



CEDAR VALLEY GEMS

CEDAR VALLEY ROCK & MINERAL SOCIETY

CEDAR RAPIDS, IOWA

CEDAR VALLEY GEMS

FEBRUARY 1994

VOL. 21, ISSUE 6, PAGE 1

CEDAR VALLEY ROCKS AND MINERALS SOCIETY will meet February 16, 1994 at the AEGON BLDG at the corner of Edgewood Road and 42nd St. N.E., Cedar Rapids, IA at 7:15 P.M.

Ranger Randy Haas of the Corps of Engineers at Coralville Lake will be our speaker. He will share with us a short video of the flood of 1993 and discuss the damage done by the flood, fossils revealed. Some of the problems which they must deal with and some of their tentative plans for the future.

Jim and Myrna Shetterly and Gladys Zobac will be our host and hostesses.

Guests are always welcome. Bring a friend.

SHOW MEETING AND WORKSHOP

~~Saturday~~ ^{Sunday} Don't forget the show meeting at Bill and Sharon Sonnleitner's home ~~Sunday~~, February 19, at 3 P.M. We hope you have been sorting out those small specimens of agates, calcite, pyrite, geodes, various fossils, petrified wood, shark's teeth, or what have you. The material needs to be of a size that will fit in an egg carton, and be identifiable. We will have an assembly line set up to glue in specimens and labels. We will need lots of 'little specimens' to fill the egg cartons. Bring whatever you can. If it can not be used in the egg cartons, we can always use it in the Pebble Pit. (More about the Pebble Pit in another paragraph).

We would surely like to have some of you who are newer members in our group come on out so we can get acquainted. This is a fun event - dress casually and comfortably.

We will have a potluck supper around 5 or 5:30 - so bring a well-filled basket and enjoy food, fun and fellowship.

DUES

I inadvertently neglected to remind you last month that DUES ARE DUE. Those persons whose dues are not current, will be dropped from the March mailing list. Please get your dues in so you won't miss any of the activities of the spring and summer.

Dues run from January 1 to December 31. Dues are \$7.00 per year for a family or individual - living at the same address. Those persons joining in November or December will automatically get the bulletin through 1994.

Dues may be paid for 1994, to Dale Stout, Treasurer, 2237 Meadowbrook Dr. S.E., Cedar Rapids, IA 52403, or see Dale at the meeting.

typed
BOARD MEETING REPORT Cedar Valley Rocks and Minerals Society held a Board meeting at the home of Marv & Sue Houg, January 12.

The flyer for the 1994 show was studied and suggestions made for a couple changes..

Show committees were discussed and a sheet passed for persons to sign if they had not had a previous opportunity.

It was noted that many of our members do not have name tags. It was decided to circulate a sheet at the next meeting to see if there is enough interest in having name tags made. Each member ordering will be responsible for paying for his, or her, name tag

We reviewed the possibilities and expenses involved in moving the show to a different and larger building (TEAMSTER'S HALL) in 1995. Tentatively we would go with the 3rd weekend - March 17 - 19. The rent will be \$425. per day, or a total of \$1275, There will also be a charge of \$10. per hour for an attendant to be in the building. How many hours that would involve are in question at this time. The Board voted to present a recommendation to the membership "that we move our 1995 show to the larger Teamster's Hall on J St. S.W." There is also a larger parking lot.

Special exhibits for our 1994 show - exhibits that are related to the 1993 flood, were discussed. Pappé Phillips will check on some possibilities. The recent find of a mammoth bone was suggested.

The Silent Auction at the show was discussed. It was decided fewer auctions will be held and that some of the auctions be geared to the adults. When special material is up for auction, it will be announced so that adults may be aware if something they are interested in is up for bids.

Marv suggested we make a poster telling of some of the things we do other than rocks, such as talking to schools, amount given to scholarships, judging at Science Fair, etc. Marv also said we will try to have another Board Meeting prior to the February general meeting.

Liability insurance and insurance through MWF was discussed, A study will be made.

Larry DeSotel reported a new Iowa State Director will be needed as Roland Ramin is moving out of the state.
Meeting adjourned.

Respectfully submitted
Alberta Cray, Secretary pro tem

Heard by a rockhound during a big snowstorm - "Snow isn't that bad, this is the first time I have been able to say that my pile of rocks looks as good as yours." via Hidden Treasurers, 2/93 to us via Fulton County Rock Hounders.

HERE AND THERE WITH OUR MEMBERS AND FRIENDS

Sue Houg was hospitalized for a few days in January with pneumonia. While it was one of those 'hanger-on' things, I believe she is well on the road to recovery at this writing.

