was given the task of finding a way to comply with the COT request, still permitting the technical subcommittees to retain control of their own vocabularies, allowing for the addition of future definition standards on new subjects, and preventing duplication of terms common to the various disciplines. The following three step procedure has been adopted.

First—Terms that are common to several subcommittees were taken from their respective standards and were placed under the jurisdiction of Subcommittee E07.92 on Editorial Review. Most words of this type have to do with what someone is looking for, such as defect, discontinuity, and indication, and variations on these, such as false indication or nonrelevant indication. Many of these words appeared in several of the subcommittee standards with minor differences in phrasing. The placing of these common words under the jurisdiction of E07.92 was considered the best approach in reducing the number of definitions per word to one. Each of the technical subcommittees has its editorial chairman automatically included as a member of E07.92, so that all of them have an opportunity to contribute to the definitions of common terms.

Second—The Master Glossary or "single standard" is not a single alphabetical listing, but is divided into sections, one for each of the various technical subcommittees, each of which retains full jurisdiction over its section. The E07.92 common terms appear in a separate section. Where two definitions for one term currently exist in one subcommittee's standard, both are included. The number of the standard, other than the current glossary, is shown with the second definition. The intention is to include both definitions until the subcommittee decides to eliminate one or to combine the two by redefining the term.

Third—An alphabetical list of all the terms included in the single standard, showing in which section each may be found, is appended.

When definitions from newly formed technical subcommittees are added to the committee documents, these terms will be given a new separate section in the single standard, with the words also added to the alphabetical list. New words in existing standards will be added to both the proper section and the list. Definitions in new standard test methods will be treated similarly.

Committee E-7 has decided that the new combined glossary should appear in the gray pages of the *Annual Book of ASTM Standards* as a proposal document for two years, which will give everyone a chance to eliminate any bugs that may emerge. Once the master standard leaves the gray pages, changes in definition standards will be balloted as changes in the subcommittee section. In the meantime, the present individual definition standards will continue to be found in the *Book of Standards*. This arrangement, now proposal P-199, has provided a satisfactory solution to COT objectives and hopefully serves as a model to other committees facing a similar problem.

Calvin W. McKee

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# TERMINOLOGY UPDATE

## The Term Perm

People in industry develop special terms that express concepts in a word or two that would take sentences to express conventionally. Sometimes complex concepts can be conveyed by a coined term that carries the same concept to both experts and laymen. An example follows.

When houses began to be built "tighter" deteriorations were occurring from accumulations of water within the construction. Research was undertaken to find ways to avoid such deterioration. Panels of typical wall sections used in temperate zone climates were subjected to simulated cold weather. They showed that moisture migrated from indoors toward outdoors and when surfaces were below the dew point, condensation occurred and accumulated. Observations showed that a motivating force to induce moisture migration was the vapor pressure difference between locations. Laboratory studies showed that the rate of vapor flow through materials depended upon the permeance, which varies with thickness, but not always linearly.

After years of research, attempts were made to define limiting vapor flow that had high probability for avoiding deteriorations in houses. As early as 1938, F. A. Rowley, A. B. Algren, and C. E. Lund published research on moisture migration in walls, and, in 1944, Rowley and Lund postulated that if the vapor flow rate through 1 ft<sup>2</sup> (.09 m<sup>2</sup>) was not greater than 1.25 grains/h when subject to a vapor pressure difference of 1 in. (25.4 mm) of mercury, it was a safe maximum for "ordinary temperature and humidity conditions."

Several laboratories cooperated in Committee C-16 on Thermal Insulation in several round-robin series to develop a standard method, now ASTM E 96, Test Methods for Water Vapor Transmission of Materials. When the evaluation is of a property, the units include unit thickness. The flow rate is then called permeability and evaluated in grains/h through 1 ft<sup>2</sup> (.09 m<sup>2</sup>) induced by a vapor pressure gradient of mercury/inch of 1 in. (25.4 mm) of thickness. However, most vapor retarders are sheet materials, and are never used in unit thickness, so permeance is preferred.

Committee C-16 was asked to submit to Professor Frank Joy of Pennsylvania State Univ. its conclusion for the limiting value for permeance in houses in "ordinary climates and humidity conditions." From Joy's analysis of the data, C-16 adopted the value 1 perm = 1 grain/h · ft<sup>2</sup> · in. · Hg. At present the "ordinary" winter maximum heating load is 5000°F days.

There was a need to get builders to select materials that would resist excessive moisture flow into houses in each climatic exposure and occupancy moisture generation. Many houses were being built well by people who had learned good construction details through field experience, but who would be confused by the complex units. Consequently, Professor Joy sought a way to express the limiting vapor flow rate, or permeance, without the need for the units gr/h · ft<sup>2</sup> · in. · Hg. Standing outside his office, this author heard him exclaim, "Eureka! I think I have it! We can call the unit a perm from permeance and then no units need be used except when the perm is being defined."

The term "perm" came into common use in the construction industry so comparisons of materials and constructions can be made in simple terms. Since the perm is a specific permeance, it can be described in fractional perms when greater resistance is needed, or in multiple perms for lesser resistance.

There are no SI units that can be combined to give the same mass flow rate as the I-P perm without a numerical coefficient. If a specification states that a one perm resistance is required,

the same rate of flow will be obtained from the following relationships:

$$\begin{aligned}
 1 \text{ perm} &= 1 \text{ grain}/\text{h} \cdot \text{ft}^2 \cdot \text{in.} \cdot \text{Hg} && \text{I-P} \\
 &= 57.2 \cdot 10^{-12} \text{ kg}/\text{s} \cdot \text{m}^2 \cdot \text{Pa} && \text{SI fundamental units} \\
 &= 57.2 \text{ ng}/\text{s} \cdot \text{m}^2 \cdot \text{Pa} && \text{SI frequently used} \\
 &= 0.66 \text{ g}/24\text{h} \cdot \text{m}^2 \cdot \text{mmHg} && \text{SI has been used}
 \end{aligned}$$

. . . Just because this is an example of very good use of a coined term that both experts and laymen can use, it is no reason to think that arbitrary coinage of terms shows good judgment. Stick to standard language, unless there is an overwhelming gain from a coined term.

Ev Shuman

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## TERMINOLOGY UPDATE

### Atmosphere

There is no doubt that the prevailing atmosphere in the standards using community is that ASTM is a leader in both quality and quantity of its standards. This is due in no small measure to the uniformity of presentation, which characterizes the numerous standards. Given the numbers of standards involved, the legal atmosphere influencing the format, and the content of ASTM standards, there must be a system. The system necessarily produces a measure of uniformity that is impressive to the user. However, not all facets of ASTM standards enjoy this uniformity. Conflicts in the meaning of words among the various committees can raise serious questions to an outsider. Should not a standards organization produce standards that in themselves are examples of standardization?

The *Compilation of ASTM Standard Definitions* is a giant step toward bringing the ASTM terminology of all its many committees to a more uniform usage. It is possible to pick up the *Compilation*, select a topic almost at random, and find glaring inconsistencies among the multiple definitions of supposedly the same concept. For instance, consider the word "atmosphere." What is atmosphere? an atmosphere, or the atmosphere? It all depends on where you look or whom you ask. Atmosphere, according to the dictionary, is an intangible quality giving something an individual character. An atmosphere is the pressure exerted by the earth's gases at sea level. The atmosphere is the whole mass of air surrounding the earth. In the *Compilation* (1986) there are 11 definitions of atmosphere used by four committees in ten standards. In reading the definitions, we find that there are three concepts defined. First, the mantle of gases surrounding the earth: this is the traditional meaning from its Greek origins. Second, the pressure exerted at sea level by this mantle of gases. The third is ambient conditions including temperature and humidity of air. Atmosphere may be a poor word to describe a pressure or condition of the ambient air in which a test is to be run.

Definitions are not needed by the experts, the persons who write them. Rather, it is the reader who needs them. The perception of the reader is the all important object in this exam-

ple. How much more authentic the third definition would appear to the user if all four committees presented a uniform front by using a single definition! There would have to be negotiation to arrive at a consensus, but this is what ASTM committees do very well. The four committees also have a strong resource at their command, the ASTM Committee on Terminology (COT).

What can ASTM do about it all? Each ASTM committee has a representative on COT. COT was not appointed as policeman, but to be knowledgeable in the technicalities of terminology and to serve as arbitrators in resolving conflicts in definitions. It would be a good starting point for those involved in atmospheres to avail themselves of a copy of the *Compilation of ASTM Standard Definitions*, to critically examine the terminology defined in the standard in which they are involved, and to take mutual action to standardize the definitions of atmosphere.

Ken Lewis

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Reprinted from the June 1988 issue of Standardization News, p. 20.

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## TERMINOLOGY UPDATE

### Let's Get Rid of Descriptions of Terms

The time has come for ASTM to drop the concept of descriptions of terms. The reasons are simple.

- Few people agree on what a description is and even fewer know how or when to use it.
- Descriptions comprise probably no more than one percent of all ASTM terminology.
- The job that the description is supposed to do can be done better and more easily by a discussion appended to a broader definition of the term or by a definition limited as narrowly as necessary to the specific field of application.

Except for two esoteric pages written by philosopher John Stuart Mill, in 1874, I have not been able to find the idea of a description of term broached anywhere except in ASTM. *ASTM Special Technical Publication (STP) 806—Standardization of Technical Terminology: Principles and Practices* defines description as "a statement of the properties of an entity or its relation to other entities serving to identify it," and "analytic description" as "a type of pragmatic definition that is not well formed because of lack of brevity, clarity or general usefulness." The new Part E of the *Blue Book* gives:

**description-of-term, n-in ASTM**, a definition that is specific to a standard in which it is used and that has no application out of that context.

This definition raises two questions. If the same description is used in two standards, is it no longer a description? And if it is not, so what?

In the ten years or more that I have attended meetings of the Society's Committee on

Terminology, untold hours have been spent in arguing about what descriptions are, how they are to be used, and whether or not they are to be included in the *Compilation of ASTM Standard Definitions*. As far as I am concerned, all this talk has been mostly a waste of time.

Needless to say, confusion at the top of the organization compounds at the bottom, particularly in subcommittees and task groups.

The idea seems to exist that descriptions are somehow second class, not worthy of broad publication, and therefore must be identified and set apart. While this might be true theoretically, to treat descriptions differently from other definitions serves no practical purpose, complicates the format and paragraph numbering of standards, increases the amount of record keeping, and prevents the *Compilation* from being an accurate inventory of all ASTM terminology. The job of the description can be done without all this fuss by either limiting a definition to a very specific application, or by including limited concepts in a discussion appended to a broader definition of the term. Two examples follow:

*wool, n-as defined in the Wool Products Labeling Act of 1939*, "the fiber from the fleece of the sheep or lamb, or hair of the Angora goat or Cashmere goat . . . which has never been reclaimed from any woven or felted wool product."

*wool, n-the fibrous covering of the sheep, ovis species. Discussion—For the purposes of this test method, the word wool . . . includes both wool as defined in the Wool Products Labeling Act of 1939, as well as recycled wool as defined in the amended Act of 1980.*

Herbert T. Pratt

#### References

<sup>1</sup> John Stuart Mill, *A System of Logic*, 8th edition, New York, NY, Harper & Bros., 1974, pp. 108–109.

<sup>2</sup> Richard A. Strehlow, "Terminology and the Well-Formed Definition," *ASTM STP 806—Standardization of Technical Terminology: Principles and Practices*, C. G. Interrante and F. J. Heymann, editors, 1983, p. 17.

Reprinted from the July 1988 issue of Standardization News, p. 16.

## TERMINOLOGY UPDATE

### The Saurus Is Not a Reptile

On the contrary, a thesaurus is a list of subject headings or descriptors, usually with a cross-reference system, for use in the organization of a collection of documents for reference and retrieval. (*Webster's Ninth New Collegiate Dictionary*)

A "keyword" is a significant word from a title or document that is used as an index to content.

An index term is one used in a list (as of bibliographic information or citations to a body of literature) arranged usually in alphabetical order of some specified datum (author, subject, or keyword); such as a list of items (topics or names) treated in a printed work that gives for each item the page number where it may be found. (*Webster*, op. cit.)

Now, read what the *Blue Book* (A28, B31, C27) has to say about index terms in ASTM

standards: "List appropriate terms for indexing, selected from both the title and body of the document and including general, vernacular, and trade terms. These terms will be the basis for preparing the final index terms as defined for style and correctness by committees and staff. Index terms shall be listed at the end of the draft standard and will not appear in the published document unless specifically requested by the committee."

Next, read what the Committee on Terminology (COT) says in its 1988 revision to Part E of the *Blue Book*: "E33, Appendices (to terminology standards): E33.2, A thesaurus of terms used by a technical committee may be included. Such a thesaurus may be a compilation of terms without definitions, so arranged that the concepts are grouped under broad categories, with indication of narrower terms, related terms, preferred terms, and deprecated terms." Several specific thesauri are cited as examples.

At its meeting last February, COT organized a new working group, WG-6, to draft guidelines for ASTM committees to prepare access terminology for ASTM standards. Access terminology for computerized searches of data banks (including standards) encompasses index terms, keywords, and thesauri. These guidelines will be developed jointly by COT whose members include representatives from each technical committee, the Committee on Publications, and the staff publications dept. whose editors relate closely to standards development and content. Briefly, the following steps are proposed by WG-6 for interested committees.

- Compiling an inventory of the technical terms (without definitions) used by the technical committee in its standardization work. Sources may include standards, glossaries, vocabularies, *Special Technical Publications*, and the like.
- Drafting a committee microthesaurus including all terms identified in the step above, arranged in a hierarchical structure showing relationships and cross-references. (A microthesaurus covers a selected portion of a field or discipline.) As an example, see ASTM D 3584, Practice for Indexing Papers and Reports on Soil and Rock for Engineering Purposes.
- Using the microthesaurus (updated periodically as necessary) as the source of terms for indexing standards, and for guiding computerized searches of standard's titles and content.

For more background on this topic, read *Terminology Update*, SN, January and April 1987; and also *ASTM Materials Research and Standards*, January 1964, "MR&S Now Publishing Key Words and Abstracts." But in the daily battle to keep up with pertinent knowledge entombed in published documents, the handwriting indeed is on the wall: "mene, mene, tekel, upharsin" can be interpreted to call for the development of thesauri providing access terminology. Surely, that is not reptilian!

Wayne Ellis

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Reprinted from the August 1988 issue of Standardization News, p. 18.

# TERMINOLOGY UPDATE

## The Trouble with Density

Isn't it simple? Density is a property of a substance that denotes its heft or a perception of mass irrespective of the quantity of the material being considered. In a phrase, it is the mass of a unit volume. What then is the trouble with density? Why are there 33 standard definitions for it in the *Compilation of ASTM Standard Definitions*? The answers are numerous.

One trouble is found in nine definitions that use *weight*, a notoriously imprecise term. Weight in *vacuo* is not equivalent to mass, although this is specifically so stated in seven standards. Another reason for the 33 definitions is that eight definitions refer to specific types of matter such as liquids or magnetic materials and, therefore, clearly have not been written in the broadest conceptual way. A third trouble is the frequent reference to a specified temperature, recognizing the role of thermal expansion. The basic troubles with density then are lack of accuracy, overly specific application, and explanatory material that, if needed, would be better identified as discussion.

Committees D-9 on Electrical and Electronic Insulating Materials, D-10 on Packaging, D-13 on Textiles, D-18 on Soil and Rock, and D-35 on Geotextiles, Geomembranes, and Related Topics appear to be the only committees who have reduced the definition of density to its elements of mass per unit volume, with only D-35 offering a definition showing symbol, dimensions, and SI units. Committee D-2 on Petroleum Products and Lubricants is notable in that it has generated eight different standard definitions for the concept of density in various standards. This typifies the problem that not all committees have yet placed their terminology in a separate standard for common use by the committee.

There is still more trouble with density, however, especially for nonconsolidated matter, with the difficulty of describing precisely the volume being discussed. There are *apparent*, *bulk*, *linear*, *dry*, *block*, *particle*, *packing*, *skeletal*, and *theoretical* densities, some of which are clearly synonymous. Eleven definitions for *apparent* and nine for *bulk* density suffer from some of the same troubles as those for the base term. The systematic attempt by D-32 on Catalysts to categorize the hierarchy of relevant volumes by use of the density types: *packing*, *particle*, *skeletal*, and *theoretical* is noteworthy, but not as clearly drawn in the *Compilation* as it is in D 3766, Definitions of Terms Relating to Catalysts and Catalysis, their terminology standard.

Is there still more trouble with density? Not really very much more. There are terms emphasizing measurement method or condition. *Pour*, *tap*, and *wet* densities are of this type and are not inappropriate. Still other terms are used in the literature: *kerosine*, *immersion*, and *helium* densities—although not with ASTM definitions—emphasize different methods to measure the *skeletal density* conceptually described and named by D-32. These terms pose no problems when the definition is well formed.

The basic trouble with density then is that in ASTM there are many standard definitions of density, few of which are rigorously defined, and that are often too specific. Really, is this what standardization is about? What then should be done?

You could help reduce this Babel of terms. Look at your committee's definitions of density. Is there more than one? Encourage your terminology subcommittee to develop a good one and to support its efforts to use it in other subcommittees' products. That is all there is to it. The problems of clear and discriminating terminology are not simple. It takes continual

attention and thought to determine those concepts that need definitions and then to proceed to define them with brevity, clarity, and usefulness. *Density* deserves your attention.

Richard A. Strehlow

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Reprinted from the September 1988 issue of Standardization News, p. 16.

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## TERMINOLOGY UPDATE

### Opposites Attract

People fascinated by terminology often create mental word games to play while going about their business. There is the professor who collects oxymorons (self-contradictory phrases) such as jumbo shrimp, terribly good, and deafening silence. My sister is fond of unopposed negatives—words like unwieldy, unruly, inane and defunct. (How can something be wieldy, ruly, ane, or funct?) The late chairman of Committee E-6 on Performance of Building Constructions, Morris Lieff, an inveterate punster, used to berate verbal redundancies such as shrimp scampi and organic vegetables. (Scampi is Italian for shrimp. What is an inorganic vegetable?)

This column will describe the game of “contradictory meanings.” The object is to find words or phrases that can take opposite meanings depending on context. The motive here is to demonstrate by example the importance of precision in choice of words. Only American, not British, usage will be employed. There are many words and phrases that mean different things on opposite sides of the Atlantic, such as “tabling a motion.” In the United States, it means take it off the table; in the United Kingdom, put it on the table. Here, then, are some samples of contradictory meanings from American English usage that the writer has collected over the years.

**Sanction**—This is the classic of the genre. Like many other words, it can be used either as a noun or a verb. Unlike most, however, its noun and verb forms have opposite meanings. To sanction an event is to officially approve it, as in a “federation sanctioned match.” But a sanction is a punishment imposed to express disapproval, as in “the senator voted to impose sanctions on the intransigent regime.”

**Have Reservations**—If you do not patronize a certain restaurant or airline, it may be because you “have reservations” about it. However, if you change your mind and decide to use it, you would need to make sure you “have reservations” for it.

**Technically**—This adverb can refer either to “technique” or to “a technicality.” These two usages can create opposite meanings. Thus the sentence, “That is technically impossible,” could mean either: “That is impossible using any known technique” or “Strictly speaking, that is impossible, but for all practical purposes you could do it.”

**Old**—When referring to stages in a person’s career, it can mean either recent or long ago. “The old Nixon” usually refers to Nixon as an old man, his current state. But “the old Nixon” might also mean “the former Nixon”—the Nixon of old times—that is, when he was a young man.

**Last**—Can mean penultimate or ultimate. A writer's last book usually means the final (ultimate) one, as in "Her last book was published shortly before she retired." But it could instead mean the book before the current one (penultimate), as in "Her last article was better than this new one."

**All over**—This can mean either "widespread" or "defunct." A retail store chain might be so successful that its outlets are "all over." On the other hand, an unsuccessful chain store that went out of business is "all over."

**Resign, re-sign**—Purists may object because "re-sign" is not, strictly speaking, a word, but it has been used in too many sports columns to ignore it here. A professional athlete who does not renew his contract "resigns" from a team. But an athlete who does renew his contract "re-signs" with the team.

