

Responses to ICOMANTH Circular Letter #5  
Compiled 8/15/05

1. Many terms used by USDA in Circular 5 were incorrect. Craig Ditzler of USDA-NRCS-National Soil Survey Center in Lincoln, NE, USA edited the circular and made many technical corrections.
2. **Sender:** Dr. Enrique Gonzalez Erico  
Tarumá 620 casi Dr. Florentín Pena  
Asunción, PARAGUAY  
South America

**Subject:** Submit answers to Section IX for Circular Letter N° 6

**Answer 1**

In my opinion, no changes should be made to sections I through V of Circular Letter # 5

**Answer 2**

No, Artifact has a connotation of being a discrete object made with a purpose, whereas densic materials and contacts may result as secondary products from human actions, for example: plowing to the same depth for many years may produce a densic contact.

**Answer 3**

Asphalt and coal ash should not be considered noxious while soil surveying. Time of exposure to these substances are not long enough to cause a health problem. Anyway, some sort of precautions must be taken with them (avoid inhalation, skin contact, etc).

**Answer 4**

With respect to maximum percentage of noxious particulate, a limit of 25% seems reasonable and with respect to discrete artifacts a limit of 50 per cent by volume also seems reasonable.

An experience in Paraguay was a soil survey conducted in a highly mechanized wheat-soybean double cropping area, where a certain field was used for dumping emptied pesticide containers (mainly plastic). It was estimated to occupy around 40 to 50 percent of the top soil (many containers half buried into the soil). For safety reasons, the soil was neither digged for profile description nor augered for horizons depth. The area was partially walked on by the soil scientists in order to delineate it as a separate mapping unit.

**Answer 5**

I am not acquainted with the standards established by USEPA and feel unable to answer this question.

## Answer 6

It has a lot to do with the experience of the field surveyor. Very often pits and excavations have profiles that resemble road cuts that may be identified even when they are old. Some clues that might be useful in the identification are: dryness and shrinkage of the soil surface, vegetations growing on them are patchy or plants have part of their roots exposed and growing outside the soil (which means soil erosion).

3. Many corrections in terms were made following guidelines used in WRB ([http://www.fao.org/documents/show\\_cdr.asp?url\\_file=/docrep/W8594E/W8594E00.htm](http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/W8594E/W8594E00.htm)) and pointed out by Allan Kosse based on his experience in archaeology and soil science.
4. Many corrections were made following presentations made at the 2<sup>nd</sup> International Conference for Soil Classification and Field Trip in Petrozavodsk, Karelia, Russia in 2004. <http://clic.cses.vt.edu/soils/RussiaSoilClassification2004/2ndConfSoilClassificationFieldTripp.pdf> Many of the Conference papers will be published in Eurasian Soil Science 2005 Volumes 12 and 13.
5. Answers to Questions for Circular Letter #6 by: thomas.cummins@ucd.ie:  
1)

### Section I.

#### B) Artifacts

Artifact Categories:

#### 2) General Size and Continuity Categories:

#### c) “Liners –

- Asphalt **layers** –
- Concrete **layers** –
- Plastic **sheeting** –
- Geotextile – **A woven, knit or matted fabric...**
- Rubber **sheeting** –
- **Sheet-metal – any artefactual metal, alloy, or corrosion product of same that qualifies as a liner.**

Section II. No comment.

Section III. Proposed Additions to Existing Texture Terms:

[note: revised numbering needed]

- 1) **ICOMANTH proposes that the term “Fabric” be added to the Soil Survey manual [and other documents as needed], replacing the phrase “term used in lieu of texture” and defined as: “*Fabric—the material character of a physical body, especially in terms of the dominant and important substances, mixtures, objects and structures present. The term fabric incorporates the terms texture and texture modifier, is implied by (but need not be added to) their presence, or may be used alone to replace them when describing material not suited to their use.*” (From Latin *fabrica*, from *faber* ‘worker in metal, stone, etc.’ [Oxford Concise English]).**

- 1) [No comment]
- 2) ICOMANTH proposes that the term “discrete artifacts” be used as a ~~“term used in lieu of texture”~~ (NSSH Exhibit 618-15) **“fabric” in the sense of point 2 above** for layers made up ~~of~~ **of** 90 percent or more discrete artifacts.
- 3) [No comment]
- 4) [No comment]
- 5) ICOMANTH proposes the following terms to be added as new ~~“terms in lieu of texture”~~ (NSSH Exhibit 618-15) **fabrics** to identify the most common types of liners. These materials are described in detail in Section I above.
  - a. Concrete **liner**
  - b. Asphalt **liner**
  - c. Plastic **liner**
  - d. Geotextile **liner**
  - e. Rubber **liner**
  - f. **Sheet-metal liner**

Section IV. Procedures for Making Detailed Description of Artifacts:

- 4) Liners should be described by their:
  - a. fabric, and
  - ~~a.b.~~ **b.** continuity estimated **as horizontal** distance between ~~vertical root-penetrable~~ gaps or cracks (if any), ~~and~~
  - ~~b.~~ ~~specific identify as “terms used in lieu of texture”~~ (NSSH Exhibit 618-15).