Norman Brown is taking dialysis treatments 3 times a week. He is on an evening schedule. Hopes to get a daytime schedule before too long. Alice says his appetite, which had been way down for 2 or 3 months, has surely picked up.

We extend our sincere sympathy to Robert & Leslie Blin on the death of Leslie's mother. Also to George & Pat Blin Crawford, Bob Blin and Mike & Donna Blin on the death of Pat, Bob and Mike's grandmother.

Bud Cray underwent hernia surgery January 4, 1994. He returned home the same day and is doing very well.

AEGON USA Building, Cedar Rapids, Iowa

January 26, 1994

8 members attended

The January meeting of the Cedar Valley Gems and Minerals Society was called to order at 7:25 by President Marv Houg. Because of the bad weather, we broke immediately for the program and reconvened at 9:30.

Julie Sova moved that the Secretary's minutes be approved as published. Motion was seconded and carried.

Treasurer Dale Stout reported balances in checking for Dec. of \$984.29 and for Jan. of \$1317.16. Julie Sova moved that the treasurer's report be accepted. Motion was seconded and carried.

Old Business: The Board recommended that we move the show to the Teamsters Hall for 1995. Jeff Groff moved that we rent the Teamsters Hall for the weekend of March 17, 18, and 19, 1995. Al Johnson seconded. Motion carried.

Marv read a thank-you note from the couple who received a Christmas basket from the club.

Julie Sova moved that we adjourn. Meeting adjourned at 10:00.

Respectfully submitted,
Sharon Sonnleitner
Acting Secretary

Typed

JANUARY MEETING The January meeting scheduled for January 19, was postponed for 1 week because of the weather. The two students from Cornell were unable to be with us for that meeting. Sharon set up a new program with Allen Mitchell, of the Iowa City area, who gave a program on crystals and micro-crystals. Again, it was very hazardous weather, however, 8 members did attend. I have heard that it was one of the best programs we have had. So good, in fact, they hope to schedule him for another meeting - perhaps a Saturday or Sunday afternoon seminar type program where he could demonstrate the steps in preparing and mounting micro-crystals, without the time constraints of a regular meeting.

HERE'S WHAT'S HAPPENING

- February 18 - 20, 1994 CABIN FEVER PRODUCTIONS - SHOW, Kirkwood Community Center, Kirkwood, MO
- March 12 - 13, 1994 GEODELAND EARTH SCIENCE CLUBS - SHOW, Western Illinois University Student Union, Macomb. IL
Saturday 10 - 7; Sunday 10 - 5 THIS IS A GOOD ONE !!!
- March 18, 19 & 20, 1994 GREATER KANSAS CITY - SHOW, 1775 Universal Ave., Kansas City, MO Fri. 9 - 8; Sat. 10 - 8; Sun. 10 - 5
(K.C MARKET CENTER in EXECUTIVE PARK)
- March 19 - 20, 1994 CEDAR VALLEY ROCKS & MINERALS SOCIETY - SHOW, IBEW HALL, Cedar Rapids, IA HEY, THAT'S US!!! Please see the flyer on another page and read all about it.
- March 25 - 27, 1994 ROCK HOBBY CLUB of GREATER ST. LOUIS, Machinists Auditorium, St. Louis, MO
- March 26 - 27, 1994 DES PLAINES VALLEY GEOLOGICAL SOCIETY - SHOW, Rand Park Field House, Des Plaines, IL
- March 26 - 27, 1994 RIVER VALLEY ROCK HOUND CLUB - SHOW, Iowa Central Community College, Fort Dodge, IA
- APRIL 9 - 10, 1994 FULTON COUNTY ROCKHOUNDERS - SHOW, Wallace Park, 250 S. Ave. D, Canton, IL
- APRIL 15, 16 17, 1994 MID AMERICA PALEONTOLOGY SOCIETY - NATIONAL FOSSIL EXPOSITION, Western Illinois University Student Union, Macomb, Illinois. (If you like fossils, DON'T MISS THIS ONE!!)

MAPS MEETING - MARCH 5, 1994

The MID AMERICA PALEONTOLOGY SOCIETY (MAPS) will meet March 5, 1994 at Trowbridge Hall, Iowa City, IA, Main Lecture Room, Room 125. The business meeting will be held at 1 P.M.

Rachel Benton, a Paleontologist from Fossil Butte National Monument, Wyoming, is working on her Ph.D. at the University of Iowa. Rachel will present a program, "Fossils from the Green River Formation: a 50,000,00 Year Old Ecosystem", at 2 P.M.

