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# Professor Donald Johnson's list of Landmark Papers (1878–1998) in geomorphology and soil geomorphology – an appreciation

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**Abstract**
This paper provides the complete list of papers that were read and discussed in graduate seminars run in 1998 and 2001 by Professor Donald Johnson of the University of Illinois. A literature sleuth, Professor Johnson's courses provide insight into what he thought were the major papers and books that helped guide and advance the fields of soil geomorphology in particular, and geomorphology in general. To his list I have taken the liberty of adding some papers that he either missed or was too modest to include, i.e. some of his own! Delving into the deep literature is hard work. I hope that this paper shows the appreciation that I have for the effort that Professor Johnson put into this task, over many years. In this era of rapid knowledge and literature expansion, it is also my hope that this list helps budding (and seasoned) geomorphologists to delve into the classic literature.

**Keywords**
classic papers, geomorphology, literature, pedology, soil geomorphology

## I Introduction

In 1998 and again in 2001, Professor Donald Lee Johnson (1934–2013), a soil geomorphologist and zoogeographer in the Geography Department at the University of Illinois (Figure 1), taught a graduate seminar on a topic that he loosely called 'Landmark Papers'. This paper examines the readings from these seminars, recovered from Professor Johnson's archives. This listing not only provides insight into Professor Johnson's conceptual viewpoints and biases regarding the fields of geomorphology and soil geomorphology, but also forms a valuable synopsis (in my opinion) of the 'classics' in these fields, many of which might otherwise have been forgotten.

Professor Johnson was a highly respected educator and scholar in his own right. Over the course of his career, he taught 10 different courses in physical geography, soil geomorphology, and zoogeography at Illinois. Always active in research and usually considered an 'out of the box' thinker, he authored over 80 papers in refereed journals, prior to his retirement in 2003 and his untimely passing in 2013. He twice (in 1990 and 2013) received the G.K. Gilbert Award for Excellence in Geomorphological Research

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**Figure 1.** Donald Johnson, as photographed in 2005 by Diana Johnson.

from the Geomorphology Specialty Group of the Association of American Geographers, for his papers on soil evolution (Johnson and Watson-Stegner, 1987) and bioturbation (Horwath Burnham and Johnson, 2012). Most importantly, he was the consummate literature scholar and library rat, always searching for, photocopying, and reading obscure and classic papers, many of which had previously been 'buried' in history and essentially forgotten. Several of his published works emphasized the point that the discoveries of today had often been made years ago, but were forgotten, ignored, lost, or incorrectly refuted. For example, in his recent GSA Special Paper, Johnson (2012) devoted an appendix to the early observations on mima mounds by two celebrated geologists, Joseph LeConte and Grove Karl Gilbert. This paper illustrated not only the keen observational skills of LeConte and Gilbert, but also showed how Johnson understood and valued the works of his predecessors. In another paper (Johnson, 1994), he unearthed the early nomenclature for tropical soil horizons (M, S, and W), and made the point that it not only 'fit' many of these soils better than our current A, B, and C designations, but that the two systems have much in common.

These two examples point out that, in this era of knowledge explosion, the 'literature sleuth' abilities of some scholars like Johnson are of great value. Indeed, it is becoming increasingly difficult to keep track of new scholarly contributions that are being published (like this one!). As a result, internet article tracking, citation web networks, bibliographic websites, and other types of scholarly 'alert' software have become popular, in order to keep abreast of current and newly published papers. Lost in this modern-day, internet-based shuffle, however, are the foundation papers, the classics. This fact underscores the importance of the 'Classics in physical geography revisited' series in this journal.

But what *are* the classics in physical geography, or in geomorphology, or even more narrowly stated, in soil geomorphology? Which papers should be included in a list of classic geomorphology papers? And who should make these types of decisions?

Clearly, such lists will vary as a function of subfield (e.g. soil geomorphology, fluvial geomorphology) as well as by individual. In this paper, I take advantage of a list of classic, or landmark, papers compiled by Donald Johnson in the late 1990s. I argue that someone of Professor Johnson's stature, academic interests, and long history of scholarship make him an excellent source for this type of 'evaluative literature' endeavor. Although his list is, itself, worthy of publication, I also add some commentary regarding themes across the list, and I also provide a few additional papers – ones that Don may have missed. Because my (and his) research specialty is soil geomorphology, these two lists are necessarily biased toward that field.