**Open, closed**—About drawbridges only: an open bridge is closed to car traffic; a closed bridge is open to car traffic.

The writer hopes this column has been useful in demonstrating the need for precise definition and usage of technical terminology. Readers who can add examples of their own are invited to contribute them for a future column.

Matthew Lieff

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Reprinted from the October 1988 issue of Standardization News, p. 17.

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## TERMINOLOGY UPDATE

### Another Viewpoint on Descriptions of Terms

I must express some disagreement with the July Terminology Update, entitled "Let's Get Rid of Descriptions of Terms," by my old Committee on Terminology (COT) colleague, Herbert Pratt. He correctly points out that the concept of "description of terms" has neither become adequately or consistently understood, nor widely enough implemented. I do not agree, however, that the major problem addressed by that concept can be solved by the means he proposed.

What is that problem? Let me begin with an analogy. At the beginning of my automobile insurance policy, I find "definitions" like these:

**you or your**—the named insured or named insureds shown on the declaration page;

**occupying**—in, on, entering or alighting from; and

**bodily injury**—bodily harm, sickness or disease, including required care, loss of services, and death resulting therefrom.

These definitions, and others in almost every legal document, represent nothing more than a form of shorthand, to allow provisions of the document to be written concisely and yet interpreted precisely. They do not belong in any dictionary: their sole intended application is to the document in which they appear.

ASTM standards contain many "definitions" of a very similar nature. Here are some examples; see E3.4.2 in the 7th edition of the *ASTM Form and Style Manual (Blue Book)* for others.

**failure**—(for the purposes of this method)—bursting, cracking, splitting or weeping (see page of liquid) of the pipe during test (from C 2387)

**pipe**—asbestos-cement perforated under-drain pipe as defined in Sections 1, 2, and 4 (from C 508)

**score value**—the minimum weight, in pounds, added to the load lever weight pan, at which scoring or seizure occurs (from D 2508 and D 2782)

The essential attribute of all these definitions is that their purpose is simply one of convenience for the document in which they occur: there is again no intent of a broader application, not even within a specialized technical field.

With this viewpoint (supported by Paragraphs E2.2.3 and E3.4 of the 7th edition of the *Blue Book*) it really is not so difficult to judge what should (and what should not) be labelled as a "description of term." It also answers Pratt's question, "if the same description is used in two standards, is it no longer a description?" No—it is irrelevant whether the same description occurs in one or several standards. In each case, its purpose is only to serve that standard, not to suggest a broader use. In my view, such descriptions of terms have no place whatsoever in the *Compilation of ASTM Standard Definitions*.

What, then, of Pratt's proposed remedies? One is to treat descriptions of terms as definitions, but rigorously delimited to their application. This would clutter up the *Compilation* unnecessarily with entries that should not be of interest to anyone except a user of the originating standard. This, of course, is one of the problems we now have. All the cited examples of ASTM "description of terms" are actually in the *Compilation*, as definitions.

Pratt's second proposal is to present them as discussions appended to broader definitions. In some instances this may be appropriate, but in many it would merely clutter up the original standard with unneeded general definitions. Would it serve any purpose to prefix broad definitions of "failure" or "score value" to the specialized descriptions quoted?

Is there a solution? As Pratt says, descriptions of terms comprise only a small fraction of ASTM terminology. Much more prevalent and more serious is that, despite the best efforts of several generations of COT, the majority of definitions in the *Compilation* still are either not adequately delimited, or, conversely, are needlessly worded too narrowly, or their application is not properly indicated at all. See "Dos and Don'ts for Definitions," SN, June 1977.

One approach to solving all of these problems—and getting rid of the label "description of terms"—might be based on a policy proposed years ago by Richard Strehlow, current COT chairman, that every ASTM definition must include a delimiting statement. I always feared this would lead to many broad concepts being needlessly restricted to narrow fields. It might work, however, if the following specific policies and guidelines could be adopted.

On the broadest level, COT would specify a group of standardized delimiters for broad technical fields that overlap several committees. These could be used by any committee, when applicable. If different definitions for the same term appeared with one of these delimiters, then a coordinating effort would be initiated. On the next level, each technical committee (with COT assistance) would specify a standard delimiter for its own scope. If it did not agree with a coordinated broader definition, it could write its own with this delimiter. Also, it would use that delimiter for specialized terms or meanings solely within its scope. The third level would be any narrower delimitation than that for the committee scope, but still applicable to the terminology of a specialized field. The lowest level would be the stan-

dardized delimiters "as used in this method," or "as used in this specification," for what we now call descriptions of terms. While still labelled definitions in the standards that originate them, they would not be included in the committee's definitions standard, nor in the *Compilation*.

I hope that Pratt's article, and this reply to it, may initiate some new incisive thinking and discussion on how to solve ASTM's longstanding terminology problems.

Frank J. Heymann

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Reprinted from the November 1988 issue of Standardization News, p. 16.

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## TERMINOLOGY UPDATE

### What Became of Nomenclature in ASTM's Book?

One hundred and sixty years ago, Noah Webster's dictionary listed two meanings for the term, "nomenclature:" "1. A list or catalogue of the more usual and important words in a language, with their significations; a vocabulary or dictionary, 2. The names of things in any art or science, or the whole vocabulary of names or technical terms which are appropriated to any particular branch of science; as the *nomenclature* of botany or of chemistry [sic]; the new *nomenclature* of Lavoisier and his associates." (*An American Dictionary of the English Language*, 1828).

Thus was nomenclature firmly established as a polysemous word (marked by multiplicity of meaning). And Webster's today adheres pretty much to the same two concepts, viz. "1. NAME, DESIGNATION; 2. the act or process or an instance of naming; 3 a) a system or set of terms or symbols b) a system of terms used in a particular science, discipline, or art . . ." (*Ninth New Collegiate Dictionary*, 1983). In 1920, when Committee E-8 on Nomenclature and Definitions was organized in ASTM, **nomenclature** apparently meant a listing of terms used in a particular branch or discipline of science or engineering; while **definitions** concerned the explanations of those terms. This terminology applied also to most technical committees, whose subcommittees were known by the same cognomen.

Using Committee D-20 on Plastics as an historical example: D 675 originally was adopted as a standard in 1942, entitled, "Tentative Classification of Terms and Descriptive Nomenclature of Objects Made from Plastics." It named and described "visible characteristics of a plastic object which can be seen, but which cannot be expressed in numerical values." The names were grouped under five classifications: color characteristics, surface characteristics, clarity, soundness or structure, and shape. Because the named characteristics were also described (defined), this standard combined both concepts of **nomenclature**. Then, in 1946, D-20 adopted a new standard, D 883, Definitions Relating to Plastics, but separately from D 675, apparently wishing to maintain the special nature of the "naming" process. But in 1962, D 883 was re-titled "Nomenclature Relating to Plastics," and consolidated with D 675. Finally, all ambivalence over **nomenclature** was resolved in D-20 by adopting, in 1975, the current title, "Definitions of Terms Relating to Plastics." This indecision over the proper

usage of **nomenclature** was seen also in the terminology standards of other technical committees.

When the Society Committee on Terminology was organized in 1976, superseding the former Committee E-8, a principal rationale for adopting its new title was recognition of **terminology** as the science of concepts and terms, as well as a set of terms representing the concepts in a field, (*Blue Book*, Part E). **Nomenclature** is now defined as "a system of terms which is elaborated according to pre-established naming rules." This definition comes from an International Organization for Standardization (ISO) standard on terminology, and it seems somewhat stilted and pedantic.

Fortunately, the distinctive concept of **nomenclature** solely as a naming action is now recognized in the *Heritage Dictionary*. Nowadays, usage of **nomenclature** has swung toward the specific meaning of naming things, and away from the more general meaning of a vocabulary or dictionary. *Heritage* defines **nomenclature**: "A system of names; systematic naming in any art or science" (*Heritage Illustrated Dictionary of the English Language*, 1979). There is no second meaning.

So, what is the message? Let us consider reviving the proper use of **nomenclature** as a naming process in ASTM standards; and of course, as just one of the functions of the broad field of terminology.

Wayne Ellis

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Reprinted from the December 1988 issue of Standardization News, p. 18.

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## TERMINOLOGY UPDATE

### Diary Shows the Consensus Process at Work

The August 1988 issue of *SN* published a revision of Part E of the *Blue Book* (Preparation and Use of Terminology in ASTM Standards), work on which was begun in 1981, by the Society's Committee on Terminology (COT). Herbert T. Pratt, who was involved with the revision from the beginning, kept a diary of significant events that clearly shows the consensus process at work. His diary is published here as it was compiled.

COT Working Group 9, which was assigned responsibility for the revision, met no fewer than 20 times. At least 28 committees as well as the ASTM staff, the Committee on Standards (COS), and COT reviewed and commented on one or more of the 19 drafts. Not infrequently, the working group had to resolve different points of view that called for diametrically opposed actions and wordings. Pratt estimates that in the course of the seven year project 1500 man-hours were expended and that as many as 2000 changes were made. These modifications ranged from simple changes in punctuation and wording to the addition of new paragraphs, whole sections, and a complete index. At one time, new drafts, revised drafts, comments, and correspondence more than filled one file drawer.

Working Group 9 sees Part E as a living document, always subject to those revisions that will keep it meeting changing Society needs. The next scheduled revision will be in 1993.

Meanwhile, users are invited to send comments on shortcomings and suggestions for improvement to Peggy Loughran, COT staff manager. They will be duly considered at WG-9's biannual meetings.

### CHRONOLOGY OF REVISION

#### **Part E—“Preparation and Use of Terminology in ASTM Standards”** *Form and Style for ASTM Standards (The Blue Book)*

1981–1982	T. R. Bainbridge of Committee D-13 on Textiles undertakes revision of Part E at request of H. T. Pratt, Chm. of COT.
9/28/1982	Draft issued by T. R. Bainbridge.
1982–1983	Bainbridge and H. T. Pratt continue revision to mutual satisfaction.
11/16/1983	Draft 2 entered into DuPont Co. word processor.
12/19/1983	Review by Bainbridge.
1/9/1984	Draft 3
1/18/1984	Draft 4
2/29/1984	Draft 5 based on brainstorm session at COT meeting.
9/8/1984	Draft 6
9/11/1984	Draft 7 to ASTM staff.
9/19/1984	Minor revision of Draft 7.
1/20/1985	H. T. Pratt reviewed issues from ASTM staff.
Feb. 1985	J. Gaskill, new chairman of COT, appoints Part E Revision Task Group.
3/5/1985	H. T. Pratt reviewed issues from COT meeting.
	Review by W. Ellis, E. Shuman, H. Pratt (Task Group on Part E).
3/11/1985	H. T. Pratt sent Draft 7 to J. Gaskill.
4/1/1985	Pratt wrote Draft 8 and sent to J. Gaskill, covering comments by E. Shuman.
April 1985	DuPont word processing disk sent to ASTM for entry into word processor.
7/18/1985	Editorial review of Draft 8 by T. R. Bainbridge.
7/20/1985	W. Ellis sent COT review comments to COT Part E Task Group.
8/1/1985	Part E Task Group recommendations compiled.
9/6/1985	COT Letter Ballot of Draft 8.
11/15/1985	Comments on Draft 8 ballot to 15 appointed COT members for review.
1/29/1986	H. Pratt rewrote Draft 8 to incorporate comments from T. R. Bainbridge.
3/31/1986	Part E Task Group met to review COT and Bainbridge comments.
4/29/1986	Pratt issued Draft 9 based on comments of 3/31/86.
5/13/1986	Further comments received from T. R. Bainbridge and W. McKee.
5/14/1986	Draft 9 to Part E Task Group for review (H. Pratt).
5/21/1986	Draft 10 completed (H. Pratt).
7/9/1986	Meeting, W. Ellis, H. Pratt, T. McMasters (ASTM staff) to review comments.
7/9/1986	Draft 11 completed (H. Pratt).
2/26/1987	Comments received from ASTM editorial staff (R. Storer).
2/28/1987	Memo to COS drafted by W. Ellis outlining work to date on Part E.
3/2/1987	Memo drafted on 2/28 sent to Committee on Standards (COS) from COT.

- 3/3/1987 Comments from editorial staff reviewed by W. Ellis and H. Pratt and included as appropriate with mission.
- 3/3/1987 Draft 12 completed for review by COS Task Group on the *Blue Book*.
- 4/23/1987 Hans Greene (ASTM staff) returns Draft 12 to W. Ellis with comments for further revisions.
- 7/7/1987 W. Ellis, H. Pratt, E. Shuman met to review comments on Draft 12 from COS, T. Bainbridge, R. Strehlow, and R. Storer. Draft 13 forwarded to COS for its meeting on 7/8/87. Cover letter and reasons for rejection of some proposed changes attached to draft.
- 7/8/1987 W. Ellis and H. Pratt met with COS task group on the *Blue Book*.
- 7/31/1987 K. G. Pearson, ASTM vice-president, Technical Committee Operations Div., distributed Draft 13 to all committee chairmen, COS, COT, technical subcommittee chairmen, editorial subcommittee chairmen, the Committee on Technical Committee Operations (COTCO), and the chairman of Technical Committee Activities for comment. Comments to be returned by 9/25/87.
- 9/22/1987 W. Ellis, H. Pratt, E. Shuman, C. Sperati, R. Strehlow reviewed comments from 18 committees. More than 220 changes made, most of which were editorial. W. Ellis to prepare response to COS on acceptance or rejection of comments. H. Pratt to prepare Draft 14.
- 9/23/1987 Proposed changes approved by COT WG-9.
- 9/23/1987 Draft 14 prepared by H. Pratt.
- 9/24/1987 Draft 14 approved by COT.
- 9/25/1987 W. Ellis completed index to Part E.
- 10/1/1987 H. Pratt reviewed comments from seven committees. Most comments related to philosophy of terminology or management techniques. About ten changes made. Also corrected about 40 typos and errors in third typing of Draft 14. Reissued as Draft 15 to simplify record keeping.
- 10/27/1987 H. Pratt, W. Ellis, and E. Shuman met to review comments from COS and four committees. About 50 changes made as a result. Most changes were made to improve clarity of thought. All comments from all committees were reviewed again for consistency with final document. H. Pratt prepared Draft 16. W. Ellis wrote summary report for COS.
- 10/28/1987 H. Pratt, W. Ellis, and E. Shuman met with G. Steele and L. Creasy of the COS *Blue Book* Subcommittee to consider if all 33 respondents' comments had been adequately addressed. Twenty-two substantive changes made. Pratt prepared Draft 17.
- Draft 17 approved by Joint COT/COS committee for publication. COS to modify other parts of the *Blue Book* to bring them into accord with Part E.
- 10/30/1987 Draft 17 proofread by H. Pratt.
- 11/7/1987 Typos in Draft 17 phoned to P. Loughran by H. Pratt.
- 11/17/1987 Draft 17 approved by COS except for two cases of mandatory language (shall) in E1.1 and E2.2.
- 2/3/1988 J. A. Thomas, ASTM executive-vice-president, met with COS to review reasons for rejection of mandatory language.
- 2/24/1988 J. A. Thomas met with COT WG-9 to review his meeting with COS. We agreed to retain the mandatory language but to rewrite the

	Introduction to remove the "appeal" clause and to point out that the new Part E is not a mandate. Ellis will rewrite today.
2/25/1988	COT approved Draft 18 for resubmission to COS by J. A. Thomas at its meeting on 3/8/1988. H. T. Pratt to arrange for publication of Part E in <i>SN</i> .
3/8/1988	COS reviewed Draft 18 and removed mandatory language (shall) in E1.1 and E2.2, but changed must to shall in E2.2, E4.3.2, E10.2, E11.1, E12.3, E14.1, and E23.2.2. They also deleted the last three lines of E5.3.
4/18/1988	H. Pratt completes short lead-in article to publish with Part E in <i>SN</i> and sends it to K. Riley, editor.
4/19/1988	H. T. Pratt reviewed COS draft and phoned nine changes to P. Loughran. These included changes submitted by L. Bowman.
4/20/1988	K. Riley agrees to publish new Part E in August <i>SN</i> . H. T. Pratt submitted introductory statement to accompany text.
5/11/1988	Letter from J. A. Thomas to R. A. Strehlow, chairman COT, announcing COS approval of Part E.
6/1/1988	H. T. Pratt proofread draft of <i>SN</i> article and phoned changes to Cheryl Gibson, sr. asst. <i>SN</i> editor.
6/15/1988	H. Pratt reviewed COS approved draft of Part E and gave approval to P. Loughran.
8/3/1988	Part E published in August issue of <i>SN</i> . H. T. Pratt receives copy from K. Riley.
8/8/1988	Memo by K. Pearson of ASTM to editorial subcommittee chairmen announcing publication of Part E in <i>SN</i> , that reprints will be available, and that the <i>Blue Book</i> is scheduled for republication in late 1989.

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Reprinted from the January 1989 issue of Standardization News, pp. 18-19.

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## TERMINOLOGY UPDATE

### Clear Definitions, Thesauri, and Communication

*The problem with communication is the illusion that it has occurred.*

G. B. Shaw

Recently, the Committee on Terminology (COT) began the process of establishing accepted meanings of the technical terms of its specialty—terminology, a field that has become professionalized only in the last two decades. We balloted a set of definitions for terms taken directly from a draft International Organization for Standardization (ISO) standard that had been developed by members of the international terminology standardization community. The ballot did carry. However, as the committee considered the negative votes—as required

for the administrative ballots of our committee—we found sufficient grounds not to give final approval to the results of that ballot. We value consensus in ASTM.

Although several of the definitions balloted were satisfactory, many were found to be flawed in their ability to communicate to the ASTM terminology community. In addition, although some of the terms balloted are common terms, the technical concepts involved are not commonly needed or used by the engineers and scientists who use ASTM standards. The need for the glossary was not evident and the relationships among the terms was not clear.

For whom do we write definitions? We write them for the community of people who read and use ASTM standards. Clarity of meaning for this group is our principal goal. The user of ASTM standards must recognize and understand the terminology. This applies to the technical terms in a specialty even more than it does to words of common usage.

There is another community, however, a broader one that encompasses people of other nations, mother tongues, traditions, and backgrounds, that has other needs. We need to recognize the differences of our perceptions from theirs in order to communicate effectively. As ASTM committees interact increasingly with foreign standards organizations, the need for standardized meanings of terms becomes more evident.

A definition statement that is internationally agreed on for a technical term will probably seldom be found. From our experience with COT's administrative ballot, it appears that simple conformity to international usage in definition is neither sufficient nor feasible. However, normalization of ASTM terminology with that of U.S. trading partners is of central significance to us.

I suggest that where there is an internationally accepted usage for a central term in a technical committee's field of expertise, discussion be added to a definition listing some of the foreign synonyms or equivalents that are known to the committee. This may help a little, but there is a much better way.

An organized set of the concepts in a technical field is central to the communication process and is basic in professional terminological practice. The product of organizing the concepts and terms is a micro-thesaurus of terms for the field showing the relationships among the concepts. This is the approach that the world terminology community typically uses in specialized subjects. It can do much to enhance the use of ASTM standards and to facilitate international communication.

COT recommends that technical committees undertake the construction of thesauri in their fields. COT has a working group on the subject and is developing guidelines that should assist terminology subcommittees in their efforts to develop thesauri products. Participate in your committee's terminology process and consider this recommendation.

R. A. Strehlow

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Reprinted from the February 1989 issue of Standardization News, p. 18.

# TERMINOLOGY UPDATE

## Searching ASTM Standards: Some Questions and Answers

It was Will Shakespeare, that coiner of clichés, who had Hamlet say . . . "it is a custom More honour'd in the breach than the observance." The "custom" in ASTM terminology of providing index terms in standards similarly is neglected. I call it a custom, even though the *Form and Style Manual for ASTM Standards (Blue Book)* (A28, B31, C27) requires listing "appropriate terms for indexing, selected from both the title and body of the document and including general, vernacular, and trade terms. . . ." But leaf through any volume of the *Annual Book of ASTM Standards* and you will find very few standards with index terms listed. If the mandate to list index terms is not mandatory, then one must hope without hope that it is customary!

