Iowa Science Teachers Journal

Volume 15 | Number 3 Article 3

1978

Organizing a Rock and Mineral Club (Part II)

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ORGANIZING A ROCK AND MINERAL CLUB (PART II)

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Introduction

Rock and Mineral Clubs (Part I) provided ideas for the initial organization of rock and mineral clubs. In order for club members to develop this avocation to its fullest, a number of basic skills have to be mastered and some equipment must be acquired. The basic skills include rock, mineral and fossil identification and collection, as well as skills in lapidary such as tumbling, cutting, shaping and mounting gemstones.

Skill-Building Topics

Topics are suggested in Table 1 to aid in the development of the basic skills necessary for pursuing the broad range of interests associated with rock and mineral clubs. Each topic is cross-referenced with corresponding resource material found in the reference section. It is necessary that some activities of a club focus on acquiring the necessary library materials and equipment for pursuing these topics.

Table 1
Skill Building Activities

Topics	References
Display of collections	R-11
Faceting	L-5, 6; S-6
Field Trip Safety	S-5
Fossils and Geological Time	G-4, 6; P-1, 2, 3, 4, 5, 6, 7; L-9
Gemstones	G-5, 6; R-7, 14
Geologic	P-1, 2, 3, 4, 5, 6, 7
Identification of Minerals	R-1, 2, 3, 6, 8, 9, 10, 12, 14; C-1, 2, 3, 4, 5, 6
Jewelry Making	L-6, 7, 9; S-2, 6
Labeling of Specimens	R-1, 11
Lapidary Equipment (Demonstration and Safety)	L-1, 2, 4, 6; S-6
Reading Geologic and Topographic Maps	S-4; M-1, 2, 3, 4
Mineral and Rock Groups	G-2, 6; R-2, 4, 13
Mineral Uses	G-1; R-5
Packing Specimens from Field Trips	G-5
Proper Selection of Lapidary Materials	S-1, 2, 3
Starting a Collection	R-3; C-5
Storing Specimens	R-11
Tools for Rock Collecting	L-8; S-6
Tumbling and Polishing Stone	L-3
Vacation Collecting	G-5; R-7; P-5, 6; L-8
Vocational Opportunities	V-1, 2, 3, 4, 5

Lapidary Equipment

While many of the activities outlined need only introductory knowledge and standard geological equipment to perform, much interest can be generated through an introduction to lapidary procedures. A small two-barrel tumbler is absolutely necessary to initiate interest in lapidary. As interest in lapidary grows, better equipment can be acquired. Fund-raising activities will be necessary to generate the funds for equipment purchases. It will also be necessary to consider appropriate floor space requirements (with electricity and water) for grinding wheels. Tips concerning these considerations can be found in Sintankas' *Gem Cutting Lapidary Manual* (L-2).

Another important aspect of the lapidary equipment problem is the number of participants. Care must be taken not to overload work areas. An average meeting period may find groups involved in mineral identification, jewelry design and construction, tumbling, and other activities, in addition to cutting and polishing. If several activities are run concurrently, the equipment work-load can be reduced. A good rule-of-thumb is to allow grinding and polishing for

Table 2
Lapidary Equipment

1. Tumbler
   The greatest flexibility is offered by a double drum unit with each drum having a 12 lb (1/2 gal) capacity.
2. Combination Cutter and Polisher
   This equipment allows both cutting and polishing to occur simultaneously in one compact unit. Separate units work as well if floor space is available. An adequate sawblade diameter is 10 inches.
3. Polishing Arbor
   Polishing is a time consuming task, an extra arbor with 100 grit and 200 grit wheels will ease the work-load. An arbor with two splashwheels, a 1/3 HP 1/2-inch shaft motor with a three-step pulley (2, 3, and 4 inches) is adequate.
4. Wheel Dresser
5. Template
   One standard size template is necessary to mark desired shapes.
6. Lapidary Pencil
   Aluminum pencils are necessary to mark shapes before cutting.
7. Consumables
   a. A roll of wet-type 600 grit sandpaper is needed for the sanding wheel.
   b. An extra super-charged diamond blade (10 in x .040 in x 5/8 in) is useful.
   c. Zinc-oxide abrasive bars are needed for buffing agents.
   d. Four sticks of dopping wax are needed to mount stones for grinding and polishing.
   e. Tumbling grit of various sizes and types will be needed in tumbling.
   f. Epoxy will be needed for cementing lapidary sets.

one-third of the membership, if the membership is twenty-five or more. The basic lapidary equipment needs for a twenty-five member club are listed in Table 2. Better equipment may be acquired as the needs of the club become more sophisticated.

