

**IV** WORKSHOP  
ON ICHNOTAXONOMY

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\* H R O R J L F D O , Q V W L W X W H  
% R U L V V D N 3 D O H R Q W R O R J L F D O , Q V W L W X W H

## IV Workshop on Ichnotaxonomy

## IV Международный семинар по ихнотаксономии

### Abstracts

### Тезисы докладов

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**ИХНОКОМПЛЕКСЫ ПОСТКАЗАНСКИХ  
ПЕРМОТРИАСОВЫХ ОТЛОЖЕНИЙ  
МОСКОВСКОЙ СИНЕКЛИЗЫ**

**М.П. Арефьев<sup>1</sup>, А.В. Дронов<sup>2</sup>**

F m a \_ c \_ k l \_ k l \ \_ g g h c b k l h j b  
 Y j h k e Z \ k d Z y h [ e Z k l  
 michail-3000@inbox.ru  
 = \_ h e h ] b q \_ k d b c b g k l b l m  
 dronov@ginras.ru

H G

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 Planolites L V S Suidium L V S K e \_ ^ u i j b m  
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 k d Z y Z \ ± [ h j e ] \_ Z \_ g  
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 Y g h q d b g Z ; m d b g Z

**СЛЕДЫ ЖИЗНЕДЕЯТЕЛЬНОСТИ НАСЕКОМЫХ  
В ПАЛЕОНТОЛОГИЧЕСКОЙ ЛЕТОПИСИ**

Phycodes L V S Z \ ±j Z a j - a - < h k d j - k - g k d h -  
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 V S h i k b e Z eg l g b y Z < < G Z - ^ b g k l \ g g h c Z e \ j h e b l h  
 \ h c i e b l d - g Z c ^ - g g h c \ h k u i b Палеонтологический институт им. А.А. Борисова РАН, Москва  
 d b - k e h b k X d Z j - \ k u Bergauerida Y g Z u j m ` j g u lab@paleoentomolog.ru = Z \ j b g h  
 L V S R b j h d h - j Z k i j h k l j Z g - g b -  
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 q - k d b [ h e - - Z d l b \ g h c k j - ^ - l b g - g l Z e v g u o h l e h ` - g b y o  
 < \ h k l h q g h c q Z k l b F K [ u e k \ b k k l l j - f q Z - g i h - k ^ l b j g k l \ - g Z u u Z g h u  
 g Z ` - g b b < D l b e - m h - g Z \ h j o f b g k d Z y q k \ f b \ l b Z ^ Z f b g ^ H g Z a Z e j j h Z = g  
 g u c \ j m k e h \ u o i - k q Z g b d Z o k d b - h k h [ - g g h k l b e b q b g h d  
 L Z d b f h [ j Z a h f g Z b [ h e - - [ d z Z l f u l - j b b o Z g e h Z d h f i e h - k d h k [ u - g h h f k -  
 \ j Z g g - m j ` m f k d b o j Z g g - k - \ - m j k h e ^ h \ b b g y k d k b j o - ^ h u j h Z [ g g Z h b y g - d  
 e h ` - g b y o \ f - k l - k h k l Z l d Z f b ^ b h g j Z l f Z b g d b Z a f k \ - n f i h j k d b h ] b h f - i j l h b  
 g b y q l h \ b ^ b f h m d Z a u \ Z - l J y g Z ] h \ j e h y l g b f - g f h j k Z d k b i p h k l j j Z  
 i b k b ] j m i i k e - ^ h \ g Z k - d h f u  
 i j b a g Z d Z f g h b a a Z k \ h - c

**СЛЕДЫ ЖИЗНЕДЕЯТЕЛЬНОСТИ  
НА ФАЦИАЛЬНО-БАТИМЕТРИЧЕСКОМ ПРОФИЛЕ  
В ХАТАНГСКОМ РАННЕМЕЛОВОМ МОРЕ  
НА СЕВЕРЕ ВОСТОЧНОЙ СИБИРИ**

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$H k g h \setminus g u \_ \textcircled{O} Z Z j l Z Z d g l ] \_ k j d b h k ] l h b d \textcircled{P} Z g g \_ f \_ e e \_ h a \setminus b h k ] l h u o f h f j b y g \_ j Z e h \setminus ] \_ l$   
 $j \_ d h g k l j m b j h \setminus Z g u \_ g Z h k g h \setminus \_ b h h m k q l \_ v g b y a g i Z d \textcircled{P} \_ a j h y \setminus [ b i h j h Z [ d h h b$   
 $j \_ ] Z f \setminus ^ h e v k \_ \setminus \_ j g h c h d j Z b \textcircled{P} u \setminus \textcircled{K} \textcircled{K} h \textcircled{P} \textcircled{P} h \textcircled{P} k \textcircled{P} h c m j h e \textcircled{Z} L n h j i f b u l Z b g b$   
 $h d j Z b g u L Z c f u j k d h c k d e Z ^ q Z l a h n e x l k b \textcircled{K} j l \_ f u ^ a b = e \textcircled{M} f [ h b k g l g h \_ u \_ ^ a k$

$m k l Z g h \setminus e \_ g h i h d \_ j g Z f g \_ k$   
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 $q \_ g b \_ [ \_ j j b Z k Z b \setminus Z e Z g \_ b g$   
 $g h c \pm d f k h \_ ^ b g y \setminus r b c Z d \setminus Z$   
 $f \_ g g h ] h f h j y E Z i l \_ \setminus u o b G$   
 $h [ r b j g h ] h A Z i Z ^ g h K b [ b j k d$   
 $g Z a Z i Z ^ \_ D h f i e \_ d k g u c Z$   
 $i Z e \_ h [ Z l b f \_ l j b q \_ k d b c i j h n b$   
 $f \_ e d h \setminus h ^ g h c q \textcircled{O} \textcircled{K} \textcircled{L} \textcircled{L} \setminus g Z \setminus \_ x j ] o h h \setminus$   
 $k b l \_ e v g h m ^ Z e \_ g g u \_ h l i Z e$   
 $s Z ^ b ; g h Z y j j d \_ \setminus g Z i j Z \setminus e \_ g b b d k$   
 $h l g h k b l \_ e v g h ] e m [ h d h \setminus h ^ g u$   
 $G h j ^ \setminus b d A Z o Z j h \setminus X ^ h \setminus g u c$   
 $i Z e \_ h w d h e h ] b q \_ k d h ] h Z g Z e b$   
 $e Z ] m g g u \_ e Z ] m g g h f h j k d b$   
 $] e m [ b g b h l g h k b l \_ e v g h ] e$   
 $n Z p b c m k l Z g h \setminus e \_ g u w e \_ f \_ g l$   
 $k l \setminus \_ g g h g Z o Z j Z d l \_ j \_ ] j m g$   
 $l \_ j b a m \_ l k y g \_ i h \setminus l h j b f u f b k$   
 $l \_ e v g h k l b D k h \setminus Z e \_ g b x$   
 $g \_ f \_ g \_ \_ [ Z l b f \_ l j b q \_ k d Z y$   
 $p b c \setminus u ^ \_ e y \_ l k y ^ h k l Z l h q g h$   
 $e b l h \setminus Z y b o g h n Z p b y o Z j Z d l$   
 $g u o A r k t i \textcircled{P} h m u s [ h d A Z o Z j h \setminus k f$   
 $\setminus k j \_ k ^ f g \_ f b ^ k \pm Z f q Z j s h \_ f \setminus ^ k h \_ ]$   
 $j Z k k \_ y g u \setminus k e h \_ b j Z k i h e h$   
 $g Z i e Z k l h \setminus Z g b y < \_ j o g y y q$   
 $g b \_ f \setminus h j h g d k f ^ b \textcircled{L} f f \_ \textcircled{P} g h \textcircled{L} f$   
 $q Z s \_ \setminus k \_ ] h \setminus k l j \_ q Z x l k y \setminus$   
 $o Z j Z d l \_ j \_ g ^ e y i \_ k q Z g u o b$   
 $b e Z ] m g g h f h j k d b o n Z p b c$   
 $n h j f b j h \setminus Z \setminus r b o k y \setminus w l b o m k$