Can it be that index terms are not needed? Hardly so, since Volume 00.01, *Subject Index: Alphanumeric List* is a most useful reference. Do standards authors find it too tedious to list index terms? Or is there the excuse of not having a ready reference list of field terms from which to select appropriate entries? Probably, the answer is "yes" to the latter questions.

ASTM has on its publications staff a highly competent professional indexer. His responsibility is to index the *Book of Standards* (and other books), but not to list index terms within individual standards. Why not? Because the staff indexer cannot possibly be expert in all the fields of ASTM standards. Yet, he is faced with choosing index terms for the individual standard based on scanning the document without insight to its technical or scientific basis. Technical committee experts are prone to criticize the absence in Volume 00.01 of obvious (to them) index terms. The experts who develop the standard have the best expertise to select the standard's technical keywords. Those who search indexes, seeking to retrieve standards information and data are entitled to the best available indexing terminology, and that must originate with the standards authors in cooperation with ASTM's staff indexer. Since electronic searching of databases is commonplace, it follows that standardization of access terminology (index terms or keywords) is essential.

How is such standardization to take place? It already has happened in Committee D-18 on Soil and Rock! See D 3584, Practice for Indexing Papers and Reports on Soil and Rock for Engineering Purposes. Therein is a comprehensive listing of field terminology showing interrelationships—in other words, a microthesaurus of terms. Every committee should follow this example. The Committee on Terminology is working on the development of guidelines for the preparation of standard thesauri. (Terminology Update, *SN*, August 1988.)

Committee E-5 on Fire Standards is about to undertake development of a standard "glossary of fire terminology." Several fire glossary publications are extant, and are useful supplements to ASTM E 176, Terminology Relating to Fire Standards. What really is needed is a microthesaurus of fire terminology; a compilation of fire related terms without definitions, so arranged that the concepts are grouped under broad categories, with indication of narrower terms, related terms, preferred terms, and deprecated terms (*Blue Book* E33.2). This thesaurus would provide E-5 standards authors with a standard list of terms for indexing their standards; and would allow searchers for fire standards information and data to browse through an entire field of access terminology seeking specific entry terms to the information/data bank.

Think then of the broad utility to standards developers and users of a covey of ASTM microthesauri resulting from such ASTM committee terminology work. We could say again with Hamlet (although in a more optimistic vein), "... 'tis a consummation Devoutly to be wish'd."

Wayne Ellis

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Reprinted from the March 1989 issue of Standardization News, p. 18.

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## TERMINOLOGY UPDATE

### Opposites Attract—The Sequel

A recent Terminology Update discussed words and phrases that can take contradictory meanings depending on context. The purpose of that article was to show, by example, the importance of the precise choice of words. In many situations, ambiguous wording leaves a reader guessing between two directly opposite interpretations. Nine such troublesome terms were listed in that column: sanction, technically, all over, have reservations, old, last, resign, open, and closed. (How these words and phrases generate contradictory meanings is explained in detail in October 1988 *SN*, p. 17.)

Now we continue this object lesson by presenting nine more such difficult denizens of the dictionary. Two were contributed by readers of the first column. One each is from a classic television show, an old joke, and the writer's own experience. Readers who enjoy this endeavor are again invited to submit their own examples to ASTM headquarters for publication in a future column.

**Rent**—Steve S. Braddon, of Cadbury USA in Naugatuck, CT, wrote in to report that "Rent can mean either that you want to have a particular item temporarily, or that you have the item to provide to someone else temporarily." For example, when a tenant rents an apartment from a landlord, the landlord simultaneously rents the same apartment to the tenant.

**Lease**—This works like rent. When two parties execute an apartment lease, the landlord (or lessor) leases the apartment to the tenant (or lessee), while simultaneously the tenant leases it from the landlord.

**Release**—This brings us naturally to release, which can mean either "extend a lease" or "let go." With a renewable lease, when the initial term of occupancy expires, the tenant can "re-lease" the apartment for another year (stay in it) or "release" the apartment to a new tenant (move out).

**Ravel**—Kenneth N. Mathes, an electrical insulation consultant from Schenectady, NY, brought ravel to our attention. According to *Merriam-Webster's Ninth New Collegiate Dictionary*, the verb ravel can mean either: (1) to separate or undo the texture of: unravel; to undo the intricacies of: disentangle; or, (2) entangle, confuse.

**Biweekly**—Purists and followers of Fowler's *Modern English Usage* will flinch at the inclusion of biweekly in this column. However, a sober observer of American English usage

must conclude that its meaning has changed over the last several decades. Originally, biweekly meant only "once every two weeks," and its linguistic cousin, semiweekly, meant "twice a week" (literally, once every half a week). But persistent misuse has blurred the distinction between these two words, so that now biweekly can properly take either meaning; or, so contends Merriam-Webster.

**Out of**—This can mean "from within" or "outside." A company with its headquarters in Philadelphia is said to operate out of Philadelphia. On the other hand, a company whose main office is not in the City of Brotherly Love is also out of Philadelphia.

**Right**—While approaching an unfamiliar intersection, at which I needed to make a left turn, I asked my companion, "Do I turn left here?" The monosyllabic response I received: "Right." It was not immediately clear to me whether that meant "Yes, you are right, turn left here," or "No, turn right here."

**Fine**—An old chestnut tells of a policeman who approaches a teenage couple necking in a car parked right in front of a no parking sign. "Can't you read the sign?" asks the officer, "It says: fine for parking here." "Yes officer," replies the young man, "and we heartily agree."

**Serve**—Fans of the late Rod Serling's macabre television anthology series *The Twilight Zone* may remember an episode entitled "To Serve Man." (Warning to fans of *Twilight Zone* reruns who have not yet seen this episode: do not read the rest of this paragraph, or a classic will be ruined for you.) The show chronicles the landing on earth of seemingly benevolent and altruistic superintelligent aliens. The intergalactic visitors offer to take human volunteers to their home planet for a life of comfort and ease beyond their wildest dreams. The title of the aliens' guidebook, *To Serve Man*, seems to promise that the aliens will devote themselves to their human friends. Too late, the earthlings discover that the alien volume is actually a cookbook.

Matthew Lieff

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Reprinted from the April 1989 issue of Standardization News, p. 18.

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## TERMINOLOGY UPDATE

### Sex and the Single Pronoun

My wife's birthday found us last February at a local restaurant. Stapled to the menu was a Valentine's Day promotion that read: "Show your sweetheart how much you really love them. Make your Valentine's Day reservation early."

Miss Nolan, my fourth grade teacher, would be aghast. "Sweetheart," a singular noun, referred to by a plural pronoun (them). Heavens! Why such violence to proper English syntax and grammar?

The proponents of descriptive lexicography at Merriam-Webster hold that language is organic, subject to constant change. They would have us believe that, were it not for unorthodox usages arising to fulfill our ever changing communication needs, our language would

never grow or develop. Without such changes, we could still be speaking Old English or Latin to this day. According to this view, neologisms and errors are like "mutations" in the "genetic pool" of language.

In living populations, mutations appear constantly. Most are discarded by natural selection. However, those that fulfill an evolutionary "purpose"—give their bearers some advantage in the struggle to perpetuate their kind—may survive and be replicated in future generations. These successful mutations form the basis for the evolution of new species.

Analogously, some incorrect expressions are eventually incorporated into proper speech if they fulfill some practical linguistic purpose. Is there a purpose, then, in using "them" in the example? This writer thinks so. It illustrates the simplest solution to a minor but vexing problem. What pronoun should be used to refer to an individual of unspecified gender?

Until relatively recently, English speakers routinely used masculine forms to represent collective groups of mixed gender and individuals of unknown gender. Words like mankind, chairman, and brotherhood, while literally referring to males, are understood to stand for both males and females. When an individual's gender is unknown, usually a masculine pronoun (he, him, his) is used. ("When a client calls, tell him that . . .")

The vast social changes of the last three decades have altered the situation somewhat. Millions of women have entered the workplace, including female police, football announcers, and a U.S. Supreme Court justice. Some see the continuing masculine presumption in reference to individuals of unspecified gender as obsolete, undemocratic, or just plain rude.

Some subtle changes have been made to adapt to the new situation. Humanity or the human race can replace mankind. National Public Radio uses chair instead of chairman (a move not endorsed by ASTM). You just don't hear much about brotherhood anymore. Anyone interested in pursuing this subject can find a comprehensive treatment in *The Handbook of Nonsexist Writing* by Casey Miller and Kate Swift (New York: Harper and Row, 2nd edition, 1988).

Most of the new ways of dealing with indefinite pronouns, however, have been quite awkward. Many use combinations such as he or she, he/she, she or he, she/he, but in long pieces this practice quickly grows tiresome. Psychologist Shelley Goldberg wrote her entire masters thesis using "s/he" as the indefinite singular pronoun. Others have advocated use of such oddments as hir and thon. Some suggest using the feminine form instead of the masculine, as a sort of linguistic affirmative action. It is unlikely that any of these forms will gain wide acceptance.

The most generally accepted solution is to sidestep the issue diplomatically by using plural constructions wherever possible. English plural pronouns (they, them, theirs) are gender neutral. This practice is recommended by the *Associated Press Stylebook*.

However, in some cases use of the plural is not suitable, such as references to one's sweetheart. What then? The restaurant struck on a good solution: use they, them, and theirs as singular words.

Unthinkable, you say? But no—there is precedent for plural pronouns adding singular meanings. English long ago discarded the second person singular pronouns (thou, thee, thine) and their meanings were taken over by the corresponding plural forms (you, yours). You, originally a plural pronoun only, remains plural in form. For example, you takes are, a plural verb form: we are, you are, they are. However, now you can take plural or singular meanings, depending on context. (Ironically, the confusion in number this word causes has led to regional variations to differentiate singular from plural by adding redundantly plural vernacular forms such as "youse" and "you-all.")

The precedent extends to foreign languages as well. In French and German, the grammatically plural form of you refers not only to plural subjects, but in formal speech also to

singular subjects: *vous êtes, Sie sind.* (These languages differ from our own in that they retain a familiar, exclusively singular form reserved for family members and other intimates: *tu es, du bist.*)

So why not allow the same process to solve our pronoun gender problem? They, them, and theirs will retain their current plural meanings, but will gain additional uses as singular pronouns for individuals of unknown gender. The current singular pronouns will then refer only to individuals of known gender: he, him, his for males and she, her, hers for females.

The notice in the menu was the first published citation I have seen of this usage. However, I am convinced that it will ultimately be adopted generally. I recommend it to all who wish to avoid offending linguistic feminists and their sympathizers. Even if you really only have one sweetheart, if they happen to be one, why not show them this article?

Matthew Lieff

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Reprinted from the May 1989 issue of Standardization News, p. 16.

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## TERMINOLOGY UPDATE

### Who Killed Round Robin?

*With my little bow and arrow . . . —Nursery Classic*

In common use by all ASTM technical committees that develop test methods, the term, *round robin*, means *round-robin testing* or *round-robin test series*. But, in vain you will search for a definition in the *Compilation of ASTM Standard Definitions*. It is not defined in the "Glossary of Terms Appearing in A.S.T.M. Standards and Tentative Standards" prepared in September 1931, by Committee E-8 on Nomenclature and Definitions. (Presumably, the term did not then appear in standards.)

Now, look up *round-robin testing* in the index volume to the *Annual Book of ASTM Standards*. You will find: "See interlaboratory testing!" ASTM designation: E 691-87, Standard Practice for Conducting an Interlaboratory Test Program to Determine the Precision of Test Methods and nowhere is *round robin* mentioned. Use of the term apparently is discouraged. So, who "killed" round robin? How could a technical term still used so widely become officially shunned? Take a moment to review the etymology.

The *Oxford English Dictionary* calls *round robin* a mariners' term from its early (1732) use to describe a document embodying a complaint by aggrieved sailors, and having the names of the subscribers arranged in a circle so as to disguise the order in which they have signed. Brewer's *Dictionary of Phrase and Fable* says the device is French, and the term seems to be a corruption of *rond* (round), *ruban* (a ribbon). It was first adopted by officers of the government as a means of making known their grievances.

However, *Webster's Ninth New Collegiate Dictionary* disagrees on the etymology (saying the term is from the name *Robin*). It notes additional definitions: "something (as a letter) sent in turn to the members of a group each of whom signs it and forwards it, sometimes

after adding comment," and a "series," a "round." Obviously, from these latter concepts the "ASTM" meaning has evolved. But, what is the ASTM meaning? When was the term first used in ASTM? And if its use is to be deprecated the "experts" should tell us why!

The ASTM literature for at least the past 40 years is replete with technical articles on interlaboratory evaluation of testing methods and on ranking laboratories. The single entry in the *Fifty-Year Index to A.S.T.M. Technical Papers and Reports, 1898-1950* under "Round-Robin Testing," references a 1950 paper titled "The Design and Interpretation of Interlaboratory Test Programs." It describes a Committee E-11 on Quality and Statistics project to report on "Planning an Interlaboratory Study of a Test Method," a forerunner of standard E 691. Nowhere in the article is *round robin* mentioned; and since the term was then in wide use (witness the index entry), plainly E-11 preferred not to recognize it.

Buy why did not E-11 say so? (History is puzzling!) In 1963, the Special Technical Publication (STP) 335—*ASTM Manual for Conducting an Interlaboratory Study of a Test Method* appeared, sponsored by E-11. Aha recognition! "The procedure, covers interlaboratory evaluation of test methods, but not interlaboratory evaluations of materials . . . Since studies of the latter type are often also referred to as 'interlaboratory tests' or 'round robins', the above distinction is essential."

In an August 1964 Lashof paper in *Materials Research & Standards*, "Ranking Laboratories . . . in Round-Robin Tests," the lead sentence is "Interlaboratory studies or collaborative tests, popularly known as 'round robins,' are essential to ASTM committee work." Youden's 1963 paper, "Ranking Laboratories by Round-Robin Tests," says "round robins are undertaken for a variety of motives: to accumulate data that may be used to determine the precision and accuracy of a new or modified test procedure, to recheck an established procedure to ascertain whether there has been a deterioration in the accuracy arising from departures from the prescribed routine, to test the applicability of an established procedure to new materials, and to maintain a periodic check on the performance of a group of laboratories.

Sometime after 1964, *round robin* disappeared from the ASTM written vocabulary. I am intrigued by an apparently abrupt change in terminology practice, and seek its provenance.

Wayne Ellis

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Reprinted from the June 1989 issue of Standardization News, p. 19.

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## TERMINOLOGY UPDATE

### The English Language Hall of Fame

The history of our language is revealed through etymology—the study of word origins. Most English words come down to us from Greek, Latin, Germanic, or native American roots. The genesis of these ancient root words is often shrouded in antiquity. Some words, however, have clearer origins. Among these are *eponyms*, which originate through association with an individual's name.

The unusual achievement of contributing a word to our language is normally recognized

only in dictionary etymology entries. Life dates may be given there, along with a brief phrase connecting the eponymous person to the relevant word's meaning. It seems, however, that these individuals deserve more palpable recognition of their unique and colorful contributions to our language. A Hall of Fame of the English Language should be established, where their stories could be gathered and displayed for posterity.

At such a hall we would "meet" an astounding variety of people: noblemen and knaves, scientists and soldiers, inventors and insurrectionists, men, women, children, and even creations of fiction. There would be hundreds of plaques in such a hall. Nine are briefly described below. In keeping with this issue's theme, we focus on items found in the home. Future columns will visit other sections of the hall.

John Montagu (1718–1792), twice first Lord of Admiralty in Great Britain, was known for his mismanagement of the American Revolution. One of the reasons for his failure was that he was addicted to gambling. He spent so much time at the gaming tables that he had no time to eat his evening meal. So he often thrust his dinner meat between two slices of bread, and took his supper in the casino. He is better known to us today by his title, 4th Earl of Sandwich.

What is a sandwich without mayonnaise? This dressing is named after the town of Mahon in Minorca, a Spanish island in the Western Mediterranean. According to the *Dictionary of Eponyms* by Robert Hendrickson (New York: Stein and Day, 1985), this sauce was first concocted by French chefs to celebrate Richelieu's victory in driving the British out of Mahon in 1756. The original Latin name of Mahon was Portus Magonis, or "Mago's Port." It was named after General Mago, the brother of ancient Rome's archenemy, the Carthaginian leader Hannibal.

A favorite item in many people's closets during the changeable weather of spring and fall is associated with another British defeat. The *cardigan*, a collarless knitted sweater or jacket, buttoning or zippering in front, was first popularized by British general James Thomas Brudenell (1797–1868), 7th Earl of Cardigan. In 1854, he led the disastrous Crimean War cavalry charge immortalized in Tennyson's poem "The Charge of the Light Brigade."

Another general in the hall is an American who fought for the Union in the Civil War, Ambrose Everett Burnside (1824–1881). He commanded the Army of the Potomac and fought in North Carolina and Virginia. The hirsute General Burnside sported a distinctive style, which included muttonchop sidewiskers, mustache, and cleanshaven chin. The side-whiskers became known as burnsides, which eventually transformed into *sideburns*.

Not all the people in the hall are generals. Many are inventors, such as John L. Mason of New York. In 1857, he patented a widemouthed glass jar with an airtight screw top. The *mason jar* is to this day widely used for home canning.

The hall is not closed to women. *Peach melba* and *melba toast* are named in honor of Dame Nellie Melba (1861–1931), a world famous soprano around the turn of the century. Peach melba, a peach, ice cream, and raspberry sauce dessert, was first concocted for her by the French chef Escoffier. Melba toast, thin sliced bread toasted crisp, supposedly originated as burnt toast served to her by mistake. Being on a diet, she enjoyed it, and often ordered it again.

Not all eponymous people would be proud of the fame their word brought them. The man who first introduced tobacco to France was a diplomat and scholar named Jean Jacques Nicot (1530–1600). Tobacco became associated with him and was originally known to the French as Nicot's herb. The plant genus that produces the deadly, addictive leaf, *Nicotiana*, was named after him, as was its active ingredient: *nicotine*.

A plant with happier associations is the *poinsettia*. Each holiday season, many homes are brightened by displaying the bright red and green leaves of this handsome, ornamental shrub (genus *Euphorbia*). These plants are named for American politician Joel Roberts Poinsett

(1799–1851). In a long career he served variously as congressman from South Carolina, Secretary of War, and ambassador to Mexico. He discovered the poinsettia there in 1828.

Another American politician in the hall is Theodore Roosevelt (1858–1919), 26th President of the United States. During his presidency, Roosevelt was a vigorous man in his early forties. He favored outdoor activities and often went hunting during his vacations from the White House. On one of these trips, he is alleged to have spared or saved the life of a bear cub. Whether the story is true or not, it made for great publicity. Known to the public as Teddy, Roosevelt lent his name to the stuffed toys known as *teddy bears* that became popular during his term.

This is just a small sampling of the many hundreds of stories to be found in the English Language Hall of Fame. We will return in September, to visit the section devoted to textiles, the theme for that issue.

**Matthew Lieff**

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## TERMINOLOGY UPDATE

### Generic Gender

Learning foreign languages can be a tricky business. One must apply endless rules just seconds before new words and new word order are uttered in what one hopes will be a reasonable imitation of the native sound. The good thing is that, by and large, native speakers will coach along the stammering individual who is giving it the old college try. Put pen to paper, however, and the pros tend to be less forgiving.

Every language has its peculiarities. In extreme cases when new rules seem to defy all logic, I have found it best to just commit such rules to memory and not attempt to understand the reasoning behind their formation. One such seemingly illogical grammatical peculiarity comes to mind with Matt Lieff's May Terminology Update article entitled, "Sex and the Single Pronoun" in which he attempts to solve the pronoun problem, "Show your sweetheart how much you really love THEM."

In German, for example, a common word for sweetheart is *das Liebchen*. This is a two-part word: *Lieb* (meaning love) and *chen* (a diminutive, much the same as the English "ling" in duckling). The rule in German is, whenever a diminutive is affixed to a base word, regardless of its gender, the new word (*Liebchen* in this case) becomes neuter gender and therefore takes the neuter pronoun, *es*. Now for a painfully literal translation: "Show your sweetheart how much you really love IT!"