The purpose of this paper is to provide one such list of classic papers, as originally compiled by Professor Johnson for two of his graduate seminars. It is my belief and hope that this list will be useful to others who value what has come before, and what has been published previously. It is also my hope that this list will inspire other scholars to continue their reading and research in geomorphology and, of course, not to ignore the 'classics'.

**Figure 2.** Donald Johnson, as photographed in 2004 by Diana Johnson. Don was a consummate field geomorphologist. Here, he is examining the soils and sediments at Point Lobos (California) State Park. Shown here is a mima mound cut by wave action in the park's 'mound meadow', at Weston Beach.

## II The seminars

Professor Johnson led two seminars on what he called 'Landmark Papers'. I do not have access to a syllabus for the 1998 seminar, but the 2001 seminar was specifically titled 'Major turning points in the Life-Earth-Soil-Atmospheric-Environmental Sciences, A.D. 1750–2000'. That syllabus states that the course is designed to, 'instill . . . an appreciation and vicarious experience of the conceptual roots and major turning points in the life-earth-soil-atmospheric-environmental sciences over the past two and a half centuries'. In the seminar, two or more papers were read and critically examined each week.

Appendix 1 is a complete listing of the 130 'Landmark Papers' assigned by Professor Johnson for the two seminars. The listing begins (perhaps appropriately) with an 1898 paper by G.K. Gilbert, and ends with a few 1998 papers (the year of the seminar).

Although most of the Landmark Papers are written in English, the listing is truly international in scope. Many of the early papers revolved around the early concepts of landscape change, the geographic cycle, peneplanation, and the evolution of slopes. Particularly of note are several papers on the formation of the channeled scablands of the Pacific Northwest. Many of the papers have a clear soil geomorphic theme, and appear to refer especially to work in Africa and Russia. Professor Johnson was an advocate for the importance of bioturbation on soil formation (Johnson, 2002; Johnson et al., 1987, 2005), as well as its importance in slope processes (Johnson, 1993; Johnson et al., 1990). This emphasis clearly pervades the list. The list also includes several papers that are contrary to the philosophical beliefs that Johnson held, but out of fairness (and for the sake of completeness) he has included them as well. Also of note from the list are several classic papers on paleosols and buried soils.

Professor Johnson always felt that, in science and in geography, you could not get it right if you studied just one thing, or worked exclusively within one mindset or paradigm. Rather, he encouraged his students and colleagues to study the *entire* environment (physical *and* biological) that surficial phenomena occur within. This approach, reasoning and bias explain the wide variety of papers and topics within this list.

## III Additional papers

To the list provided in Appendix 1, I took the liberty of adding a few more (see Appendix 2). I was very selective in this assessment, including only those papers that most geomorphic scholars would believe to be classics within soil geomorphology, or ones that I believe will eventually become classics. It is my hope that the (incomplete) lists provided in Appendices 1 and 2 provide the literature sleuth in everyone with a full range of titles, and guide them toward a more enriching research background.

## IV Conclusions

Donald Johnson was a teacher, a scholar, an explorer, a field person, and an adventurer (Figure 2). Ever curious, he traveled the world seeking answers to the question: how do Earth

systems really work, and how do soils fit in? Don was a thoughtful and generous man, a true inspiration to everyone he met.

He knew the value of the historical literature and the foundations it has established in the field of soil geomorphology specifically, and in the field of geomorphology in general. Many people think of him as someone who thought 'outside the box', and that is true. However, what he primarily strove for in science was to put more 'in the box' – for example, by emphasizing fauna in the O soil-forming factor (bioturbation) in the development of soils and slopes.

In summary, this brief paper, written by a former PhD student of Professor Johnson, stands as a testament to the insight and hard work of Professor Johnson – a man who saw value in the classics, and inspired everyone around him to appreciate them as well.

## Appendix 1: The complete, chronological listing of the 'Landmark Papers' from Don Johnson's 1998 and 2001 seminars

Note: Because the papers are listed in this Appendix with their complete citations, they are not repeated in the References section below. Papers from the same year are sorted alphabetically.