All are welcome and invited to attend. It may be well to arrive in Iowa City ahead of time as we are uncertain about the parking. There is a ramp on Madison west of Trowbridge. There is another ramp 2 blocks north on Madison.

If you have not been there, you might want to arrive earlier and visit Macbride Hall and see Iowa Hall Museum. There are also some fine exhibits on the lower level of Macbride Hall.

Trowbridge Hall is on Capitol between Market and Jefferson. Macbride Hall is on the corner of Jefferson and Clinton.

A list of the regular and demonstrating dealers for our 1994 Show follows. They are not listed in any particular order.

J. J. & L. ROCKS & MINERALS, Hickman, Nebraska

DOUG DeROSEAR, Donnelson, Iowa

ROCKHOUND, Ltd., Madison, Wisconsin

DAVID M. CRAWFORD, Rockford, Illinois

ROCK ART, Manchester, Iowa

L & R LAPIDARY & JEWELRY, Janesville, Minnesota

AHREN'S JEWELRY & ROCK SHOP, Madrid, Iowa

RICHARD & MILLIE SMOUSE, Olin, Iowa

GEODES UNLIMITED, Cedar Rapids, Iowa

J & M GEMS, Fairfax, Iowa

STAINED GLASS GALLERY, Cedar Rapids, Iowa.

ED JUNKER, Wood River, Nebraska

MIL - CHAR JEWELRY, Keithsburg, Illinois

MARK ANDERSON, University of Iowa, Iowa City, Iowa
(Flint knapper)

*pd kin 100.00
to Demo*

PEBBLE PIT

In addition to the egg carton specimen kits, we will have many crystal, mineral and fossil specimens for the children to buy, at a very low fee.

There will also be a pit, (or box), for tumbled stones, agates and less fragile materials which the children can dig for.

It takes boxes and boxes of material for the Pebble Pit area. NOW IS THE TIME to high grade your collection and get that material ready for the children.

The SHOW is only a bit more than a month away. Everything is 'GO'.

ANOTHER PAIR OF EYES

One of our exchange bulletins has been running an article on fluorescence, ANOTHER PAIR OF EYES, which I thought was very well written, and might be helpful to those of you who will be 'manning' the Fluorescent Booth at the show, as well as others interested in fluorescence. I waited patiently for the third installment, planning to run it all in one bulletin. Alas, the third installment is quite long. We will continue it in the March bulletin.

See next page

ANOTHER PAIR OF EYES

by Thomas S. Warren

It's strange how we live with something every day of our lives yet seldom know it exists. This article will explain the little known form of energy that surrounds us every time we go out in the sunshine.

It is a form of energy that our eyes don't see. They almost see it but not quite. We are familiar with the fact that sunlight enables us to see because every object reflects some color. Actually, every color in the rainbow is in sunlight. When sunlight is passed through a prism we see the colors red, orange, yellow, green, blue, and violet. Each color is caused by a different wavelength. Every object we see is reflecting light.

There are also invisible wavelengths longer and shorter than the visible rays. The wavelengths longer than the visible rays are called infrared. The infrared rays are penetrating heat rays commonly used in cooking and heating. Infrared rays must be used in moderation as too much heat is not only uncomfortable but detrimental if prolonged.

The invisible wavelengths that are shorter than the visible rays are called ultraviolet rays. These rays have no sensation of heat. Ultraviolet rays are beneficial to us in many ways, but like infrared rays, must be used in moderation. Ultraviolet rays cause sunburn, form vitamin D in the body and aid in the assimilation of many food minerals. However our present interest is to be sure ultraviolet rays are safely used so we can enjoy the fluorescence they create in our mineral specimens.

The chief difference between these two types of invisible rays is that we feel the heat of the infrared rays and this guides our use of it. With ultraviolet rays, which are often used in tanning beds, we have no such guide. We do not know how much sunburn we are getting until it appears several hours after exposure. So the basic

rule in using ultraviolet light is to begin with a very short exposure which can be increased gradually and the results will be beneficial.

The world of visible colors is between 400 and 700 nanometers (nm). A nanometer is a unit of measurement like yards and inches, only far, far smaller or shorter. In fact, a nanometer is less than one-millionth of half an inch. In other words the distance between wavelengths is so short that most of us cannot even imagine the presence of such a wavelength. However, we must use the nm figures for reference purposes.