I agree with H. P. Michener's response (see page 15) to Lieff's article when he says the strange gender differentiation in familiar European languages is not much help. In German for instance, one speaks with a masculine mouth, hears with a neuter ear, smells with a feminine nose, sees with a neuter eye, and touches with a feminine hand—no matter if you are male or female. In that regard, English is a bit easier for the student, attributing gender only to living beings.

In "No Sex Please. We're English," the prize winning essay in the 1983 VERBATIM Essay Contest, David L. Miles explains, "Italians sail feminine boats on a masculine sea full of feminine water, Frenchmen masculine boats on a feminine one (where does the root of the difference lie, and why?), while Germans in a neuter boat can't make up their minds about neuter water in large quantities. Their thoughts larger than a puddle range from manly 'lake' (*der See*) to womanly 'sea' (*die See*) on the same word, masculine *der Ozean*, to neuter *das Meer*, an all-encompassing hermaphroditic-neutero overview."

Memorizing the varying genders while learning one new language is just one part of it. Add another foreign language to the list and confusion really sets in. I refer to Miles's closing paragraph after myself having closed the foreign language textbooks some years ago:

"English, both American and British, with 'no sex' in its words, thank you, blithely goes its merry way, keeping itself relatively simple in its verb structure and its views or wishes upon those who have difficulty enough getting a grip on this world. It realized wisely a long time ago that if nobody can agree on how the elements of creation might be windowed and pigeon-holed, maybe they ought not be winnowed at all."

Granted, gender determination is made easy in English, but the English language has more than enough other ways to challenge its student. With every new language there awaits a new source of frustration for the learner, but along with the frustration something wonderful takes place. It happens at a point in one's studies when the new language becomes a part of the learner, when one "feels" the language, becomes enriched. It's the stage at which you can refer to a sweetheart as an "it" and in some strange way, which cannot be put into words, it sort of—almost sounds right.

Barbara Schindler

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Reprinted from the August 1989 issue of Standardization News, p. 22.

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## TERMINOLOGY UPDATE

### **Textiles at the English Language Hall of Fame**

In last July's Terminology Update we introduced the English Language Hall of Fame, where stories of eponymous people would be enshrined. An eonym is a person whose name has become synonymous with an era, event, object, practice, or the like. July's column focused on items commonly found in the home, in keeping with that issue's theme.

This month we feature eonyms from the world of textiles. What follows are brief descriptions of people or families who became so directly associated with a particular fabric, pattern, garment, or manufacturing process, that their name eventually came to be used to describe it. Not surprisingly, many of these words come from the British Isles. Britain, after all, first mechanized the textile business during the industrial revolution.

Every year, millions of yards of cotton fabric are *mercerized*, or treated with caustic alkali to increase strength, luster, and ability to retain dye. The process was originated by John Mercer (1791–1866), an English calico printer. It did not become widely used until after his

death, however, when it became known that placing the yarn under tension eliminated shrinkage. Mercer's original process caused the cotton to shrink by about 25 percent, making the practice impractical in his time.

Close fitting, knitted sweaters or shirts are known as *jerseys*, and the fabric often used in such garments is called *jersey cloth*. Both are named for the Isle of Jersey, the largest of Britain's channel islands, where jersey cloth was first woven. The island was named Caesaria by the Romans in honor of their emperor, Caesar; Jersey is a corruption of the original Latin name.

The original *argyle* pattern was the green and white plaid of the Scottish Campbell clan of Argyll. Shortly after this clan was mentioned in Sir Walter Scott's novels, textile manufacturers began making socks and sweaters in similar plaids. Today, any knitted pattern of varicolored, diamond shaped areas on a solid background is called an argyle pattern, and argyle socks are still quite popular.

A *raglan* sleeve is one that begins at the neck and has a long, slanting seam line from neck to armhole. A raglan is a loose overcoat with raglan sleeves. Both are named for the first Baron Raglan, Fitzroy James Henry Somerset (1788–1855). For a time during the 1850s, after the death of Lord Wellington, the nemesis of Napoleon, Raglan was the commander in chief of all British armed forces. He popularized the raglan jacket by wearing it during the Crimean War; he died of cholera before that war ended.

Other eponyms from Britain related to the garment business include the *cardigan* sweater (covered last July), *derby* and *bowler* hats, the *chesterfield* overcoat, and *mackintosh* rain-coats. There is no room for discussions of all these here; check the references below for more information.

Many textile eponyms originated in France. One of the earliest precursors of the computer age was the Jacquard loom. The first automated machine controlled by punched cards, it was created by the French inventor, J. M. Jacquard (1757–1834). This device, capable of automatically weaving intricate patterns, such as those for damasks and brocades, revolutionized the fabric industry. Today, *jacquard* fabrics are still very popular.

*Georgette* is a sheer silk or rayon crepe of dull texture that is most commonly used in blouses and gowns. It is also called Georgette crepe. This material was named in honor of Madame Georgette de la Plante, a celebrated Parisian dressmaker of the late nineteenth century. It is not known whether or not she invented this fabric.

Jules Leotard was one of the most famous French gymnasts of the nineteenth century. He perfected the aerial somersault while performing acrobatics in Paris and London circuses. Leotard wore a snug fitting, one piece elastic garment of his own design. This style, known as the *leotard*, is now used routinely by dancers and acrobats. Although the original leotards were sleeveless, today's versions usually are made with long sleeves.

Let us not leave the United States out of this survey of textile related eponyms. The Knickerbocker family was well established in New York when Washington Irving published his satirical *History of New York from the Beginning of the World to the End of the Dutch Dynasty* under the pen name "Diedrich Knickerbocker" in 1809. One of the first best-sellers, Knickerbocker's history was reissued several times. An 1850 edition featured illustrations by British artist George Cruikshank showing Knickerbocker and his fellow Dutch burghers dressed in baggy trousers buckled just below the knee. This style, known as *knickers*, quickly became popular among boys and golfers.

A form of knickers was later developed for women. Amelia Jenks Bloomer (1818–1894), of Seneca Falls, NY, was an early feminist editor and temperance campaigner. She did not invent or first wear the costume that was named for her. However, she promoted it so tirelessly that eventually her name became inextricably associated with it. Originally, *bloomers*

consisted of a short skirt worn over bulky, loose fitting trousers gathered at the ankles. While this costume is now extinct, the name survives to describe a women's undergarment of loose trousers gathered at the knee.

References: (1) Robert Hendrickson, *Dictionary of Eponyms* (New York: Stein and Day, 1985); (2) *Random House College Dictionary* (New York: Random House, Inc., 1982)

Matthew Lieff

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## TERMINOLOGY UPDATE

### Precision in Terminology

It was Bruno Walter, the noted maestro of the New York Philharmonic Orchestra, who said "By concentrating on precision, one arrives at technique; but by concentrating on technique one does not arrive at precision." Those of us in the technical committees of ASTM who prepare drafts of standards usually are concentrating on technique, and thus do not always arrive at precision of language. I won't lament the de-emphasis of writing skills in our engineering and science universities ("The deeper the sorrow the less tongue it has," says the Talmud), but the language in our standards often must withstand the scrutiny incident to related litigation. It is with good reason and in the light of experience that ASTM policy on terminology requires it to be "clear, explicit, and not liable to misinterpretation . . ."

What calls these thoughts to mind is a remonstrance from Stewart Fritts to the use of the word *cover*, often found in the scope section of ASTM standards; e.g. "This method *covers* the spectroscopic determination of . . ." His dictionary cites 26 definitions for *cover*, one of which is "to include; comprise; provide for; take in." But another is "to hide from view; to screen," certainly not clear and explicit usage! Fritts recommends replacement of "covers" with "describes, pertains to, outlines, evaluates, provides, establishes," etc., which convey a precise meaning for the reader.

John Lannon in his textbook, *Technical Writing*, puts the principle succinctly: "Be sure that what you say is what you mean. Even words listed as synonyms contain a different shade of meaning. . . . Choose high-information words that show exactly what you mean. Don't write 'thing' when you mean 'lever,' 'switch,' 'micrometer' or 'compass.' "

Usage in the English language is both flexible and dynamic. Linguists applaud the changing meanings of words as "living language." Yet, to avoid ambiguity and to achieve clarity we seek to define specific meanings of our terms through adoption of standard terminology. It is never a simple process, because each participant "is an expert," and indeed there is room to express a single concept using a variety of words.

Consider the term, *superimposed load*, defined by Committee E-5 on Fire Standards as "weights or forces applied to a specimen other than those associated with the weight of the specimen." Contrast this definition with the term, *imposed load*, "any load which a structure must sustain, other than the weight of the structure itself." Obviously the concept is the same; but why both "superimposed" and "imposed?" One expert says the proper term is *super-*

*posed.* Merriam-Webster allows that superposed and superimposed are synonyms, meaning to place over or above, so one could choose either without impairing clarity. But to *impose* is merely to place; (and to complicate further the terminology, Merriam-Webster says this meaning is archaic unless it is an obligation placed by authority!).

Committee D-10 on Packaging defines *static load* as "an imposed stationary force, constant in magnitude, sense, and direction;" while a dynamic load is "an imposed force that is in motion . . ." Plainly, the imposition of a load is today strictly an engineering concept not recognized by the common language dictionaries. This example is just another reason why standard definitions are important and essential.

No doubt a study of the plethora of ASTM terminologies would disclose many examples of imprecision. That is why ASTM standard definitions should be reviewed periodically (at least at five year intervals) to re-examine them for compliance with the policy (quoted above, and stated in Part E of the *Blue Book*). Editorial review of proposed standards and revisions must be concerned not only with form, style, and substance, but with clarity and explicitness of terminology.

Wayne Ellis

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## TERMINOLOGY UPDATE

### Opposites Attract—The Third Wave

Previous columns featured discussions of words and phrases that take diametrically opposite meanings when used in differing contexts. Eighteen such terms were presented in the October 1988 and April 1989 issues. (They were: all over, biweekly, closed, have reservations, fine, last, lease, old, open, out of, ravel, release, rent, resign, right, sanction, serve, technically).

We hope in this way we reduced the likelihood of confusion stemming from these ambiguous terms. The main reason for these columns, though, is to underline a more general message: that writers of technical documents must choose words very carefully. If such ordinary words and phrases as those listed can be completely misconstrued in common speech, how much more potential for confusion is there in technical writing?

To continue this object lesson, this column will introduce seven more terms that have developed opposite meanings.

**Oversight**—This word refers to supervising, or taking responsibility for, as in: "The line supervisor's critical oversight of all production personnel ensures highest quality." Alternatively, it can refer to complete dereliction of responsibility, caused by unintentional failure to observe the current situation, or to follow proper procedures. Thus: "The line supervisor's critical oversight was the most important contributing factor to the devastating accident."

**Clear**—Speaking of devastating accidents, the following incident, related in a letter from Sidney Joseph, P. E., of J. T. Donald Consultants Ltd., Toronto, Ont., is a remarkable, true story of the devastation that faulty communication can bring. It "is from an incident which occurred at an airport many years ago. During a winter snowstorm, the control tower ordered

a snowplow operator to clear the landing runway. Immediately, the operator started to remove the snow from the runway. Moments later, an incoming airplane collided with the snowplow, resulting in many casualties.

"The tower command to clear the runway, in this case, did not mean to rid of obstructions or hindrances but to disperse or disappear.

"All ASTM members and other professionals should acknowledge the ambiguity of the English language, and proceed carefully in all aspects of communications so that the information transferred does not become transformed."

**Argue**—This word can mean to hold forth either for or against something. The sentence, "No one in the meeting room argued the need for implementing the proposal immediately" can mean that no one argued against the need, and hence all agreed with the proposal. However, argue could also be construed here in the lawyerly manner, that no one argued for the need, and thus all were opposed.

**Get**—"Get the tools in the shed" could mean either get them out of, or into, the shed.

**Charged with**—This phrase can mean either assigned to do something constructive, or accused of doing something destructive, as in the following. (1) The suspect was charged with the crime. (2) The district attorney was charged with the investigation of the crime.

**Take care of**—"I'll take care of you, no matter what!" said (pick one): (1) the ardent suitor on his knee to his beloved; or, (2) the convicted gangster to the star prosecution witness, after sentence was pronounced.

**Give him the chair**—Does this mean the presiding officer's chair, or the electric chair?

Having run out examples, one can expand the game to include pairs of homonyms with opposite meanings. Since they are spelled differently, they would not be confused in writing, but since they sound identical, they could be confused in speech. Here are two examples to get things going.

The classic in this genre is raze and raise. For example, it's a waste that World's Fair buildings are razed so soon after they are raised.

Might and mite is another example. How ironic that the might of a great athlete can be neutralized by the mite that carries Lyme disease. (Ticks can be referred to in general as mites.)

Matthew Lieff

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## TERMINOLOGY UPDATE

### Future Hamlets Should Always Be Able to Tell "a Hawk\* from a Handsaw"

Seventeen years ago the British Standards Institution (BSI) needed to update all its glossaries in the field of building and civil engineering. With unusual foresight, it was seen that a co-ordinated exercise was required rather than piecemeal amendment. While a piecemeal approach might have brought individual glossaries up to date more rapidly, it could not have

achieved the controlled vocabulary of 8,000 terms that is now nearing completion. Early on, in the work of a comprehensive listing of definitions from existing BSI publications clearly showed that, when left to their own devices, every committee makes a fresh attempt at defining the words it wants to use. BSI had 11 definitions for the word "joint"—and that was only in the construction industry! To counter this tendency, a single technical committee was set up by BSI to work with its nine subcommittees within an overall plan, each subcommittee producing sections of the glossary for one area of construction. The same consultant sat in on all the subcommittee meetings, providing guidelines for the work and helping to edit the drafts as the work progressed. The process is now reaching its final stages. By the end of next year, 54 separate sections and subsections of BS 6100, Glossary of Building and Civil Engineering Terms, will have been produced. Some of them are technically equivalent to the International Organization for Standardization (ISO) standards, others contain many ISO definitions. But the essential feature of this work has been the control of terms and definitions over a very wide area in an industry in which traditional use of language constantly causes difficulties and where instructions must be passed between organizations of all sorts and sizes. For example, if a contractor is asked to paint a staircase, what does that include? The stair? The handrail? The walls? The ceiling? BSI does not recommend using the term "staircase" for technical communication. It is a confusing term, so "stair" and "stair enclosure" are preferred.

"Control" could give a misleading impression of what has been achieved by BSI. Language does not respond too readily to rigid control. There will always be inconvenient synonyms and inconsistent uses of words in different contexts, but there should also be a continuing effort to clarify usage and prune out usages that tend to choke communication in a technical field. Simple things can help. Definitions can follow a consistent style. BS 6100 does not start a definition with an article (a or the) unless it helps to clarify the meaning. The present participle "ending in -ing" is avoided (BS 6100 would say "that ends in -ing"). BSI says that a highway is a particular type of road, one that is for use by the public and maintained at public expense. BS 6100 follows recognized practice by defining general terms and then more specialized terms that rely on the general definition. The definition for road, which is the more general term, can be substituted for the term "road" in the definition for highway and the resulting definition will still describe the correct concept.

Throughout the drafting of BS 6100, very little attention has been paid to U.S. usage of English. The U.K. construction industry is more concerned with Europe. It was therefore extremely interesting to see that ASTM has been at work on parallel lines to BSI. There is the *Standard Compilation of ASTM Definitions*, which, unlike the BSI compilation, is not restricted to construction. There is also the E 631 Terminology of Building Construction, which in one slim volume has a much more restricted coverage than the 54 volumes of BS 6100. It is most unlikely that the United States and the United Kingdom could ever agree on more than 80 percent of a building terminology—even England and Scotland differ in their use of some terms. There is, however, no sense in unnecessary divergence. At least those working on construction standards in the United States might look at BS 6100 when considering definitions: some may then perhaps be moved to involve themselves in the terminology work of ISO TC 59, where construction terms in English acquire their international definitions.

**Sylvester F. Bone**

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\* "square board with a cylindrical handle at the center of one surface, used for holding in one hand a quantity of material ready for application" BS 6100 subsection 6.6.2 Plaster.

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# TERMINOLOGY UPDATE

## Eurospeak

In the technical harmonization leading to the Single Market not only do words like transparency acquire meanings from other languages, but there is a need to harmonize the current meanings of terms in different languages. Official documents often appear in at least three languages. It is essential that they say roughly the same thing in each. For technical standards it can be vital that the three versions say exactly the same thing. Terms used in standards may require an agreed European definition that differs from the concept that the term represents when at home in its native nation. When different nations sit down to agree on the terms they need to represent the concepts they wish to use, three things can happen. They may find:

- That a similar concept does not exist in all languages. This is the case for using a descriptive phrase, an imported term, or an invention. Surprisingly, there seems to be no French term for *louvres* (*louvers* in the United States).
- That the concept requires adjustment, broadening its meaning to cover what similar, but subtly different, terms stand for in different languages. The concept may lose precision in any one language, but for the sake of harmonization a less specific concept has to be accepted.
- That one language has two concepts where another has only one. In English we have a broad concept for balustrade for example, whereas the French use “guard-corps” for a light railing and “balustrade” for a heavily constructed barrier with a row of pilasters supporting a coping. The solution here is to have an English definition for each of the two French concepts and to label them balustrades 1 and 2. This is not a happy solution as even the originators of the definitions have difficulty remembering which is number 1 and which is number 2—and often they want to mean both.

Once a committee has agreed upon terms for concepts and they start to use the terms in other definitions, any sense of satisfaction soon evaporates. It becomes clear that it is one thing to agree what a term should mean and it is another to agree how it should be used. It is impossible to build a system of exact equivalents so that terms can be automatically replaced by an agreed set of terms in another language and the meaning will be the same in both languages. It is highly probable that in at least one of the languages, it will simply sound like gobbledegook.

No wonder then that the new Europe needs a single language. Medieval Europe used Latin, French became its diplomatic language. English is a prime candidate for the commercial language of Europe. U.S. citizens, businessmen, and travelers can rejoice that they will not have to learn the 20 national and regional languages to do business in Europe, but before they rejoice they should be warned that English is changing in Europe. If they want to understand and be understood, they will now have to master Eurospeak.

Sylvester Bone

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# TERMINOLOGY UPDATE

## English Language Hall of Fame Salutes EC 92

These are historic times. The future economic union of the twelve European "Common Market" countries foreshadows, many believe, fruition of a dream as old as Charlemagne's sons: a United States of Europe. Precedent shattering political, economic, and social changes in the Warsaw Pact countries portend realignment of the world's geopolitical balance. These trends have combined to produce calls for German reunification. New words such as "glasnost" and "perestroika" describe the new realities. Time will tell whether these terms are permanent additions to English or will become obsolete quickly. Vocabulary reflects history, and there are many terms concerning political and economic developments that reflect past events. Some are eponyms, or words derived directly from the names of people associated with the thing described.

The granddaddy of political eponyms is the name of Julius and Augustus Caesar, the first Roman Emperors. The *Kaiser* who led Germany into World War I, and the *Czar* who fell to the Bolsheviks in 1917 during that war, bore titles derived directly from the Caesars. The word czar survives in this country to describe officials who coordinate related activities of several government agencies, such as Drug Czar Bill Bennett, and Bill Simon, Nixon's Energy Czar.

A fanatical soldier in the army of Napoleon (the French emperor who did not affect a Caesarian title) gave us a word for excessive or blind devotion or partiality to a particular country, group, or gender. Nicholas Chauvin was well known for his excessive patriotism and devotion to Napoleon. After he was portrayed in a popular play by Theodore and Hypolyte Cogniard his name entered the language as *chauvinism*.

The French Revolution that preceded the rise of Napoleon was the source for several eponyms. Two on opposite sides of the fight were *Jacobin* and *Bourbon*. The Bourbon family was the dynasty that ruled France from 1589 until the Revolution in 1789. Obtuse and repressive, it was said of them that "they remembered nothing and learned nothing." The last Bourbon king, Louis XVI, and his wife, Marie Antoinette, paid for this reputation with their heads (in the device championed by Dr. Joseph Guillotine). Today, the name bourbon is used to describe a diehard reactionary.