Conclusion

Organizing a rock and mineral club provides interesting avocational challenges for the youth in any community. Recommendations have been presented for organizing, supplying and leading such groups. Each community offers unique opportunities and settings for every club. The success of a club will depend upon the motivation of the club membership and the utilization of community resources to their fullest. Such clubs offer rewarding experiences for everyone involved and enrich the cultural diversity of a community.

Selected References and Suppliers

Careers

V-1 *Opportunities in Environmental Careers* by Odom Fanning. 1973. Vocational Guidance Manuals, 235 East 45th Street, New York, NY 10017.

V-2 *Opportunities in Geology and Geological Engineering* by Alfred K. Snelgrove. 1973. Vocational Guidance Manuals, 235 East 45th Street, New York, NY 10017.

V-3 *Technical and Professional Careers in Geology – Research #15, Careers Research Monograph.* 1973. Institute for Research, Office 703, 610 South Federal Street, Chicago, IL 60605.

V-4 *Career Opportunities – Technical Manual #6012.* 1968. Book Department, Petroleum Publishing Company, Box 1260, Tulsa, OK 74101.

V-5 *So You Want to Start a Rock Shop* by The Victors. (no date). Victor Agate Shop, South 1708 Cedar, Spokane, WA 99203. A complete guide to the business of rock shops.

Crystals

C1 *Exploring Minerals and Crystals* by Robert Gait. 1972. McGraw-Hill, NY. Excellent mineral guide based on crystallography. Grade 8 and up.

C-2 *The Curious World of Crystals* by Lenou Snader. 1964. P-H Junior Research Books, Prentice-Hall, Inc., NY. Introductory book to crystals and recipes for growing them. Grades 4-7.

C-3 *Exploring Crystals* by James Berry. 1969. Crowell-Collier Press, NY. Basics of crystallography, its application and experiments. Grade 6 and up.

C-4 *Crystals and Crystal Growing* by A. Holden and P. Singer. 1960. Doubleday Anchor Books, NY. Good introduction to crystallography and crystal growth. Grade 6 and up.

C-5 *Crystals* by Raymond A. Wohlrabe. 1962. J.B. Lippincott Co., Philadelphia, PA. How crystals form, growing crystals and starting a collection of crystals. Grade 7-9.

C-6 *Color Treasury of Crystals.* Translated from Italian by Vincenzo de Michele. 1972. Orbis Publishing Limited, London. Details major crystal shapes, contains many beautiful full-color examples.

General Geology

G-1 *From Under the Earth: America's Metals, Fuels and Minerals* by Howard E. Smith, Jr. 1967. Harcourt, Brace and World, Inc., NY. Sections cover 28 economic products, giving description, properties, use and occurrence. Grades 5-9.

G-2 *The Crust of the Earth: The Story of Geology* by Keith Clayton. 1967. Natural History Press, Garden City, NY. Introduction to modern theories and discussion of geologic processes and principles. Grade 7 and up.

G-3 *Larousse Encyclopedia of the Earth* by Leon Bertin. 1961. Prometheus Books, Buffalo, NY. Complete discussion of geologic processes and paleontology. All ages.

G-4 *Prospecting for Gemstones and Minerals* by John Sintankas. 1970. Van Nostrand Reinhold Company. Designed for the prospector, good guide to possible field trips. Grade 12 and up.

G-5 *Geologic Inquiries Group #907.* by U.S. Geological Survey, National Center, Sunrise Valley Drive, Reston, VA 22092. Selected reference lists available (free on caves, earthquakes, fossils, fossil fuels, minerals and gemstones, rocks and minerals).

Lapidary

L-1 *The Art of the Lapidary* by F.J. Sperisen. 1962. Bruce Publishing Co., Milwaukee, WI. Well-illustrated with photos and sketches, includes many charts and tables, excellent handbook for introduction through advanced lapidary work, including tools and equipment explanations. Grades High School and up.

L-2 *Gem Cutting, A Lapidary's Manual* by John Sinkankas. 1962. Van Nostrand Reinhold Ltd. Well-illustrated guide covering all major lapidary procedures in detail. Grades 6 and up.