Gilbert GK (1878) Ancient outlet of Great Salt Lake; A letter to the editors. *American Journal of Science* 15: 256–259.

von Ihering H (1882) Über schichtenbildung durch ameisen (On the formation of strata by ants). *Neues Jahrbuch für Mineralogie, Geologie und Palaeontologie* 1: 156–157.

Dokuchaev VV (1883) Russian Chernozem. In: *Selected Works of V.V. Dokuchaev* 1: 14–419. Jerusalem: Israel Program for Scientific Translation (1967).

Drummond H (1886) On the termite as the tropical analogue of the earth-worm. *Proceedings of the Royal Society of Edinburgh* 13: 137–146.

Gilbert GK (1886) The inculcation of scientific method by example. *American Journal of Science* 31: 284–299.

Drummond H (1887) The white ant, a theory. *Popular Science Monthly* 27: 735–749.

Davis WM (1889) The rivers and valleys of Pennsylvania. *National Geographic Magazine* 1: 183–253.

Shaler NS (1890) The origin and nature of soils. US Geological Survey Annual Report 12, Part 1, 213–345.

Becker GF (1895) *Reconnaissance of the Gold Fields of the Southern Appalachians*. US Geological Survey Annual Report 16, Part 3, 85 pp.

Clendenin WW (1896) A preliminary report upon the Florida parishes of east Louisiana and the bluff, prairie, and hill lands of southwest Louisiana. *Bulletin of the Louisiana State Experiment Station*, *Geology and Agriculture*, Part 3, 179–183.

Clendenin WW (1896) The bluff and Mississippi alluvial lands of Louisiana. *Bulletin of the Louisiana State Experiment Station*, *Geology and Agriculture*, Part 4, 260–290.

Davis WM (1899) The geographical cycle. *The Geographical Journal* 14: 481–494.

Davis WM (1899) The peneplain. *American Geologist* 23: 207–239.

Branner JC and Reid HF (1900) Ants as geologic agents in the tropics. *Journal of Geology* 8: 151–153.

Davis WM (1902) Base-level, grade, and peneplain. *Journal of Geology* 10: 77–111.

Passarge S (1904) *Die Kalahari (The Kalahari)*. Berlin: Dietrich Reimer (Ernst Vohsen).

Davis WM (1906) The geographical cycle in an arid climate. *Journal of Geology* 13: 381–407.

Gilbert GK (1909) The convexity of hilltops. *Journal of Geology* 17: 344–350.

Branner JC (1910) Geologic work of ants in tropical America. *Geological Society of America Bulletin* 21: 449–496.

Davis WM (1911) The disciplinary value of geography. *Popular Science Monthly* 78: 105–119.

Bretz JH (1923) Channeled scablands of Columbia Plateau. *Journal of Geology* 31: 617–649.

Polynov VV (1927) Contributions of Russian scientists to paleopedology. Leningrad: USSR Academy of Science, 32 pp.

Bretz JH (1928) The channeled scabland of Eastern Washington. *Geographical Review* 18: 446–477.

Davis WM (1932) Piedmont benchlands and primarrumpfe. *Geological Society of America Bulletin* 43: 399–440.

Wayland EJ (1934) Peneplains and other erosional platforms. Annual Report of the Geological Department of Entebbe. Entebbe: Uganda Geological Survey.

Fleck L (1935) *Genesis and Development of a Scientific Fact*. Chicago, IL: University of Chicago Press.

Marbut CF (1935) Soils of the United States. In: Baker EO (ed.) *Part III, Atlas of American Agriculture*. Washington, DC: US Department of Agriculture.

Milne G (1935) Some suggested units of classification and mapping, particularly for East African soils. *Soil Research* 4: 183–198.

Milne G (1936) Normal erosion as a factor in soil profile development. *Nature* 138: 548–549.

Nikiforoff CC (1936) Weathering and soil formation. *Transactions of the 3rd International Congress of Soil Science* 1: 324–326.

Willis B (1936) *East African Plateaus and Rift Valleys: Studies in Comparative Seismology*. Washington, DC: Carnegie Institution of Washington.

Denny CS (1938) *Glacial Geology of the Black Rock Forest*. Cornwall-on-Hudson, NY: Black Rock Forest Bulletin 8.