Section V. Proposed New Horizon Designations:

[introductory paragraph unaltered]

- A) Prefix – ICOMANTH proposes the ~~“prime”~~ square bracket symbols (~~←~~) ( [ ] ) be used to identify ~~horizons and~~ layers of HTM, following the example of the numerical prefixes used for discontinuities (keys to Soil Taxonomy, Ch. 18, SSM Ch. 3, and Field Book for Describing Soils, 2<sup>nd</sup>. Ed. p. 2–4).

[No change to statement of current terminology]

ICOMANTH proposes a change in the description to read (changes in bold text):

- *“Arabic numerals are used as prefixes to horizon designations (preceding the letters A, E, B, C, and R) to indicate discontinuities in mineral soils. **The “prime” symbol is used as a prefix to horizon designations (preceding the letters A, E, B, L, C, and R) to indicate human-constructed discontinuities in mineral or organic soils caused by the deposition of HTM. The prime in the prefix position is not to be confused with the prime used in the suffix position.**” The “open square bracket” symbol is used as a prefix to the first horizon designation of a human-constructed stratigraphic layer, and indicates its upper boundary. The “close square bracket” symbol is used as a suffix to the lowest horizon designation of a human-constructed stratigraphic layer, and indicates its lower boundary. The horizon designations formed in each stratigraphic depositional layer of HTM are identified by a matched pair of square brackets. There may be multiple*

*matched pairs of square brackets indicating multiple events in which HTM was deposited, with layers deeper than the uppermost indicated by Arabic numeral prefixes, as for natural discontinuities, contained within any square brackets. Pairs of square brackets may enclose horizon designations underlying naturally-deposited layers. The lowest anthropogenic layer only, if not reached by the profile, may have one unmatched “open square bracket”.*

- *“A **natural** discontinuity is a difference in the materials from which the horizons have formed and/or a significant difference in age, unless that difference in age is indicated by the suffix b. ~~A human-constructed discontinuity is one that forms when humans transport and deposit materials on top of an existing pedon or any other base.~~ A **human-constructed** discontinuity is one that forms when humans remove materials to form a destructional anthropogenic landform, or transport and deposit materials on top of an existing pedon, or any other base.”*
- *“Where a soil has formed entirely in one kind of material, the whole profile is understood to be material 1 and the number prefix is omitted from the symbol. ~~For human-created discontinuities, however, all horizons and layers formed in HTM are indicated by the use of the prime as a prefix.~~ For human-created soils, where the lower boundary of HTM is not reached, at least one initial “open square bracket” symbol is used, but no final “close square bracket” symbol is used.”*
- *A destructional anthropogenic landform is indicated by an unmatched close-square-bracket symbol. This symbol may only be used if all layers above it are described.*

The use of the square-bracket symbols satisfies the requirements which led to the proposal to use the prime symbol (Section VIII Paragraph 12, parts a–c). In addition: it avoids typographical problems with word-processors’ handling of “prime”, quote and apostrophe symbols (see Note 1 below); it is compatible with multiple HTM stratigraphic units; it can imply continuation of HTM below the described exposure by failure to close a bracket-pair; it can indicate a destructional anthropogenic landform by use of an unmatched close-square-bracket.

B) Master horizon – ICOMANTH proposes that ...

“M” would be used to identify physically root-limiting ~~subsoil~~ layers defined as liners ...

The specific liner material is identified in the pedon description as one of several new “~~terms in lieu of texture~~” (NSSH Exhibit 618–15) “fabrics” described in Section III above. For example:

[2Md – 23 to 28 in (56 to 70 cm); very dark gray (10YR 3/1) **asphalt layer**; structureless, massive ...

Section VI

A)

Table 3. Hypothetical human-altered or -transported soil profiles. Assume that each horizon or layer is 25 cm thick unless otherwise stated.