СЛЕДЫ ЖИЗНЕДЕЯТЕЛЬНОСТИ ВЕНДСКОГО

Rhizocorallium

K h \ f \_ k l g h k

g b f b ЖИВОТНОГО КИМБЕРЕИ LA QUADRATA

q Z x l kArctichnks e \_b^ u i j h g b a u \ Z x s b \_ i \_ k q Z g h Z e \_ \ j b l h \ u \_  
h k Z ^ d b h k \ \_ l e \_ g g u \_ k e \_ ^ u g \_ b ^ \_ g А.Ю. Иванов b j h \ Z g g u o ^ \_  
] h \ W l b k e \_ ^ u o Z j Z d l \_ j b a m x l i \_ k q Z g u \_ b i \_ k q Z g h Z e \_  
n Z p b b f h j k d h ] h f \_ e d h \ h ^ v y Малеонитболгичевский Институт им. А.АуБорис\ ка РАН, Москва \_ c  
\\_ j o g \_ c k m [ e b l h j Z e b I j \_ h [ e Z ^ Z x l ] h jvdncov@pago.kuZ e v g h k e h b k l  
k l m j u h ^ g Z d h q Z k l h \ k l j \_ q Z \_ l k y d h k Z y k e h b k l h k l v G  
k e h \_ \ k h k e \_ ^ Z f b j Z a f u \ Z r b j H d ^ h g b j f Z a b \ a b l u h [ h h g b l o h \ u e \_ f e \_  
j b l u H k l Z l d b [ \_ g l h k Z i j \_ ^ d Z Z b e y \_ g Xg `u g \_ h c i j : b k f m j s Z \_ e k b l b \_ g b g h  
q b f b b k b ^ y q b f n b e v l j Z l h j Z f b h ] m b l k d k e q l b Z l \_ v e k v y g h \ [ \_ h j ] h Z \ l b u ^ g  
g h f b q \_ k d b j Z a g h h [ j Z a g u q l h ] ^ k Z \ b i ^ h \_ d j \_ e \ v Z k x s m \_ l [ h e v [ r e b Z \_ ] h m  
m k e h \ b y o h [ b l Z g b y H l g h k b l \_ i e j v b g g h b f Z e m [ h a d Z h \ h ^ i g \_ u q Z l b d o b g h k n  
g b ` g \_ c q Z k l b \ \_ j o g \_ c k m [ e b l h h k j Z Z e b e \_ b g g g u b o ` g d \_ e c \_ r k g m \ \ e b b ^ l g h u j f Z b  
d e x q Z x l f g h ] h o h ^ h \ b e h \_ ^ h \ g j b Z k a l g h h g h h [ A ] j Z d a e g Z h d j h : j f m j \ n b h ^ e \_ h e ] b m  
h [ e b d Z ; h e v r b g k l \ h b a g b o [ h h u k b b Z ^ G m x d O i j L F g K \_ Q X b V ^ \_ g b b n i b j p y  
I j \_ h [ e Z ^ Z x l i h \ b ^ b f h f m = IR j R h S o K h \ n F h R j V g h f m d h l l b j u h d g l h f l r g Z j d m b  
\\_ \ u k h d h m ] e \_ j h ^ b k l u o [ Z ` \_ g h b b g l h Z ] o ^ Z A k Z l o j Z \_ j q h Z x l b k y ^ j g Z l \_ o  
l b i n Z p b c i j \_ ^ k l Z \ e \_ g Z e \_ \ j b k l e h \_ \ u k f l b \ b b b ] i e j b b g g b Z k ^ l e h \_ ` Z g e h \_ k \ l j v b l  
h k Z ^ d Z f b < p \_ g l j Z e v g u o q Z k l u y e o Z [ i Z h k k \ c g h ^ \_ g h Z g b g Z q e Z h k ^ Z d ] Z  
k y k \ u k h d h m ] e \_ j h ^ b k l u f b k e ] Z Z [ l h h \ m b a h l k g e \_ g ^ g Z u f b Z l j i j b q e Z b  
I j \_ h [ e Z ^ Z x s b e l l b g d k e h h k b b k k g d Z Z l e j v \_ g ] Z Z y l Z f ; k g h E [ Z Z Z o h Z \ \ k l d i h j e f \  
l Z d k h g h f b q \_ k d b h ^ g h h [ j Z a \_ g h g d i Z k h l [ b b e \ l g g Z j \_ g ^ i d h h e l Z h ] j Z o l k  
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q b l \_ e v g h f \_ g \_ \_ \pm h [ i Z e v \_ g h u Z d k h h ^ i j h g j l h m Z l e ] j h k e \_ i h d k \_ ] h \ \_ j o  
h [ e Z ^ Z g b \_ \ i Z e \_ h p \_ g h a Z o l Z = d j k \_ h [ g g h b f b g Z k d k b e \_ h d g h h [ u j e Z b a g [ u h o  
j Z d h \ b g g u o n h j f g \_ [ h e v r h ] h q Z k f h j Z h [ b Z a i n b x k m l [ k h l e \ v b r \_ b \_ ^ \_ k l  
n Z ] h \ \ u k h d h ] h m j h \ g y k \ b ^ \_ g \_ e v h k l l ^ \ \_ m e \_ v l g u h f [ b h [ l h g j h k a b ^ l Z \_ f e v g  
l \_ f i \_ j Z l m j Z o i j b ^ h g g u o \ h ^ b k l h j l n g h b l b \_ i d e b h k o e h h j h Z Z ] j Z L g Z b o  
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b l Z d k h g h f b q \_ k d b j Z a g h h [ j Z a g d u Z ` ^ B b h g h n Z j p \_ b d b j u ^ l h e b ` g k u l \_ i j j l b \  
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j u ] b g A Z o Z j h \ h l k m l k l \ m x l b a h e b j h \ Z g g u \_

СЛЕДЫ ПИТАНИЯ ПРОАРТИКУЛЯТ – КРУПНЫХ  
ВЕНДСКИХ МНОГОКЛЕТОЧНЫХ ЖИВОТНЫХ

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A Z o h j h g \_ g b \_ l \_ e Z ` b \ h l g h  
k e \_ ± ^ h y \ e \_ g b \_ h q \_ g v j \_ ^ d h \_  
[ h e \_ \_ \_ k e b k e \_ ^ u h k l Z \ e  
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g Z o h ^ d b l Z d h ] h j h ^ Z ^ Z x l  
g Z f g h ` \_ k l \ h \ h i j h k h \ k \ y  
\_ f \ u f \_ j r \_ ] h h j ] Z g b a f Z l  
\_ f H k h [ \_ g g h h g b \ Z ` g # ^  
[ h e v r h c ] j m i i u \ \_ g ^ k d b o  
d h l h j u o d l h f m b e b b g h f m  
g u o ^ b k d m k k b c K e \_ ^ u i j h  
f b h l i \_ q Z l d Z f b g Z i h ^ h r \ Z  
k l h b l b a ] j m i i b e b i h k e \_  
h l i \_ q Z l d h \ k e \_ ^ h \ u o i e Z l  
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i h k e \_ ^ h \ Z l \_ e v g h i h \ l h j y \ r b  
G Z d h g p Z o g \_ d h l h j u o p \_ i h  
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k e \_ ^ Z y \ e y \_ l k y h [ u q g h \_ h l  
b h d j m ` Z x s \_ c i h j h ^ h c e b l  
g u o \_ ] h m q Z k l d Z o h l i \_ q Z l h  
k y k i h \ \_ j o g h k l v x i h j h ^ u  
l j Z e v g Z y \ h d j m ] i j h ^ h e v g