The shortest wavelength the average person can see is about 400 nm, and the shortest wavelengths that reach sea level on earth are about 300 nm. Any wavelengths shorter than 300 nm are screened out by the upper atmosphere.

Ultraviolet wavelengths between 350 nm and 400 nm are considered longwave ultraviolet rays and are often called blacklight. These wavelengths cause fluorescence of the eyes, teeth, fingernails, clothing, and many household objects. A few minerals also fluoresce to the long ultraviolet wavelengths.

The shortwave ultraviolet rays are shorter than rays from the sun, but can be secured in special lamps. These shortwave lamps must be used with caution, the same summer sunlight. For the mineral hobbyist the main caution is not to look into the shortwave lights for longer than short glances. Prolonged exposure will cause sunburned eyes which are very unpleasant and distressing while the sunburn lasts, but the misery is short term and apparently has no after effects. On the other hand, you can enjoy fluorescence from your shortwave ultraviolet lamp for hours providing the lamp is directed to the minerals and not to the eyes.

Ultraviolet wavelengths are often called actinic rays because they have the energy to produce chemical changes. To the mineral hobbyist the change that creates

fluorescence is the most interesting. Fluorescing minerals are beautiful, fascinating and when seen for the first time the effect is magical. Fluorescent minerals have colors you didn't dream were there. However the beauty one sees while minerals are fluorescing is entirely a surface reaction. What causes the change? Why don't all minerals fluoresce?

Minerals fluoresce when the energy of the ultraviolet light causes the electrons in the atoms to change their orbit, which is unnatural and they return to their normal orbit. In doing so, the electrons release the energy they absorbed from the ultraviolet light, and as the scientist would say, return to ground state. This released energy is in the form of a light wave which we see as color. This color originates in the mineral and we call it fluorescence. To put it simply, it is a transformation of energy from an invisible wavelength to a visible wavelength. Only minerals with a certain structure have the ability to fluoresce.

In some cases, the glow will continue after the ultraviolet source is removed. This is called phosphorescence. There is no essential difference between fluorescence and phosphorescence except that the luminescence is caused by two different atomic structures in the same mineral.

There are many practical applications for ultraviolet light and the color it causes in minerals. Several fluorescent minerals are of great economic importance, and the search for them is substantially aided by battery operated, ultraviolet prospecting equipment. Chief among these important minerals is scheelite, an ore of tungsten. Tungsten has the ability to give steel greater hardness. It is also used for filaments in light bulbs, electric contact points and special alloys for jet aircraft to name just a few

of its uses. The bright blue fluorescence of scheelite is easily spotted with a shortwave ultraviolet lamp. However you may notice the fluorescent color of scheelite is somewhat variable from blue to blue-white to a cream-yellow, depending upon the presence of the impurity molybdenum. The color changes are due to the increasing percentages of the molybdenum impurity. California is extremely fortunate in having a healthy supply of scheelite, but the main source of scheelite is found in China.

Strangely enough, ultraviolet equipment is used at nearly all oil wells. While drilling, the drill cores are frequently checked for signs of brilliantly fluorescing crude oil which may indicate another strike.

Finally, in talking about the practical side of using this magic medium, we should not forget the hobbyist or "rockhound" who can make practical use of ultraviolet equipment in his or her many trips to look for attractive stones. The hobbyist is not a prospector for his or her search is on a part time basis. However, it is astounding how many valuable signs of tungsten, uranium and other ores have been found by amateurs. Tungsten finds, for instance, have come to over \$100,000,000. in the last several years and a good share of this was found by hobbyists.

- From Lizzadro Museum Bulletin, 9/93.
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and the Lizzadro Museum.

Thomas S. Warren founded Ultra Violet Products Inc., in San Gabriel CA in 1932. An honorary member of many mineral clubs, Mr. Warren has recently co-authored *Ultraviolet Light and Fluorescent Minerals*, 1993.

via The ROCKFINDER 11 & 12/ 93

A Rock Roadmap

by Tom Holifield



In order to describe where a fossil or mineral is found geologists use a device called a stratigraphic column, or a part of a column called a section. A stratigraphic column is a vertical "roadmap" of the earth's surface. A section or sectional column is that part of the earth's crust exposed in a particular area, such as a cliff or roadcut. Sections are also described from wells drilled into the earth in search of oil or water.

Everyone interested in the physical sciences will eventually either need to read or produce one of these "roadmaps." Every book on geology, paleontology or mineralogy has at least one stratigraphic column. And your field note book has one from each location that you collect, right? Well, it should otherwise how can you explain to someone else where your specimen was obtained? An exact location can also help a scientist to identify your find. A rock column will help fix your specimen in time and space. A column will explain fossil time division, geologic time division and where the divisions occur in relation to the rocks in a certain place. (It is) a three dimensional picture worth a thousand words.

