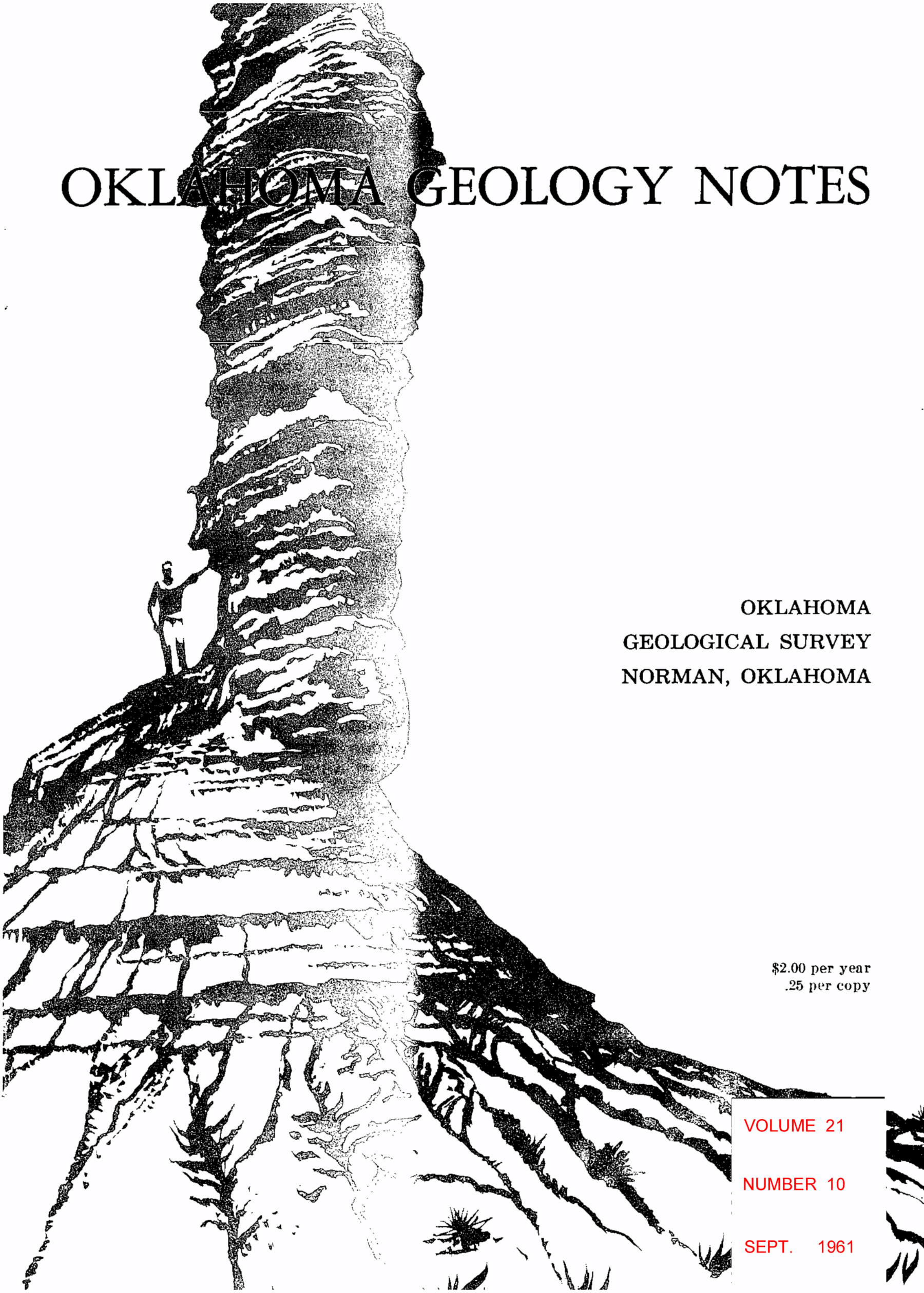
OKLAHOMA GEOLOGY NOTES



OKLAHOMA
GEOLOGICAL SURVEY
NORMAN, OKLAHOMA

$2.00 per year
.25 per copy

VOLUME 21

NUMBER 10

SEPT. 1961

Three Volumes of Russian Treatise on Paleontology

Through the courtesy of Maxim K. Elias, three additional volumes of the Russian Osnovy Paleontologii have been deposited in our library. The three volumes (two others had appeared previously) are those on Bivalvia, Gastropoda, and Arthropoda. Each of the volumes carries half-tone plates of which a high proportion of the figures are original. In the bivalve volume 177 figures are new, 120 are from Russian literature, 100 from literature in other languages. In the gastropod volume 140 are new, 146 from Russian papers, 143 from other sources. In the arthropod volume 126 are new, 39 are from Russian papers, 92 from other sources.

Introduction of new taxa at the generic and specific level in works of this nature seems unwise. The generic name *Paeckelmannia,* introduced in the Russian edition of Zittel's Handbuch, was almost as well hidden as were the taxa of Embrik Strand. The new taxa in these volumes are:

BIVALVIA—Two new families, Ahtioconchidae (p. 74) and Rhombopteriidae (p. 81). *Miserinotus* Ebersin new name (p. 95), apparently for *Curtonotus* Jukes, 1857, not *Curtonotus* Stephens, 1827.

GASTROPODA—Three new superfamilies, Raphistomacea (p. 76), Murchisonacea (p. 117), and Pseudomelaniacea (p. 130), as well as one new family and five new subfamilies. Eight new species are proposed in the plate explanations and one new species in the cut-line of text-figure 43. These are, of course, nomina nuda.

