

**External assessment report on the Mgr. Leona Koptíková's PhD. thesis:**  
(*Oponentský posudek doktorské dizertační práce Mgr. Leony Koptíkové*)

The basic composite section in the Barrandian Lower Devonian succession of the beds using  
magnetic susceptibility stratigraphy  
(*Opěrný profil barrandienským spodním devonem s použitím magnetosusceptibilitní stratigrafie*)

I have completed my review of the Ph.D. thesis of L. Koptíková. I find it to be a very full body of research, a very strong effort, now completed, and worthy of Ph.D. level work. I think that L. Koptíková's detailed study of sedimentation through nearly 30 million years of the Devonian, utilizing a broad range of techniques and methods at a highly refined sampling scale, creates a new standard for how to interpret a sedimentary succession.

As I read through the thesis, there are a few interpretations in places that I might make differently myself, from my background and experiences. The contrast challenges me to examine my own assumptions at times, and to wish to examine the Devonian in the Prague basin more with the Czech researchers.

One strong impression I have is that L. Koptíková's very large data set is something that she will be able to continue analyzing, yielding more insights into general principles in sedimentary geology, and in the regional to global Devonian history of events and processes. One example of this would be to delineate a more detailed assessment of the record of sea level change/sequence stratigraphy through the Lochkovian to Eifelian stages. In the eastern U.S., we find 10 apparent 3rd order depositional sequences/T-R cycles, and the beginning of an 11th from the Lochkovian to Eifelian. These appear to all be global events. Can these be distinguished in her data set?

**Comments and questions:**

Referring here to the page numbers in the manuscript, these notes are supposed to say:

p. 11, 2nd paragraph, 4th line (on right margin):

"the onset of the orogeny, or when its effects reach the Prague basin?"

p. 26, next to last line of first paragraph (on right margin):

"Yes? Late diagenetic formation of pyrrhotite?"

p. 27, paragraph under "REE concentrations and their distribution patterns", 4th to 5th line (right margin):

"If you're talking about zircons, apatites, etc., you should also consider airfall volcanic ash input as a possible REE source, including reworked ash deposits."

p. 35, 15th line from bottom (on right margin):

"meaning marine facies shift landward during transgression?"

p. 35, 8th line from bottom (on right margin):

"Reversal to oxic? - meaning more oxic, generally meaning to shallower water. Perhaps you mean "reversal from oxic conditions?"

p. 37, lines 6-8 of first paragraph:

I'm confused here as to "which quarry is the shallower water one" (= 2nd comment at right margin. You state "The latter 2" and then later say "the last one" - which means you didn't comment on the first one. Perhaps "former" is the word you want instead of "latter" at the end of line 6?

p. 39, 5th line from bottom (on right margin):

„Possibly - but barite goes into solution under anoxic conditions, and then precipitates in laterally time-equivalent dysoxic settings. Its occurrence is not fully linked to productivity.

p. 45, last paragraph, lines 1-7:

- I get lost in this very long sentence, and can't figure out just what you're saying. Similar to me when I wrote my Ph.D. dissertation in late 1995, you sometimes write these long, complex sentences, linking so many things together that the message gets lost. Break sentences like this into 2 or 3 sentences instead. It helps readers keep your ideas straight.

Marked-up text, which can serve as a helpful guide to better writing in English in the future, is attached.

### **Conclusions:**

Overall, this thesis seems to contain a lot of very good, detailed work using so many analytical methods to understand what is recorded in the rocks. A great effort, and a very fine contribution.

In all, a very fine contribution, I believe. Certainly of the quality demanded to be awarded a Ph.D.

I am honored to have been invited to review L. Koptíková's thesis for Charles University. Thank you.



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Charles A. Ver Straeten, Ph.D.  
Sedimentary Geologist & Curator of Sedimentary Geology  
New York State Museum/Geological Survey  
3140 Cultural Education Center  
Albany, NY 12230

phone: (518) 486-2004  
fax: (518) 486-2034  
email: cverstra@mail.nysed.gov

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