Sharpe CFS (1938) *Landslides and Related Phenomena*. New York: Columbia University Press.

Ireland HA, Sharpe CFS, and Eargle DH (1939) Principles of gully erosion in the Piedmont of South Carolina. US Department of Agriculture Technical Bulletin 633. Washington, DC: US Government Printing Office.

Bryan K (1940) Gully gravure – a method of slope retreat. *Journal of Geology* 3: 89–107.

Eargle DH (1940) The relation of soils and surfaces in the South Carolina Piedmont. *Science* 91: 337–338.

Jenny H (1941) *Factors of Soil Formation*. New York: McGraw Hill.

Nikiforoff CC (1942) Fundamental formula of soil formation. *American Journal of Science* 240: 847–866.

Bryan K and Albritton CC (1943) Soil phenomena as evidence for climatic changes. *American Journal of Science* 241: 469–490.

Horton RE (1945) Erosional development of streams and their drainage basins: Hydrophysical approach to quantitative morphology. *Geological Society of America Bulletin* 56: 275–370.

Bryan WH (1946) The geological approach to the study of soils. *Australian and New Zealand Association of Advanced Science Report* 25: 52–70.

Charter CF (1949) The characteristics of the principal cocoa soils. In: *Proceedings of the Cocoa Conference*. London: Cocoa, Chocolate and Confectioners Alliance, 105–112.

Kellogg CE and Davol FD (1949) *An Exploratory Study of Soil Groups in the Belgian Congo*. Brussels: Publications de L'Institut National pour l'Etude Agronomique du Congo Belge, Séries Scientifique 46.

Woolridge SW (1949) Geomorphology and soil science. *Journal of Soil Science* 1: 31–34.

Bryan K (1950) Symposium on Geomorphology in honor of the 100th anniversary of the birth of William Morris Davis. *Annals of the Association of American Geographers* 40.

Ruhe RV (1950) Graphic analysis of drift topographies. *American Journal of Science* 248: 435–443.

Strahler AN (1950) Equilibrium theory of erosional slopes approached by frequency distribution analysis. *American Journal of Science* 248: 673–696 and 800–814.

Shaffer PR and Scholtes HW (1952) *Midwest Friends of the Pleistocene Guidebook – Western Illinois and Eastern Iowa*. St Paul, MN: Minnesota Geological Survey.

Strahler AN (1952) Dynamic basis of geomorphology. *Geological Society of America Bulletin* 63: 923–937.

Strahler AN (1952) Hypsometric (area-altitude) analysis of erosional topography. *Geological Society of America Bulletin* 63: 1117–1142.

King LC (1953) Canons of landscape evolution. *Geological Society of America Bulletin* 64: 721–752.

Leopold LB and Maddock T (1953) *The Hydraulic Geometry of Stream Channels and Some Physiographic Implications*. US Geological Survey Professional Paper 252.

Nye PH (1954) Some soil-forming processes in the humid tropics. 1: A field study of a catena in the west African forest. *Journal of Soil Science* 5: 7–21.

Ruhe RV (1954) *Erosion Surfaces of Central African Interior High Plateaus*. Brussels: Publications de L'Institut National pour l'Etude Agronomique du Congo Belge, Séries Scientifique 59.

Ruhe RV (1954) *Geology of the Soils of the Nioka-Ituri Area, Belgian Congo, Volume 4*. Brussels: Publications de L'Institut National pour l'Etude Agronomique du Congo Belge, Séries Scientifique 66.

Ruhe R and Cady J (1954) Latosolic soils on central African interior high plateaus. *Transactions of the Fifth International Congress of Soil Science* 4: 401–407.

Strahler AN (1954) Statistical analysis in geomorphic research. *Journal of Geology* 6: 1–25.

de Heinzelin J (1955) *Observations sur la génèse des nappes de gravats dans les sols tropicaux (Observations on the Genesis of the Gravel Sheet in Tropical Soils)*. Brussels: Publications de L'Institut National pour l'Etude Agronomique du Congo Belge, Séries Scientifique 64.

Erhart H (1955) 'Birstasie' and 'Rhexistasie'. Outline of a theory on the role of pedogenesis in (producing) geological phenomena. *Academie des Sciences Paris Comptes Rendus* 241: 1218–1220.