Profile 1	Profile 2	Profile 3	Profile 4	Profile 5
Soil deeply cultivated to 75 cm but not transported	Soil buried by HTM from similar on-site material	Soil buried by HTM from off-site soil material	Soil buried by HTM containing a few artifacts and on-site material	Soil with HTM over a geotextile liner over landfill material
0 cm HTM	75 cm HTM	75 cm HTM	75 cm HTM	200 cm HTM
Conventional USDA-NRCS system				
Ap	A	A	A	A
C1	C1	Bw	AC	C
C2	C2	C	Cd	Cd
Cky	Cky	2BAb	Btb1	2C2 (1 cm thick)
Ckyz (> 1 m thick)	Ckyz (> 1 m thick)	2Btb	Btb2	3C3
		2Cr	BC (> 50 cm thick)	3C4 (>50 cm thick)
System proposed by ICOMANTH				
Ap	[A	[A	[Au	[A
C1	C1	Bw	ACu	C
C2	C2]	C]	Cdu]	Cd]
Cky	Cky	2BAb	Btb1	[2M] (1 cm thick)
Ckyz (> 1 m thick)	Ckyz (< 1 m thick)	2Btb	Btb2	[23C1
		2Cr	BC	23C2] (> 50 cm thick)

B) [The following shows the proposed alteration in horizon designation using the square-bracket symbols instead of the prime symbol.]

[Ap  
Cu1  
Cu2  
C]  
Ab  
Btb

C)

Laguardia Series

Original version	Revised version	Laguardia in a quarry	
	Ap	[Ap	[Ap
	Bw	Bw	Bw
	C	C]	C]]

### Greatkills Series

Original version    Revised version

A	[A
Bw	Bw
BC	BC]
2C	[2C]

### Bagger Series

Original version    Revised version

Ap	[Ap]
2C1	[2C1]
3C2	[3C2]
4Ab	4Ab
4C3	4C'3
4Cq	4Cq

Section VII [No comment]

### Section VIII

Paragraph 4):

“... or~~t~~ horizons are proposed.”

Paragraph 6):

*differentiae* is plural, *differentia* singular. [end of Q.

1)]

- 2) Should densic materials and contacts created by humans be considered as artifacts? Yes.
- 3) Should asphalt and coal ash be considered noxious artefacts?

Since the hazard is a matter not only of substance, but of concentration, exposure, dose, and other such factors, it is not a fixed feature of the soil. Risk of harmful exposure is a limit to investigations, and is equivalent to the limit imposed by a compact substrate on manual excavation, the smallest pedon which can be shown as a polygon on a map of a certain scale, or the weather during field work. As such, this is part of the metadata which accompanies a soil description, describing the conditions of observation. It may if necessary accompany the description of a single layer rather than of the whole pedon. The typographical convention would be to contain the meta-text within square brackets, as with editorial comments; alternatively, a simple use of italics within the pedon description could be used to indicate a metadata element or comment.

- 5) Yes. Operational safety standards for work practices should be explicitly subscribed to, rather than parallel standards specific to soil investigations be established. For workers in other countries, a precautionary standard would be to subscribe to the local national standards where they exist, or to the USEPA/USOHA standards, whichever provides lower risk.
- 6) In archaeology, “cut” features have equal status to “fill” and “layer” features, as well as to components of upstanding structures. The properties of a cut feature are locational (its position and three-dimensional extent), its form (recorded by plan and section, as well as by descriptive terms such as “shallow irregular pit”), and its position in the stratigraphic matrix with respect to other contexts (over, under, within, cuts, abuts, contains, correlates with).

There are three issues here: (a) soils *within* destructional anthropogenic landforms are anthropogenic soils derived from HTM and are catered for by ICOMANTH; (b) soils *truncated by* destructional anthropogenic landforms are truncated soils in the usual sense, and are covered by the USDA–NRCS system; (c) the destructional anthropogenic landforms themselves are not catered for by existing systems within soil science.

An anthropogenic destructional landform may be equivalent to a lithologic discontinuity. If such landforms are recognised in soil profile descriptions, then there may be an imperative to extend such description to natural discontinuities, particularly erosional ones.

If the cut feature can be identified, then its nature can be incorporated into the boundary descriptions in soil profiles thus: “abrupt smooth quarry-face boundary”; “clear wavy spade-mark boundary”, or “clear undulating ridge-and-furrow boundary”.

Notes to typographical problems with word processor software:

1. The “prime” symbol ( ' ) is not given on standard keyboards, and does not appear in the circular letter document. It is often substituted by the apostrophe or single-close-quote ( ' ). Common wordprocessors (such as MS-word) take control, and format apostrophes and quotes as curly quotes, with orientations dependent on adjacent characters. This is readily apparent in the circular letter, with the symbols intended as primes variously

curling as open-quotes or close-quotes/apostrophes. Compare for example the formal example of “prime” in Section V Paragraph A), given as “( ’ )”, a carefully-staged apostrophe. Throughout the examples, by contrast, the symbol consistently reverses itself through the action of the Smart Quotes settings, and shows as a single open-quote ( ‘ ). To add more confusion, the “primes” following the horizon designations curl the other way. Given that most of our text preparation is done by soil scientists, and not professional typographers, it is inevitable that this problem will continue. It is better for this reason alone to avoid the attempted new use of the prime symbol altogether.