ARTHOPODA—New class Hemicrustacea Novojilov (p. 197), for Marrellomorpha and Pseudocrustacea. New order Helmetiida Novojilov (p. 197) for *Helmetia* Walcott. New order Canadaspidida Novojilov (p. 197) for the new genus *Canadaspis* Novojilov (p. 199) based upon *Hymenocaris perfecta* Walcott. New order Enantiopoda Birstein (p. 421) for *Tenusicaris* Brooks, 1955. New order Brachypoda Birstein (p. 422) for *Hutchinsoniella* Sanders, 1955. Six new families, 36 new subfamilies, and six new tribes are erected.

New genera and new generic names are unfortunately numerous. New generic names are:

Erdelia Lomovitskaja (p. 145), for *Maja* Lomovitskaja, 1955, preoccupied? by *Maya* Fredericks, 1926?

Ginella V. Ivanova (p. 297), for *Pinella* V. Ivanova, 1955, not *Pinella* Stephenson, 1941.

Fidelitella V. Ivanova (p. 305) for *Trilobella* V. Ivanova, 1955, not *Trilobella* Woodward, 1924.

Caspiolla Mandelstam (p. 351), for *Caspiella* Mandelstam, 1956, not *Caspiella* Thiele, 1928.

Pontoniella Mandelstam (p. 351), for *Pontonella* Mandelstam, 1956, not *Pontonella* Heller, 1856.

Kassinina Mandelstam (p. 361), for *Kassinia* Mandelstam, 1956, not *Kassinia* Khabakov, 1937.

All of the above new names are of doubtful validity inasmuch as references are not cited as to paper, page, and illustration.

New genera erected are:

Weberopeltis Z. Maximova (p. 147), genotype *Bronteus aculeatus* Weber, 1945. L. Devonian.

Bilimnadia Novojilov (p. 234), genotype *Estheria anabarensis* Novojilov, 1946. M. Triassic.

Eremograpta Novojilov (p. 238). Although listed as gen. nov., this appears to be a new name for a homonym, *Cyclograpta* Novojilov, 1954. U. Jurassic.

Innocentium Novojilov (p. 240), type cited as *I. sibiricum* Novojilov, 1957.

Angolestheriella Novojilov (p. 251), genotype *Estheriella moutai* Leriche, 1932. Triassic.

Primitiopsella Polenova (p. 304), genotype *Leperditellina miranda* Polenova, 1955. M. Devonian.

Tetrada Neckaja (p. 305), genotype *Tetradella memorabilis* Neckaja, 1953. M. Ordovician.

Ivaria Neckaja (p. 309), genotype *Glossopsis robusta* Hessland, 1949. L. Ordovician.

Reginacypris Schneider (p. 351), genotype *Cytherina abcissa* Reuss, 1850. Miocene.

Sigillium Kuznetsova (p. 398), genotype *S. procerum* new species. L. Cretaceous.

Cytherurina Mandelstam (p. 403), genotype *Hemicytherura panderae* Hornibrook, 1953. Recent.

Brachycytheropteron Kuznetsova (p. 404), genotype *Cytheropteron (C.) bicornutum* Alexander, 1933. U. Cretaceous, Texas.

Several Oklahoma genera are identified in Russia. *Bromidella* Harris, 1931, is identified in strata of the Russian platform and is known from Esthonia and Germany in Middle Ordovician rocks. *Moorites* Coryell and Billings, 1932, is listed from the Devonian of the Kuznetsk basin. *Cornigella* Warthin, 1930, is identified from the Carboniferous and Permian of the Moscow basin. *Hollinella* Coryell, 1928, is figured from Lower Carboniferous of Smolensk and Middle Devonian of Kuibyschev. *Cavellina* Coryell, 1928, is listed from Ordovician? to Permian.

Invalid new specific names are in the cut-lines of figure 860 (p. 338), figure 897 (p. 346), figure 1010 (p. 369), figure 1156 (p. 397), figure 1162 (p. 398).

The volume on Bivalvia was under the general editor A. G. Ebersin, with sections written by other authors. The book consists of 300 pages, 44 half-tone plates, 285 text-figures. Editors of the gastropod volume were V. F. Pchelincev and I. A. Korovkov, with many contributors. The volume consists of 360 pages, 28 half-tone plates, and 773 text-figures. The arthropod volume, editor N. E. Tchernyscheva, is 515 pages, 18 half-tone plates, 1,318 text-figures.

These volumes represent a great effort in synthesis and are certain to make Russian paleontologists' work easier and better. They are issued by the Akademia Nauk SSSR, each dated 1960 on the title page.

—C. C. B.

The Type Species of *Stephanocrinus* Conrad

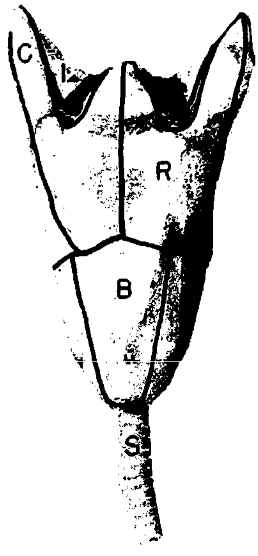
Robert O. Fay

The type specimens of *Stephanocrinus angulatus* Conrad, 1842, type species for the genus *Stephanocrinus* Conrad, 1842, are on deposit in the American Museum of Natural History, 1703/1, comprising 13 specimens. It was impossible to find a specimen that looked like the original drawing by Conrad, and evidently one, labelled "Type," has already been selected as the lectotype by Springer, with reference to Hall (1852, pl. 85, figs. 1-3). A lengthy description has already been given by Hall and is not here repeated. The purpose of this article is to check certain critical points of anatomy in order to confirm certain conclusions of Hall and others as to the taxonomic placement of the order Coronata, of which *Stephanocrinus* is a member. I wish to thank Dr. Donald F. Squires for loan of the type specimens.