The Jacobins, led by the murderous French dictator Robespierre, were responsible for countless atrocities in the name of the revolution, including the famous "Reign of Terror" that ended with Robespierre's execution. The group started as a liberal organization with high ideals. However, its membership ultimately comprised extreme leftist radicals who stopped at nothing to meet their ends. Their name derives from the convent of St. Jacques, near which the group was founded. Jacobin ironically survives as a derisive epithet for any extreme leftist.

How language abuses the saints! The epitome of "the root of all evil," the "almighty *dollar*," indirectly descends to us from the name of St. Joachim, the father of the Virgin Mary. The Bohemian town of St. Joachimsthal was named for this saint. The town belonged to the Counts of Schlick who, in 1519, began minting one ounce silver coins from a nearby mine. These coins, featuring a picture of St. Joachim, were known as "Joachimsthalers" or "thalers." The coins became the standard monetary unit in Germany. In England the word dollar, from thaler, came to mean any foreign coin. In America, the Spanish silver coins in general circulation were known as dollars.

*Boycott* is perhaps the most international of eponyms, appearing not only in English but also in French, German, Russian, Dutch, and several Asiatic languages. The word derives from Captain Charles Cunningham Boycott, a British army officer and English land agent in the town of Connaught, County Mayo, Ireland, before and during the great potato famine of 1880 to 1881. He refused to lower the rents of his tenants, and tried to evict poverty stricken farmers who could not pay. The Irish firebrand Thomas Parnell inspired a boycott against him by workers, servants, tradesman, and local officials that made headlines throughout England and the world. Within six years the word boycott was used with a lowercase letter b.

Matthew Lieff

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<sup>1</sup> Robert Hendrickson, *Dictionary of Eponyms* (New York: Stein and Day, 1985).

<sup>2</sup> *Random House College Dictionary* (New York: Random House, Inc., 1982).

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## TERMINOLOGY UPDATE

### Nominymics (GNOME-I-NIMIKS)

Acronyms become funny when they spell or misspell words or create nearwords that have nothing to do with what they stand for or sound like. They are legitimate words on their own. Spelled acronyms are those such as COT, which stands for the Committee on Terminology of the American Society for Testing and Materials. To those unfamiliar with ASTM, COT means a piece of furniture upon which to lie down, not a committee. Perhaps many members of COT would indeed like to lie down on a COT after too many meetings.

Nominymics (rhymes with acronymics) is a coined word to describe acronyms that spell or misspell other words or create pronounceable words in their own right. The percentage of acronyms that are nominymics is probably not large, but they indeed are the most memorable and certainly the most endearing of acronyms. Some nominymics develop from acronyms and later become words that are part of the language. **Radar** is a perfect example of such a word. In older dictionaries radar is listed as R.A.D.A.R. and is actually stands for Radio Assisted Detection and Ranging. The occurrence of an acronym spelling out something is sometimes a coincidence but usually it is a contrivance, one that delights the reader who encounters the term. The nominym **QUICK** stands for something, but you can be sure that its emergence into the acronym world was by design. **QUICK** is a fluid dynamics term that stands for Quadratic Upstream Interpolation for Convective Kinematics. You can see that it is quicker to refer to **QUICK** than to its full form.

One nominym relating to the National Aeronautics and Space Administration's (NASA's) space program is **ACT**, which stands for the Advanced Composites Technology program. This program deals with strong lightweight plastics with reinforced fibers that are very important for reducing weight and increasing strength of aerospace vehicles. **ACT** also has many other meanings, standing for over one hundred additional things, such as Airport Control Tower and Antenna Cross Talk. NASA's abstract journal of aerospace report literature is

known as **STAR** for Scientific and Technical Aerospace Reports. Another "star" acronym is **STARR**, which stands for an annual reference book review entitled *Science and Technology Annual Reference Review*. Language is enriched by nominyms but such usage creates problems for online searchers. Most computers cannot retrieve uppercase and lowercase letters. If you want the nominym **NEPTUNE**, standing for an outer planetary space nuclear propulsion system called the Nuclear Electric Propulsion Turbine driven Uranium Nitride Energy source, you will get references to both NEPTUNE and Neptune. An English nominym, **ARAMIS**, sounds like a men's toiletry product but it stands for part of a navigation system called the Advanced Repeater for Aeronautical and Maritime Integrated Services.

Nominyms often results in personal names such as **HAL**. HAL stands for at least 11 different things including High-order Assembly Language, Highly Automated Logic and Heuristically-programmed ALgorithmic or the computer HAL in "2001: A Space Odyssey." The name of the computer HAL is also considered to come from the preceding letters of IBM, thus H precedes I in IBM, A precedes B and L precedes M. The Defense Department's "Ada" is not a nominym at all for it was named in honor of Augusta Ada Byron, Countess of Lovelace. "Ada" was the poet Lord Byron's daughter, assistant and patron of Charles Babbage, and the world's first "computer" programmer. Other nominyms are also personal names, including **GEORGE** for GEneral ORGanizational Environment, a data processing term, and **LOUISA**, a gigantic lunar based telescope array derived from Lunar Optical-Ultraviolet-Infrared Synthesis Array. **DIANE** stands for the Direct Information Access Network for Europe, an information service of the Commission of the European Communities.

Place names can also be nominyms. **OHIO** stands for a pre-Pearl Harbor wartime expression to typify a recruit's view of U.S. Army life. **OHIO** stands for "Over the Hill In October." The **AWOL** expression originated with the 37th National Guard Division from Ohio, which when called up in October 1940 was only to serve one year, thus the **OHIO** expression. Another place name nominym is **PARIS**, which stands for IBM's Planning Aid for Retail Information System.

Nominyms often represent "nearwords" that sound like real words. **HOTOL**, a nominym standing for Horizontal Take-Off and Landing inevitably makes one think of "hotel" and the nominym is reinforced as a mnemonic device. Some new nominym words such as **FEMA**, standing for Federal Emergency Management Administration, rapidly become part of the language because they are so pronounceable and timely. NASA sounds even better today than when it was launched as the National Aeronautics and Space Administration. Nominyms, whether spelled or pronounced, greatly enrich not only English but any language.

Ronald L. Buchan

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# TERMINOLOGY UPDATE

## Terminology and Databasing

Active participants in ASTM committees are conversant with the *Annual Book of ASTM Standards*. The 1989 edition contains 50,114 pages, in 67 volumes, covering more than 8,500 individual standards. But now, think of that astounding work as an *electronic database*, an electronically stored "book" of standards instantly searchable through a desktop computer. For several years, ASTM has been considering ways of "publishing" its standards in the form of an electronic database, a computerized information system. And it will happen when all preparations are complete.

The key to the *Book of Standards* is the index volume, wherein the searcher finds pertinent subject entries that locate particular standards of interest. The index entries are established by a professional indexer after a review of each standard. However, the key to an electronic database is a thesaurus (See *SN Terminology Update*, April 1987, August 1988, February and March 1989). Therein lies the open door; and the repository of keywords selected by the technical committee to characterize its standards.

The construction of a thesaurus is standardized—International Organization for Standardization (ISO) 2788 and American National Standards Institute (ANSI) Z39.19—to provide a uniform vocabulary control (the indexing language) format for information search and retrieval from the database. Only the specific access terminology of the thesaurus is recognized by the computer in the search. But a much broader array of topics is available than in the conventional book index. Thesaurus terms usually are arranged in hierarchical displays of broader and narrower terms, so that the searcher is easily led to the specific topic of the search. Following is an example entry from the U.S. Department of Housing and Urban Development (HUD) *User Online Thesaurus*. In this example, optional search paths are clearly indicated, a feature typical of the hierarchical thesaurus.

Broader Category	Narrower Category
<b>Standards</b> NT (Narrower terms):  Air quality standards Energy performance standards* Environmental quality standards FHA Minimum Property Standards Fire safety standards Flammability standards Housing rehabilitation standards Housing standards HUD Minimum Property Standards Maintenance standards Mobile home safety standards Safety standards Water quality standards	<b>*Energy performance standards</b> <b>BT (Broader terms):</b>  Standards  <b>RT (Related terms):</b>  Building classification Cooling loads Energy Energy audits Energy conservation Energy consumption Energy efficiency tests Energy efficient housing Heating loads Heating or cooling equipment Heat loss detection Housing standards
<b>RT (Related terms):</b>	

Accreditation  
American National Standards Inst.  
Evaluation design  
Federal regulations  
Health codes  
Laws and regulations  
Planning  
Pollution  
Real estate  
Small Business Administration  
Warranties

Who will develop the ASTM thesaurus? Each committee, of course! The ASTM Committee on Terminology is sponsoring a research project to develop a software computer program that each committee can use. A future compilation of committee microthesauri will constitute the ASTM thesaurus; the ultimate key to searches of the ASTM Standards Database—the 21st century *Annual Book of ASTM Standards*.

Wayne Ellis

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## TERMINOLOGY UPDATE

### More Fun Than $0.10\text{ m}^3$ of Monkeys

Most concern about metrification focuses on trade, commerce, and industry. Little is said of change to the language that adoption of the International System of measurement (SI) will eventually cause.

Take, for example, the old adage “an ounce of prevention is worth a pound of cure.” Is the ounce in question a fluid ounce (one eighth of a cup), an avoirdupois or troy ounce (weight) or a measure of mass (an “ounce-mass”)? Is the pound referring to weight or mass? The possible literal, hard conversions run the gamut from “0.0000296 cubic metres of prevention are worth 454 grams of cure” to “0.27 newton of prevention is worth 4.32 newtons of cure.”

These hard conversions leave something to be desired. The spurious precision detracts from the epigram’s effectiveness. For improvement, one can invoke a unit measure on one side, while maintaining the ratio: “a cubic metre of prevention is worth 15 megagrams of cure.” Or, one could change the ratio while leaving the gestalt intact: “A gram of prevention is worth a cubic metre of cure.”

This example illustrates several problems involved in hard conversions of literary expressions. First is the loss of style—“poetry is what’s lost in translation” and hard conversions, as well. Second, ambiguity results from intrinsic confusion in the customary system, between mass and weight, and between weight and fluid measure. Third, disparaged units (centimetre,

litre) are often required to get a crisp statement in metric. These units should be allowed to remain for the sake of literary style.

Only a duly constituted full consensus body can decide such questions. Here are some items of action for such a committee.

Cowboys could be issued new forty litre hats ( $0.03785\text{ m}^3$  in the strict hard conversion) to wear while riding four-tenths horses.

Six Footers could be soft converted into two-metres. However, to gain this distinction one would have to top the scale at 6 ft, 6.75 in.

Ray Bradbury's nightmare vision of an anti-intellectual totalitarian future would be changed to *Celsius 233* (or *Kelvin 506*).

The inchworm could become the centimetreworm (using the disparaged centimetre). Twentyfivemillimetreworm is just too much.

"Mind your Ps and Qs" originated in the need for innkeepers not to confuse pints with quarts. I suggest instead, "Mind your Ks and Ms" meaning, don't multiply by a thousand when you should be dividing, and vice versa.

"More fun than a barrel of monkeys" or  $159\text{ L}$  or  $0.16\text{ m}^3$  of monkeys.

"A pint's a pound the world round" could become "A litre's a kilogram of mass at every pass" or "A cubic metre's a megagram of mass."

"I can't fathom it" literally means, "I can't get to the bottom of it." The expression comes from measuring out anchor chain by fathoms until the sea floor is reached. Instead, one could say "I can't double-metre it."

To "deep six" something is to dispatch it to the bottom of the sea. It is not clear if the reference is to 6 ft, or six fathoms. The soft conversion (to metres) would thus be either deep-two or deep-twelve.

No longer will small people be disparaged as "half pints." "Quarter-litres" seems infinitely superior, stylistically speaking, to ".00025 cubic metre."

Motorists afflicted with flat tires will not "inch along" the highway anymore, but instead, "millimetre down the road."

In the switch to SI, we must go the "whole nine yards"—that is, 8.41 m. It may seem like an endless task, but we should remember that "Even a journey of 1600 kilometres must begin with a single step."

It will be hard to change habits of speech acquired over a lifetime, but we can be confident that American metric enthusiasts will go that extra 1.6 km to help the rest of us change. For consistency, they will eventually want to eliminate all references to customary units from common parlance, no matter what they say now. Give them 25 mm and they'll take 0.91 m. But I wouldn't begrudge them their views. After all, we should not judge our neighbor until we have walked 1.6 km in his moccasins.

**Matthew Lieff**

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# TERMINOLOGY UPDATE

## Terminological Problems in Computerization

At the user level there are three terminologically related problems associated with computerized technical databases.

- The user cannot find the information he wants even though it is in fact in the database.
- The user cannot understand the results he retrieves from a search of the database.
- The user is induced to make false or inappropriate comparisons of the data he retrieves.

Many of these difficulties arise from the fact that there are three quite different origins of the terminology used in or with any computerized database: the terminology employed by the original compiler of the data, that utilized by the database builder(s), and finally that of each individual user. Underlying all is the fact that the computer is a "no brainer" sort of machine that interprets every question or search command with exasperating literalness.

A few examples may clarify the points just made. A new user of a large database asked how many records did it contain on "steel." The answer came back, "none found," even though the database contained over 1,000 such records! The problem was that the database designer had supposed that every user would pose a much narrower question, looking, for example, for stainless steel, pressure vessel steel, tool steel, or steel bolts, and had organized his system by categories of this kind. In another instance, the user retrieved as part of a data set of properties for a material of interest, a character string indicating "Fbrue/d = 1.5 = 17" and remained as unenlightened as before his search. A third unfortunate user, seeking to compare "tensile modulus" of three different materials, obtained from the sparsely filled data sets available when other search conditions were met, three numbers which should not have been compared, because one related to a secant modulus, another to the elastic modulus for the short transverse orientation in a highly anisotropic material, and the third number to the usual Young's modulus. Yet undeniably all are tensile moduli.

Other aspects of terminological problems arise from the richness of synonyms in our technical vocabularies. We have become so used to this through education and experience that "torsional modulus of rupture," "strength in torsion," "USS," and "M.R. Tors.," are effortlessly recognized in our minds as identical in meaning, yet the computer must be laboriously taught all this before it can cope. Again, much of the information we review in print form is meaningful only when taken in the context in which it appears, a context which is "lost" when individual data sets are extracted and entered into a computer file. Thus one should not ask, "What is the effect of temperature on property x?" without distinguishing test temperature, exposure temperature, temperature temperature, and irradiation temperature. Still another complication is our frequent use of collectives, such as "inert gases," "all flat products," "textile yarns," "T6XX tempers," and so on. Again, the computer must be taught what specific terms are members of these collective families and the search program designed to automatically expand the collective to all appropriate individual members, else much pertinent data will be "lost" and not retrievable during search.

What then are the solutions to these terminological problems? They fall into three categories: thesauri, data entry controls, and standardization. Thesauri with extensive lists of synonyms, broader terms, narrower terms, and related terms should be built into every computerized system of technical data. They should be available online at the user's call, be

invoked automatically during search routines, and be supplemented by a callable "define" option. (See Wayne Ellis, Terminology Update, April SN). At the data entry stage of database building, terminology controls should be imposed which requires use of unambiguous variable names, acceptance only of allowed values for variables, inclusion of required independent variable values, appropriate units, specified default conditions. Finally, standardization of terminology itself will be an enormous help. Much activity in this regard is currently under way in the materials field—nationally through ASTM Committee E-49 on Computerization of Material Property Data and internationally through such organizations as the International Organization for Standardization (ISO), the Versailles Project on Advanced Materials and Standards (VAMAS), the Committee on Data for Science and Technology (CODATA), and Infoterm.

J. H. Westbrook

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## TERMINOLOGY UPDATE

### The Term: Broad Term? Narrow Term? Related Term?

*Webster's Third International Dictionary* defines 11 major concepts for the word, term, while the *Random House Dictionary (Second Edition)* has 12, and *The Oxford English Dictionary* lists 17! Although the total of their definitions for term is not the same, there is agreement in these, the outstanding unabridged dictionaries of our day, that there are many meanings. Samuel Johnson's 1755 *Dictionary of the English Language* defined only six meanings—showing the growth of the language in 235 years—but emphasizing that words in our language typically have many meanings. Of course this fact comes as no surprise to SN readers, but consider that this richness of meanings is a major source of difficulty in developing ASTM standard definitions.

The nature of this difficulty is recognized in *Form and Style for ASTM Standards*: "The definition should be written in the broadest sense possible, consistent with the meaning intended," but, "When the meaning (concept) intended is widely applicable, do not phrase the definition in a way to restrict it to a narrower field" (E4.2.1). Conversely, "If a term can have different meanings in other . . . contexts . . . limit the definition to its field of application" (E14.1).

There are many examples of the broad term/narrow definition difficulty in the ASTM "dictionary," the *Compilation of ASTM Standard Definitions*. As an illustration, consider the term, "permeability." There are ten general definitions and eight limited definitions. Distinct from "magnetic permeability" (a different concept), permeability in the broad sense is the ability of a membrane or other material to permit a substance to pass through (*McGraw-Hill Dictionary of Scientific and Technical Terms*). The pertinent ASTM standard defini-

tions, however, describe variously and in a narrower sense the rate of passage of air, fluid, gas, liquid, vapor, or water through a material. Specific materials mentioned include stone, sheet material, rock, concrete, plastic, film, and refractories. Clarity and comprehension by the nonexpert would be improved significantly if the definition of the basic broad term were first displayed, followed by re-stated narrower terms (and their definitions) such as air permeability, water permeability, concrete permeability, and refractories permeability. Thus, exposition of a hierarchy of permeability terms and relationships could dispel misunderstanding, while making construction of the narrower definitions much easier.

Such a relationship of concepts is fundamental to the development of good terminology. It has been precisely described by Felber in *ASTM STP 806—Standardization of Technical Terminology: Principles and Practices*; recommended reading for those who develop standard terminology. The ASTM Committee on Terminology (COT) has proposed research to establish broad conceptual definitions for common technical terms having ASTM standards interest. Technical committee terminology experts then can build upon these broad concepts to define precisely the narrower terms and meanings needed for understanding of their standards.

Wayne Ellis

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## TERMINOLOGY UPDATE

*"Information technology is at the center of international trade. Controlled terminology is essential to it."*

*"If an ASTM standard can be readily found and understood it will more readily be cited and used."*

### A Controlled Vocabulary—I

What is a controlled vocabulary? Why is it desirable? Who should control their vocabulary?

A controlled vocabulary is not only an aid for library reference work or to construct indices. It is a requirement for efficient and effective communication in this, the information age.

No longer can we generally enjoy the leisurely luxury of negotiating meanings with friendly discourse. To communicate effectively we need a controlled vocabulary—an agreed upon list of terms used in a specific application or field along with a single definition for each term. In ASTM we have recognized this for 70 years, but the stage is now broadening.

Increasingly, we communicate with computerized databases, which are programmed for brief, precise interaction. More companies are now dealing multi-nationally. We know legal consequences can rest on the choice and meanings of technical terms. For all of these reasons, vocabulary control is crucial in your company as well as in your profession.

Terminology is a bottom line issue for your company, because the profits and perhaps

even the survival of your firm can rest on proper vocabulary control. Many successful companies have recognized this and are now working to control their terminology.

- A big three car maker had a problem of long standing in its light truck division. The issue was front-end alignment. After a meeting of the tire, chassis, and front end groups, it found it had been using different definitions for basic terms!
- The MBB Co. (co-manufacturer of the European Airbus) redefined its entire terminology database for spare part administration. Why? Modern planes have about 1,000,000 parts and each redundancy in the inventory can cost many dollars per year. Additionally, if a part isn't found when an inventory data base is queried, the part may be erroneously re-engineered and re-manufactured—even if the part was already there, but under a different name!
- LuK, a German automotive parts company, held a conference to present a new line of parts. The absence of a specified controlled vocabulary caused confusion and potential loss of sales when an interpreter used ordinary dictionary meanings! A dictionary is no substitute for a controlled vocabulary.