2. MS Word “AutoCorrects” the phrase  
human-transported or -altered  
into  
human-transported or –altered  
changing the second hyphen into an en-dash, which is incorrect.

6. Steve Fisher  
Responses to ICOMANTH Circular 5

These comments were drawn from a discussion at the New York City Soil Survey Office with Rich Shaw and Steve Fischer on August 3 and 5, 2004. We sought to apply the items mentioned in the circular to the experiences, methods, and OSD’s of the NYC survey.

In Section I. A).

The definition of HTM was discussed. If HTM is a ‘parent material’ of itself it will change some of the concepts used in describing soils in NYC.

Comment 1: There are soils where the transported material is the same as the underlying natural material. An example would be the GREENBELT and CENTRALPARK series. They are a transported loam till over a in situ loam till. The lowercase ‘b’ was used to distinguish the buried A and B horizons, but a ‘2’ was not used to separate parent material. The CANARSIE series uses the ‘2’ because the natural till material is a densic horizon. When it was transported it fundamentally changed the nature of the parent material.

While this would represent a change in the method we are presently using (and create a need for a little bit of editing), it is acceptable.

Comment 2: Series like BIGAPPLE and other sand dredge materials were very difficult to distinguish from natural sands, unless an ‘Ab’ occurred. Therefore the ‘2’ was not used. These are like situations dealt with on page 3 of Circular 5. The concern we had is whether there could be two series in this situation. A BIGAPPLE that was all dredge material versus ‘LITTLEAPPLE’ where there is 20 to 40 inches of dredge over natural material. Once again, if a soil scientist believes they can **definitely** make this separation, it may deserve a second series. This may be more of a correlation problem than a ‘symbolism’ problem. (If one can’t discern where to start the ‘2’, they would not use it.)

Comment 3: We had situations where the upper part of the sandy dredge material has been subject to eolian processes. As stated on page 2 of Circular 5 this would not be a problem. Once HTM, always HTM. We chose that as our correlation approach and the '2' was not used.

Section 1, B).

We like separating these materials to noxious, innocuous, and liners. The particulate artifacts item is good and has been used in NYC with RIKERS and HASSOCK. The list of discrete artifacts, we assume, will be available as 'in lieu of textures' in NASIS. The definition of these items is important if the degradable concept is being removed from the artifact types. Writing reports trying to capture the effects of degradable items from NASIS or WEB based information needs to rely on the definition and proper placement of materials into these categories. It would be nice if there was a column in NASIS for degradable percent, perhaps replacing subsidence with a data versus an interpretation.

The idea of a very thin liner being part of the above horizon seems to have problems. The liner will control items like permeability for what may be a 10 or 15 inch horizon. This could alter interpretation. We feel the limitation of horizon thickness in NASIS should be overcome by declaring the liner to be the thinnest layer possible even if that makes it thicker than it really is. That is better than making the layer 10 or 15 inches thick which is the result of it controlling interpretations of the above horizon.

The using 15 percent as a break for fragments will possibly alter some series in NYC because we used 10 percent. This effect will hopefully be minor and could be lived with.

Section V, A).

The use of the 'prime' was discussed. The fact that it is already in use for a different concept makes it initially unattractive us. The concept of using a non-letter on the typing pad was advanced in discussions at NYC in the past. Perhaps using an '!', '>', '\*', or other possible key symbol would follow the concept, but not repeat the use of the prime.

Prime presently is being used to represent the second use of an identical horizon. We have no pedons where prime is used in the lower part to symbolize reuse of identical horizon because a lowercase 'b' or a change of parent material "2" usually occurs. There is a possibility of using the prime in soils like BIGAPPLE that have the 'iron banding' described in the C material. They are not lamellae, but have a similar appearance.

Section V, B).

We object to the restriction of M to 'liners'. There are concrete and asphalt layers that are not 'purpose built' as 'liners', they were built as 'parking lots'. Secondly, the term 'liners' as defined in Section I, B), 2.c) requires that the 'liner' be an 'artifact'. This keeps us from identifying 'clay liners' as 'liners'. The use of a purposeful term like 'liners' leaves us some

problems. We would be happier if liners were allowed to vary to textures and if M could be layers not built as ‘liners,’ but functioning as a barrier to soil, roots, or water.