Nye PH (1955) Some soil-forming processes in the humid tropics. II. The development of the upper-slope member of the catena. *Journal of Soil Science* 6: 51–62.

Ruhe RV (1956) Geomorphic surfaces and the nature of soils. *Soil Science* 82: 441–455.

Ruhe RV (1956) *Landscape Evolution in the High Ituri Belgian Congo*. Brussels: Publications de L'Institut National pour l'Etude Agronomique du Congo Belge, Séries Scientifique 66.

Strahler AN (1956) Quantitative slope analysis. *Geological Society of America Bulletin* 67: 571–596.

Atkinson RJC (1957) Worms and weathering. *Antiquity* 31: 219–233.

Parisek EJ and Woodruff JF (1957) Description and origin of stone layers in soils of the southeastern states. *Journal of Geology* 65: 24–34.

Ruhe RV (1958) Stone lines in soils. *Soil Science* 84: 223–231.

Butler BE (1959) *Periodic Phenomena in Landscapes as a Basis for Soil Studies*. Melbourne: CSIRO Australia Soil Publication 14.

Nikiforoff CC (1959) Reappraisal of the soil. *Science* 129: 186–196.

Ruhe RV and Scholtes WH (1959) Important elements in the classification of the Wisconsinan glacial stage: A discussion. *Journal of Geology* 67: 585–593.

Simonson RW (1959) Outline of a generalized theory of soil genesis. *Soil Science Society of America Proceedings* 23: 152–156.

Hack JT (1960) Interpretation of erosional topography in humid temperate regions. *American Journal of Science* 285: 80–97.

Hole FD (1961) A classification of pedoturbations and some other processes and factors of soil formation in relation to isotropism and anisotropism. *Soil Science* 91: 375–377.

Malde HE (1961) *Evidence in the Snake River Plain, Idaho, of a Catastrophic Flood from Pleistocene Lake Bonneville*. US Geological Survey Professional Paper 400: B295–B297.

Watson JP (1961) Some observations on soil horizons and insect activity in granite soils. *Proceedings of the First Federal Science Congress, Salisbury, Southern Rhodesia* 1: 271–276.

Chorley RJ (1962) *Geomorphology and General Systems Theory*. US Geological Survey Professional Paper 500-B.

Stearns HT (1962) Evidence of Lake Bonneville flood along Snake River below King Hill, Idaho. *Geological Society of America Bulletin* 73: 385–387.

Trendall AF (1962) The formation of 'Apparent Peneplains' by a process of combined lateritisation and surface wash. *Zeitschrift für Geomorphologie* 6: 183–197.

Watson JP (1962) The soil below a termite mound. *Journal of Soil Science* 13: 46–51.

Schumm SA and Lichty RW (1965) Time, space and causality in geomorphology. *American Journal of Science* 263: 110–119.

Tricart J and Cailleux A (1965) *Introduction à la Géomorphologie Climatique (Introduction to Climatic Geomorphology)*. Paris: Société d'Édition d'Enseignement Supérieur.

Tricart J and Michael P (1965) Morphogénèse et pédogénèse, I. Approche méthodologique géomorphologie et pédologie. *Science du Sol* 2: 149–171.

Watson JP (1965) Soil catenas. *Soils and Fertilizers* 28: 307–310.

Webster R (1965) A catena of soils on the northern Rhodesia plateau. *Journal of Soil Science* 16: 31–43.

Denny CS (1967) Fans and pediments. *American Journal of Science* 265: 81–105.

Ruhe RV, Dietz WP, Fenton TE, and Hall GF (1968) *Iowan Drift Problem, Northeastern Iowa*. Report of Investigations 7. Iowa City, IA: Iowa State Geological Survey.

Williams MAJ (1968) Termites and soil development near Brocks Creek, Northern Australia. *Australian Journal of Science* 31: 153–154.

Bretz JH (1969) The Lake Missoula floods and the channeled scabland (Introduction by E.C. Olsen). *Journal of Geology* 77: 505–543.

Jongerius A (1970) Some morphological aspects of regrouping phenomena in Dutch soils. *Geoderma* 4: 311–331.