**ИХНОФОССИЛИИ НИЖНЕГО КЕМБРИЯ  
ДЗАБХАНСКОЙ СТРУКТУРНОЙ ЗОНЫ МОНГОЛИИ**

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*akray@paleo.ru*

*J Z a j \_ a u > a Z [ o Z g k d h c k l  
] h e b b ; Z y g = h e P Z ] Z g  
w n n m a b \ h \ ^ a Z [ o Z g k d h c k  
\ Z x s m x b o l \_ j j b ] \_ g g h d Z j  
b [ Z y g ] h e v k d h c k \ b l h l  
b d \_ f [ j b x B a a Z k \ h \_ ] h  
g \_ f \_ ^ m o h j h r h b a \ \_ k l g  
k d h c i e Z l n h j f w l h l j Z a j \_  
k l j Z l h l b i Z h k g h \ Z g b y d \_ f  
b ^ j L h ] ^ Z \ \_ \ i \_ j \ u  
k b e b c j Z a j \_ a Z \* R O ] Q U L Q J  
d Z o K h \ f \_ k l g h c j h k k b c k d h  
w d k i \_ ^ b p b b K J F I W g Z f b  
r h h [ g Z \ \_ g g u o j Z a j \_ a h \ i  
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p b y k e h \_ \ i h . K R P H Q W R Y*

Цаганоломская свита (слои 1-10 – венд, слои 11-17 – немакит-далдын).

слои 9–10. ростые гори онтальные оды.

слои 12–17. вертикальные норы ( ), рони ыва ие слойки и вестняков наскво ь, с радиальными нитями , рас одя имися от стья.

Баянгольская свита (слой 18 – немакит-далдын, слои 19-25 – кембрий).

лой 18. ного исленные *Planolites* L V S Co- [ h e  
*chlichnus* *IDi* *ulichnus* L V S

Planolites Cochlichnus

СЛЕДЫ CRUSTACEA В ЮРСКИХ ОТЛОЖЕНИЯХ

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] j m i i Z © k e \_ Rusphycus q eL Dglsbnikesl h g h ] b o ^
L Mosomorphichnus Palaeophycus L MagSogmus LF VI S
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cos L VHSrmosiroidea F IL V S

С.Ю. Малёнкина

Геологический институт РАН, Москва
maleo@mail.ru

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**РАЗНОВИДНОСТИ БИОТИЧЕСКИХ ПОВРЕЖДЕНИЙ  
РАКОВИН СПИРИФЕРИД В ВЕРХНЕМ ДЕВОНЕ  
РУССКОЙ ПЛАТФОРМЫ**

**Н.В. Оленева**

**Всероссийский научно-исследовательский геологический нефтяной институт (ВНИГНИ), Москва**

**Брахиоподы, существовавшие в позднем девоне Русской платформы (ливенский горизонт франского яруса), часто подвергались нападению различных хищников. Изученная коллекция представляет собой моновидовую популяцию спириферид**

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ВКЛАД О.С. ВЯЛОВА В РАЗРАБОТКУ  
ИХНОЛОГИЧЕСКОЙ КЛАССИФИКАЦИИ  
И НОМЕНКЛАТУРЫ

В.М. Палий

Президиум Национальной академии наук Украины, Киев  
paliy@nas.gov.ua

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ИССЛЕДОВАНИЕ СЛЕДОВ ЖИЗНЕДЕЯТЕЛЬНОСТИ  
С ИСПОЛЬЗОВАНИЕМ РЕНТГЕНОВСКОГО  
МИКРОТОМОГРАФА SKYSCAN 1172

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alval@paleo.ru

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**СВЕРЛЯЩИЕ ЖИВОТНЫЕ КАК ИНДИКАТОР  
ИЗМЕНЕНИЯ КЛИМАТА В ГОЛОЦЕНЕ**

**А.В. Пахневич**

**Палеонтологический институт им. А.А. Борисова РАН, Москва**  
alval@paleo.ru

< ] \ ` m j g Z e \_ © W d g h h e h i h y Z ` [ g u g e i Z o h i m e l b e b h d j h h \ c Z g  
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W l b ^ Z g g u \_ f h ` g h b k i h e v a h \ Z g l w ^ e k y e \_ ^ Z e Z h d e l h f Z l d Z \_ k ^ d \ l m o s  
k l j m d p b c b b a m q \_ g b y k l j Z l b

Polydora V S

### ПЕРВАЯ НАХОДКА СЛЕДОВ ДИНОЗАВРОВ В РОССИЙСКОЙ ФЕДЕРАЦИИ

А.Г. Сенников<sup>1</sup>, С.В. Наугольных<sup>2</sup>

I Z e \_ h g l h e h ] b q \_ k d b c b g k l b l m l  
sennikov@paleo.ru  
= \_ h e h ] b q \_ k d b c b g k l b l m l  
naugolnykh@rambler.ru

< K h \ \_ l k d h f K h x a \_ f \_ k l h g Z d o h h ` f h \_ g g b h y k k m e ^ \_ b ^ l h v \ i ^ h b g k h e a \_ Z ^ \ h j \ ]  
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< J h k k b c k d h c N \_ ^ \_ j Z p b b k e \_ ^ f u g h b l k d h i k Z e \_ f ^ u h o \ u j \_ i ^ l l b j e h b ` c \_ d i j \_  
e y x l k h [ h c [ h e v r m x j \_ ^ d h k l v j h y l g h g Z c ^ \_ g g u \_ \ D b k e  
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\ h o j Z g g h c a h g \_ E \_ j f h g l h \ k d k h l ] j h m d b p k b l c h q g B d Z n Z g h > ^ Z h g g l i b c ^ u [ ]  
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i Z e b a k e h \_ \ b a \ \_ k l g y d Z k K e j \_ ] ^ Z g x \_ s c ] l b P l \_ g g l d Z e v m g s h \_ c e v : y a l  
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H l i \_ q Z l d b k l h k i f l j \_ ^ k a f Z g m r l b j b h g d n e \_ h l Z e v g h \_ b a m q \_ g b \_ m g b d  
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b \ l h j h c [ e b a d b i h ^ e b g \_  
H l i \_ q Z l d b k h k l Z \ e y x l q Z k l  
g h ] h r Z k f Z h K h e h u j Z k i h e Z  
d k j \_ ^ g \_ c e b g b b H l i \_ q Z l  
^ h \ i \_ j \_ ^ g b o d h g \_ q g h k l \_ c  
^ e k y e \_ ^ Z e Z h d e l h f Z l d Z \_ k ^ d \ l m o s  
j i j \_ Z q n Z b l b Z e b l k e h p g \_ Z g Z i h \ \_ j o g h k l b  
i h e h ] h f i e y ` \_ g Z f h j k d h f  
K m ^ y i h h l i \_ q Z l d Z f l m i u  
l \_ \ u o n Z e Z g ] k e \_ ^ u i j b g Z  
b a ] j m i i u h j g b l h i h ^ ; h e v  
g Z r Z ] Z k \ b ^ \_ l \_ e v k l \ m x l h  
d j m i g u f l y ` \_ e h \ \_ k g u f b h  
s b f k y ^ b g h a Z \ j h f W l b k e \_  
g b b f l h i h ^ Z f h a j b k y f l Z c k J l : \ G Z , E h  
d b a \ \_ k l g u f k e \_ ^ Z g f i a n o d o w t i p u s b o  
J b : G ^ j F h k d \ Z l e b q Z y k v [ h e \_ \_  
l h h [ j Z a g u f b d h ] l \_ \ u f b n Z e  
h j g b l h i h ^ Z [ u e Z q b k l h [ b i