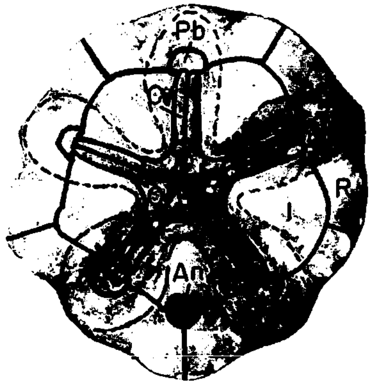
Stephanocrinus angulatus Conrad, 1842
Plate I, figures 1-4

An average specimen is 14 mm long by 10 mm wide, steeply conical, with flat, triangular base, and high coronal processes. The basals are about 7 mm long and the radials the same length to the plane of the summit. The coronal processes extend ventrally about 7 mm above the summit plane, thus adding about one-third more length to the specimen or 21 mm total length. The stem is round, approximately 1 mm in diameter, with about 24 columnals in 10 mm length of stem. Basals 3, strongly ridged as in blastoids, with the azygous basal in the right anterior (A-B) position. Radials 5, each broadly pentalobate, extending ventrally into coronal processes, ridged as in blastoids, with granular growth ridges forming false pore rhombs. Interradials 5, subquadrangular, confined to the summit on the inner side of the coronal processes, meeting laterally beneath the food grooves, and each bounded adorally by a large arrow-shaped oral plate. On the anal side the round anal opening is located at the junction of the suture between radial plates and the suture between the interradial and radial plates, in the middle of the posterior coronal process.

Ambulacra 5, deeply lobed, narrow, with a small rounded primibrachial excavated in the restricted medial portion of each radial plate. Each primibrachial has two ventral facets for the attachment of large arm plates, arranged in a biserial fashion, giving rise to 10 or 11 biserially arranged armlets. Two food grooves pass down the adoral face of the primibrachial, passing adorally over the marginal surfaces of the interradial plates, adjoining near the oral opening into one food groove. Two large cylindrical cover plates cover the food grooves along the interradial margins, abutting against the oral plates adorally and against the primibrachial plate aborally. Thus the basic plate arrangement given by Hall (1852) is essentially correct and the placement of *Stephanocrinus* and related echinoderms of the order Coronata with the Crinoidea is here accepted.

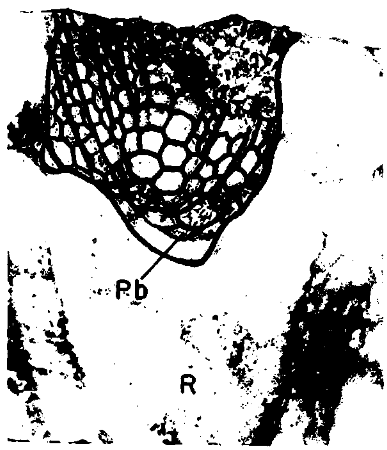


1



2

3



4

Plate I

Stephanocrinus angulatus Conrad, 1842. Syntypes (figs. 1-2), and lectotype (figs. 3-4), Niagara group, Silurian, Lockport, New York. All numbered 1703/1, American Museum of Natural History.

Figure 1. Side view of a complete specimen showing attached stem, with azygous basal toward observer, x2.9

Figure 2. Oral view of another specimen showing ventral structures, x4.8

Figure 3. Oral view of lectotype, showing armlets in place, x6.0

Figure 4. Enlarged side view of armlets of lectotype, x12.0

An—Anal opening
B—Basal plate
C—Coronal process
Cv—Cover plate
I—Interradial plate
O—Oral plate
Pb—Primibrachial plate
R—Radial plate
S—Stem

Occurrence and Types.—The type specimens are from the Niagara group, Silurian, Lockport, New York. All 13 specimens are labelled *Stephanocrius angulatus,* 1703/1, and are in 4 separate boxes. One specimen, the lectotype, was figured by Hall (1852, pl. 85, figs. 1-3), herein figured on plate I, figures 3, 4. In another box are 2 specimens in a glass vial, figured by Hall (1852, pl. 48, figs. 1e-f), and by Springer (1926, pl. 8, figs. 12, 13), here figured on plate I, figure 2. One specimen in a slab, figured by Hall on plate 48, figure 1a, here figured on plate I, figure 1. Nine specimens glued in a large box (some unglued), labelled as figured by Hall, pl. 48, figs. 1b-e, g-k, m.

References Cited

Conrad, T. A., 1842, Observations on the Silurian and Devonian systems of the United States, with descriptions of new organic remains: Philadelphia Acad. Nat. Sciences, Jour., vol. 8, pt. 2, p. 228-280, pl. 15.

Hall, James, 1852, Containing descriptions of the organic remains of the lower middle division of the New York system: Natural History of New York, Palaeontology, pt. 6, vol. 2, p. i-vii, 1-362, pls. 1-85.

Springer, Frank, 1926, American Silurian crinoids: Smithsonian Inst., Pub. 2871, p. i-iv, 1-239, pls. 1-33.