Watson JP (1970) Termites and the soil balance. *International Water Erosion Symposium, Prague, Czechoslovakia, Discussions* 2: 81–86.

Gerasimov IP (1971) Nature and originality of paleosols. In: Yaalon DH (ed.) *Paleopedology Origin, Nature and Dating of Paleosols*. Jerusalem: Israel University Press, 15–27.

Ruellan A (1971) The history of soils: Some problems of definition and interpretation. In: Yaalon DH (ed.)

*Paleopedology Origin, Nature and Dating of Paleosols*. Jerusalem: Israel University Press, 3–13.

Yaalon DH (1971) Soil-forming intervals in time and space. In: Yaalon DH (ed.) *Paleopedology Origin, Nature and Dating of Paleosols*. Jerusalem: Israel University Press, 29–39.

Paton TR and Williams MAJ (1972) The concept of laterite. *Annals of the Association of American Geographers* 62: 42–56.

Butzer KW (1973) Pluralism in geomorphology. *Proceedings of the Association of American Geographers* 5: 39–43.

Runge ECA (1973) Soil development sequences and energy models. *Soil Science* 115: 183–193.

Tardy Y, Bocquier G, Paquet H, and Millot G (1973) Formation of clay from granite and its distribution in relation to climate and topography. *Geoderma* 10: 271–284.

Bocquier G, Millot G, and Reullan A (1974) Differenciation pedologique et geochimique dans des paysages Africains, tropicaux et Mediterraneens. La pedogenese laterale remontante. In: *Transactions of the 10th International Congress on Soil Science, Moscow*. Moscow: Nauka, 226–233.

Valentine KWG and Dalrymple JB (1976) Quaternary buried paleosols: A critical review. *Quaternary Research* 6: 209–222.

Eargle DH (1977) Piedmont Pleistocene Soils of the Spartanburg Area, South Carolina. *South Carolina: South Carolina Division of Geology, State Development Board, Geologic Notes* 21: 57–74.

Anderson RR (ed.) (1978) *42nd Annual Tri-State Geological Field Conference on Geology of East-Central Iowa: Guidebook*. Iowa City, IA: Iowa State Geological Survey.

Baker VR (1978) The Spokane Flood controversy and the Martian outflow channels. *Science* 202: 1249–1256.

Duchafour P (1978) *Ecological Atlas of Soils in the World*. New York: Masson Publishing Co.

Paton TR (1978) *The Formation of Soil Material*. Boston, MA: Allen and Unwin.

Simonson RW (1978) A multiple process model of soil genesis. In: Mahaney WC (ed.) *Quaternary Soils*. Norwich: Geo Abstracts, 1–25.

Gerrard AJ (1981) *Soils and Landforms: An Integration of Geomorphology and Pedology*. Boston, MA: Allen and Unwin.

Hole FD (1981) Effects of animals on soil. *Geoderma* 25: 75–112.

Aleva GJJ (1983) On weathering and denudation of humid tropical interfluves and their triple planation surfaces. *Geologie en Mijnbouw* 62: 383–388.

Baker VR (1983) Late Pleistocene Fluvial Systems. In: Wright HE Jr (ed.) *Late Quaternary Environments of the United States*, Volume 1. Minneapolis, MN: University of Minnesota Press, 115–129.

Follmer LR (1983) Sangamon and Wisconsinan pedogenesis in the midwestern United States. In: Wright HE Jr (ed.) *Late Quaternary Environments of the United States*, Volume 1. Minneapolis, MN: University of Minnesota Press, 138–144.

Millot G (1983) Plantation of continents by intertropical weathering and pedogenetic processes. In: *Proceedings of the Second International Seminar in Laterisation Processes, Sao Paulo, Brazil*, 1982, 53–63.

Birkeland PW (1984) *Soils and Geomorphology*, second edition. New York: Oxford University Press.

Thomas MF and Thorp MB (1985) Environmental change and episodic etchplanation in the humid tropics of Sierra Leone: The Koidu etchplain. In: Douglas J and Spencer T (eds) *Environmental Change and Tropical Geomorphology*. London: Allen and Unwin, 239–267.

Wright VP (ed.) (1986) *Paleosols: Their Recognition and Interpretation*. Oxford: Blackwell.

