SPRING 1996

CORNERSTONE
Journal of the Accredited Gemologists Association

TUCSON REPORT

by David Harris

This year the Tucson conference was presented by the University of Arizona Geoscience Department and included lectures on the fundamentals of crystallography and mineralogy and a fortune hunting field trip in the mountains.

DAY ONE

Conducted by Frank Mazdab, the first lectures on Day One reminded us how long it had been since we used the periodic table and discussed atomic structure. Frank started the day by passing out a 100 page workbook filled with wondrous charts and tables. As he started his lecture, we knew we would receive far more than our "moneys worth". The first day included lectures on basic crystallography and basic crystal structure followed by a hands-on laboratory. After lunch we continued with physical properties of minerals as a function of structure and chemistry and lab exercises to determine the physical properties of crystals. The final lecture of the day was presented by noted diamond geologist, Dr. Tom McCandless, on the location of gem deposits worldwide from the viewpoint of a geologist. The day ended at 6:30 PM with everyone going to their rooms to digest this enormous amount of information and prepare for a day in the mountains.

DAY TWO

On Day Two Dr. Peter Kresan lectured on the movement of tectonics forming the mountains surrounding the Tucson basin and how the various mineral deposits occurred in the area in a presentation entitled, "Geology of Arizona and the American Cordillera". David Johnson was our instructor the remainder of the second day which we spent in the Santa Rita Mountains panning for minerals. Minerals such as pyrite, garnet, and gold were found during this exercise, however none of the finds was large enough to prevent the return to regular employment.

Special thanks to all the participants and instructors who made this a learning experience so enjoyable. Next year we are planning another "Learning Experience in Tucson" in conjunction with the University of Arizona.

After the conference, Past President Joe Tenhagen presented me with an article that better explains the type of information we discussed during the conference. (See page 3.) Thank you Joe, for sharing this information.

TOWARD A SHARED VISION

By Craig Lynch

During the 10 years I've spent as a member of the Accredited Gemologists Association I've seen great benefits from belonging to the organization. I've made many friends and benefited from the network of good gemologists. This organization has successfully addressed many controversial issues about gem treatments, grading standards, appraising, new technology, and many, many more. Our industry has resolved some of these issues, others still stand without agreement or resolution. Even in these unresolved issues, I've found that the open forum provided by AGA has been of significant benefit.

However, I have noticed an on going problem in AGA. For some reason, it seems that it has been almost impossible to keep all of the officers and membership "in step" working toward a common goal and objective for any significant length of time. I tend to believe that nobody is at fault for this short term success that is followed with disorganization. I believe that this happens primarily because of slightly differing visions of our organization. This is complicated by the fact that in our small organization time, money, distances between members and physical resources

(continued on page 2)

AGA is a nonprofit research, education and ethics organization, benefiting professional and avocational gemologists as well as the consumer interest. Membership programs include advanced gemological education seminars, professional computer software reviews and workshops, and the AGA-Certified Gemological Laboratory Program.

CORNERSTONE

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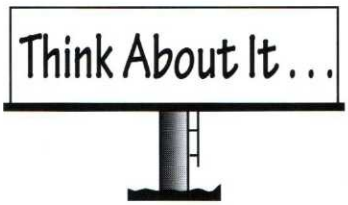
IN MEMORIUM

Antonio Bonanno, founder of the Accredited Gemologists Association, died recently after a long illness.

In addition to the AGA, Mr. Bonanno founded the Columbia School of Gemology in Washington, DC., and the National Gem Appraising Laboratory. He was a Distinguished Fellow of the Gemological Association of Great Britain and Master Gemologist Appraiser of the American Society of Appraisers.

We are grateful for his mind, his talent and the creativity he brought to his life.



"Never doubt that a small group of committed people can change the world. Indeed, it is very often the only thing that does.

Margaret Mead

(continued from page 1)

are in very limited supply. These limited resources seem to magnify the differences in shared vision.

Just how important is it to have a common shared vision in an organization?

Let me paraphrase Dr. Stephen Covey from his book *Principled Centered Leadership*.

"Vision is the best manifestation of creative imagination and the primary motivation of human action. It's the ability to see beyond our present reality, to create, to invent what does not exist, to become what we are not. It gives us capacity to live our imagination instead of our memory. More than any other factor, vision affects the choices we make and the way we spend our time."

I would like to suggest the at the AGA create a Mission Statement. No, not some pleasant, "feel good" phrase to hang on the wall or put into a pamphlet. I mean a real thoughtful approach to what we want AGA to be, say 10 to 20 years down the road.

Just what is a good mission statement: Again, Dr. Stephen Covey... "The mission statement is intended to serve leaders of organizations as an expression of their vision and sense of stewardship. It attempts to encompass in one brief paragraph, the core values of the organization; it creates context that gives meaning, direction, and coherence to everything else."

Development of mission statements in the largest corporations during the past 20 years has been at the core of the revolution in corporate culture, management style and increased productivity as well as efficiency.

It is my belief that a well thought out mission statement would be of great benefit for AGA and have the following results:

A mission statement will set the standard for short term planning and development and provide a consistent long range framework for all decisions made by the executive board and the board of directors. This mission statement also will guide and lift the goals and objectives above and beyond any one administration for decades to me.

(continued on page 8)

THE HEXAGONAL CRYSTAL SYSTEM

By Joseph W. Tenhagen F.G.A., G.G., N.G.J.A.

Most of you have had sufficient gemological training either from the GIA or GAGB to know that the hexagonal crystal system produces seven of the twelve principal birth stones. Whether there are six or seven crystal systems is not the issue in this article; the intent is to broaden the readers depth of knowledge concerning the hexagonal crystal system.