Miserite Found in Russia

The mineral miserite was named by Schaller (1950) for Hugh D. Miser, author of the geologic map of Oklahoma. The only known locality was in Garland County, Arkansas. Last year Ryzhov and Moleva reported an occurrence of miserite in the Alay Range of the Kirghiz Republic and noted another occurrence in the Aldan massif, both in central Asiatic Russia.

Miserite is a zeolite having the formula $KCa_4Si_5O_{13}(OH)_3$. It was originally named natroxonotlite by Williams (1891) who believed that the dominant alkali was sodium and that the mineral was therefore related to xonotlite. Subsequent investigation by Schaller revealed that the dominant alkali is potassium, and because of this the mineral was renamed miserite.

References Cited

Ryzhov, B. I., and **Moleva, V. A.**, 1960, A discovery of miserite in the U.S.S.R.: Akademia Nauk SSSR, Doklady, Earth Sciences Sections, vol. 131, no. 6, p. 1420-1422; translation by Consultants Bureau Enterprises, Inc. Amer. Geol. Inst., vol. 131, p. 396-397.

Schaller, W. T., 1950, Miserite from Arkansas; a renaming of natroxonotlite: Amer. Mineralogist, vol. 35, p. 911-921.

Williams, J. F., 1891, The igneous rocks of Arkansas: Ark. Geol. Survey, Ann. Rept. 1890, vol. 2, 358 p.

—C. C. B.

TECTONIC LEADS IN THE COSEISMAL-LINE SPREAD OF THE NEVADA UNDERGROUND NUCLEAR DETONATION "BLANCA"

J. A. E. NORDEN

INTRODUCTION

The results of measurements of subsurface and surface motion conducted on six underground nuclear detonations in the Oak Springs tuff of the Nevada Test Site in Operation Hardtack, Phase II, during the fall of 1958 were reported by W. M. Adams, et al. in the March issue of the Journal of Geophysical Research (Adams, et al., 1961). These nuclear shots were coded as Mars (~13 tons), Tamalpais (~77 tons), Neptune (~115 tons), Logan (~5 kt), Evans (~30 tons), and Blanca (~19 kt).

The underground nuclear shot Blanca was detonated on October 30, 1958. The time of detonation was 15 hr 00 min 00.15±0.1 sec (UT). The yield of detonation Blanca was 19.2±1.5 kt. Maximum upheaval at Blanca surface zero was about 25.5 feet; ~2.5 feet at 750 feet radial range; and 1.5 feet at 910 feet.

All components of surface acceleration followed an empirical equation of the form (Adams, et al., 1961):

$$A(g) = 3.2 \times 10^{6}\ W^{0.7}\ (kt)\ R^{-2}\ (ft)$$

where A is peak acceleration in parts of gravity; W is the energy released in kilotons by the detonation, and R is the radial range from the detonation point.

The velocity of the Oak Springs tuff was determined to be 6,200 ft/sec, and the velocity of underlying dolomite was 11,700 ft/sec. The top of the mantle (Mohorovičić discontinuity) was found to begin at a depth of 60 km, and it has indicated a velocity of 8.12 km/sec. Measurements have shown that the mantle dips eastward.

The teleseismic data of detonation Blanca for travel times and direction of initial motion were presented in table A.18 of the report on Operation Hardtack, Phase II (Adams, et al., 1961, p. 939-940). The travel-time data were recorded by seismic stations operated by the U. S. Coast and Geodetic Survey at ranges greater than 50 km.

SCOPE OF THIS STUDY

The purpose of this investigation was to prepare a coseismal-line (equal time of P arrivals) map of the Blanca detonation, and to study the pattern of spread of coseismal lines across the United States.

From the teleseismic data of underground nuclear detonation Blanca, seismic stations were selected for the construction of coseismal lines. The selected data are listed in table I, and figure 1 is the resulting coseismal-line map.

CORRELATION OF THE COSEISMAL-LINE SPREAD AND THE SEISMOTECTONIC LEAD ZONES

The Tectonic Map of the United States (King, et al., 1944) was used to correlate the spread pattern of the coseismal lines with the tec-