Section V, C).

The use of the ‘u’ as described is OK. The problem we see may come in particulate artifacts. In Section III, 1). It says there will be a method of describing particulate artifacts, but it does not elaborate. If it would be like the present system for limnics, ‘silt loam coprogenous earth’ lets say, one does not know how much ‘coprogenous earth’ is in the sample. In the ‘u’ proposal we would know it is over 15%, but that is it. The pedon description could carry this information, but the DMU in NASIS does not have a way of showing that information without the addition of another column. That column could be of use for limnic’s and other materials with this problem. Other possible alternatives would be saying ‘part artifact’ silt loam, if the natural material is the dominant material or silt loam ‘part artifact’ if the man made material is dominant. Maybe somebody else can think of a better idea.

Section VI,A).

Profile 2 we would think to be a discontinuity by the definition of HTM, and would require a ‘2’ just like Profile 3. Profile 4 would need a ‘2’ on the natural material under this concept, also. In Profile 5 we would use a ‘2’ with the ‘M ‘ and a ‘3’ on the next material along this same context. The Section V, B) uses a ‘2’ with M as the example.

Section VI, B).

The Table 4 example, we would have combined the urbic and natural fragments to provide the modifier on horizon `C. We would call it an urbic very gravelly loam. This soil may be skeletal at 40 percent total fragments. In NYC TOTAL fragments have been used in the selection of the modifier and in the family determination of skeletal.

This would cause us PROBLEMS. We strongly support combining artifacts and natural fragments into one TOTAL percentage for the purpose of selecting ‘modifiers’ and for textural family class determinations.

Section VI, C),1.

For Laguardia we agree with your revision of this pedon, but wish to note that we require 35 to 75 percent TOTAL fragments, but only require 10 percent ARTIFACTS. Also, there is no way to enter the size of the urbic fragments. In this case we note that most of these fragments were bigger than gravel size (by the name of the object it denotes a size, ‘brick’) and that is why only plastics were noted with a size.

Section VI, C), 2.

With the TOTAL fragment approach we would describe the `2C as extremely urbic and preferably extremely 'medium' urbic. Also, we would have thought the revised version would have been very urbic by the proposed separation of materials method.

Section VI, C), 3.

For 4C'3 in the revised version is questionable. What is the ' for?

Section VI, C), 4

Why use an A in Ap4, 5, and 6 (and maybe Ap3). The horizon appears to be a B horizon. Why not a Bp horizon in this case? This seems a practical approach for a soil that was ripped, but not turned over (moldboarded). Also, we were not sure about the 2Bkqmb. Maybe this is a discontinuity related to other reasons, but if it is about not being plowed we would not do it. Also, we would not use a 'b'.

Section VI, C, extra's:

John, we'll [throw](#) in a couple extras to cover some more concepts.

The Rikers series.

Look at the A horizon. This horizon is 75 percent particulate artifacts and 25 percent discrete artifacts. We would consider saying this is an 'Au (we believe in retaining the 'u' even if we go over 15 percent and the texture an 'urbic coarse sand coal ash'. (we feel the use of our suggestion to describe these with the dominant artifact noun preceded by the size fraction can help.)

The Shea series.

Look at the 2Cm. It would now be a 'M. In reality this horizon has many fractures and small gaps filled with HTM material from above and would be an 'M'/Bw.

Section VIII, 2).

Why stop using the 'u' at 15 percent? Why not extend this to all soils with artifacts so we can tell by horizon designation without going to texture.

Section VIII, 4).

'Urbic', did you mean 'dredgic'?

Section VIII, 8).

We favor keeping track of degradable versus non-degradable artifacts. They should be separated in a pedon description. The question is do they count toward artifact percent when assigning urbic, very urbic, and extremely urbic. We favor a procedure that combines all artifacts (degradable and non-degradable) and fragments into a TOTAL content for the purposes of naming texture modifiers and classification questions involving skeletal families.

Example, if a soil has 20 percent brick and 20 percent natural cobbles it should classify a skeletal family with a TOTAL fragment and artifacts percentage of 40 percent.

Another item is using the present concept of when to select gravel versus cobble for a textural modifier. In it we would use the larger of fragment sizes, unless the small size was double the amount of the larger size. We would suggest following this concept in selecting a textural modifier for a soil having a mix of artifacts and natural fragments. Let's make artifacts the named item, unless there are double their amount in natural fragments.

Section IX, 2).

While the horizon is in place, we would not suggest they be referred to as an artifact. If a horizon when broken comes apart into 'irreversibly hardened fragments' then they would be artifacts.

Section IX, 3).