Simply stated, all the rocks on earth were laid down in some order. The youngest are piled on top of the older and this is known as the Law of Superposition. All the fossils on earth were also deposited in this same order. Each successive layer of rock has slightly or dramatically different fauna, and this is called the Law of Faunal Succession, proposed by William Smith in England and Cuvier and Brogniart in the Paris Basin (6,4). Therefore, if you find a fossil in a rock, their ages must be the same.

Fossil time and geological time are parallels divided into smaller units for convenience but named separately because not all rocks have fossils. A rock column represents a small section of all geologic time

which must be (conveniently) divided because of its enormity. The age of the earth is about three billion years. If we made a chart to show this and used one inch to represent one thousand years, then all recorded history would be found in the first seven inches. The rest of the chart would then stretch for about fifty miles (7).

Scientists have divided all time into four major divisions called *eras* for fossils and *erathem* for rocks. These four divisions are then divided into smaller units shown in the chart (fig. 1). A stratigraphic or rock column is simply a further division of the time scale. The first two segments in a stratigraphic column give us a point of beginning; two references are always used to eliminate any possibility of misunderstanding. All the other columns are used to pinpoint a particular fossil or strata (fig. 2).

In order to be 'mappable', the rock units must be distinguishable from one another. Characteristic physical features such as rock type, grain size, color and fossil content are used to describe a particular strata.

Various symbols are used to draw a rock column, such as simple lines to represent slate or shale. Blocks may be used to note heavier or thicker beds of limestone or sandstone. Dots and dashes are used to show sand or mud, clay, soil, etc.

When these strata are found one over the other in about the same manner as laid down, a single straight line will separate them. This is called a *conformity*, and the rock strata are said to lie conformably. However, if one strata has been changed such as by erosion before another was laid down or no deposition occurred, then a curved or zigzag line will show this disconformity. If one type of rock

Fig 1

Fossils	Geology	Divisions	Example
Era	Erathem	Early/Late	Paleozoic
Period	System	Early/Late	Devonian
Epoch	Series	Upper/Middle/Lower	Middle Devonian
Age	Stage	Group	Wapsipinicon Group
	Zone	Member	Upper Davenport Limestone Member

lies on the eroded surface of a different type of rock (limestone over lava, for example) this structure is called a *non-conformity*. If the lower sequence of strata were tilted or folded before burial, *angular* unconformity is the description.

A line which runs diagonally through a column represents a change in rock type

world or a certain spot on it in relation to magn north or the equator at a particular time.

Published geological columns often have another listing of quite different names. Drillers' or miners' names for rock strata were used locally and are often colorful descriptive terms such as — First Water, Second Cow Run, Jingle Rock, Big Injun, Squaw, Coffee Sand, Stray Clinton, St. Peter and Coppets Ridge. These terms sometimes also use a rock type as part of the name — Salt Sands, Big Lime, Gereca Grit, Big Six Sand, etc. Some of the names are lost in history and we many never know why some formations were called — Horse Neck, Blue Monday, Balltown or simply First Coal, Second Coal, etc.

A stratigraphic column is an important tool for geologists and paleontologists, one which we should all learn to read and to draw well. A stratigraphic column can also be informative and interesting when you understand it.

References:

1. Fossils: Prehistoric Animals in Hoosier Rocks. T.G.Perry, 1959, Indiana Geo Surv, Circular #7, Bloomington, IN
2. Type Sections. Bill J. Bunker, Iowa Geology #13, 1988. Iowa Dept Nat Resources, Geo Surv Bur, Iowa City, IA
3. Fossils of the World. J. Brown Ed, et al, 1988, Crown Publ, NY, NY
4. Geology. R.N.Pearl, 4th Ed, 1975, Barnes & Noble, NY, NY
5. Generalized Column of Bedrock Units in Ohio. D.N.Hull, 1990, Ohio Dept Nat Res, Div Geo Surv, Columbus, OH
6. Generalized Stratigraphic Column with Oil and Gas Reservoirs of W.Va.N.D. West Virginia Geo & Eco Surv, Morgantown, W.Va. (permission to reprint given. *appeared in original article and was not reproducible. Stratigraphic column shown was redrawn by editor from information appearing in Glen Canyon-Lake Powell. R.E.Everhart, 1983, KC Publications, Las Vegas, NV*)

reprinted from Rocky Echoes, March 1993

or deposition. A circle or blob in the column represents an anomaly: a boulder, concretion or lens. A lens is a thin strata of rock column of like strata.