Aleva GJJ (1989) Occurrence of stone-lines in tin-bearing areas in Belitung, Indonesia, and Rondônia, Brazil. *International Journal of Tropical Ecology and Geography* 11: 197–203.

Bronger A and Catt JA (1989) Paleosols: Problems of definition, recognition and interpretation. In: Bronger A and Catt JA (eds) *Paleopedology: Nature and Application of Paleosols. Catena Supplement* 16: 1–7.

Buol SW, Hole FD and McCracken RJ (1989) *Soil Genesis and Classification*, third edition. Ames, IA: Iowa State University Press.

Pavich MJ (1989) Regolith residence time and the concept of surface age of the Piedmont 'peneplain'. *Geomorphology* 2: 181–196.

Thomas MF (1989) The role of etch processes in landform development I. Etching concepts and their applications. *Zeitschrift für Geomorphologie* 33: 129–142.

Johnson DL (1990) Biomantle evolution and the redistribution of earth materials and artifacts. *Soil Science* 149: 84–102.

McBrearty S (1990) Consider the humble termite: Termites as agents of post-depositional disturbance at African archaeological sites. *Journal of Archaeological Science* 17: 111–143.

McFadden LD and Knuepfer PLK (1990) Soil geomorphology – the linkage of pedology and surficial processes. *Geomorphology* 3: 197–205.

Retallack GJ (1990) *Soils of the Past: An Introduction to Paleopedology*. Boston, MA: Unwin Hyman.

Baker VR and Twidale CR (1991) The reenchantment of geomorphology. *Geomorphology* 4: 73–100.

Richter DD and Markewitz D (1995) How deep is soil? *Bioscience* 45: 600–609.

Osterkamp WR and Hupp CR (1996) The evolution of geomorphology, ecology, and other composite sciences. In: Rhoads BL and Thorn CE (eds) *The Scientific Nature of Geomorphology*, Proceedings of the 27th Binghamton Symposium in Geomorphology, September. New York: Wiley, 415–441.

Busacca A (ed.) (1998) Dust aerosols, loess soils and global change. Field tour guidebook: Wind erosion and air quality, loess deposits and geologic history of the Columbia Plateau, 8–11 October. Pullman, WA: Washington State University.

Dott RH Jr (1998) What is unique about geological reasoning? *GSA Today* 10: 15–18.

Huggett RJ (1998) Soil chronosequences, soil development, and soil evolution: A critical review. *Catena* 32: 155–172.

Ollier CD (1998) Stability concepts in landform and regolith studies. *Geological Society of Australia Special Publication* 20: 30–39.

## Appendix 2: Some of the Landmark Papers in soil geomorphology that Don Johnson may have missed

Note: As in Appendix 1, the papers listed here are not repeated in the References section below. Papers from the same year are sorted alphabetically. Unlike Appendix 1, the papers here focus on soil geomorphology.

Gile LH, Peterson FF and Grossman RB (1965) The K horizon: A master soil horizon of carbonate accumulation. *Soil Science* 99: 74–82.

Jackson ML (1965) Clay transformations in soil genesis during the Quaternary. *Soil Science* 99: 15–22.

Flach KW, Nettleton WD, Gile LH, and Cady JG (1969) Pedocementation: Induration by silica, carbonates, and sesquioxides in the Quaternary. *Soil Science* 107: 442–453.

Hole FD (1976) *Soils of Wisconsin*. Madison, WI: University of Wisconsin Press,

Gile LH and Grossman RR (1979) *The Desert Project*. Washington, DC: Soil Monograph, US Soil Conservation Service.

Schumm SA (1979) Geomorphic thresholds: The concept and its applications. *Transactions of the Institute of British Geographers* 4: 485–515.

DeConinck F (1980) Major mechanisms in formation of spodic horizons. *Geoderma* 24: 101–128.

Ruhe RV and Olson CG (1980) Soil welding. *Soil Science* 130: 132–139.

Harden JW (1982) A quantitative index of soil development from field descriptions: Examples from a chronosequence in central California. *Geoderma* 28: 1–28.

Muhs DR (1984) Intrinsic thresholds in soil systems. *Physical Geography* 5: 99–110.