Asphalt should be. Coal ash may be depending on the impurities in the coal source.

Section IX, 4).

We have soils that are (or could be) 100 percent noxious. Example, Rikers (coal ash) and Hassock (fly ash).

Section IX, 5).

While safety advice is needed, we are not sure how it would be placed in Taxonomy. We should perhaps refer people to OSHA and EPA standards, but not reprint them in Taxonomy.

Section IX, 6).

These soils may not need an anthropogenic Taxonomy because they fit in present Taxonomy. They can be identified in the OSD's and map units as being on human altered landscapes. It is hard to use what's not there for Taxonomy.

7. Any reason in particular that you picked "M" as the master horizon designation for anthropogenic soils?

Dr. Patrick Drohan  
University of Nevada

Dear Patrick:

Foresters and some others use the H for some of their "humus" horizons. The M could stand for Man-made, but any letter other than H would have worked.

8. Bob Engel  
Soil Scientist  
NSSC, Lincoln NE

The guides for describing parent materials in the soil survey program are in the "Field Book for Describing and Sampling Soils". Parent Materials are described on page 1-17 and Mass Movement Types are described on the table on page 5-7. <http://soils.usda.gov/technical/fieldbook/>  
[ftp://ftp-fc.sc.egov.usda.gov/NSSC/Field\\_Book/FieldBookVer2.pdf](ftp://ftp-fc.sc.egov.usda.gov/NSSC/Field_Book/FieldBookVer2.pdf)

The Delameter, Forsyth, Obscurity, Studebaker, and Wakepish series from Washington State are some that formed in volcanic mass movement deposits.

I copied below some of the guides for mass movement deposits.

#### MASS MOVEMENT DEPOSITS

MASS MOVEMENT DEPOSIT (Unspecified Landslide) - MMD

#### COMPLEX LANDSLIDE DEPOSITS - CLD

#### FALL DEPOSITS - FAD

debris fall deposit - DLD soil fall deposit (= earth fall ) - SFD  
rock fall deposit - RFD

#### FLOW DEPOSITS - FLD

earthflow deposit - EFD debris avalanche deposit - DAD  
creep deposit - CRP debris flow deposit - DFD  
mudflow deposit - MFD lahar - LAH  
sand flow deposit - RWD rockfall avalanche deposit - RAD  
solifluction deposit - SOD

#### SLIDE DEPOSITS - S

Rotational Slide deposit - RLD Translational Slide dep. - TSD

rotational debris - RDD translational debris - TDD  
slide deposit slide deposit  
rotational earth - RED translational earth - TED  
slide deposit slide deposit  
rotational rock - RRD translational rock - TRD  
slide deposit slide deposit  
block glide deposit - BGD

SPREAD DEPOSITS (=lateral spread) - LSD  
debris spread deposit - DPD rock spread deposit - RSD  
earth spread deposit - ESD

TOPPLE DEPOSITS - TOD  
debris topple deposit - DTD rock topple deposit - RTD  
earth topple (=soil topple) - ETD

9. John Sencindiver, U. West Virginia Tech  
Several things came up at the 2004 ASMR meeting that might be of interest to you and ICOMANTH. I have tried to summarize these items in the following statements.

1. Ammons and his coauthors proposed Anthrents.
2. Kosse, again, discussed his Noosols proposal.
3. Both Ammons and Kosse proposed identifying rock fragment lithology at the family level of classification.
4. Lee indicated that new series are needed; series to represent wet (maybe even hydric) soils, series to represent soils with densic contacts.
5. Some difference of opinion about how many minesoil series have been correlated? Is it 35, 38, 42 or some other number? I guess it depends what each author includes in the list.
6. Should we be using minesoil (one word) or mine soil (two words)? I know that minesoil was started in WV some years ago. However, I do not have a problem with the use of mine soil. I know it is easier to write mine soil when these soils are included in a series of other types of soils; such as urban, mine, and gravel-pit soils.
7. Del Fanning was present, and he emphasized the development of sulfuric horizons and questioned the correlation of series with sulfuric horizons. He asked how we might handle sulfuric horizons developed below the normal 2-m depth of soil classification.
8. Should densic layers be part of taxonomy or should they be named at the mapping unit phase level?

9. Some coal refuse (gob) piles may have been reclaimed and have a "topsoil" layer thicker than 50 cm. Therefore, the topsoil layer will be classified, not the gob material. What should we do to identify the gob material in the taxonomy of these soils?

10. Should we consider developing specific criteria for naming an AC vs a Bw horizon? I am not certain that all of us are being consistent with this.