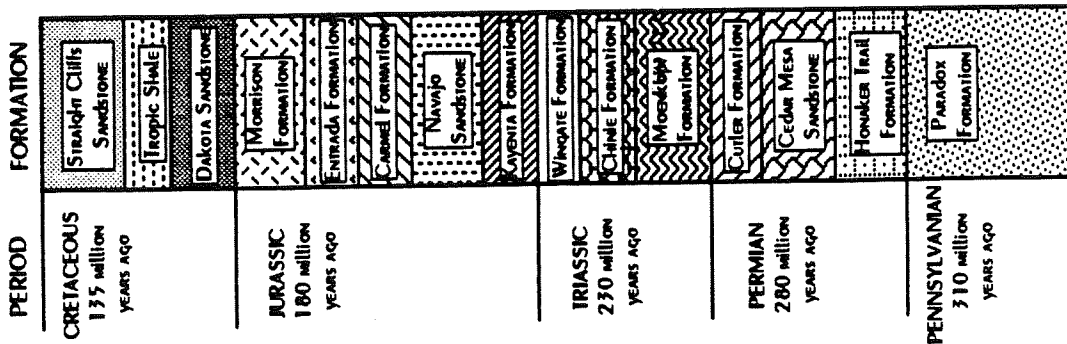
Various symbols are also used to mark the location of fossils or minerals. A key to all these symbols should be found in the description list. The last column should always contain a verbal description explaining rock type, mineral content, size of particles and types of fossils or lack of fossils. If part of a column cannot be shown because it is underground or under water, that part is omitted with a note in the description that it lies under topography. A type section is used to define where a rock strata is first named or described. It is usually named for a nearby city or the major type of rock it contains.

By comparing columns mapped in different locations, we can determine the real distribution of a fossil or type of rock. And if we accumulate enough columns we can produce a map of a large area at a certain point in time. An example would be mapping the Inland Sea of North America during the Paleozoic Era. Minerals found in a particular strata can be mapped, such as an oil field, and of increasing importance, underground aquifers.

A particular type of rock that can be readily recognized in different areas is called a *key horizon*. A fossil which lived during a short span of time over a wide area is called an *index fossil*. Fossils which floated, flew over or swam over wide areas are often used as index fossils. Small fossils such as plankton, foraminifera and pollens are often found in abundance and make excellent index fossils. This study of dating rocks by fossil evidence is called *biochronology*. Another method of dating rocks is by measuring the radioactivity of igneous rocks. Some igneous rocks contain radioactive material which ages or alters at a uniform rate over long periods of time.

In collecting specimens, it is important to note the type of rocks or fossils found both above and below a specimen. All of these details aid in identification and help to define *paleoecology* — what happened at a particular place at a certain time; *paleobiology* — which plants or animals lived at a particular place at a certain time; and *paleogeography* — the shape of the

Fig.2 Stratigraphic Map of Glen Canyon / Lake Powell Area



THE GREEN RIVER FORMATION

The Green River Formation represents one of the largest documented accumulations of sedimentary rock in the world. It extends over 25,000 square miles, averaging 2000 feet thick, and covering parts of Wyoming, Colorado and Utah.

The strata deposits are the result of a complex system of lakes, ecologically different from each other. The three major lakes were the Uinta, Fossil Lake and Lake Gossuite, which was the largest. During the Eocene period, the boundaries of these lakes changed greatly and by the end of that era, only Lake Uinta survived.