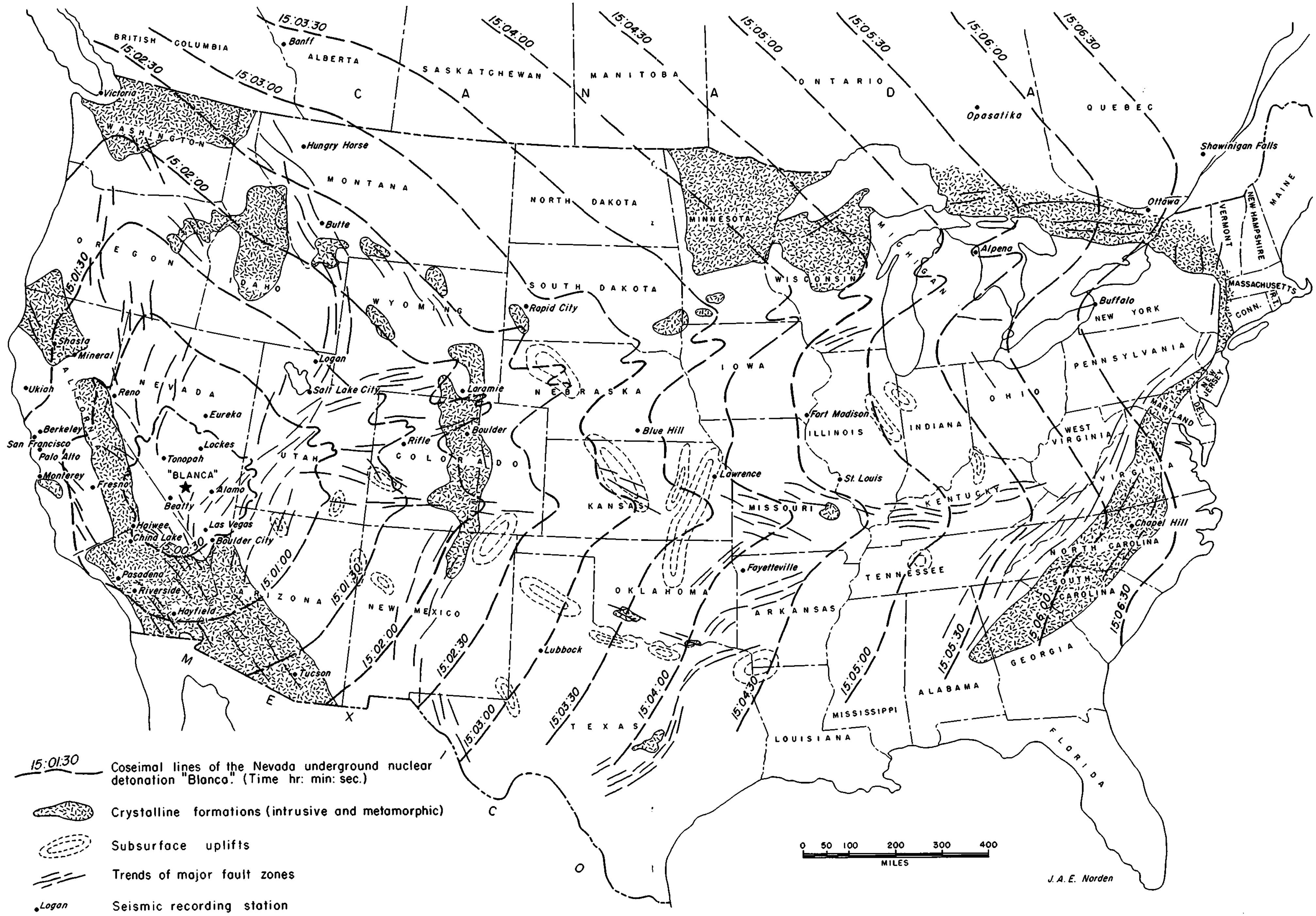


Figure 1. Coseismal-line map of the Nevada underground nuclear detonation Blanca, October 30, 1958, based on data from Adams, et al. (1961). Tectonic features from King, et al. (1944).

tonic features which may influence the transmission of seismic energy across the United States.

The areas with crystalline formations (intrusive and metamorphic) are generally shown on the map (fig. 1). The position of subsurface uplifts along the seismic lead lines were marked and the general trend

TABLE I.—LIST OF TELESEISMIC STATIONS SELECTED FOR MAPPING OF BLANCA P TIME
(From table A.18, Adams, et al., 1961, p. 939-940)

STATION	KILOMETERS	BLANCA—P H M S	FIRST MOTION*
Beatty	58.6	15-00-10.4	C
Alamo	95.4	00-16.5	C
Lockes	130.5	00-23.6	C
Tonopah	132.8	00-23.1	C
Las Vegas	147.7	00-27	R
Boulder City	181.2	00-29	C
Haiwee	195.2	00-32	C
China Lake	197.5	00-31	C
Eureka	258.1	00-40	C
Fresno	323.5	00-48	C
Riverside	370.8	00-54	C
Pasadena	382.2	00-55	C
Hayfield	389.1	00-55	C
Reno	408.8	00-59	C
Monterey	500.5	01-15	
Palo Alto	530.4	01-14	R
Berkeley	540.6	01-16	C
Salt Lake City	548.1	01-19	C
San Francisco	556.7	01-22	?
Mineral	582.9	01-10	R
Ukiah	649.0	01-47	R
Logan	659.8	01-27	R
Shasta	662.1	01-30	C
Tucson	735.8	01-39	R
Rifle	820.8	01-48	
Boulder	1001.3	02-14	C
Laramie	1024.1	02-16	C
Butte	1026.5	02-20	C
Hungry Horse	1253.2	02-45	
Rapid City	1338.0	02-55	R
Lubbock	1351.6	03-00	
Victoria, Canada	1389.2	02-13	C
Banff, Canada	1552.7	03-24	
Blue Hill	1560.7	03-24	
Lawrence	1845.0	03-53	
Fayetteville	1967.6	04-09	C
Fort Madison	2185.0	04-33	
St. Louis	2281.6	04-41	H
Alpena	2900.0	05-32	
Opasatika, Canada	2997.6	05-44	
Buffalo	3282.4	06-38	
Chapel Hill	3307.8	06-09	
Ottawa, Canada	3472.9	06-23	C
Shawnigan Falls, Canada	3703.1	06-40	C

*Letter symbols in First motion:
C Compressional wave
R Rarefactional wave
H Horizontal component

of the major fault zones were introduced into the map of seismic correlation. The seismic-correlation map (fig. 1) shows the teleseismic stations as listed in table 1.

The spread pattern of coseismal lines reveals three distinct channels of seismic energy lead. The first seismic lead is in the NNW-SSE elongation of the coseismal line pattern over Washington, Oregon, Idaho, Nevada, Utah, California, and Arizona. This line may be regarded as a seismic lead along the axis of the Alpide-Variscan type orogeny of North America (Kober, 1942). Major fault zones along this belt may have an important part in the transmission of seismic energy.