There are many examples. A court case was decided because a term was not pre-defined forcing the judge to use his good common sense (SN, February 1988). An aircraft company found it had over 200 different material properties databases that couldn't communicate because of a lack of vocabulary control. A licensing dispute on the meaning of one word was settled with a loss of \$300,000,000!

Companies will have different reasons to seek control of their vocabulary (frequently involving numerous terminologies), but some motivations are clear:

- Quality of manuals,
- Marketing effectiveness,
- Manufactured product quality,
- Workplace safety,
- Efficiency in meetings, and
- Issues of liability.

Commercial and professional organizations of all sizes and types need to control their vocabularies by assembling organized lists of preselected and predefined terms and using them. How to do this effectively will be the subject of a following update.

Richard A. Strehlow

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# TERMINOLOGY UPDATE

*Control of Vocabulary is essential. If we do not control our own vocabulary, it will be controlled for us—by regulators, competitors, or courts.*

## A Controlled Vocabulary—II

The previous article dealt with the *what* and *why* of vocabulary control. Now we ask: How do you begin to control a vocabulary most effectively? The process starts with awareness of the need and continues with terminology standardizing activities. Standardized definitions, keyword lists, and thesauri are the three most important products of terminology standardization work.

Highly competitive large companies can and do work to control vocabularies in their marketing and advertising departments. A few even control the technical vocabularies of property and inventory databases. What is the best way for companies who can not dedicate people to terminology work in-house? Simply, by participating in an ASTM terminology subcommittee. Here the subject experts of the committees engage in a proven process of vocabulary control.

Part E of the *Form and Style for ASTM Standards* guide stipulates that each technical committee should have a general terminology standard. This provides the basis for terminology control for that committee and its standards. Because ASTM documents are available for use by every company or organization working in the field, the impact of this work can be broad.

How does a terminology subcommittee typically begin its work? First, with a core of people who know the subject. Lexicographers compile dictionaries by describing how terms are used, but it is only subject specialists who can prescribe meaning.

Terminology subcommittees usually start by examining the documents produced by that committee, selecting the keywords and important concepts, and then working through the conceptual challenges of writing concise and sufficient definitions. By following the consensus process, the terminology subcommittee members thus pre-negotiate the meanings of their terms. This is the essence of terminology standardization and of vocabulary control in ASTM.

There is, however, a crucial second stage in the control of vocabulary. The prescribed list must be used and maintained. Other concerned subcommittees and organizations need to be encouraged to routinely use terminology standards. If the work is comprehensive and of high quality, terminology products will be used.

Definitions are not easy to write and the activity is still much of an art. Fortunately, there is good guidance and additional information for the non-lexicographers (basically, that's all of us). The Committee on Terminology has sponsored two symposia, whose proceedings are available as *Special Technical Publications* (STPs). These offer a wide range of insights and help, ranging from the eminently practical to the more general and theoretical.

As additional resources, the committee's members are also available to offer counsel or workshops based on their broad cumulative ASTM experience. The committee is ready also to review any terminology product or problem on request. For the future, a third symposium along with short courses on terminology is planned for June 1991.

Vocabulary control is needed by all ASTM committees, and by private companies and

professional organizations as well. To help the process, participate in your committee's terminology work and promote the use of its terminology products whenever you can.

Richard A. Strehlow

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<sup>1</sup> C. G. Interrante and F.J. Heymann, Eds., *ASTM Special Technical Publication 806—Standardization of Technical Terminology: Principles and Practices*, ASTM, 1983.

R. A. Strehlow, Ed., *ASTM Special Technical Publication 991—Standardization of Technical Terminology: Principles and Practices, Vol. II*, ASTM, 1988.

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## TERMINOLOGY UPDATE

### What's in Meeting Place Names?

Before my involvement in the ASTM Committee on Terminology (COT), I had never heard of Trier. Now, for me, this name is associated with the magic of Germany's oldest city and its amazing Porta Nigra (Black Gate) built by the Romans nearly 1,800 years ago. What was the Federal Republic of Germany (FRG) when I arrived in Trier to attend the second Terminology and Knowledge Engineering conference in October of last year became, on the day I presented my paper, simply, Germany. That day was "Einheit Day"—the day of German reunification when the two Germanys became one country. Participants at this terminology congress were from places such as Nuhehot, Inner Mongolia, China, Berea, Ohio, Varde, Denmark, Vinnitsa, USSR, Maryland (yours truly) and Trier, Germany, as well as the standard fare of well-known places from around the globe. To the ASTM attendees and presenters at TKE '90, Trier and the University of Trier symbolize to ASTM attendees, as well as others, the best in terminology activities and research.

Returning to the United States with a head crammed full of terminology speeches and images of the faces of terminologists, I stopped off in Reykjavik, Iceland, to relax at the Loftleider Hotel, where I discovered three conference rooms named Alda, Bara, and Gara. These Icelandic names were all names for waves: Alda—a regular wave, Bara—a billowy wave, and Gara—a ripple. Alda and Bara are also women's names. I thought to myself that these rooms would be a wonderful place for an oceanography meeting.

When I attend the ASTM COT meeting in Philadelphia, I stay at "Frankie's Place" (cabby lingo for the Wyndham Franklin Plaza). If you attend an ASTM meeting you could stay at the "Weather Palace" (The Four Seasons), or you might even meet at the "Chocolate Bar" (Hershey Hotel). But most certainly if you come to a COT meeting at ASTM Headquarters you will meet in the "Warwick Room."

The "Warwick Room" is a meeting place name that honors C. Laurence Warwick, a driving force at ASTM who administered ASTM activities for 33 years, from 1919 to 1952. Warwick led the society in standardizing standards development. His activity in the old Engineer's Club on Spruce Street fulfilled a legacy that started on June 16, 1898, with the founding of the American Section of the International Association for Testing Materials (later ASTM) at that very place.

The earliest meeting places of the organization's annual meetings were:

- 1st Engineer's Club on Spruce Street (1898),
- 2nd Pittsburgh, PA (1899),
- 3rd New York City, House of the American Society of Mechanical Engineers on 31st Street (1900),
- 4th Niagara Falls, NY (1901),
- 5th Atlantic City, NJ (1902), and
- 6th Delaware Water Gap, PA, at the Kittatinny Hotel (1903).

Pugwash and Pittsburgh may sound like they have nothing in common, but both meeting place names have reached beyond their geographical boundaries. The Pugwash Conferences on science and world affairs were originally held in Pugwash, Nova Scotia. They have since been held in places as such as Vienna, Moscow, London, and Addis Ababa. The Pittsburgh Conference is no longer held in Pittsburgh, but affectionately retains the appellation. Meeting place names are the convenient captions for focusing in on our anticipation, participation, and remembrance of our terminological gatherings.

Ronald Buchan

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## TERMINOLOGY UPDATE

### To Deprecate or To Remonstrate?

*fire retardant, n*—a deprecated term. Do not use.

*fireproof, adj*—an inappropriate and misleading term. Do not use. (See discussion . . .)

*fire hazard standard, n*—an obsolete term, now replaced by the term **fire risk assessment standard**.

*fire resistant, adj*—see **fire resistive**, the preferred term.

Each of these entries comes from ASTM E 176-90, Standard Terminology of Fire Standards. They illustrate a technique to indicate disapproval of a particular term and to designate the correct term. Committee E-5 on Fire Standards is especially aware of the ASTM policy (*Form and Style for ASTM Standards*, Part E) requiring that terminology in its standards be “clear, explicit, and not liable to misinterpretation or misconstruction,” since 1976, when a fire standard contained terminology that was severely criticized as misleading. Thus, the terms listed above are not just eliminated from E 176, but are included to instruct the standards user to beware.

*Form and Style for ASTM Standards* (the “Blue Book”) in Part E 20 highlights the use of the cross-reference as “a teaching tool.” If the use of (a term) is discouraged or deprecated in favor of (another), show the term as deprecated, for example:

*vapor barrier, n*—deprecated term. Use preferred term **vapor retarder**.

Note that none of the E 176 entries follows exactly this advice; although each is in the spirit of the instruction and of the policy.

What brought this matter up was a lively discussion in a terminology subcommittee meeting over the use of the word, *deprecated*. During subcommittee consideration of a negative vote on a proposed definition, one member remonstrated that "deprecated" is a pomposity, presumably having a high "fog index," and it ought not be used. Another member defended depreciation, saying that each profession has its particular technical terminology, and that depreciation is a time-honored word of terminologists. Perhaps both views are right, coming from different backgrounds.

The verb, *deprecate*, indeed does have venerable roots. A definition from Samuel Johnson's 1754 *A Dictionary of the English Language* states, "to beg off; to pray for deliverance from." *The Oxford English Dictionary* cites usage from the year 1641, meaning "to express earnest disapproval of." In 1828, Noah Webster's *An American Dictionary of the English Language* said "to pray or entreat that a present evil may be removed . . ." Nowadays, *Webster's Third New International Dictionary* (1966) states that definition is *archaic*, showing instead, "to seek to avert, . . . to disapprove of . . ." Most of the modern dictionaries agree that *deprecate* means to express disapproval of; however, there is a hint that such disapproval is "mild," lessening the admonition. (Thus does usage change the language!) Other suggested categories, such as *archaic* and *obsolete*, likewise do not give positive direction to the seeker.

The meeting discussion described above disclosed that, at least in the engineering field, the word, *deprecate*, is disliked, as well as misunderstood. (Some confused its meaning with *depreciate*.) It seems timely then, that we modify our Blue Book "deprecate" instruction to give more positive direction to writers of standard terminology. As an example, it is suggested that the wording of the *fire retardant* entry above be modified to "Do not use. See *fire-retardant treatment*. Discussion: (giving rationale)."

*Remonstration* is a good old word, too (1666 says Webster); and we experience a lot of remonstration in comments from negative voters on standards ballots. To remonstrate is "to present and urge reasons in opposition." Do you think remonstration is *pompous*? I think it is essential in the consensus process.

Wayne Ellis

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## TERMINOLOGY UPDATE

### Planned Ambiguity?

Languages contain innumerable words having more than one concept or meaning. Linguists call these words polysemous, i.e., marked by multiplicity of meaning. The English language, in particular, is replete with polysemous terms. For instance, *Webster's Ninth New Collegiate Dictionary* assigns at least eleven meanings to the noun, *hand*; five to the noun, *error*; and nine to the word, *standard*! Indeed, the 1990 *Compilation of ASTM Standard Definitions* lists eighteen definitions for *lot*, eleven for *plasticizer*, and fourteen for *joint*; although not

each one of the multiple ASTM definitions describes a unique concept. If ASTM standards are required to use "terminology that is clear, explicit, and not liable to misinterpretation or misconstruction," how can ambiguity in terminology be avoided, given the existence of many polysemous terms?

You must have noticed the present trend in advertising to choose ambiguous words (capable of being understood in two or more possible senses). Witness the TV commercial of an industrial chemical manufacturer: "We don't *make* the (X-product), we *make it better*." Then there are the unintentional ambiguities in news headlines (so often noticed in *The New Yorker*), and in signs, such as "Seat Belts Must be *Worn*." (*Worn* seat belts could be unsafe!) Authors seem often to have blind spots about ambiguities in their work. But in the text of standards, and especially in standard definitions, ambiguity must be avoided.

A code administrator recently entered a negative vote on several draft standards that used the term *may* in stating actions or procedures to be undertaken. He objected specifically to the lack of clarity caused by use of permissive and unclear terms, such as "may" and "should"; such terms effectively changing requirements to "suggestions," and creating ambiguity. ASTM rules mandate that the procedures of standard test methods, and the requirements of standard specifications, be stated in the imperative. However, in a standard practice or standard guide, the procedures and requirements are recommendations or options that become mandatory only when adopted by a user. In that situation, the user must replace recommendations or options with specific documented requirements.

The ambiguity of *may* confuses the reader. "It may" means either "It is possible," or "It is permissible." Likewise, *can* means "ability to," or "permission to." So, avoid these words in standards texts to avoid such ambiguities. Ambiguities in standards documents, unlike TV commercials, never are planned; they just crop up and must be rooted out in the consensus process. This is an important responsibility of terminology and editorial subcommittees. Ambiguities in technical documents are best recognized by those who are not expert in the subject discipline, because clarity of composition is essential to their comprehension. Don't *plan*<sup>1</sup> ambiguities: *plan*<sup>2</sup> to eliminate them!

Wayne Ellis

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<sup>1</sup> to devise or project the realization or achievement of

<sup>2</sup> to have in mind!

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## TERMINOLOGY UPDATE

### Terminology of Appearance

Under the jurisdiction of Committee E-12 on Appearance of Materials, Subcommittee E12.01 on Definitions and Terminology, terminology standard E 284, Terminology of Appearance, is widely used by ASTM committees and outside organizations when definitions are required for terms relating to color, gloss, opacity, texture, fluorescence, retroreflection, and other geometric and spectral aspects of appearance. Because there is no other

current appearance "dictionary" that is complete and comprehensive, readily available, and affordably priced, ASTM encourages the use of E 284 wherever there is a need for concise, precise definitions of appearance terms. Not necessarily detailed enough to satisfy an expert in a specialized subfield (for example, an optical engineer), the definitions in E 284 are broadly understandable by those with general experience in any aspect of appearance.

From 1981 to 1987, the approximately 200 terms in E 284 were unchanged. Some of them had not been revised in recent years and were out of date. Since 1987, the number of terms defined in E 284 has more than doubled, and many definitions have been revised. Since Committee E-12 is itself expanding into new fields such as visibility, video display technology, and scattering, it is anticipated that further addition of terms to and improvements in E 284 will continue for the foreseeable future.

A drastic revision of E 284, leading to the 1990 edition, has just been completed. Impetus for the change came, in part from the recent revision by the Committee on Terminology of Part E, "Terminology in Standards," in *Form and Style in ASTM Standards*, 8th edition (the "Blue Book").

In the revision, parts of speech and symbols, where appropriate, were added to the definitions in E 284. Terms with more than one word were listed in spoken word order, and other editorial improvements were made. Longer definitions that contained explanatory concepts were separated into the basic definition followed by discussion. Delimiting words or phrases were shifted from the term to its definition. For each new term or revised definition added since 1981, the edition in which the change appeared was listed in parentheses at the end of the definition. Appendixes list all terms added, definitions revised, and terms dropped since the last edition of E 284 that appeared in the *Annual Book of ASTM Standards*. Every term and definition in the standard was improved in some way, either substantively or editorially.

It is the policy of Committee E-12 that E 284 should include all important terms and definitions explicit to its scope, whether or not they are currently used in other ASTM standards. Terms that appear in common language dictionaries are generally not included.

Definitions, in general, are of two distinctly different kinds. A descriptive definition reports existing usage, whereas a prescriptive definition is an invitation to use a term in a specific way. By agreement of Committee E-12, the definitions in E 284 are taken to be prescriptive in nature; the committee thereby assumes a position of leadership in usage in its field.<sup>1</sup>

Subcommittee E12.01 welcomes comments and suggestions for new terms or revised definitions that will allow E 284 to better serve the appearance field. They may be directed to the author.

Fred W. Billmeyer, Jr.

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<sup>1</sup> A paper on the development of "Standard Terminology of Appearance" was presented at the ASTM Symposium on Standardizing Terminology, Cleveland, OH, June 13-14, and will appear in the symposium proceedings.

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# TERMINOLOGY UPDATE

## The ASTM Dictionary

Now that a new (7th) edition of the *Compilation of ASTM Standard Definitions* is in print, it is opportune to review the history of this major ASTM publication: to examine its status and content, and to forecast its future path.

**History:** The first formal compilation appeared 60 years ago in September, 1931 (an update of a 1929 preliminary issue) as an 84-page mimeographed "Glossary of Terms Appearing in A.S.T.M. (sic) Standards and Tentative Standards," prepared by Committee E-8 on Nomenclature and Definitions. Committee E-8, at that time, had the authority to review and approve definitions: 259 of the listed definitions had been approved; the remaining 345 were under consideration. In 1931, there were 47 "standing committees" (now designated as technical committees). In October, 1973, a second edition, sponsored by Committee E-8, was published as a 540-page hardcover book; a compilation of all terms listed under the heading "Definitions" which appeared in the 1972 edition of the *Annual Book of ASTM Standards*. Eighty-seven ASTM standards contained definitions only. There were then 120 technical committees. Revised editions were published in 1976, 1979, 1982, 1986, and 1990. Table I compares the various editions.

**Status and Content:** Quite differently from general technical dictionaries, the definitions in the compilation are not composed by an editorial group. They are standard definitions written by technical experts active in the field, and adopted by the technical committee through the ASTM rigorous three-level consensus process. Some entries are not found in general or technical dictionaries. Many technical terms are defined by more than one technical committee, explaining a slightly varying concept with nuances pertaining to the particular field. Although not indicated by its title, the compilation is much more than a glossary, it is an eclectic technical dictionary in which the 13,000+ entries are drawn from the wide variety of disciplines represented by the ASTM technical committees.

**Future Editions:** The current (7th) edition departs from previous ones in that only ASTM terminology standards are the source of entries. Definitions that appear in individual standards but not in a terminology standard are not in this compilation. Most major technical committees have collected into their general terminology standard all of the definitions appearing in their other standards. The remaining committees are in the process of developing such terminology standards. The next edition will contain substantially all ASTM

TABLE I—*Statistics of the ASTM Compilation*

Edition	Date Published	Sponsor	Number of Pages	Technical Committees	Definitions Standards
1	09/1931	E-8	84	4	—
2	10/1973	E-8	540	120	87
3	10/1976	E-8	732	128	95
4	11/1979	COT	780	126	103
5	10/1982	COT	844	138	118
6	02/1986	COT	908	138	118
7	10/1990	COT	552*	133	145**

\* Large page format \*\*Terminology standards

standard definitions. Consideration now is being given to publishing a machine-readable edition in which electronic searches can be made for individual terms and phrases. Standards committees can thus learn readily what specific terminology exists and will be able to avoid recreating existing definitions, indexers will have a large source field of terms, and writers and other users can locate appropriate and explicit terminology.

Wayne Ellis

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## TERMINOLOGY UPDATE

### Why Can't We . . . ?

The persistent and enduring question about ASTM standard terminology is: "Why can't we get different ASTM technical committees to agree on one definition for one term concept?" The question was posed again just the other day during a session of the ASTM Committee on Publications (COP). It is a perennial question because it has persisted for more than 70 years. In 1920, there were 40 ASTM technical committees with a total membership of 1,250. There were eight standards devoted entirely to definitions, and, in addition, there were a number of terms defined separately in standard specifications. It became obvious that many of the terms thus defined were applicable to fields of more than one committee, but there was no procedure for coordination or harmonization of definitions.

In 1991, when there are 133 ASTM technical committees, nearly 100,000 personal units of participation, 145 terminology standards, and a compilation of more than 13,000 standard definitions, the difficulty of harmonization obviously is more extensive. And so, the question is still with us. "Why can't we . . . ?"

The answer has never been elusive. We "can't" because we (the membership of the involved technical committees) really don't have the time or the inclination to harmonize. Committee members, the subject specialists in their respective fields, find their committee standard definitions quite acceptable and sufficient. What many do not see is the perplexity that arises for a nonspecialist user of the *Compilation of ASTM Standard Definitions* when the same term concept is defined in different ways by different committees. Each standard definition is the consensus of the technical experts active in the field or discipline, and not just the product of a group of editors and contributors. When there is even a slight nuance of usage separating one committee's understanding from another's, this is invaluable information to the uninformed searcher. Therein lies the "charm" and the value of the ASTM dictionary compared to the general language or conventional technical dictionary. The ASTM Committee on Terminology (COT), which is responsible for the organization and format of the *Compilation* (not its content), encourages technical committees to express fully in their standard definitions the explicit meaning to the committee of each term defined because it is an information nugget for the searcher.

It is an embarrassment, however, when different committees adopt a standard definition for the same concept differing only in grammar or syntax. It is these differences that COT

quietly tries persuasion to correct. But because such corrections must pass through the rigid ASTM consensus process, progress is slow. Fortunately, the non-expert reader quickly comprehends the hodgepodge.