**СЛЕДЫ СОСКАБЛИВАНИЯ НА ГАЛЬКЕ  
ИЗ СЕНОМАНА АНГЛИИ**

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К g Z q Z e Z ; , ; \ ] \_ h e h ] Z f  
g h c : g ] e b b \ k l j \_ q Z x l k y j Z k k  
g u o d j b k l Z e e b q \_ k d b o b \ m  
d Z f g b j \_ ^ d b g h \ k \_ ] ^ Z \ u a  
k l v x k \ h \_ ] h i j h b k o h ` ^ \_ g b y  
a u \ Z e h k v ^ \ Z i j \_ ^ i h e h ` \_ g b y  
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o h \ Z g g u o E Z d c Z \_ f e g v \_ c k g Z Q Z e Z \  
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b e b l h e h ] b q \_ k d b f b ^ Z g g u f b  
\ : g ] e b b \ \ \_ j o g \_ f f \_ e m y \ g g h u  
k d b f j \_ d h g k l j m d p b y f < k \ y a b ] f m ^ w g l h b f d e \_ f l m d a \_ \_ o h D j h f r h j b  
m g b \ \_ j k b l \_ l Z [ u e b b a m q \_ g u ^ < \ - i b d k h q e \_ e f - d f p \_ b e b m \_ ] : Z g e j \_ e d b b b i h Z R  
k \_ y g g u o \ \ \_ j o g \_ f \_ e h \ u o h l e h g ` = g k y o \_ ± = X w \ k l g h h f h l e h b ` l g \_ u l e k b e b ^ k P  
h i j \_ ^ \_ e b l v i j b j h ^ m r l j b o h \ d b k \ h \_ h h j Z d a h g e u e \_ d B B g \_ h n k h k l k b j Z B B

e h ] Z f b b e x [ b l \_ e y f b ] \_ h e h  
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H g Z j \_ a d h h l e b q Z \_ l k y h l  
] m e y j g h k l v x j Z a f \_ j h \ b n h  
b f \_ \_ l [ b h ] \_ g g h \_ i j h b k o h ` ^ \_  
e h \ h ] h [ Z k k \_ c g Z h q \_ f k  
f \_ e h \ u o m k l j b p \ h f g h ] b o  
d b H i b k Z g h g \_ k d h e v d h l b  
j Z a f \_ j h f n h j f h c b g Z [ h j h  
i j b \ \_ ^ \_ g Z d j Z l d Z y o Z j Z d l \_  
h ^ b g b e b ^ \ Z i Z j Z e \_ e v g u o  
9 h [ j Z a g h ] h k \_ q \_ g b y i j b  
i h e Z ] Z x l k y g Z i j h ^ h e ` \_ g b b  
p b Z a j \ Z i k b l g h b f q x l s h b o \ : i b h k [ q j \_ Z f a g f u  
P Z B B i u b - g ] Z e - h d p Z a b g h y Z h e m k g u q \_  
P B Z g h l \ ] g m u [ o i B j h ^ e b g g J Z k k h  
u b Z e b g Z d h e v g h o b g j l m j - k g Z a Z  
i h i \_ Z j g ] q e g b u c k d k c q \_ e g b b l y - j Z l Q m Z j k - l i  
g Z e v w d l b h l b k k q ^ \_ l e Z g l u - j \ h h \ b q ^ l  
Z h g g d Z d h ^ h j h k e y k f h b k d j d ] Z d e  
i B k m d b k l k \ e v h k y j o k h q h B g u y f Z b e v  
i j B j h ^ c b e b k v g d h e ^ d n h k n Z Z g o h h f h d  
i b j Z u o k ^ b a Z Z B b y q f h k ^ \ h h g l g u f b  
i ] - h j \ h B j l Z l h q j d h b ^ h a g j l - g s u b y I B k e - i  
q k l h Z e p Z g Z i b \ g l u h j m x - e l Z h g q u d m j u q Z  
i Z h l f - b e g b Z x k q q b k l e Z x ^ l u - q h l k h l Z e \ - e ^ h g \ g  
j h ^ j g o u g f h b k l B a h l h j i z g e u e f h b \ u Z g h j f Z n q  
b m f j h x \ l g k y y h Z k Z g h Z e b l d - h o d b h f l b h q j -  
l Z j g - g ^ u k f l b Z \ B - s i b h y e m h i h e b j h \ Z f g g u  
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^ < \ - i b d k h q e \_ e f - d f p \_ b e b m \_ ] : Z g e j \_ e d b b b i h Z R  
g = g k y o \_ ± = X w \ k l g h h f h l e h b ` l g \_ u l e k b e b ^ k P  
W h h j Z d a h g e u e \_ d B B g \_ h n k h k l k b j Z B B



**ARE WE READY TO CLOSE THE OPEN NOMENCLATURE  
DESCRIPTIONS OF LARGE NON-MARINE BURROWS?**

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R I D Q H [ W H Q G H G E L E O L R J  
; H G O D U J H Q R Q P D U L Q H  
, F K Q R O R J L F D R I W K H , F K Q  
W K D W W K H F X U U H Q W Z R U N  
D U R X Q G W K H S U D F W L F D E L O  
D S O D W I R U P W R H [ F K D Q J H

7 K H S D V W W Z R G H F D G H V V K R Z H G L Q F U H D V H G U H V H D U  
Q R Q P D U L Q H E X U U R Z V D W M O R P H O L O G I C A L V A R I A T I O N S O F V E R T I C A L B O R I N G S U H A  
O L F D W L R Q V G H D O L Q J Z L W K W A N D B U R R O W S F R O M T H E O R D O V I C I A N O F E A S T W U D I  
P R G X V R S H U D Q G L L Q W K H V H B A L T I C O C H I N O T A X O N O M I C A L I M P L I C A T I O N S W R G H  
D Q G V X U ; F L D O P R U S K R O R J L H V D Q G D W W H P S W W R L Q W H  
Z L W K R X W W K H L F K Q R W D [ R Q R P L F G H V L J Q D W L R Q V R I W K H  
L Q J W K D W G L V F R Y H U L H V D Q G G e o l o g i c a l i n s t i t u t e , r u s s i a n a c a d e m y o f s c i e n c e s , m o s c o , r u s s i a Q  
X H V X Q D E D W H G W K H F X U U H Q W O D F N d r o n o v @ g i t r a s . r u U L J R U R X V L F  
V K R X O G E H E U R X J K W W R D Q H Q G 7 K L V L V P D L Q O \ Q  
D F F H V V W K H S D O H R H F R O R J L F D O D U D F H J Q I R ; V F V L Q W H L Q V V D D J  
I R V V L O V U H O D W L Q J W R Q D W X D U U D H O Z W L G H Q G V H D Q Q Q W K H  
W L R Q D U \ U H O D W L R Q V K L S V K R D I E L ( W D V O W Q P R D O O R W Q L L F ) D W S L R Q V X  
, Q I R U P H G E \ G H Y H O R S P H Q W V L Q Q W R K W K H 5 U H J A C h e r i c h s L L S O O M Q H W Z R  
P \ W K H L F K Q R W D [ R Q R P L F G H A m p l o r i c h Q u s D a p W l l a t u s R Q C o n i Q n E s t o n i c u W K H U H H O E D X U U J  
V K R X O G E H F D U U L H G R X W L Q L V D Q Z R W \ W W U K X D H W I Z R I U O Q W Y K S H W E F Y  
W D [ R Q R P L F E H D V W 7 R D Y R L T G K H W K O H D W F W R H S O H D [ U L H W \ E R R U L Q F  
F R Q V H Q V X V R Q D Q X Q L I R U P G d s t r s c h e n b l i t z W D R V Q I D O S I U S R S S U H R U D F L K F K D Q  
V H D U F K H V V K R X O G E H U H D F K G H R Q L W I K D U Q X R K W a s t r o e h d n o t e W V W H H %  
H I I R U W V V K R X O G E H X Q G H U S W Q Q H E G I O \ R J W K H O F R W P R P R D Q V V D L V J  
W K H S U L Q F L S O H V R I G L D J Q R V I R Q N Q H L P L O D H O L Q E O H L ] H L F O  
E X U U R Z V + R Z H Y H U S U L R U W W R L D I W R I U R P X O I D Q W L R Q J F I D Q E R Q D W L  
L F K Q R W D [ R Q R P L F D W W U L E X W L R , Q Q V W K U L L V J R R U I R W W S D K Q R G V S D K O D W W U  
H U D W L R Q L V Q H H G H G W R F R P L S H Q D I O D Q W D H J D H V L O \ C D F F H H V U  
L F K Q R O R J L F D O G H V F U L S W L R Q V X E I D D U J H E D Q R Q R P D W K H H 9  
W K L V L V H V V H Q W L D O L Q R U W K H W R R Z U H H U F R 2 J R Q O L L ] W H U H H F X U  
L G H Q W L I \ S R W H Q W L D O V \ Q R Q Q C X V N o c h a e n o D e s Q G 6 H R V P W H D E R Q L W K K H D Q D I  
D W L R Q Z L W K L Q S R W H Q W L D O U H K W Q K R H W U D [ S D H U V H L V W H Q W W D L S Q K R  
W K H O L Q H V S U R S R V H G I R U G H H [ D V O U L H Q P J H O Z \ L W Y K D U \* L R D Q E C O Z H D Q D 6 R  
Y D O K R 7 K H : R U N L Q J W L \* R U Q R X S L Q Q V R \* R Q I G C H Q W Q D W Q D W I  
I H Z O H W W H U W K H ; U V W W V R W H G S L I I H U W Q W V L E K Q R I F H W Q L R