The second seismic lead of the coseismal-line spread runs from ground zero Blanca in the direction of Wasatch fault zone, the faulted belt of Uinta uplift, the fracture and fault system of Laramie uplift, Sioux uplift, the fault zone of Wisconsin arch, the fault systems of Ottawa, and it extends toward the line of the Champlain-St. Lawrence overthrust.

The third seismic lead of the coseismal lines from ground zero Blanca takes its course toward the Abajo Mountains, the fault system of Wet Mountains, the fault zone of Central Kansas uplift, the faulted belt of the Ozark uplift, Ste. Genevieve fault, Rough Creek fault zone, Kentucky River fault zone, and it runs into the fault system of Allegheny Mountains, tying to the seismotectonic lead of the Appalachian orogenic belt.

The direction of fault and fracture systems may have essential influence on the transmission of the seismic energy. Fault systems best lead the seismic energy along their strikes. Isoseismic maps generally indicate this seismotectonic lead. The isoseismic map of the epicentral region of 1906 San Francisco earthquake (Lawson, 1908), the isoseismic map of the 1886 Charleston earthquake (Dutton, 1889), and the map of the macroseismic earthquake areas of Central Europe (Sieberg, 1929) all present good examples of the effect of seismotectonic lead zones on the transmission of seismic energy.

The spread pattern of coseismal lines of the Nevada underground nuclear detonation Blanca correlates well with the seismotectonic lead channels in the United States.

CONCLUSION

The coseismal-line map of the Nevada underground nuclear detonation Blanca is here presented in the light of the seismotectonic correlation. Seismic energy lead along the Alpide-Variscan orogeny line is recognized, and other seismic energy transmission channels are shown to have been confined to major fault zones and fracture systems in the transcontinental travel of seismic waves of the underground nuclear detonation Blanca from the Nevada ground zero across the United States.

References Cited

Adams, W. M., Preston, R. G., Flanders, P. L., Sachs, D. C., and Perret, W. R., 1961, Summary report of strong-motion measurements, underground nuclear detonations: Jour. Geophys. Research, vol. 66, p. 903-942.

Dutton, C. E., 1889, The Charleston earthquake of August 31, 1886: U. S. Geol. Survey, Ann. Rept. 9, p. 203-528.

King, P. B., et al., 1944, Tectonic map of the United States: Tulsa, Amer. Assoc. Petroleum Geologists.

Kober, L., 1942, Tektoniche Geologie: Berlin, Verlag von Gebrüder Borntraeger.

Lawson, A. C., et al., 1908, The California earthquake of April 18, 1906. Report of the State Earthquake Investigation Commission: Carnegie Inst. Washington, Pub. 87, vol. 1, pt. 1, 254 p., pt. 2, p. 255-451.

Sieberg, A., 1929, Erdbeben-Geologie, **in** Gutenberg, Beno [ed.], Lehrbuch der Geophysik: Berlin, Verlag von Gebrüder Borntraeger, p. 163-219.

Albert Nelson Murray, 1894-1961

During the 32 years from 1928 to 1960 Al Murray served ably as professor of geology and head of the Department of Geology at the University of Tulsa. Al retired a year ago and was enjoying his retirement partly by working his 155-acre farm near Keystone. He worked on the farm on Saturday, June 17, and on Sunday, June 18, he died suddenly of a heart attack.

Albert Nelson Murray was born in Madison, Connecticut, on September 25, 1894, the son of Frederick P. and Jennie Maude (Robson) Murray. He attended Worcester Polytechnical Institute in 1916-17, then served as corporal in the Army Air Corps as radio operator in the 31st Balloon Company. In 1919 he went to the University of Colorado where he received his bachelor's degree in 1922. From 1923 to 1925 he was instructor of geology at the university and worked summers for the Colorado Geological Survey. He received his master's degree in 1924 and in 1925 went to the University of Illinois for doctoral work. He was an instructor there from 1925 to 1927 and held an American Petroleum Institute fellowship from 1926 to 1928. He was awarded the doctorate in 1928 and, after he and Esther Utzig were married, July 27, 1928, they moved to Tulsa where Al accepted the position he held for so long.

Al spent many summers on geologic projects for various organizations, the summer of 1926 with the Georgia Geological Survey, of 1936 with Oklahoma Geological Survey, of 1945 and 1946 with Stanolind, of 1948 with Carter.

It is told that Al had brought back a concretion from the Cannonball member of the Lance formation and used it as a door-stop. Students delighted in sending it rumbling down the hall, and affectionately dubbed Al "Cannonball." Al was a devoted family man. He and Esther had a son, Frederick, and a daughter, Ann Virginia, now a graduate student at the University of Arizona. He was a fellow of the Geological Society of America, of the American Association of Petroleum Geologists, and of the Oklahoma Academy of Sciences, of which he was president in 1954. He was a member of the American Association for the Advancement of Science, Mineralogical Society of America, American Geophysical Union, American Institute of Mining, Metallurgical and Petroleum Engineers, Society of Economic Geologists, Sigma Xi, Gamma Alpha, Sigma Gamma Epsilon, and Tulsa Geological Society.

Al Murray was a fine teacher and administrator. He was quiet-spoken, friendly, and firm. We shall all miss him sorely.