As examples, consider some of the 50 plus standard definitions in the *Compilation* for the term *density*:

1. mass per unit volume.
2. the mass per unit volume of a substance.
3. the mass per unit volume at a specified temperature.
4. the ratio of mass to volume of a material . . .
5. the quantitative measure of film blackening . . .
6. (bulk) the mass per unit volume of a material, including any voids present.
7. (line) the photographic density along a line in an image in a photomask.

Plainly, definitions 1 through 4 describe the same concept in slightly different words; while definitions 5 through 7 describe other concepts. So now you understand the perennial question!

Wayne Ellis

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Reprinted from the September 1991 issue of Standardization News, p. 16.

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## TERMINOLOGY UPDATE

### Concept Management for Terminology

A new and exciting development is the linkage between terminology and knowledge engineering, a field of artificial intelligence. A most interesting paper presented at the recent Third Symposium of the Committee on Terminology described the research involved with a knowledge engineering approach to concept management for terminology. The basis for this approach is the realization that terminology has both a linguistic (language) and a conceptual dimension. This latter field consists in acquiring, analyzing, comparing, formalizing, and revising—in other words *managing*—a variety of information about the concepts designated by terms. The goal is to develop a computer aid to facilitate concept management.

**Role of Concept Management in Terminology Work:** Concept management is not merely an esoteric, intellectual activity, but rather one with important practical applications. The interrelated categories of terminological activities are: 1) selection of documentation, 2) establishment of a terminology, 3) preparation of terms records (including definitions), and 4) quality control. The conceptual activities in each category are: 1) acquisition of general knowledge and familiarization with the field; 2) determination of the concept network and analysis of the conceptual characteristics of individual terms; 3) establishing main conceptual partitions of the field, determining the hierarchical and other relations and, most importantly, construction of definitions; and 4) periodic updating by monitoring changes in knowledge structures and conceptual characteristics.

The practical applications of concept management are many. The more significant are judgment of quality of documentation, identification of simple and complex terms, definition construction and context selection, and comparison between new and previous conceptual characteristics and knowledge structures.

**Knowledge Engineering Approach to Concept Management:** This work is taking place at the Artificial Intelligence Laboratory of the University of Ottawa, where a knowledge engineering tool for terminology applications is under active development. The focus of this work leaves the *computer storage* aspect of terminology, and concentrates on aspects of *acquisition* and *processing*. The research problem is to discover what part of terminology activities can be fully or partially automated, and then to design tools for use by the terminologist.

Knowledge-based systems need to "know" (or at least "represent") what human experts know, since they are designed to solve problems in specialized fields of human expertise. The two components of expert knowledge are a body of factual subject-field knowledge, and a set of strategic rules for applying this knowledge to problem-solving. Practitioners of both knowledge engineering and terminology function as *intermediaries* in a knowledge communication context, involving experts on the one hand and a given technology on the other. Three important subtasks for each are knowledge *acquisition* (the "bottleneck"), knowledge *formalization*, and knowledge *refinement*.

Knowledge engineers can elicit knowledge from experts or extract it from documents. Here, unclear, irrelevant, and incomplete knowledge confront the engineer or terminologist. Human knowledge is characterized by extreme diversity. It can be inconsistent and contradictory, multidimensional, and constantly changing since emergent knowledge can be incomplete and unclear. Knowledge, once formalized, can be refined by testing the knowledge-based system on the intended application; or by periodic updating when the field or the application changes.

At the University of Ottawa, knowledge engineering experts have developed a working prototype of a tool called *CODE* (Conceptually Oriented Design Environment). It has been tested in two terminologically-oriented pilot research projects. An extensive bibliography of this work over the past three years is available. The second phase, underway now, incorporates ideas stemming from practical experience with the prototype, using the technology and methodology to construct a prototype terminology bank (a *knowledge-based term bank*) with a rich and highly-structured conceptual component.

#### **Features of the Knowledge-Based Term Bank:**

- *User interface:* It should be useful to persons with various levels of subject-field expertise, from true experts to terminologists who have been working in a field for a long time, to terminologists starting out in a subject-field;
- *Graphics:* Aiming at sophisticated mechanisms and ability to incorporate images of all kinds, not just graphs;
- *Hypertext browsing:* It should support browsing through a global lexicon facility that could search on any word in the knowledge base, and a capacity for "fuzzy" (i.e., approximate) searching;
- *Multiple knowledge bases:* Support for isolating areas of correspondence, noncorrespondence, and overlap, and also for generating parts of knowledge structures automatically (e.g., in multilingual work, when certain parts of one knowledge base do correspond quite well between languages);
- *Multidimensionality:* Supported through a variety of inheritance features as well as through graphics;

- *Fluidity*: Mechanisms to allow easy modification of knowledge structures as they change, or as understanding deepens. Changes will be monitored through mechanisms for quality control;
- *Quality control*: Provide consistency checking, which in the CODE system is intimately linked with inheritance mechanisms; the system queries the user whenever conceptual characteristics are modified or concepts are added or removed;
- *Formality continuum*: Allow the terminologist to work in a “casual” as well as in a “formal” mode, to switch easily between modes, and to “blend” modes; and
- *Support of definition construction*: A level of automatic definition construction based on an automatic comparison of characteristics of co-ordinate concepts (i.e., concepts at the same hierarchical level) to determine the distinguishing characteristics.

**Implications for Standardizing Terminology:** ASTM terminologists should look forward eagerly to the realization and practical applications of this knowledge engineering approach to concept management. It can make our standardizing efforts easier to accomplish, and improve the quality of our product.

Wayne Ellis

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## TERMINOLOGY UPDATE

*“A word is not a crystal, transparent and unchanged, it is the skin of a living thought and may vary greatly in color and content according to the circumstances and the time in which it is used.”*

Justice Oliver Wendell Holmes

### **Words Versus Terms: Is There a Difference?**

Most dictionaries allow that *word* and *term* are synonyms, i.e. having the same or nearly the same meaning. Some say that a *term* is a “technical word”; and that a *word* is “an articulate sound expressing an idea.” However, the English language permits acceptance of other nuances, giving rise to a need for standard terminology, so that rational intercommunication in science and technology can exist.

The great philosophical division in lexicography had been for many years over whether “correctness” or “contemporary usage” should prevail. The debate intensified when, in 1933, Leonard Bloomfield<sup>1</sup> postulated broad new findings for linguistic science. These included: “All languages are dynamic rather than static, and hence a ‘rule’ in any language can only be a statement of contemporary practice. Change is constant—and normal. ‘Correctness’ can rest only upon usage, for the simple reason that there is nothing else for it to rest on. And all usage is relative.” By 1952, these postulates had been accepted by the

National Council of Teachers of English as: 1) Language changes constantly; 2) Change is normal; 3) Spoken language is the language; 4) Correctness rests on usage; and 5) All usage is relative.

The debate further intensified in 1962 when "a storm of abuse greeted the appearance of Webster's *Third New International Dictionary*.<sup>2</sup>" Its editor, Philip Gove, said "The responsibility of a dictionary is to record the language, not set its style. For us to attempt to prescribe the language would be like *Life* (magazine) reporting the news as its editors would prefer it to happen." Thirty years later, the furor has largely abated; it is now generally accepted that today's common-language dictionaries define words by contemporary usage.

But this practice is not acceptable in defining terms in science and technology. For example, *density* has three meanings in Webster's *Ninth New Collegiate Dictionary*, only one of which is the concept, "the quantity per unit volume, unit area, or unit length." The other meanings are, "the quality or state of being dense," and "the degree of opacity of a translucent medium, or the common logarithm of the opacity." No doubt there are slang meanings in use and working their way upward to acceptability.

Right now, in some ASTM technical committees, there is a discussion of usage that incorrectly (it is said) defines *density*. Usage says it is *weight* per unit volume, while theory says it is *mass* per unit volume. Of course, discussion of the difference between concepts of *mass* and *weight* is much broader than usage in the definition of *density*. Nevertheless, standard definitions avoid "fuzziness" of meaning brought about by inappropriate usage.

In ASTM terminology "circles" there is an understanding that a *term* is indeed a technical word expressing a concept or idea; but it is more than just a *word*. It represents a complex product of reflective thinking. We are not standardizing *words* but *technical terminology*, using the consensus process.

When there is consensus on the meaning of a concept; for example, *density*; its meaning is described exactly in appropriate wording. But note that there is not a single set of words exclusively. In the *Compilation of ASTM Standard Definitions*, there are four alternatively-worded definitions for *density* expressing the identical concept—such is the breadth of language. And in consensus activities, this profusion of credible options causes problems of clarification, revision, and harmonization of standard definitions.

As committees respond to voter comments in balloting on proposed definitions, many times clarifying changes are made (by committee consensus) to remove ambiguity of wording without changing the concept being defined. However, strict editing rules may require rebaloting to assure that consensus has been reached. This unnecessarily prolongs the standardization process.

Here, the difficulty lies in the committee's acceptance of changed wording that improves the quality of the definition, while editors look only at a change in wording. The Committee on Terminology is addressing this question of how to make acceptable the improved wording without violating editorial precepts.

In terminology standardization, *words* and *terms* are not synonyms. The "transparent, crystal" technical *term* can be preserved for rational communication, while the changing *word* can make contemporary interpretation acceptable.

Wayne Ellis

#### References

<sup>1</sup> Bloomfield, Leonard, *Language*, Holt, Rinehart and Winston, New York, NY 1933.

<sup>2</sup> Evans, Bergan, "But What's a Dictionary For?", *The Atlantic*, May, 1962, pp. 57-62.

Reprinted from the November 1991 issue of Standardization News, p. 17.

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# TERMINOLOGY UPDATE

## Good Close Harmony

What is the problem? Why can't we simply decide what a term means and demand that everyone use that definition? Why are there dozens of almost identical definitions for basic concepts in the *Compilation of ASTM Standard Terminology*? Even more importantly, what are the costs of proliferation of standard definitions? But the most important question for the Committee on Terminology (COT) and ASTM is, "What can we do about it?"

The impetus for harmonization of terminology is to:

- Enhance and facilitate trade, both nationally and internationally;
- Permit more accurate and precise querying of databases for information; and
- Produce higher grade terminology products for standards users, translators, and other communicators.

What is harmonization of terminology? We first recognize that terms, concepts, and definitions point to objects, relations, and other entities in the world and to knowledge about them, as well as serving to improve communication. The definition statement is the medium we use for identifying whether the concept I am talking about is the same one that you are thinking about. Harmonization requires subject specialists to analyze the two or more definition statements for the concept in question and ensure that all of the defining characteristics are present and accounted for.

Typically, it requires terminologically trained individuals to examine, analyze, and document terms and definitions for the concepts to be harmonized. These documented definitions with their component characteristics can then be compared and acted on by subject specialists.

The harmonization efforts of COT are designed to assist ASTM technical committees in assuring themselves that their terminology is in the best possible condition for their information-handling needs. To the greatest extent possible, ASTM terminology should be harmonized across the whole society.

Harmonization of ASTM terminology has been a specified objective since 1921 when COT's predecessor, Committee E-8 on Nomenclature and Definitions, was formed by the Board of Directors. Working to minimize unnecessary duplicate definitions was an ongoing activity of E-8 until 1976 and of COT since then. The scope of COT as approved by the Board of Directors specifically includes the objective of "helping to reduce present, and prevent future redundancies in terminology" in ASTM.

Because standardization is in the domain of subject specialists, COT can propose, but not dispose. The choice of action always rests with the technical committee and follows the traditional ballot process. Only your technical committee can determine the content of your terminology standard.

COT has attempted for the last two years to develop funding for a harmonization effort that would develop recommendations for proposal to the technical committees. The needed funding was not obtained. Now we are engaged in considering harmonization of ASTM terminology with that of the Soviet Union in a mutual effort. The impetus, of course, is the

prospect of increased trade and information exchange. Speaking most broadly, harmonized terminologies are more use- and quality-oriented than unharmonized ones, and will provide ASTM customers with higher quality terminology products.

Richard A. Strehlow

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## TERMINOLOGY UPDATE

### Descriptions of Terms

Part E of the *Form and Style for ASTM Standards* (the Blue Book) includes Paragraph E23.1, which states, "A special form of ASTM definition called a description of term may be used to ensure that a specific ASTM standard is properly understood and precisely interpreted. The special form is defined as follows:

**description of term, n—in ASTM**, a definition that is specific to a standard in which it is used and has no application out of that context."

One possible origin of description of term can be found in the following conversation adapted from Chapter 6 of Lewis Carroll's *Through the Looking Glass*.

Humpty Dumpty (describing the difference between birthdays and unbirthdays) concludes, "There's glory for you!"

Alice (confused), "I don't know what you mean by glory."

Humpty Dumpty (smiling contemptuously), "Of course you don't till I tell you. I meant, 'there's a nice knockdown argument for you!'"

Alice (objecting), "But 'glory' doesn't mean 'a nice knockdown argument.'"

Humpty Dumpty (scornfully), "When I use a word, it means just what I choose it to mean—neither more nor less."

Therefore, a terminology section for *Through the Looking Glass* according to ASTM would include the following:

**glory, n—in this book**, a nice knockdown argument.

As with most descriptions of terms, including the examples given in Paragraph E23.3 of the Blue Book, the reader would fail to be enlightened. The limiting clauses of the examples, "in this standard," "as determined by this test," and "for the purposes of these test methods," give absolutely no clue as to which "standard," "test," or "test methods" are meant. The third example even falls outside the definition of description of term since it references a plural and both the rationale and the definition confine the term to a singular use.

It should be also noted that the limiting clause in the definition in E23.1 is "in ASTM," an implication that nowhere else in the terminology world is this usage expected to occur

(and this is probably a good thing). Whatever the origin of description of term in ASTM, it has outlived its usefulness and the time for its demise has arrived.

Moreover, the E23.3 examples contradict the third objective given in the Introduction of Part E, "explanation of the meaning of technical terms for the benefit of those not conversant with them." Even those who might regard themselves as conversant could have trouble remembering which standard, test, or test methods was meant.

Definitions in terminology standards should not be dependent on mere allusions to other documents, but as stated in E4.3.2 they should "be clear technically" using "suitable phrasing when the term is unique to a field." The proper use of "suitable phrasing" would change the present limiting clauses in the examples to show the technical field, not the standard, in which the term is used.

This would also permit the writing of future standards in the field in which the term is used without violating the singleness of use required in E23.1 and would be of considerably more benefit to the non-conversant reader.

All definitions including descriptions of terms currently found in ASTM documents have survived the balloting process, so that the experts in any given field, by their failure to vote negatively, have approved the use of these words. It is impossible to imagine that a single word, no matter how distorted from its original or any other meaning, would find two acceptable dissimilar uses in a single technical field. If it did, this would surely lead to "glory."

Calvin McKee

P.S. If there are any terms that must be limited to a single document, let them lie there and there alone.

Reprinted from the January 1992 issue of Standardization News, p. 19.

## TERMINOLOGY UPDATE

### **Terminology of SI and the Nomenclature of the 1857 Metrical System<sup>1</sup>**

*"The metrical system has one unit for its basis, is universal and decimal. From the unit of length all the other units are derived. In order that this unit might belong equally to all nations, it was taken on the actual dimensions of our globe. It is the ten millionth part of the quarter of the terrestrial meridian.<sup>2</sup> This unit of length is called metre; to adapt it to the decimal calculation, the metre was divided into parts of ten, and those into other ten times smaller; and its multiples are by ten, and those by ten again.*

*"The metre serves as a basis to the other units in the following manner:*

*The are, or the unit of superficial measure, is a square the size of which is ten metres long. The stère, or the unit of cubature for wood, is a cubic metre. The litre, or the unit for gauging vessels for dry or liquid materials, is a cube, the side of which is one-tenth of a metre. The gramme, or the unit of weight, is the weight of a cube of  $\frac{1}{100}$  of a metre, or one cubic centi-*

*metre of distilled water, at its maximum density (4°C), weighed in a vacuum. The franc, or the monetary unit, is 5 grammes of an alloy composed of 9 parts of fine silver and 1 part of pure copper, and made under guaranty.*

*"All of these units are multiplied and divided like the metre. To systematize the denomination, we have taken the names of the multiples from the Greek language, and those for the divisors from the Latin, thus: deca for 10, hecto for 100, kilo for 1000, myna for 10 000, deci for 0.1, centi for 0.01, milli for 0.001 . . .*

*"Each of these multiples or divisors may in the calculation be taken for principal units. It is thus that the kilometre serves as a unit of topographical length for railroads; the millimetre for micrometrical measures; the kilogramme for the weights of commerce, etc. Custom has adopted all these Greek and Latin names only for the metre, the litre, and the gramme. Those which belong to the are are only the hectare and the centiare. Those which relate to the stère are the decistère and the centistère. For the franc, the names of decime and centime, taken for 0.1 f., 0.01 f., are the only ones that are made use of."*

ASTM E 380, Standard Practice for Use of the International System of Units (SI, the Modern Metric System), has its roots in the historic description above. Today's metric terminology is quite different. It is based on the *Metre Convention* which, on May 20, 1875, established the *International Bureau of Weights and Measures* (BIPM). The BIPM operates under the exclusive supervision of the *International Committee for Weights and Measures* (CIPM), which itself comes under the authority of the *General Conference on Weights and Measures* (CGPM). The CGPM consists of delegates from the 46 member states of the Meter Convention (including the United States), meeting every four years.<sup>3</sup>

Although the terminology of SI resembles that selected more than a century ago, its organization is not the same. SI units are now divided into three classes: base units, supplementary units, and derived units. The seven base units are the metre (length), kilogram (mass), second (time), ampere (electric current), kelvin (thermodynamic temperature), mole (amount of substance), and the candela (luminous intensity).

What then is the status of the 1857 terminology? The *metre* remains a base unit. The *are* is  $100 \times$  the derived unit of area, the square metre. The *stère* is equal to the derived unit of volume, the cubic metre. The *litre* is equivalent to a cubic decimetre, but is restricted to volumetric capacity, dry measure, and measure of fluids (both liquids and gases). The *gramme*, now spelled *gram*, is equivalent to  $\frac{1}{1000}$  of the base unit of mass, the *kilogram*. The *franc* has disappeared from SI terminology, remaining vestigially as a monetary unit in France. The multiples and the divisors, now called "SI prefixes," are preferably expressed as 1000 raised to an integral power; the range being from  $10^{18}$  to  $10^{-18}$ . Thus, use of the prefixes *hecto*, *deka*, *deci*, and *centi* is discouraged. And *myria*, from the Greek for 10 000, has long been overwhelmed by our penchant for very large figures!

ASTM Committee E-43 on SI Practice has packaged E 380 in an attractive cover, and is currently engaged in a reformatting project to make it more user-friendly. E 380 is a standard that will inevitably affect most ASTM standards that involve mensuration. It should be prominent on the desk of every engineer and scientist.

Wayne Ellis

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<sup>1</sup> Report of the Secretary of the Treasury on the Construction and Distribution of Weights and Measures. Washington, DC, A.O.P. Nicholson, Printer, 1857. Adopted by resolution of the Senate on Aug. 14, 1856. The Metric Law of 1866 made metric units legal for commerce in the United States.

<sup>2</sup> Footnote from the report: "The length taken, it is said, is not precise; it is further added, that it can never be so, since the meridians are not equal . . . These differences are of no account in commerce, for much greater are tolerated in the verification. Regarding the wants of science, they only demand the

perfect preservation of the platinum standard deposited in the archives, and the possibility of comparison without alteration. This preservation is also assured by the length of the sexagesimal seconds pendulum at Paris, which is 440 559 lines = 0.993 826 7 of a metre, according to Borda, at the temperature of 0° (K), and in a vacuum, or 9.993 846, according to other more recent determinations."

<sup>3</sup> *The International System of Units (SI)*, NIST Special Publication 330, 1991 edition.