11. Should we revisit the definition of cambic; especially since some cambic horizons have been identified in 30-yr-old minesoil (and maybe even younger minesoils)? Robert Darmody questions whether or not we should allow taxonomy of the soils to change within our lifetime.

12. Ray Sinclair reported finding slickensides in Indiana minesoils. How do we handle this in taxonomy?

10. Dr. Mark H. Stolt  
U. Rhode Island

We found a problem with the "u" subordinate distinction. Apparently the subscript is used if there are < 15% artifacts but if you have greater than 15% then the "u" is not used. This didn't make sense to me or the students. For example, if there is a significant amount of plinthite the "v" is used to indicate the presence of plinthite (ie. Bv). However, you don't take the "v" away if there is >15% plinthite nodules.

Another thing I struggled with was how to horizonate HTM that had A horizon properties. These materials likely gained their properties at the former location. Therefore, they may be better designated as C horizons, but are rich in OC and may have structure (peds anyway) from the time they were at the soil surface at another location.

11. John P. Tandarich, Ph.D.  
Geneva, IL

I have started using the Circular Letter IV proposed definitions and categories in the field on wetland delineations. They really help in characterizing the fill in which soils are developing. I like the categories garbic, spolic and dredgic, as subgroup modifiers. I find them very useful here in the Chicago area which, as you can image, has fill just about everywhere. Just last week I classified some Spolic Epiaquents, Spolic Udorthents, and a Spolic Epiaquept.

I would appreciate your opinion on the following two fill situations, please. In this first case there is greater than 20 inches of garbic material (yard waste), with no soil horizonation within it, overlying a previously undisturbed organic soil:

HOi-- 0 to 31 inches; 10YR 3/3 and 10YR 4/3 innocuous, garbic, grassy fibric material

Oa1-- 31 to 39 inches; N 2.5/0 sapric soil material

Oa2-- 39 to 61 inches; 7.5YR 3/2 sapric soil material  
I believe that this would be classified as a Garbic Haplosaprist. Suppose, hypothetically, that the garbic fill was more than 50% of the profile to 78 inches (2m), would it be classified as a Garbic Haplofibrist?

Now, within a few feet of this is more than 20 inches of urbic material, overlying the same histosol:

HA-- 0 to 25 inches; 10YR 4/3, 10YR 8/3, and 10YR 2/1, innocuous, very urbic, spolic material

Oa1-- 25 to 32 inches; N 2.5/0 sapric soil material

Oa2-- 32 to 61 inches; 7.5YR 3/2 sapric soil material

Would this be a Spolic or Spolentic Haplosaprist? If the Thapto-Histic subgroup modifier were still being used, I would call it a Thapto-Histic Spolaquent. But, without that option, I'm not sure what would most accurately convey the information that the underlying soil material was organic. However, I don't get the sense that the three categories are to be used as Great Group formative elements. Otherwise, I'm stumped.

### Comments ICOMANTH Circular Letter #5

#### Anthropogenic soil (p. 1):

Joint paper by Dudal et al. (2002) dealing with "anthropogenic soils" (note quotes) present a highly idiosyncratic definition of anthropogenic soils, including a wide range of anthropogenic soil changes. Some of these have limited taxonomic implications, and it puzzles me why they are included. Previous usage of the term anthropogenic soils centered mainly on those soils found in areas of old cultivation developed under traditional agricultural practices. It seems to me almost churlish to confound the meaning of the term in this manner, and it obscures the important distinction between anthropedogenesis and anthropogeomorphology, which lies at the core of the WRB system (FAO 1998). Anthrosols in WRB are seen as the product of anthropedogenic processes, which has removed much of the ambiguity in the original FAO Legend (FAO-UNESCO 1974). It seems to me that ICOMANTH is in peril of falling into this same trap, but this may simply be due to an earlier misunderstanding of the original dichotomy. (Incidentally, in your summary you have left out diagnostic horizons resulting from anthropedogenesis although you do mention paddy soils.)

#### Anthropogenic feature (p. 2):

Would strongly favor use of the term "anthropogenic landforms" rather than anthropogenic features. Use of the term feature should follow archaeological convention to include cultural remains (surface or subsurface) which cannot be removed intact from the field (e.g., plow marks, pits, burials, hearths, house floors, etc.) and do not conform to "normal" stratigraphy of the site (Hester et al. 1975). Anthropogenic features themselves should be described separately following standard descriptive terminology modified where necessary. They are not anthropogenic landforms themselves but occur as special features associated with characteristic anthropogenic landforms. I would urge NSSH in the strongest possible terms to adopt this usage.