Published Scientific Papers of
Albert Nelson Murray

1929. (with W. W. Love), Action of organic acids upon limestone: Amer. Assoc. Petroleum Geologists, Bull., vol. 13, p. 1467-1475.
1930. Limestone oil reservoirs of the northeastern United States and of Ontario, Canada: Econ. Geology, vol. 25, p. 452-469.
1949. The gilsonite deposits of the Uinta Basin, Utah: Tulsa Geol. Soc., Digest, vol. 17, p. 104-106; *also in* Guidebook to the geology of Utah, no. 5, p. 115-118, Intermountain Assoc. Geol. Societies (1950).
1953. Identification of geological formations by growing vegetation: Tulsa Geol. Soc., Digest, vol. 21, p. 48-51; *also in* Okla. City Geol. Soc., Shale Shaker, vol. 4, no. 4, p. 5-6, 8; *also in* World Oil, vol. 141, no. 1, p. 102-104 (1955).
1955. The Triassic and Jurassic formations of the Colorado area: Tulsa Geol. Soc., Digest, vol. 23, p. 49-57.
1957. Carol Y(oung) Mason (1902-1956): Tulsa Geol. Soc., Digest, vol. 25, p. 31.
1959. Ralph Allen Brant: Okla. Acad. Science, Proc., vol. 39, p. 215-216.
1959. Roy La Mont Ginter: Okla. Acad. Science, Proc., vol. 39, p. 217-218.

—C. C. B.

Maurice H. Wallace, 1917-1961

Maurice Hudiburg Wallace was born in Fairbury, Nebraska, on August 22, 1917. In 1924 the family moved to Muskogee where Maurice graduated from Central High School. He attended College of the Ozarks, and then Iowa State University, receiving the bachelor's degree in 1940. He spent one summer at Camp E. B. Branson near Lander, Wyoming, to study field geology. He was then tall and slender, and was affectionately dubbed "Frosty" because he slept in the open in a sleeping bag and woke up each morning with a frost-covered head. Maurice received the master's degree from the University of Kansas in 1942, presenting a thesis on "Geochemical investigation in the Tri-State zinc and lead mining district." In 1941 he published a paper on "Chariton conglomerate in Lucas and Marion Counties, Iowa," (Kansas Academy of Science, Transactions, vol. 44, p. 322-326).

Maurice was with Standard Oil of New Jersey for 14 years on foreign assignments, in Costa Rica, Ecuador, Dominican Republic, Cuba, Morocco, Algeria, Tunisia, Angola, Belgian Congo, Libya, French Equatorial Africa, Kenya, Madagascar, Venezuela, and Turkey. He made extensive geological collections in these countries and in Oklahoma, and in his will he left them to the University of Tulsa.

In 1954, Wallace returned to the United States and for two years taught in the Department of Geology, University of Tulsa. He thereafter resided in Muskogee, where he died Sunday, July 9, after a brief illness. He was a son of the late Dr. Clarence M. Wallace, who was pastor of Bethany Presbyterian Church until his death, and Mrs. C. M. Wallace. He is survived by a sister, Jessie Wallace McNutt of Boston, Massachusetts, and by two brothers, Newton Wallace of Winters, California, and Robert Wallace of Lafayette, Louisiana.

Maurice became quite heavy with time, and was generally known as "Tiny" Wallace. He was a faithful participant on organized field trips and was always ready to help others on geologic problems. He was a fellow of the American Association of Petroleum Geologists, and member of the Geological Society of America, Society of Economic Geologists, Society of Economic Paleontologists and Mineralogists, Tulsa Geological Society, Geophysical Society of Tulsa, and was active in the Bethany Presbyterian Church and the Stamp Club.

—C. C. B.

NOTE ON THE FRESH-WATER OSTRACOD GENUS *Theriosynoecum*

CARL C. BRANSON

A new fresh-water ostracod genus which was found in association with clams, fish, and charophytes was described by me in 1935 (p. 521). The genotype by monotypy is *Morrisonia wyomingensis* Branson, 1935. The generic name was preoccupied by *Morrisonia* Grote, 1874, a genus of Lepidoptera, and I replaced the homonym with the generic name *Theriosynoecum* (Branson, 1936, p. 323).

The name *Theriosynoecum* was next used by Galeeva (1955, p. 57) who described the new species *T. krystofovitschi* from the Cretaceous of the Transbaikal, but attributed the name to Mandelstam. Mandelstam in the next year described *T. difensorum* from the beds (p. 139, pl. 26, fig. 5) and figured *T. kristaphovitshi* (sic) as "gen. et sp. nov." (fig. 51). He misspelled the generic name, attributed it incorrectly to Teichert and erroneously to himself, and spelled the specific name in a curious manner. Lyubimova (1956, p. 136-142) also misspelled the generic name and gave an incorrect synonymy. She refigured *T. krystofovitschi*; reprinted figure 51 of Mandelstam (turned 180 degrees), and described two new species, *T. praetuberculata* and *T. defensum*, from Cretaceous beds of Mongolia.

The Russian paleontological treatise (Osnovy Paleontologii) contains a section on the Cytheracea written by Kashevarova, Mandelstam, and Schneider. In this section *Theriosynoecum* is correctly spelled.

Two species are figured: *T. defensorum* (figs. 1037a, b) and *T. kristofovitchi* (sic) (figs. 1038a, b). The authors further refer to the genus the species referred to *Gomphocythere* by Martin (1940).

I agree that *T. difensorum* Mandelstam, 1956, *T. berwickense* (Martin), 1940, *T. wyomingense* (Branson), 1935, and *T.* sp. Sohn (1958, pl. 1, figs. 19-20) clearly belong to the genus. The other species referred to it do not certainly belong there.