L-3 *The Art of Barrel Tumbling* by Joe Warzin. (no date). 555 East 185th Street, Cleveland, OH 44119. A complete guide of tumbling, well written. Grade 5 and up.

L-4 *So You Want to Cut Gem Stones!* by Jack R. Cox and Robert Ramos. (no date). Covington Lapidary Engineering Corp. Pamphlet. All ages.

L-5 *Faceting for Amateurs* by Glenn and Martha Vargas. 1969. Desert Printers, Palm Desert, CA. Complete faceting guide for the beginner or professional. High School and up.

L-6 *The Lapidary Journal* by Lapidary Journal, Inc., 3564 Kettner Blvd., P.O. Box 80937, San Diego, CA 92318. Monthly magazine with the latest in equipment, large number of supply house advertisements and current events within adult lapidary clubs. April issue is called the *Rockhound Buyers Guide* and is encyclopedic in scope, covering dealers, manufacturers and list of current clubs.

L-7 *Gems and Minerals,* P.O. Box 687, Mentone, CA 92359. A monthly magazine geared toward jewelry making.

L-8 *Mineralogist,* P.O. Box 808, Mentone, CA; Bimonthly. Covers all aspects of the earth sciences with greatest emphasis on mineralogy and paleontology. Also articles on lapidary work and jewelry making.

Maps

M-1 Iowa Geological Survey. 1969. *Geologic Map of Iowa.* Iowa City, IA 52242. The map shows the age and distribution of Iowa's bedrock formations.

M-2 Iowa State Highway Commission. *General Highway and Transportation Maps.* Iowa State Highway Commission, Ames, IA 50011.

M-3 United States Geological Survey, Department of Interior, 1200 South Eads Street, Arlington, VA 22202 (maps of areas east of Mississippi River), Federal Center, Denver, CO 80225 maps of United States. Free pamphlet *Topographic Maps.*

M-4 Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Publications: *Topographic Maps – Tools for Planning,* #2401-20470 (10¢ each); *Geologic Maps – Portraits of the Earth,* #2401-2191 (30¢ each); *Collecting Rocks,* #2401-00234 (10¢ each).

Paleontology

P-1 *Hunting Fossils* by Martin L. Keen. 1970. Julian Missner, Inc., Division of Simon and Schuster, NY. An introduction to paleontology written in simplified form. Grades 4-7.

P-2 *Fossils: A Guide to Prehistoric Life* by F.H.T. Rhoades, H.S. Zim, and P.R. Shaffer. 1962. Golden Nature Guide, Golden Press, NY. Color-illustrated guide for beginning studies and identification, geared mostly toward marine animal fossils with a brief section on plants. Grade 5 and up.

P-3 *Fossils: An Introduction to Prehistoric Life* by W.H. Matthews III. 1970. Barnes and Nobel, NY. Historical geology and time scale, evolution, outline of plant and animal kingdoms and fossil identification. Grade 7 and up.

P-4 *Prehistoric Life on Earth* by K. Peterson. 1961. E.P. Dutton and Co., NY. A view of geologic history of fossil remains. Grade 7 and up.

P-5 *An Illustrated Guide to Fossil Collecting* by Richard Casanva. 1970. Naturgraph Publishers, CA. Introduction to collecting, identifying and proper preservation and storage. Grade 7 and up.

P-6 *Glaciers and the Ice Age – Earth and Its Inhabitants During the Ice Age* by Gwen Schultz. 1963. Holt, Rinehart and Winston, Inc., NY. Grades 7-12.

P-7 *The Dawn of Life* (World of Nature Series) by Grovanni Pinna. 1972. World Publishing Co., Times Mittor, NY. Colorful portrayal with detailed descriptions of various geological events. Grade 7 and up.

Pamphlets and Charts

There are three major sources of assistance for obtaining pamphlets and charts.

PC-1 Bureau of Mines, United States Department of the Interior, 4800 Forbes Avenue, Pittsburgh, PA 15213.

PC-2 *Educators Guide to Free Science Materials.* Educators Progress Service, Inc., Randolph, WI 53956.

PC-3 U.S. Department of the Interior, Geological Survey, Washington Distribution Section, 1200 South Eads Street, Arlington, VA 22202.

Rocks and Minerals

R-1 *Among the Rocks* by Terry Shannon. 1956. Sterling Publishing Co., NY. For beginners, explains physical properties and has identification table for 14 common minerals. Grades 5-6.