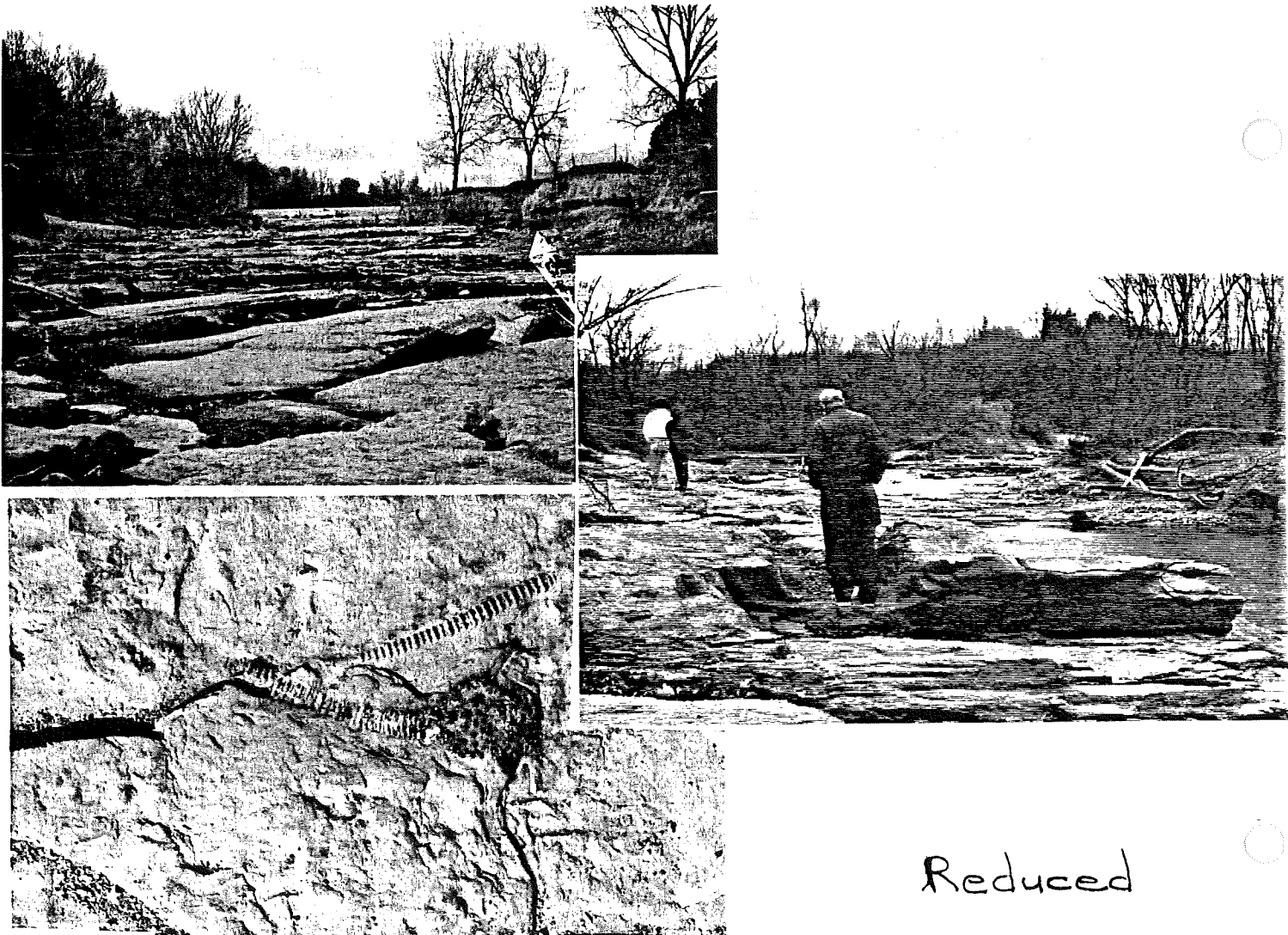
The most common fossils found in the lakebeds are mollusks, fish, plants and insects; more rarely, crocodiles, amphibians, turtles, birds and mammals.

The presence of large palm trees, balloon vines, crocodiles, and boa constrictors indicates that warm, subtropical conditions must have prevailed. Maybe the climate was similar to the Gulf Coast and Southern Atlantic regions of the United States today, essentially frostless winters with an annual rainfall of 30 to 40 inches.

Fossils from the Green River Formation are typically well preserved. Nice leaves, insects, some trees, fish and amphibians can be found at the top of Douglas Pass, only an hour's drive from Grand Junction, Colo.

-by Mel Bersch, LEAVERITE NEWS & AGATE PICKER.

***** to us via ACHATES , July 1986



Reduced

Pictures taken at the Coaralville spillway site, by Gladys Zobac
Late fall of 1993

Cedar Valley Rocks & Minerals Society
Presents its

1994
GEM, MINERAL &
FOSSIL SHOW

Saturday March 19 - 9:00 a.m. To 6:00 p.m.
Sunday March 20 - 10:00 a.m. To 5:00 p.m.

at
I.B.E.W. Local 405 Hall
1211 Wiley Blvd. S.W.
Cedar Rapids, Iowa

"THE FLOOD OF 93"

"IOWA'S GEOLOGICAL HISTORY EXPOSED"

Demonstrations

- Faceting
- Silversmithing
- Rock Polishing
- Electroplating
- Sphere Making
- Geode Cracking
- Gold Panning
- Stained Glass
- Flint Knapping