In the Osnovy *Theriosynoecum* is placed in the family Cytheridae and in the new subfamily Timiriaseviinae. Inasmuch as the genus *Metacypris,* dating from 1870, is also placed in the subfamily, the subfamilial name should be Metacyprinae.

References Cited

Branson, C. C., 1935, Fresh-water invertebrates from the Morrison (Jurassic) of Wyoming: Jour. Paleontology, vol. 9, p. 514-522.

Branson, C. C., 1936, New name for a Morrison ostracode genus: Jour. Paleontology, vol. 10, p. 323.

Branson, C. C., 1958, A note on Russian paleontology: Okla. Geol. Survey, Okla. Geology Notes, vol. 18, p. 126.

Galeeva, L. I., 1955, Ostrakody melovykh otlozheniy M N R: Moscow.

Lyubimova, P. S., 1956, Ostrakody melovykh otlozheniy vostochnoi shasti mongolskoi narodni respubliki: Vsesouiznogo neftyanogo nauchno-issledovatelskogo geologo-razvedochnogo instituta (VNIGRI), new series, no. 93.

Mandelstam, M. I., 1956, **Theriosynoecum:** Materialy po paleontologii, Vsesouiznyi nauchno-issledovatelskii geologicheskii institut (VSEGEI), new series, no. 12, p. 138-139.

Kashevarova, N. P., Mandelstam, M. I., and **Schneider, G. F.,** 1960, Superfamily Cytheracea: Osnovy paleontologii, chlenistonogie, trilobitoobraznye i rakoobraznye, Akademiya Nauk SSSR, p. 365-411.

Martin, G. P. R., 1940, Ostrakoden des norddeutschen Purbeck und Wealden: Senckenbergiana, vol. 22, p. 275-361.

Sohn, I. G., 1958, Middle Mesozoic non-marine ostracodes of the Black Hills: Wyo. Geol. Assoc., Guidebook, 13th Ann. Field Conf., p. 120-126.

THE TYPE OF *Streptelasma expansa* HALL, 1847, AN ORDOVICIAN *Blastoidocrinus* FRAGMENT FROM THE CHAZY LIMESTONE OF NEW YORK

ROBERT O. FAY

In 1847, Hall (p. 17) erected a new generic name *Streptoplasma,* and described a new species, *Streptoplasma expansa,* from the Chazy limestone, near Chazy, New York. On the plates (pl. 4, figs. 6a-b) the name was changed to *Streptelasma expansa.* Other species of *Streptelasma* were described in this book, and one, *S. corniculum,* was later designated as the type for *Streptelasma.* For each species, the generic name was consistently spelled *Streptoplasma* in the text and *Streptelasma* in the explanation to the plates. Hall's original description of *S. expansa* was short and vague, with one statement that "it appears like the pelvis of a crinoidean." An examination of the plate figures leads one to suspect that *S. expansa* is a name applied to a deltoid plate of what has later been named *Blastoidocrinus carchariaedens* or at least to some species of *Blastoidocrinus*. The type is at the American Museum of Natural History, no. 519.

According to Sardeson (1897, p. 278) the type of *Streptelasma* should be *S. expansa* Hall, 1847, because it was the first species described by Hall, but Hall did not designate a type, and according to most coral experts the type was subsequently designated as *S. corniculum* Hall, 1847, by C. F. Roemer, 1861. It is important that *S. corniculum* should be retained as the type because *Streptelasma* is a name applied to corals and not to parablastoids. The problem of synonymy of trivial names must be solved.

The type of *Blastoidocrinus* Billings, 1859, is *B. carchariaedens* Billings, 1859, from the Middle Ordovician Chazy limestone, Island of Montreal, Quebec, on deposit at the Geological Survey of Canada Museum, nos. 1016, a-d; 1120. The variations of the deltoid plates are such that *Streptelasma expansa* Hall could be the same as *Blastoidocrinus carchariaedens* Billings. The former is unrecognizable insofar as the whole animal is concerned, and it is possible that other plates may have been different in that species, so that *Blastoidocrinus expansus* (Hall) may be a valid species that occurs in the lower beds of the Chazy limestone, near Chazy, New York. The type of *Blastoidocrinus carchariaedens* is from the Chazy limestone, Island of Montreal, Quebec; and Hudson (1907) reported this species from the probable upper portion of the middle beds of the Chazy limestone, Valcour Island, Lake Champlain, New York. It would probably be best to state that *Blastoidocrinus expansus* (Hall) is unrecognizable to date, and that *B. carchariadens* Billings should be retained as the type, as illustrated by Hudson (1907) and Billings (1859).

References Cited

Billings, Elkanah, 1859, On the Crinoideae of the Lower Silurian rocks of Canada: Canada, Geol. Survey, Figures and descriptions of Canadian organic remains, decade 4, 72 p., 10 pls., 9 figs.

Hall, James, 1847, Containing descriptions of the organic remains of the Lower Division of the New-York system: Palaeontology of New York, vol. 1, 338 p., 87 pls., figs., tables.

Hudson, G. H., 1907, On some Pelmatozoa from the Chazy limestone of New York: New York State Museum, Bull. 107, p. 97-152, 10 pls.

Roemer, C. F., 1861, Die fossile Fauna der silurischen Diluvial-Geschiebe von Sadewitz bei Oels in Nieder-Schlesien: Breslau, 81 p., 8 pls.

Sardeson, F. W., 1897, On **Streptelasma profundum** (Owen), **S. corniculum** Hall: Amer. Geologist, vol. 20, p. 277-292, pls. 16-17.