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## TERMINOLOGY UPDATE

### Libraries As Standards Information Sources

I have run across five books on standards that are typical of standards sources that may be found in or obtained by your library. The first, a collection of essays edited by Ellis Mount, the editor of the Special Library Association's *Sci-Tech News* of which I am the book review editor, is entitled *The Role of Standards in Sci-Tech Libraries*. It was published by Haworth Press of Binghamton, NY, in 1990 and priced at \$19.95. The essay on the standards collection of the Cleveland Public Library quotes our own *Compilation of ASTM Standard Definitions* by providing a definition for standards. This definition bears repeating: a standard is "a concept that has been established by authority, custom, or agreement to serve as a model or rule in the measurement of quantity or the establishment of a practice or a procedure." Terminology standardization enables the standardizing process to go forward by establishing the terminological framework for more precise communication.

Patricia L. Ricci, a contributor to the Mount book, has also written a 1990 book with Linda Perry entitled *Standards: A Resource and Guide for Identification and Acquisition*. This spiral bound reference book contains worldwide listings of standards organizations, etc., by 13 handy groupings. It is a unique and useful book of practical standards information. Contact the author at 8590 Pinehurst Alcove, Woodbury, MN 55125. Patricia Ricci is also a member of the Special Libraries Association and has done a great service to all those interested in standardization. A new edition is slated for April at \$60.00.

An older but powerful little book is Charles D. Sullivan's *Standards and Standardization: Basic Principles and Applications* published by Marcel Dekker in 1983 at \$45.00. This compact book has the essentials for understanding the standards world including descriptions and acronyms for major standardizing bodies. Coverage of ASTM is particularly informative yet succinct.

Digital Press, an imprint of Digital Equipment Corp., published a helpful discussion of standards issues entitled *Information Technology Standardization: Theory, Process, and Organizations* by Carl F. Cargill. Chapter 10 deals with the topic of international standardization, which is also the topic of the fifth book under consideration. A 500-page 1989 Congressional hearing entitled *International Standardization: The Federal Role* presents a valuable resource on the international scene. A copy of this publication is available in ASTM's own Information Center or in many U.S. depository libraries.

Ronald L. Buchan

Reprinted from the March 1992 issue of Standardization News, p. 21.

# TERMINOLOGY UPDATE

*"The Executive Committee desires that the members be correctly advised of the position of the Society in the matter [of unauthorized publication of Committee action]. Committee C-3 adopted a definition of the term 'brick.' The action was not included in the committee's report to the Society, so the definition has not yet been officially before the Society for consideration and hence does not have Society authority back of it. The committee has followed the appropriate procedure of referring the definition to Committee E-8 on Nomenclature and Definitions for its consideration and the definition is now in the hands of the latter committee for study during the coming year."*

## "Brick" Definition Begets Controversy

This startling announcement of 65 years ago illustrates the difference as well as the similarity between then and now in terminology development. In 1926, definitions developed by consensus of a technical committee had to be approved for style and content by Committee E-8 prior to Society approval. The difference now is that oversight quite properly has been abandoned. The similarity, as counseled by Part E of *Form and Style for ASTM Standards* (the Blue Book), is that definitions should be written in the broadest sense possible (consistent with the meaning intended).

The definition proposed by Committee C-3 (on Brick, and not related to today's C-3) was:

*"Brick—A structural unit formed while plastic into a rectangular prism, usually solid and 8 by 3½ by 2½ in.<sup>4</sup> in size.*

*Note—The term 'brick' is understood to mean a unit of burned clay or shale. When other substances are used, such as lime and sand, cement and sand, fire clay, adobe, etc., the term 'brick' should be suitably qualified."*

Although brick is here defined broadly, the note limiting the broad term to clay or shale materials obviously concerned other committees. After seeking advice from other interested committees, Committee E-8 proposed the following conceptual definition:

*"Brick—A material of construction in small regular units, solid or practically so, formed from inorganic substances and hardened in a shape approximating a rectangular prism.*

*Note—In the present state of the art, the term brick, when used without a qualifying adjective, is understood to mean a unit of burned clay or shale. When other substances are used, the term brick should be suitably qualified. In the United States, building bricks are usually 8 by 3½ by 2½ in.<sup>4</sup> in size."*

A subcommittee was formed in E-8 to resolve the issue, but interest faded and there is no record of a decision taken. Committee C-15 on Manufactured Masonry Units (organized in 1937 by the merger of C-3 and C-10 on Hollow Masonry Building Units) now has jurisdiction. The current definition is:

*"Brick—a solid masonry unit of clay or shale, usually formed into a rectangular prism while plastic and burned or fired in a kiln. Brick is a ceramic product. C 43, C-15"*

Note that this definition limits "brick" to clay or shale material, as did the 1926 proposed definition. *Webster's Ninth New Collegiate Dictionary* (1987) follows that usage, defining brick as:

*"a handy-sized unit of building or paving material typically being rectangular and about 2½ × 3½ × 8 in.<sup>8</sup> and of moist clay hardened by heat."*

Brick composed of such materials as mentioned in the 1926 note, and others such as silica brick and fire brick, do not conform. In the *Compilation of ASTM Standard Definitions*, refractory brick is the only other type defined. The hierarchy of brick remains undisclosed in ASTM standard terminology.

What terminology lessons can be gleaned from this case study? Consider the following:

- When defining broad concepts (e.g., "brick"), be aware of the narrower members of the field, and avoid controversy by preparing a hierarchy of harmonized definitions.
- Compile an inventory of related terms and definitions, and adopt appropriate existing definitions.
- Use these precepts in terminology standards to present definitions in an inter-related group (Blue Book, Part E31.2). Then combine groups into a hierarchical thesaurus (Blue Book, Part E33.2).

The result: terminology standards that are rational, clear, explicit, not liable to misinterpretation or misconstruction, and useful to both subject specialists and the general public.

Wayne Ellis

<sup>1</sup> *ASTM Bulletin*, Nov. 10, 1926.

SI Conversions

<sup>A</sup> 203 × 95 × 57 mm.

<sup>B</sup> 57 × 95 × 203 mm.

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## TERMINOLOGY UPDATE

### Terminology and Tradition: the King's English, the Mother Tongue and Eurospeak!

Close comparisons are in vogue these days between English language versions of U.S. and European standard documents to identify differences in terminology usage. As cooperative development of standards by Americans/Canadians/Europeans increases, there is a strong tendency to blur (English) language usages without recognizing that user confusion may result.

While the English language is de facto the "mother tongue" in the English-speaking world, geographical and cultural differences have subdivided it. The mother tongue actually may be the "King's English" of Britain, the American Language (recognized by H. L. Mencken), the Anglo-India patois, the Australia-New Zealand versions or numerous other varieties. These English language terminology differences do not inhibit conversation and are even considered to be charming personal experiences. English is now said to rank as the world's unofficial *lingua franca*.<sup>1</sup> However, in international standards documents, care must be taken to avoid misunderstanding as to the exact meaning of terms.

A current example is a proposed revision of ASTM D 198, Static Tests of Timbers in

Structural Sizes (originally published in 1924). It is proposed to change "timbers" to "lumber." ASTM Committee D-7 on Wood has prepared ASTM D 9, Definitions of Terms Relating to Wood (one of ASTM's oldest terminology standards, originating in 1906). It defines the broad term *lumber* and its 26 varieties; one of which is "timbers—lumber 5 or more inches in least dimension."

Compare these technical terms to their use in the common language: "Portland, Ore. More than 75 *lumber* mills in Oregon closed or curtailed operations yesterday so hundreds of workers could demonstrate against plans to restrict *timber* sales to protect the northern spotted owl." Here, *timber* refers to growing trees, while *lumber mill* is the manufacturing medium producing lumber as defined in D 9.

In Eurospeak<sup>2</sup>, *lumber* is not recognized and *timber* is the preferred term for wood members of construction. In the King's English, *lumber* means "disused and cumbersome articles." The terms *wood* and *woods* mean *forest*; hence "wood construction" does not mean necessarily "building with wood," but "building in the forest." Eurospeak prefers "timber construction" to "wood construction." Indeed, the title of ASTM Committee D-7 on *Wood* is not compatible with Eurospeak.

In the process of revising D 198 within Committee D-7, it has been suggested that *timbers* and *lumber* be replaced with a new term, *wood members*. Whatever changes eventually take place, confusion in terminology will be avoided by following the instructions of the ASTM "Blue Book":<sup>3</sup> E1.1—"Every standard should contain a section on terminology." E1.2—"In the section on terminology, either define or cite reference sources for: E1.2.2—Each term in the standard that is essential to its interpretation and application, whose precise meaning may otherwise be subject to dispute."

Mother tongue, King's English, Eurospeak, *lingua franca*—all may be accommodated in ASTM standards by following the ASTM rules!

Wayne Ellis

<sup>1</sup> *The Oxford Reference Dictionary*, Oxford, 1986.

<sup>2</sup> Sylvester Bone, "Eurospeak," *ASTM SN*, January 1990.

<sup>3</sup> *Form and Style for ASTM Standards*.

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## TERMINOLOGY UPDATE

### Making a Definitive Statement—I

Most ASTM terminologists think of terminology work as a two-step process:

- 1) Collect terms for the concepts used in a specific subject field.
- 2) Formulate concise, complete definitions that reflect the true consensus on the concept within that field.

Some experienced terminologists talk about thesauri and concept systems or other fine points of terminology work, but it isn't necessary to stray beyond the basic act of writing definitions to find ourselves disagreeing on the scope and purpose of our activity.

The venerable Merriam Webster provides two definitions of "definition" that are useful to an ASTM terminologist:

4. *Act or process of explaining the meaning or meanings of a word, term or designation; esp. the act or process of distinguishing such meaning or meanings from those of synonyms, correlatives, opposites, or the like; also, a formulation of such meaning or meanings; as dictionary definitions.*
7. *Logic a In traditional logic, the (or a) delimitation of the species, or kind of thing named, by specifying the genus which includes it and the specific difference, or distinguishing property of the species. b In later schools of logic, any statement either of equivalence of connotation, or intention, or of the reciprocal implications of terms.*

International Organization for Standardization (ISO) 1087: *Terminology—Vocabulary* provides a much simpler definition, in itself a model for what a standardized definition ought to look like:

*definition: Statement which describes a concept and permits its differentiation from other concepts within a system of concepts.*

Webster's definition, which focuses on the "meaning or meanings" of a word, reflects the ambiguity of the word "definition" as it is used by lexicographers in general language dictionaries: is a definition the statement of one specific *sense* of a word, which in general language may have more than one sense, or is it the combination of all the *senses* treated in a dictionary entry? Although many lexicographers and terminologists will argue that the description of each sense constitutes a different definition, many dictionary users think of the entire lexical entry as the definition of the word.

Before the publication of the current *Form and Style for ASTM Standards*, the ASTM Committee on Terminology decided to change the title of the *Compilation of ASTM Standard Definitions* to the *Compilation of ASTM Standard Terminology*. The careful reader will note that this has not happened—the 1990 edition of the compilation still bears the old title. Since people were accustomed to buying each new edition of the *Compilation of ASTM Standard Definitions*, the revision was not made. In other words, if it ain't broke, don't fix it.

Why was there sentiment to change the title in the first place? The reason was that, in classic terminology work, the definition is just one element making up a term entry, which may include, among other things, a term, its part of speech, a scope reference, a definition, a description, a discussion or note, symbols, abbreviations, acronyms, units or an attribution. *Terminology*, on the other hand, can be construed as all the information included in the term entries.

What should the definition look like? The *Form and Style for ASTM Standards* specifies that the definition should state the basic meaning of the term in one sentence only, and that it should be of the genus and differentia type. In his Terminology Update in August 1985's *Standardization News*, "Definitions and the Desire to Write an Essay," Richard A. Strehlow urged his readers to avoid cumbersome, discursive definitions.

Unfortunately, it is much easier for one person to write a brief definition than for a committee to do so. Each colleague may have specific characteristics that he or she deems abso-

lutely essential to the definition, but once all of these delimiting features are tallied up, the definition has long since ceased to meet Strehlow's criteria of "crisp, clear and concise."

*Form and Style for ASTM Standards* suggests that if multiple sentences seem essential in a definition, they can be linked with a semicolon. But in practice, this represents the extreme case. Elegant solutions will:

- Incorporate the entire definition into a single sentence using clear, well-motivated dependent clauses.
- Eliminate discursive information that can better be explained in the technical standard.
- Include brief additional information in the form of a note or other discussion.

Sue Ellen Wright

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## TERMINOLOGY UPDATE

### Making a Definitive Statement—II

In last month's Terminology Update, it was noted that elegant term entries will deal with extra-long definitive statements in one of the following ways:

- Incorporate the entire definition into a single sentence using clear, well-motivated dependent clauses;
- Eliminate discursive information that can better be explained in the technical standard;
- Include brief additional information in the form of a note or other discussion; and
- connect two independent clauses with a semicolon.

Recently Committee D-6 on Paper and Paper Products contacted the Committee on Terminology (COT) with a small set of term entries that seemed to require two sentence definitions but were awkward or unnatural with a semicolon between the sentences. Certainly, only the members of the committee can judge what is appropriate for their field, but from a strictly terminological standpoint, the following solutions are possible.

***alkaline filled paper***—paper containing a filler such as calcium carbonate. A paper is considered to be alkaline (pH usually in the range from 7.5 to 9.5) when it contains a reserve buffering capacity that can neutralize acidic materials formed in the paper or acidic gases sorbed from the atmosphere.

**D 3208, D 3290, D 3301**

Only the expert members of D-6 can decide whether the information contained in the second sentence is essential to the definition. If it is, a dependent clause is more elegant than simply inserting a semicolon.

**alkaline filled paper**—paper containing a filler such as calcium carbonate, which is considered to be alkaline (pH usually in the range from 7.5 to 9.5) when it contains a reserve buffering capacity that can neutralize acidic materials formed in the paper or acidic gases sorbed from the atmosphere.

With its definition of “blocking,” D-6 joins Committees F-5,<sup>1</sup> D-8,<sup>2</sup> D-13,<sup>3</sup> D-31,<sup>4</sup> D-20<sup>5</sup> and D-14<sup>6</sup> in defining this term in the sense of “tendency for sheet material to adhere or cohere.”

**blocking**—adhesion of adjacent layers of paper or paperboard that interferes with their use. Blocking may be caused by temperature, pressure, humidity, coating materials, or a combination of these.

D 918

The first thought that comes to mind is a long-time desire to create a harmonized definition for *all* materials that are subject to blocking, since the physical mechanism is very similar in most cases. This idea, however, is another article. If we look at the definition as it stands here, the first sentence provides all we really need to know in order to understand what “blocking” is. The second sentence adds useful procedural information that could well be included in a technical standard instead of providing it in the terminology standard. Nonetheless, D-6 must decide for itself what is essential from its viewpoint. If the committee deems this information critical, it could be included as a “NOTE.”

**blocking**—adhesion of adjacent layers of paper or paperboard that interferes with their use.  
**NOTE**—Blocking may be caused by temperature, pressure, humidity, coating materials, or a combination of these factors.

On first glance, the final example provided to COT by D-6 looks like two conflicting definitions of the same concept.

**reducible sulfur**—any form of sulfur or sulfur compounds in paper or paperboard that can be converted to hydrogen sulfide on treatment with a metal such as aluminum and an acid under the conditions of a specified test. Reducible sulfur is a measure of the quantity of sulfur compounds in the paper or paperboard that may react with metals to cause tarnishing.

D 984

On examination, this entry appears to involve two separate concepts inserted in the same term entry. The first treats the concept as a “form of sulfur,” whereas the second cites it as a “testing characteristic.” Since each concept should be treated in its own entry, this entry could be split in two:

<sup>1</sup>**reducible sulfur**—any form of sulfur or sulfur compounds in paper or paperboard that can be converted to hydrogen sulfide on treatment with a metal such as aluminum and an acid under the conditions of a specified test.

<sup>2</sup>**reducible sulfur**—measure of the quantity of sulfur compounds in paper or paperboard that can react with metals to cause tarnishing.

Committee E-11 on Quality and Statistics has recently addressed the problem of discursive material in their terminology standards by writing two standards: one for terminology as

such, and a companion standard providing more detailed information of a technical nature. This solution represents the ultimate method for coping with overly long definitions.

Sue Ellen Wright

<sup>1</sup> Committee F-5 on Business Imaging Products.

<sup>2</sup> Committee D-8 on Roofing, Waterproofing and Bituminous Materials.

<sup>3</sup> Committee D-13 on Textiles.

<sup>4</sup> Committee D-31 on Leather.

<sup>5</sup> Committee D-20 on Plastics.

<sup>6</sup> Committee D-14 on Adhesives.

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## TERMINOLOGY UPDATE

### “Standard” Terminology: Definitions Alternatives

#### Dictionary Definitions:

Following are eight principal definitions for “standard,” a homonym or polysemous word (having more than one meaning):

- a) A flag generally;
- b) An exemplar or substance chosen to be or to afford a unit;
- c) A basis of measurement;
- d) A criterion;
- e) An established or accepted model;
- f) A definite level of excellence or adequacy required, aimed at, or possible;
- g) That which stands or is fixed; and
- h) Fineness of gold or silver.

*Chambers 20th Century Dictionary, 1983*

#### Examples of Usage:

- “Let us raise a *standard*<sup>(a)</sup> to which the wise and honest can repair.”

*George Washington*

- “You cannot choose your battlefield,  
The gods do that for you  
But you can plant a *standard*,<sup>(a)</sup>  
Where a *standard*<sup>(c)</sup> never flew.”

*Nathalia Crane*

- “*Standard*<sup>(b)</sup> reference materials are widely used throughout the world.”

*George Uriano*

- “Experience is the surest *standard*<sup>(c)</sup> by which to test the real tendency of the existing constitution of a country.”

*George Washington*

- “The *standard*<sup>(c)</sup> kilogram is the mass of the international prototype kept at the Bureau International des Poids et Mesures.”

*National Institute for Standards and Technology SP 330, 1991*

- “Our American System has perfected the greatest productivity of any nation on earth; our *standard*<sup>(d)</sup> of living is the highest in the world.”

*Herbert Hoover*

- “The secret of success is to keep raising your own *standards*.<sup>(e)</sup>”

*O. A. Battista*

- “The *standardized*<sup>(e)</sup> American is largely a myth created not least by Americans themselves.”

*Irwin Edman*

- An ASTM *standard*<sup>(e)</sup> is “a document that has been developed and established within the consensus principles of the Society and that meets the approval requirements of ASTM procedures and regulations.”

*Form and Style for ASTM Standards, 1989*

- “If you think of “*standardization*”<sup>(f)</sup> as the best that you know today, but which is to be improved tomorrow—you get somewhere.”

*Henry Ford*

You may not quite agree with the writers’ assignments of meaning to these usages of “*standard*” (especially the second quote by Crane), but is it always clear what the author of the quotation had in mind? Often it is not. The lesson here is that context is all-important to understanding. If context does not clarify the meaning of a *polysemous* term, communication is difficult.

#### Synonyms for “Standard”:

There are at least five lexicon-recognized synonyms: *standard*, *criterion*, *gauge*, *yardstick* and *touchstone*.<sup>1</sup> *Webster* gives the following rationale:

*standard* applies to any definite rule, principle, or measure established by authority; *criterion* may apply to anything used as a test of quality whether formulated as a rule or principle or not; *gauge* applies to a means of testing a particular dimension (as thickness, depth, diameter) or figuratively a particular quality or aspect; *yardstick* is an informal substitute for “*criterion*” that suggests quantity more often than quality; *touchstone* suggests a simple test of the authenticity or value of something intangible.

*Webster’s Ninth New Collegiate Dictionary, 1987*

Take note that none of these synonyms meets exactly any of the eight definitions listed previously. It is axiomatic that *perfect* synonyms are extremely rare. Writers of technical standards must be aware of ambiguity introduced by imperfect synonyms. Drafters of definitions have a special charge to avoid confusing the nonexpert user.

"Standard" was chosen here as an exemplar because readers are standards-oriented. But the observations detailed above apply in principle to all terminology work. Top quality terminology in ASTM is clear, explicit and not liable to misinterpretation or misconstruction.

Wayne Ellis

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<sup>1</sup> It is surprising that *Webster* does not recognize the word "norm" as a synonym, especially since "norm" is defined by *Webster* as "an authoritative *standard!*" *Norm* is widely used outside North America to mean a "standard" as understood here.

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