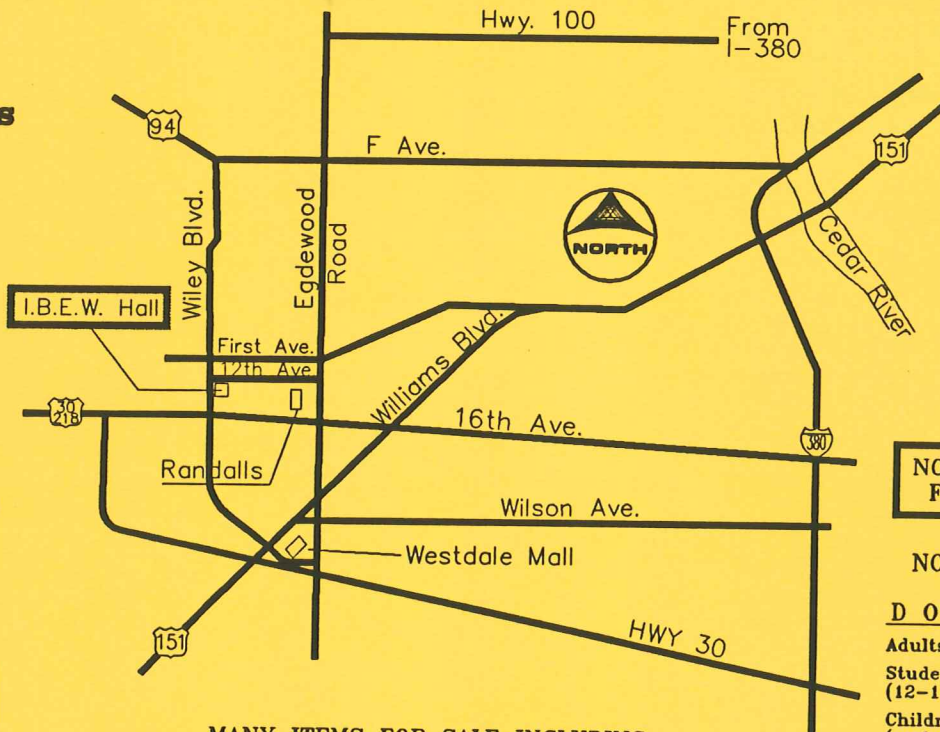
PEBBLE PIT FOR KIDS
1, 5, 10, 25, & 50c Items
50c Rock & Mineral Kits

SILENT AUCTION
Many Good Items

PROFITS GO TO
SCHOLARSHIPS

HOT FOOD

Sandwiches, Cookies, Coffee,
Drinks, etc. Available



Displays

- Gems
- Minerals
- Fossils
- Fluorescents
- Artifacts
- Agates
- Crystals
- Geodes

NOT RESPONSIBLE
FOR ACCIDENTS

NO PETS ALLOWED

DONATIONS

Adults	\$1.00
Students (12-18)	.50
Children (under 12 w/adult)	Free
Youth Groups (w/adult)	Free

NO CHILDREN WILL BE
ADMITTED UNLESS
ACCOMPANIED BY AN ADULT

MANY ITEMS FOR SALE INCLUDING

- | | | | |
|----------|---------|--------------|-----------|
| Books | Fossils | Jewelry | Minerals |
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| Agates | Geodes | Crystals | Seashells |
| Gems | Pewter | Spheres | Book Ends |

For Additional Information Contact: Sharon Sonnleitner at (319)396-4016
Marvin Houg at (319)395-0577

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1st VICE PRESIDENT	Sharon Sonnleitner	TREASURER	Dale Stout
2nd VICE PRESIDENT	Jim Shetterly	LIAISON	Larry DeSotel

BOARD MEMBERS

George Vacik	Allan Johnson	Jeff Groff
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COMMITTEE CHAIRPERSONS

SHOW CHAIRPERSONS	Marv Houg and Sharon Sonnleitner		
FIELD TRIPS	Marv Houg and Sharon Sonnleitner		
TELEPHONE	Leslie Blin and Gladys Zobac		
HOSPITALITY	Marv and Sue Houg	PUBLICITY	Sue Houg
SUNSHINE	Jean Cerveny	ASST. ED	Gladys Zobac
	EDITOR	Alberta Cray	

ALBERTA CRAY, EDITOR
CEDAR VALLEY GEMS
1125 J. Ave. N.W.
Cedar Rapids, Iowa
52405

Hestoy