Johnson DL (1985) Soil thickness processes. In: Jungerius PD (ed.) *Soils and Geomorphology (Catena Supplement 6)*. Braunschweig: Catena, 29–40.

Machette MN (1985) Calcic soils of the southwestern United States. *Geological Society of America Special Papers* 203: 1–21.

Wells SG, Dohrenwend JC, McFadden LD, et al. (1985) Late Cenozoic landscape evolution on lava flow surfaces of the Cima volcanic field, Mojave Desert, California. *Geological Society of America Bulletin* 96: 1518–1529.

Johnson DL and Watson-Stegner D (1987) Evolution model of pedogenesis. *Soil Science* 143: 349–366.

Johnson DL, Watson Stegner D, Johnson DN, and Schaetzl RJ (1987) Proisotropic and proanisotropic processes of pedoturbation. *Soil Science* 143: 278–292.

McFadden LD, Wells SG, and Jercinovich MJ (1987) Influence of eolian and pedogenic processes on the origin and evolution of desert pavements. *Geology* 15: 504–508.

Reheis MC (1987) Climatic implications of alternating clay and carbonate formation in semiarid soils of south-central Montana. *Quaternary Research* 27: 270–282.

Pavich MJ, Leo GW, Obermeier SF, and Estabrook JF (1989) *Investigations of the Characteristics, Origin,*

*and Residence Time of the Upland Residual Mantle of the Piedmont of Fairfax County, Virginia*. US Geological Survey Professional Paper 1352.

Chadwick OA, Brimhall GH, and Hendricks DM (1990) From a black box to a gray box – a mass balance interpretation of pedogenesis. *Geomorphology* 3: 369–390.

Harrison JBJ, McFadden LD, and Weldon RJ III (1990) Spatial soil variability in the Cajon Pass chronosequence: Implications for the use of soils as a geochronological tool. *Geomorphology* 3: 399–416.

Birkeland PW, Berry ME, and Swanson DK (1991) Use of soil catena field data for estimating relative ages of moraines. *Geology* 19: 281–283.

Johnson DL (1993) Dynamic denudation evolution of tropical, subtropical and temperate landscapes with three tiered soils: Toward a general theory of landscape evolution. *Quaternary International* 17: 67–78.

Paton TR, Humphreys GS, and Mitchell PB (1995) *Soils: A New Global View*. New Haven, CT: Yale University Press.

Grimley DA, Follmer LR, Hughes RE, and Solheid PA (2003) Modern, Sangamon and Yarmouth soil development in loess of unglaciated southwestern Illinois. *Quaternary Science Reviews* 22: 225–244.

Johnson DL, Domier JEJ, and Johnson DN (2005) Reflections on the nature of soil and its biomantle. *Annals of the Association of American Geographers* 95: 11–31.

Wilkinson MT, Richards PJ, and Humphreys GS (2009) Breaking ground: Pedological, geological, and ecological implications of soil bioturbation. *Earth-Science Reviews* 97: 257–272.

Fey M (2010) *Soils of South Africa*. New York: Cambridge University Press.

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## References

Horwath Burnam JL and Johnson DL (2012) *Mima Mounds: The Case for Polygenesis and Bioturbation*. Special Paper 490. Boulder, CO: Geological Society of America.

Johnson DL (1994) Reassessment of early and modern soil horizon designation frameworks and associated pedogenetic processes: Are midlatitude A E B-C horizons equivalent to tropical M S W horizons? *Soil Science (Trends in Agricultural Science)* 2: 77–91.

Johnson DL (2002) Darwin would be proud: Bioturbation, dynamic denudation, and the power of theory in science. *Geoarchaeology* 17: 7–40.

Johnson DL (2012) Early prairie mound observations by two celebrated geologists: Joseph LeConte and Grove Karl Gilbert. In: Horwath Burnam JL and Johnson DL (eds) *Mima Mounds: The Case for Polygenesis and Bioturbation*. Special Paper 490. Boulder, CO: Geological Society of America, Appendix B, 173–178.

Johnson DL, Keller EA and Rockwell TK (1990) Dynamic pedogenesis: New views on some key soil concepts, and a model for interpreting Quaternary soils. *Quaternary Research* 33: 306–319.