#### Human transported materials (HTM, p.3):

"Clues" to the identification of HTM anthropogenic features (prefer "anthropogenic landforms") suggest, perhaps wrongly, that ICOMANTH has abandoned efforts to arrive at unambiguous morphometric criteria in defining HTM (cf. Kosse 2003). You still are forced to include "anthropogenetically-compacted densic materials," but you have deleted "anthropogenic stratification" from Circular Letter #4, which, as I have pointed out, also introduces genetic criteria. Also, I note now that historical evidence has again appeared (hopefully not as soil properties). I have repeatedly emphasized the impossibility of consistently and unambiguously distinguished anthropogeomorphic from "natural" deposits, but I am uncertain if you are willing to accept this conclusion. Recognition of a separate domain of anthropogeomorphology, paralleling the "natural" system (Kosse 2001), would allow these soils to be included in a new order (Noosols) and remain consistent with the logic of the taxonomic system. (A similar rationale, of course, exists in the case of Anthrosols, which are defined as the product of

anthropedogenesis.) I agree that the judgment of the soil scientist will ultimately determine their placement.

Artifacts (p. 4):

The basic concept of "artifact" is difficult to define but emphasizes purposefulness. At what point by products of manufacture should not be considered artifacts is somewhat problematic. Other names suggest themselves, such as artifactual materials, debitage, cultural materials, etc., and it might be advisable to use the related term artificial in some cases. Fragments of artifacts (e.g., pottery sherds, broken glass, metal pieces, etc.) are, of course, a special case and pose few problems short of recognition. I am not sure I would want to include garbage or landfill in your examples since they may also include organic waste or food remains (e.g., bone, shell, dietary remains, etc.) Additionally, I would not want to include anthropogenic features, such as scrape marks, plow furrows or compacted zones as artifacts (see above), which would necessarily have to be described separately. You might also want to substitute the term "cultural materials" for artifacts since this seems a rather awkward usage.

Human-safety categories (p. 4):

I do not understand why you wish to exclude "noxious artifacts," which you indicate will not be fully described or characterized. This seems to me ultimately self-defeating although obviously proper precautions have to be taken. We are bound to encounter these in an urban setting and to exclude them seems arbitrary.

Particulate artifacts (p. 5):

Only artifactual fragments (< 2mm) should be considered particulate artifacts and may be an important component of cultural deposits. Here again the use of the term "artifact" seems awkward, and I would suggest "cultural materials" as a possible alternative. I would not include sand topdressing or municipal sludge as particulate artifacts, but you might possibly use the term "industrial waste" where appropriate or refer specifically to the nature of artifactual materials.

Discrete artifacts (pp. 5-6):

List more defensible but still it might be more meaningful to speak of cultural materials or industrial waste.

Liners (p. 6):

Unclear why you want to include asphalt and concrete as liners; perhaps a separate horizon designation is called for (but see below).

Proposed Additions to Existing Texture Terms (pp. 7-8):

Favor use of term "cultural materials"; probably best to actually describe cultural materials in place of "discrete artifacts." Use as texture class modifiers needs to be

elaborated as necessary; but I do not understand the generic use of urbic. What about garbic or technogenic materials?

Proposed New Horizon Designations (pp. 9-10):

Use of prime ( ' ) prefix seems to me *ad hoc* in the extreme and is likely to lead to confusion with current use of prime to indicate sequential occurrence of horizons, which presumably has precedence. Use of the M master horizon seems appropriate, but I would prefer a better word than "liner". Use of "u" seems unnecessary and could be covered in the notes.

I would prefer resurrecting "an" for prime prefix to refer to HTM although it may be necessary to limit this to C horizons (Soil Survey Staff 1951). It would not conflict with the current usage of "a" (which presumably is restricted to O horizons) or "n" (which indicates accumulations of pedogenic exchangeable Na) (National Soil Survey Center 2002). In any case, it seems to me inherently unlikely that the combination "an" would occur under "natural" conditions. Additionally, I do not see the need to restrict "p" to surface or near surface layers. Failing acceptance of "an," I would favor use of "u" to indicate noogenic materials (from Gr. Untergrund, substrate), but I would try to preserve this last letter for other uses, if possible.

Changes to ICOMANTH Proposals

Profile 1		Profile 2		Profile 3		Profile 4		Profile 5	
Ap	Ap1	'A	Aan	'A	Aan	'Au	Aan	'A	Aan
C1	Cp1	'C1	Can1	'Bw	Bwan	'ACu	ACan	'C	Can
C2	Cp2	'C2	Can2	'C	Can	'Cdu	Cand	'Cd	Cand
Cky		Cky		2Bab		Btb1		'M	M
Ckyz		Ckyz		2Btb		Btb2		'2C1	2Can1
				2Cr		BC		'2C2	2Can2

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