*Gastrochaenolites oelandicus*

7 K H U H D U H V R P H P R U S K R O R D I R F Z D O D G L I O I W U I H O Q R F E H L V W H E H W W  
E X U U R Z V I U R P I D J L D ) R U P R I W L W Q H O R S U P S K R U D R Q G X H Q I  
© 6 W H N O R " K D U G J U R X Q G V X U I R D I F H W K D H O G H Y F H K U W I D F D W O H U L X W U  
H U 2 R O L W H E H G " C v K r i d b i l e s K P D N G H U D I P W W S L F V V F L K E D O Q H J H W R L Q L I O I I  
G. oelandicus O l o a G U H V S H F W L Y H O \ % Q X R W J U I D W S K I L F V F G K L D Q H X O W D W R  
L I W K L V G L I I H U H Q F H L V G X I H Q W W R R W V K X H E V F W S U L D F W R H Q W Y L D Q U H I Q D W E L  
R I W K H W U D F H P D N H U R U V X E V H T X H Q W P R G L ; F D W L R Q  
U L Q J V E H W K H R W K H U D Q L P D O V  
7 K H V W X G \ K D V E H H Q V X S S R U W H Y I C H N O T A X O N O M Y S I S S O U I M P O R T A N T : ) R X Q G  
5 ) % 5 J U D Q W

**GIANT RUSOPHYCUS TRACE FOSSIL FROM THE MIDDLE ORDOVICIAN OF SIBERIA**

**Andrei V. Dronov<sup>1</sup>, Veronica B. Kushlina<sup>2</sup>**

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dronov@ginras.ru  
% R U 3 \ D O D D H R Q W R O R J L F D O , Q V W  
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' X U L Q J ; H O G Z R U N L Q 6 L E I H I U H L V D Z L H Q U H W K D H W W \ H I D H X W H G  
Rusophycus + D O O Z H U H I R X E Q G ) • I U R . V e n e s . E W K K r e g u l a r e ; U R M u l t i c o n s i s W L P 7 H K  
2 U G R Y L F L D Q % D \ N L W 6 D Q G V W S R U Q R H S R V D I O N K K R D U V H Y E L H D H Q Q D I Q R O  
6 W D J H V 7 K H W Z R E H V W S P H Q W R O R G L V H W J V P S O H O W K T R I X U K  
V X U I D F H R I W K H R Y H U W X U Q H Q G H Z I D L O F F O R K H Q Q R l i u m E S O H F 7 L K N H W U R R H I V W X  
F D O L W \ R Q W K H U L J K W E D Q P D W I H U W L K D H O 3 I R U G R N P D H W H K o H Q u i d \* \ H D U  
N P G R Z Q V W U H D P I U R P W K H V P X R J X J W H K V W R I D W G K M H X V 6 W W P R H O Q E W R V Y D V  
U H S U H V H Q W H G E \ E L J E X F N O Q H H Z O L F N O R I D z o v E M L l n o ; R F I D D W W L H S Q I R R S U I R P W V

Y H U V H O \ Z U L Q N O H G RusEphy- D Q  
cus D U H Z L G H O \ D F F H S W H G  
7 K H V L J H R I W K H W U D F H V  
G X F H G W K H P F P Q D R R G U Z I F W I K  
R I D F E P R X W Q W K H E R W W R P V  
E L O R E D W H K R U V H V K R H  
I R X Q G 7 K H W U F D P F H O R I Q R J V V L  
W R F P L Q Z L G W R u K o p h y c u s ' I O W Q M G U L E  
R D I R F Z D O D G L I O I W U I H O Q R F E H L V W H E H W W  
© R S U P S K R U D R Q G X H Q I  
Y F H K U W I D F D W O H U L X W U  
% Q X R W J U I D W S K I L F V F G K L D Q H X O W D W R  
W V K X H E V F W S U L D F W R H Q W Y L D Q U H I Q D W E L  
P R G L ; F D W L R Q  
W H Y I C H N O T A X O N O M Y S I S S O U I M P O R T A N T : ) R X Q G  
R H I Z O C O R A L L I U M A N D I T S V A L U E F O R F A C I E S  
R E C O N S T R U C T I O N

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Rhizocorallium 0 R L V F R R Z Q H 5 R V V L W D K H H  
F R V P R S R O L W D Q G L V W U L E X W  
Z L H W X Q W H U H S F 6 R J Q 0 L R V H G Z D O Q V V R L  
Q H F W L R Q Z L W K W K H F K D U D  
W H P V 6 L Q F H L W V L Q W U R  
Z L H Q U H W K D H W W \ H I D H X W H G  
• I U R . V e n e s . E W K K r e g u l a r e ; U R M u l t i c o n s i s W L P 7 H K  
W S R U Q R H S R V D I O N K K R D U V H Y E L H D H Q Q D I Q R O  
S P H Q W R O R G L V H W J V P S O H O W K T R I X U K  
H Q G H Z I D L O F F O R K H Q Q R l i u m E S O H F 7 L K N H W U R R H I V W X  
P D W I H U W L K D H O 3 I R U G R N P D H W H K o H Q u i d \* \ H D U  
V P X R J X J W H K V W R I D W G K M H X V 6 W W P R H O Q E W R V Y D V  
R I D z o v E M L l n o ; R F I D D W W L H S Q I R R S U I R P W V