R-2 *How to Know the Minerals and Rocks* by Richard M. Pearl. (no date). New American Library (Signet), NY. General identification. Grades 5-9.

R-3 *Collecting Rocks, Minerals, Gems and Fossils* by Russell P. MacFall. 1963. Hawthorn Books, NY. Illustrated guide to collecting and identification. Grade 5 and up.

R-4 *Rocks and Minerals* by Joel Arem. 1973. Bantam Books, NY. Well illustrated, inexpensive guide. Grades 5-9.

R-5 *1001 Questions Answered About the Mineral Kingdom* by R.M. Pearl. 1968. (Revised edition) Dodd, Mean and Co., NY. Informative answers to questions in the mineral world. Grade 6 and up.

R-6 *Minerals and How to Study Them* by Edward S. Dana (Revised by Cornelius Hurlbut). 1949. Wiley and Son, NY. Determinative tables for mineral identification. Grade 6 and up.

R-7 *Gemstones of North America* by John Sintankas. 1959. D. Van Nostrand, NJ. Guide to North American gems, locations, descriptions and identification guide. Grade 6 and up.

R-8 *Simplified Mineral Identification* by Neil E. Fahy. 1968. Ken Books, San Francisco, CA. Identification tables based on simple physical properties and chemical tests. Grade 7 and up.

R-9 *Rocks and Minerals* by Herbert S. Zim. 1957. Golden Nature Guide, Golden Press, NY. Well-illustrated, inexpensive guide to identification. All ages.

R-10 *Mineral Recognition* by I. Vanders and P.F. Kerr. 1967. John Wiley and Sons, Inc., NY. Well-illustrated mineral guide with identification tables. High school and up.

R-11 *Cleaning and Preserving Minerals* by Richard M. Pearl. 1973. Maxwell Publishing Co., Colorado Springs, CO. Deals specifically with preparing specimens for display. All ages.

R-12 *A Field Guide to Rocks and Minerals* by Frederick H. Pough. 1976. Houghton Mifflin Co., Boston, MA. A pocket book of mineral identification which is both comprehensive enough for the serious collector and basic enough for the beginner. Grade 7 and up.

R-13 *The Mineral Kingdom* by Paul E. Desautels. 1968. Ridge Press Book. General information on mineralogy. Grade 9 and up.

R-14 *The World of Minerals* by Vancenzo de Michele. 1972. World Publishing, Times Mirror, NY. Color-illustrated guide to mineral identification. Grade 9 and up.

Suppliers

S-1 Allen's Minerals, McCoy, CO 80463. Mineral supplier.

S-2 Baskin and Sons, Inc., 732 Union Avenue, Middlesex, NJ 08846. Complete hobby supplier, quality merchandise.

S-3 Brown's Minerals, 3030 East Seventh Street, Joplin, MO 64801. Mineral supplier.

S-4 Rand McNally and Company, P.O. Box 76001, Chicago, IL 60680. Stock a variety of maps.

S-5 Ward's Natural Science Establishment, Inc., P.O. Box 1712, Rochester, NY 14603 — P.O. Box 1749, Monterey, CA 93940. Good source for specimens, slides, maps and basic equipment.

S-6 Hundreds of other suppliers advertise each month in the *Lapidary Journal* (See L-6).

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New Environmental Education Resource

Environmental Education Process for Iowa Schools by Bernard Clausen and David McCalley of the University of Northern Iowa has been published recently by the Curriculum Division of the Iowa Department of Public Instruction. The 80-page book is a handbook written to explain and illustrate the goals, objectives, and methods of environmental education. It is designed to help schools organize their own programs and curricula. Strong emphasis is placed upon the use of interdisciplinary process and the integration of environmental/conservation education into all subject areas at all grade levels.

Teachers and administrators will find the book useful in a number of ways depending upon their level of experience with the process. Those who are not familiar with the scope and approach of environmental education will find condensed explanations supplemented by examples. Experienced persons will be able to compare their programs with the guidelines presented and may discover techniques for improvement and expansion to involve more people.

Chapter titles are: Environmental Education — A New Process for Teaching Fundamentals; Recognizing the Iowa Environmental Problem; Strategies for Implementing Environmental Education Programs; Focus on Land Use — An Integrative Study; Iowa and International Environmental Education; Learning Activities; Teaching Resources and References.