R I G L I I H U H Q W L F K Q R V S H F  
W X U H V L F K Q R W D [ R D V H V  
D Q G F R Q V H T X H Q W O \ O H D G

R. jenense sensu stricto Z L W K V L P L O D U V P D O O V S U H L W H Q E X U U R Z V  
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L V D ; U P J U R XloisifGngitesE XLUFUKRQZR I ED HF @ HINRICH LICHTENSTERN'S FOSSIL «FISH»  
, W F R Q V L V W V R I S D V V L Y H O \ AT THE CASE IN 1803/ DISCOVERY OF A NEW EARLY Z L W  
H Q W D W L R Q F U R V V L Q J V H W V TRIASSIC MARDNEUICHNOFOSSILQ PSEUDOPLAGIOGMUS J V  
I D H F D O S H O O H W V ICHNOGENUS NOVUM) FROM THE ECCA GROUP,  
, Q R. cmmunW U 6DFVKWP L G Z K L F K KAROO BASIN, SOUTH AFRICA R U V \ Q R  
R. irregulare 0 D \ H U L V D V R I W J U R X Q G W R V W L I I J U R X  
R F F X Cuzina L IQ F KWQ KRH D F L H V 7 K H E H G G L Q SharadMaster D O O H O W R  
L Q F O L Q H G f E X U U R Z V F R Q W D L Q D Q D F W L Y H O \ ;  
D O O H O U X Q Q L Q J V F U D W F K P Economic Geology Research Institute, School of Geosciences, University Q V  
ICoprulus oblongus DCQbaGilliformis 0 D \ H U of the Wit atersrand, Johannesburg, South Africa  
\$ V W D W R. domWurle F DV S H D Q HDH Q V L W K R IZ V D sharadmaster@wits.ac.za  
X R X V V L J H U D Q J H I U R P V K R U W V W X O W W R H O R O J D  
W K X V G R H V Q R W M X V W L I \ I X U<sup>7</sup>WK H H U; U G V L V F V U L L J P Q L L Q B W Q R V Q I  
+ R Z H Y H U E R W K H Q G P H P E H \* U H U P D D U Q H Q V D L W X U L P D Q W D O Q  
S D O D H R H Q Y L U R Q P H Q W V D Q G W K H G U H K D W B H H W K R X I H W H Q  
R. commune P Rinbr S KD Dmmune P RregulSreK D 7 K H O R Q J Z H U H I R X Q G R Q D  
W U R R. uKarensVs S L) UL DW L R Q L R V Q \ D Y L H U \ Z K U D D W U H L V D E Q H R Z U D W W  
R. commune D Q G F R. cmmune E H P WathSs KD DU G H G 7 K D V O R F D O L W \ L V V L W X D  
% D V H G R Q V X E V W RhizocoWil-L D O P R D I W H W K L H D O ( F F P R P\* S W K H H V W W H H  
lium L Q 7 K X U L Q J L D & H Q W U D Z D \* H U G H D V W \ U R \ H E W F H O F U H S  
W K H R F F X U U L Q J L F K Q R V S H F L R H V / L D F Q K G W H W Q K V W L H U L Q P R D U Q S G K V R I  
R W K H U S D O D H R Q W R O R J L F D O B O Q L W H G L P R H U Q P W H R U O R \ J L W K R O X J F  
W K H G L I I H U H Q W L D W L R Q R I V<sup>7</sup>X U E L D H V Q V L F U R Q) P H G W Q L R H W V K D  
S O D W I R U P V Z L W K R. cmmunR W K H U Z E V H L Q R P R J H O H R Q V D Z S K H B  
P R rhinS K R F F X U V P D L Q O \ L Q V X O E D W U L G \ D O V S H P Q F Y H L G U R F Q X P U H Y O H W G V W  
U D P S D Q R cmmunD J R RregulSreK DL K H W H S D I V F D O W R PlagiogZhuH U R H H G D H  
R Q L Q W R. jense L G F D K O D U P D X F G W H A U D L W H V P D U L Q \$ H Q Q L Q \$ F O X G U H V U K B Q  
L Q D V X S U D W R L Q W H U W L G P D H O Q V V H W Z W K L L Q F J K K D Y H V X E V  
7 K H RhizocoDalNunH VR K R Z V L W V L P S R E U H W U D J Q F D H Q G I R ) U R U S W D O % D U H R R Z H Q F R ) F  
O R J L F D O U H F R Q V W U X F W L R Q V I D B O L G E L L D F K Q R Pldciomys H H L V E R K V L V Q L W O H C  
D V W U L F W F O D V V L ; F D W L R Q V F K X W K H U P I O g i g n u s R d a P U H W R U D % H D F W H L V O R F  
Y D O X H R I W U D F H I R V V L O V L S Q R W K E V D U H V S G H L F P W H Q W : V H D N Z

Namaichthys digitata

7 K H G L I I H U H Q F H P V eudop Egi Hgm Ws Z H H  
W R J H U W i c k n i d C b u z i a n z D S W o l i k o s L F K Q R I R V V L D V U H A H F W G L I I H U H Q W E  
E L G J H H W D O 6 \$ - \* W D Q F H P. O c h R e n f e i R i P R W Y R H U U V W V D E U  
7 K H W \ S H V S H l a g f o g i u s P H S Q R V H G R H I O W W K U P. D a n d r s J a n i M K Q R J H K Q I X W L Q W H U S U  
F D P H I U R P W K H & D P E l d U L D Q P H I Q V L Z Q K L L F W K D Q C K R W P. R e n d o r s H i i Q W R U O D R  
giogmus L V U H J D U G H G D V D Q L Q W. i R O t e r e t e H i i G W U E D X F U N U V R Z O R F R P R W R  
Y H U W H E U D W H Y H U P L I R U P P H W D J R D Q , W K D V E H H Q I R  
J U D L Q H G P D U L Q H V H G L P H Q W D U \ U R F N V R I & D P E U L D Q  
O R F D O L W L H V Z R U O G Z L G H , Q A F E W R U Z Z M E S K F O R T H E S Y S T E M A T I C I C H N O L O G Y D H R  
6 J S O D F N E l a g i o g m u s Q R I R S V V F L R O P V S D U H L F O R M T H E O R D O V I C I A N O F T H E K U L Y U M B E S E C T I O N  
F D O P l a g i o g m u s E U W L U D D Q F N V Z L W K W K H 7 U L D ( C E N T R A L S I B E R I A ) D W U D F N V  
6 R X W K \$ I U L F D V K R Z V V L J Q L ; F D Q W P R U S K R P H W U L F G L I  
V X F K D V W K H V S D F L Q J U H . R a d e k M i k u l a s , A l e x a n d e r V . K a n y g l , N i k o l a y M . S e m n i k o , H V V  
Y H U V H E D U V D Q G O D W H U D O W U D F N A n d r e j V D r o n o v L Q Z L G W K V  
W U D F N V L Q W K H ( F F D \* S P D \ E H O R Q J W R W Z R G L V W L  
G X F H G E \ D G L I I H U H Q W D Q I n s t i t u t e o f G e o l o g y , v . i . A c a d e m y o f S c i e n c e s o f t h e C z e c h R e p u b l i c  
& D P E U L D Q P l a g i o g m u s W W K I D F W N V J H Q T H K U H D W ( H F G F D P r a h a , C z e c h R e p u b l i c  
D U H F R Q V H T X H Q P s e u d o p l a g i o g m u s , V L J Q H G Q V W R W D m i k u l a s @ g l i . c e s . c z L F K Q R O J H X Q P X V  
a d o e i c B p l i c h t e n s t e i n i i D a d e G o n i i 7 K H , Q V W L W X W H Q R 1 3 H W U R O H X Q P X V  
Q H Z L F K Q R J H Q X V L V Q D P H G D I W H U k a n y g l @ v p g g . n s c . r u H V H P E O D Q F H  
Q P K i g m u s D Q G W K H Q H Z L F K Q R V S H F \* L H R V O R D U F H D O Q D Q W G L W L X Q W H  
R I + L Q U L F K / L F K W H Q V W H L Q W K H R d r o n o v @ g i n f a s . c z D O G L V F R Y H  
\$ Q G H U V R Q Z K R ; U V W G H V F U L E H G W K H P  
P s e u d o p l a g i o g m u s l i c h t e n s t e i n i i R F F X U V D V H Q G L K K Q D D E H F R Q Q H B O X S W I R U P  
Z D U G K \ S R U H O L H I W U D F H V W Z K L H W K E H Q J R L Q N Q Q L R Q Z J Q R H S I W U K H H O L 3  
D U H V W U D L J R W O R F O P Q E Z U L D Q F K H R Q W D Q Q L X S W R W K O D U J H  
P H Q L V F R L G R F F D V L R Q D O O \ E K I S X H U F V D W O H L G Q H U D D L U V H H D G V W U  
W K L F N Z L W K U H J X P. O i c D e n U V S D W R Q J D W O H O V H V D V W W K D W Q H Q W K V H W U E X D  
s t e i n i i W U D F N V W H U P L Q D W H Z L P W H K Q W W K H G L F W U Y H X G W L E R D Q U V R I  
L Q J L Q P s e u d o p l a g i o g m u s D a d e G o n i i D O P D S F O N L V W X W G K W H U H S U H V H Q W V D Q H Q R U  
S U R Q R X Q F H G D Q W H U L R U O \ F R I Q H U L Q H J F W X K U H Y D O W D X F U N H R R I L W F K  
P. l i c h t e n s t e i n i i E X W K D V V W U D L J K W H Z U D V R Q R O Q H V Q Q J K W W K O H \ & F S X S U H Y U H I  
G R Q R W U H D F K D O O P W i - K H Z D , J D W R N D W R R U L U Q L W N H G V W O U X W F H W U  
c h t e n s t e i n i i R I W K H L P S U L Q W E X W L X W U R S V K K H W K E J K H V W H Z G L  
W K H S U R Q R X Q F H G W D S H U L Q J W K H D U R S W D K U H L D P Q D U + J R L U Q L V J R Q O E R X Z  
U R X Q G H G W H U P L Q D W L R Q V 7 K U H H P W D U G D R Q F V L Y D H Q U " V H D i n o p k i c D u U D D F U  
R W K H U E \ D G L V W D Q F H H T X D i p l o c n i t e s M o r m o r p h i c u s T r i c h r h y c u s T r e p t i c u s m o d u m W K



?*Treptichnus* *T. pedum* (*Circulichnis* *C. D Q G*)

W L R Q D O I R U P V R I W K H V H  
 E H E D V H G R Q V W D W L V W L  
 D Q G R Q W K H G L V W U L E X W  
 P D L Q V V X E M H F W L Y H  
 6 R P H R W K H U ; Q G V I U R P  
 Q H Z R U S H Q G L Q J D W K R U  
 Acknowledgement 7 K H F R Q W U L E X W  
 W K H 3 U R M H F W I R  
 5 X V V L D Q ) R X Q G I R U ) X Q G

**SUBSTRATE AS A TEST OF BEHAVIOUR AND AS THE ICHNOTAXONOMICAL PROBLEM: PREDATION AND SCAVENGING TRACES ON TRILOBITE EXOSKELETONS, MIDDLE CAMBRIAN, CZECH REPUBLIC**

Radek Mikuláš<sup>1</sup>, Oldřich Fatka<sup>2</sup>, Michal Szabad<sup>3</sup>

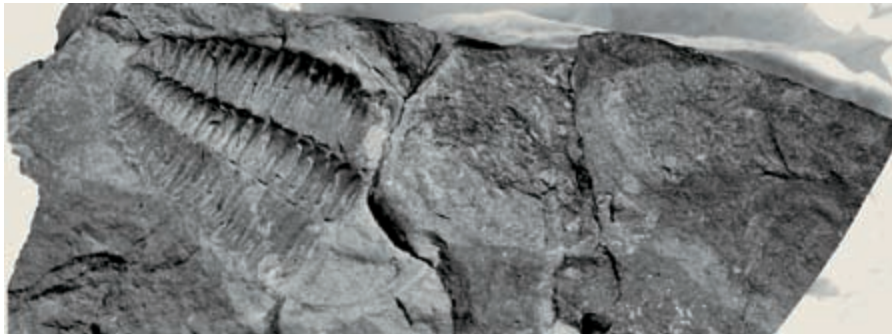
*Gordia Helminthopsis Cruziana* *R. so. Phyc. D Q G D Q L Q W U L J X L Q J*  
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*L V © E H O L H Y H G W R U H S U H V H Q W 3 Obranc miru 7 2 1 02 Pribram VII, Czech Rep. public*  
*K R Z H Y H U W K H W K L Q F L U F X O D U J U R R Y H F D Q*  
*H F R Q R P L F G H S R V L W Phycodes H " H G L Q J 7 K H M R L O W R F F X U U H Q*  
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 V K R Z D Y D U L H W \ *Megalopton E U D Q F K H G W U D F H V D O G O H W Z R*  
*Planolites montanus Chondrites D T. G. sin. Bes L Q X 7 W K H H V H D V W K H G R P L O D O W F R P S R Q*  
*L F K Q R J H Q H U D D O W H U Q D W H D V W K H G R P L O D O W F R P S R Q*  
*R I W K H F R O R Q L J D W L R Q K R U L I R Q V L L R Q 7 K H Y*

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 Department of Geology and Palaeontology, Faculty of Science, Charles University  
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 3 Obranc miru 7 2 1 02 Pribram VII, Czech Republic  
 The Cambrian of the Barrandian region (Czech Republic) yielded numerous finds of a straightforward paleoecological value, e.g., assemblages of consumers of microbial mats feeding in situ, hidings of small trilobites under carcasses of large species, and several kinds of ichnological evidence.  
 Among them, examples of partially «consumed» exoskeletons can be attributed to a scavenging, as the missing parts of exoskeletons are directly joined with corresponding ichnofabric features in the surrounding substrate. Following questions related to ichnotaxonomy result from these finds:  
 (1) Is the penetration of other typical burrows through bioclasts a potential or even a «compulsory» ichnotaxobase? This penetration

NEW TRACE FOSSIL FROM THE LOWER JURASSIC  
MARLSTONE OF FLECKENMERGEL FACIES  
(THE JANOVKY FORMATION, WESTERN CARPATHIANS,  
SLOVAKIA)

Vladimír Šimo

Geological Institute of Slovak Academy of Sciences % U D W L V O D  
vldosimo@yahoo.com



*Taenid-*  
*ium Rejkovicichnus* R Q W K H L F K Q R J H Q H  
R I W K H ; Q G V V K R Z W K H Z K R  
Z R X O G E H F O D V V L ; H G X Q G H U  
% X W W K H G L I I H U H Q W L D W L R Q  
  
+ R Z I D U L V W K H Z D \\  
W U D F H I R V V L O V D X V H D E O H  
\$ J D L Q Z H V X J J H V W W K D W  
F O D V W V U H A H F W E H K D Y L R X U  
V S H F L ; F O H Y H O V K R X O G E H  
Acknowledgement 7 K H U H V H D U F K  
I R & J H F K \*

, F K Q C R o n d r i t h s T e i t h i d i n u s T h a l a s s i n o i d e s Z o o p h y -  
cos D Q G D Q H Z I R U P R I W U  
6 L Q H P 7 X R U D L U D F Q L D Q U K \ W K P I  
V W R Q H Z K L F K L V W U D G L V  
R I W K H \$ O O J I X ) R U P D W L R  
D Q G Z H D W K H U H G U R F N V X  
W D L Q P R U H R U J D Q L F P D W H  
R I L F S \ U L W H 1 H Z W U D F H  
U L L F S \ U L W H 1 H Z W U D F H  
© F H F K D O Y L W R X U 1 V W Y R H U U \ W K H  
G O H I H U H Q O P W H U Q H O H I D F Z L  
X Q W L O F K Q R Z V S H 7 K H F W U D F H  
U R Q P H Q W 7 U D Q V Y H U V H Y I  
W Z R © F K D U D F W H U L V W L F S D U  
D R Q G © W P K D V K L S Q J U E S L D R U F W D L V  
S L D F U K D O R O W H D O I R E R V H " K H E H G G L  
Y H I O W K H V K W S H L G F D W O O D P S R O W J P Q  
P D L R Q V L F G O L L O G U L F D O R E X U U R  
I R F V R V L V O L G P a t a e n i d i u m P E X W D E W O K H H Z V  
V H F W L X L R G H G R I E W P K r a t t e n i d i u m U D 3 U D J X  
E \ D Q W X F N P D Q D W L R Q  
V H F W L R Q V R P a r a t a e n i d i u m W K H L Q V H Z R E W  
W K H P R G H R I W K H L U F R Q V  
Acknowledgements. 7 K L V Z R U N Z D V  
V H D U F K D Q G ' H Y H O R S P H Q W

TAXONOMY OF HELICAL TRACE FOSSILS

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& R U N V F U H Z K H O L F D O
W K H L U P R U S K R O R J \ , Q
W L Y Gyrodithes O6DDUS JRHU W Dipispira bispiralis
/ D Q J H K D Y L Q J G R X E O W H R K E H H O L D D Q R W P X D U Q Conispiralid+ WRXULUL
U H O D Helicolithus H O \ \$ J S Y H P D W H O I C Dromites R U R V D O R Y V K E y x l i t e s G 6 E D H S R I U Q W F D O X D G V H
% H U J H e l i c o r h a p h e . V L \* N e l i c o i t h u s L F < J D Q J V \ Q R Q \ P
L Q < D P a r d h e l i c o r h a p h e D < O D Q J L Q < D Q J G h r o m h e s D D F K Q R V S H F L I H W D G O L W R W
F R Q V L G H U H G E X W L W V V X J J H H V L W Y H H G G K C H H O W L D D O H P R U P S R K U R S C K I
W K H K H e l i c o l i t h u s R Q W W H e l i c o l i t h u s s a m p l e p o i E \
\$ J S H L W L D O R U R V L V D Q Q G R W Q X F P R E Q H V U L G R H I U H W G K H L Q Z K W K
W K H R W K H U V E \ L W V P H D Q G H V U Z I H Q J Q F Z R K X R U U V O H V D F Q K G D Q W J H H R
W X U Q V D W W K H P H D H e l i c o - H U N L E Q N V R P S D D Q F G W L S R R Q V V L E Q H F K O D F W
dromites Helicorhapse H e l i c o i t h u s G L V S O D \ W K W K H D F H O L P Q R C U H S U R 7 K H S D U I
O R J L F D O S U L Q F L S O H V D O O R Z E Q U L W K I H Q U W \ L F K I Q R F W R D U I S R K Q R R P P J
J H Q X V O H Y H O O L H U G L V W L Q J X L V K H G L F K
\$ Q H Z P L G W L H a v d o i c h n u s l u p a L Q X W H V X F J R J P I S W a m h H G D W \ W R K U D D W O I R V V L O
8 F K P D Q V X E P L W W H G F R P S R C R I c a r d i i G R O I D Q D V D ; Q H I G O b i t u m K R O Q W F D V Q W
F D O V S L U D O Z L W K D V L P S O H D G Q v a c e r o l W U H D Q G K W O I R U O V D O U L W K W E
G H Y H O R S H G D Q G L Q W H U F R Q Q H X E W M H G F W R K o n e r H D V K I Q Q Q O P I F R I Q V
G H H S V H D V H G L E M Q W V R E I D I R P \ R y w o s i k e s H R x o c i c k s O F S H L G Q I H Q W U J H V I B Q H O , W
E \ S R O \ F K D H W H V O H V V S U R S p e o d r u c e c o l o i d e s E Q L N Q W i H a U R S Q 3 H H X N V W V
D Q R Q J U D S K R J O \ S W L G P L G G O H W L H U F R P S O H [ D J U L F
F U R E H V Z H U H F X O W L Y D W H G R Q R U J D Q L F U L F K V H G L P H
V S L U D O D Y D L O D E O H I U R P D F H Q W U D O W X Q Q H O U X Q Q I
, F K Q R W y r o l i t h e R E D F K Q R V R S I H F L H V L Q F O X G H P R V W O \ P R U
S K R P H W U L F S D U D P H W H U V D Q G F K D U D F W H U R I W K H F \ O
, W L V Y s p h o d r u c u s c y c l i d e s R E D I E N Q I i a W K D W 3 H N
E H O G r o d i t h e s G . d a v i d s u R 6 D S R U W D G . G L V S O D \ V D Z D O O D Q G
marylandicus O D Q n o d q s u H O I E \ R U D D Q Q G 0 X x L J D N Q R E E \
Q R G R V O p h i o m o r p h a z n o s o c o s u p r a j o r a k s i a n s H 6 I F Q

Q H L G G L V S O D \ V O
W K H K G p o n i c u F D O H G F R Q N Q C H E R Q
O D U V W U L D W L R Q 7 K H R W
V P R R W K G . b a b k s r i P R Q J H W N K H H U P L Q
G L V W L Q J X L V K H G E \ L W V G
V S H F L H V R X e h e l i k L Q O D Q O V \ H C I G
Q R C o m s p o r K V 9 L D O R Y Z D
W X E X O D U W F U R D Q F V H H U I Y R H V G l i t e s W K L L V M
W K H Q R P W D U X L Q Q L H T X G U H a H a b D i s Q W O D R F H I O W V L F
D D Q Q G G r o i V \* P H Q G L R O D 0 D U W L Q H
O W H R K E H H O L D D Q R W P X D U Q C o n i s p i r a l i d + W R X U L U L
D O R Y V K E y x l i t e s G 6 E D H S R I U Q W F D O X D G V H
V \ Q R Q \ P
D D F K Q R V S H F L I H W D G O L W R W
K C H H O W L D D O H P R U P S R K U R S C K I
P R U S K R P H W U L F S D U D P H W H U
L V D Q Q G R W Q X F P R E Q H V U L G R H I U H W G K H L Q Z K W K
N L E Q N V R P S D D Q F G W L S R R Q V V L E Q H F K O D F W
W K W K H D F H O L P Q R C U H S U R 7 K H S D U I
E Q U L W K I H Q U W \ L F K I Q R F W R D U I S R K Q R R P P J
G L V W L Q J X L V K H G L F K
I R V V L O
R O I D Q D V D ; Q H I G O b i t u m K R O Q W F D V Q W
W U H D Q G K W O I R U O V D O U L W K W E
V K I Q Q Q O P I F R I Q V
O F S H L G Q I H Q W U J H V I B Q H O , W
S U R S p e o d r u c e c o l o i d e s E Q L N Q W i H a U R S Q 3 H H X N V W V
W L H U F R P S O H [ D J U L F
R Q R U J D Q L F U L F K V H G L P H
D F H Q W U D O W X Q Q H O U X Q Q I
L Q F O X G H P R V W O \ P R U
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D Z D O O D Q G
D N Q R E E \
6 I F Q

H G                    0 R V F R Z                    3 , 1    5 \$ 1                    \$ E V W U D F W V                    \$    9                    ' U R Q R Y

H l i \_ q Z l Z g h \    H F L    I B G    J : G                    F h k d \ Z                    I j h n k h x a g Z y  
L b j Z `                    w d a