A. All crystals have a definite symmetry shown by the arrangement of their crystal faces which enables one to group them into different classes. The external crystal faces are the result of the three dimensional internal order of atoms in the crystal structure. The different types of symmetry elements in the hexagonal crystal system are:

1. **Symmetry plane:** A symmetry plane is an imaginary plane that divides a crystal in half with each half being a mirror image of the other. *See Figure 1.*

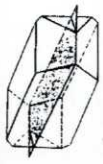


Figure 1.

2. **Symmetry axis of rotation:** A symmetry axis is an imaginary line through a crystal about which the crystal may be rotated to repeat itself in appearance one, two, three, or six times in a complete 360° rotation. The symmetry rotation axes in hexagonal crystals may be 1-fold (360°), 2-fold (180°), 3-fold (120°), or 6-fold (60°). *See Figure 2.*

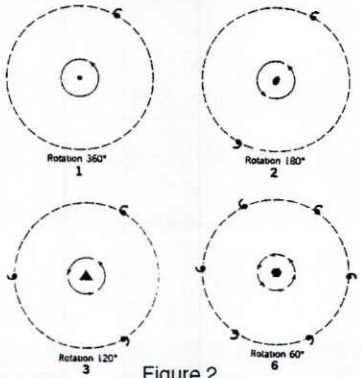


Figure 2.

3. **Center of symmetry:** A crystal is said to have a center of symmetry if an imaginary line can be passed from any point on its surface through its center and a similar point is found on the line at an equal distance beyond the center. *See Figure 3.*

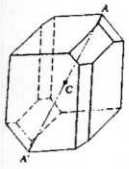


Figure 3.

4. **Axis of rotation and inversion (rotoinversion):** This composite symmetry operation combines a rotation about an axis with inversion about the center. Both operations must be completed before the new position is obtained. If the crystal only has a center of symmetry, *see figure 4*, the symmetry notation is a 1-fold axis of rotoinversion. There also may be a 2-fold, 3-fold, and 6-fold axes of rotoinversion.

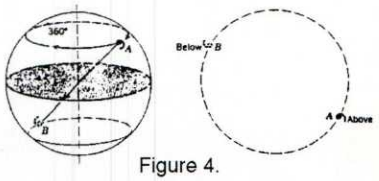


Figure 4.

B. It is common to use a symmetry notation in any discussions relating to the crystal systems. In describing the symmetry of a crystal, it is convenient to use a shorthand notation for symmetry elements.

A rotation axis is indicated by A_n where $_n$ is 1-fold, 2-fold, 3-fold, or 6-fold.

An axis of rotoinversion is indicated by CA_n, where $_n$ is 1-fold, 2-fold, 3-fold, or 6-fold.

A plane of symmetry is indicated by P.

A center of symmetry is indicated by C.

With this notation the symmetry of a crystal with a center of symmetry; one axis of 6-fold rotation symmetry; three axes of 2-fold rotation symmetry; and six planes of symmetry would be written as: C, $1A_6$, $3A_2$, 6P.

Several of the more important gemstones crystallize in the hexagonal crystal system including seven of the birth stones. They include: corundum with it's varieties ruby and sapphire, beryl with it's varieties emerald, aquamarine and others, tourmaline with it's varieties, quartz with it's varieties, benitoite, apatite, sugilite, zincite, calcite, rhodochrosite, phenacite and others.

There are in all six (6) crystal systems, however, this hexagonal system is sometimes split into two systems, one with 6-fold symmetry (Hexagonal system) and one with 3-fold symmetry (Trigonal system) thus leading to a total of seven (7) crystal systems, because these two (split) systems are so closely related the question of whether there are six or seven systems is moot and beyond the scope of this article.

The hexagonal system contains all crystals having a unique "c" axis of 6-fold or 3-fold rotation axes. In the hexagonal system it is convenient to refer the crystal geometry to four (4) crystallographic axes. The unique "c" axis (commonly set vertically) is

combined with three identical "a" axes making an angle of 120° with one another and 90° with the "c" axis, which may be longer or shorter than the "a" axes, but not equal in length to the "a" axes. (Note: the "a" axes all lie in one plane, and so one "a" axis is really superfluous for it adds a 4th coordinate to a 3-dimensional system; and reference to two of the a axes automatically fixes the reference to the third "a" axis.) *See Figure 5.*

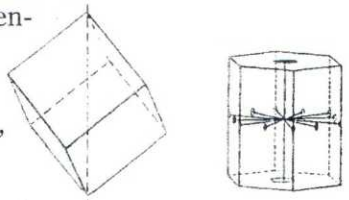


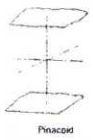
Figure 5.

Within in any crystal system there may be several combinations of symmetry, each being known as a crystal class. Each class of crystals is named for the crystal form (a set of symmetry related faces) that is unique to that class

The hexagonal crystal system may be further subdivided into two (2) divisions and twelve (12) crystal classes

A. Hexagonal Division Crystal Forms

1. Basal pinacoid. *See Figure 6.*
2. First order prisms. *See Figure 7.*
3. Second order prisms. *See Figure 8.*
4. Dihexagonal prisms. *See Figure 9.*
5. First order Dipyramids. *See Figure 10.*
6. Second order Dipyramids. *See Figure 11.*



Pinacoid

Figure 6.

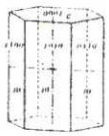


Figure 7.

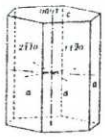
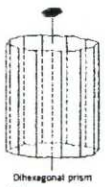


Figure 8.



Dihexagonal prism

Figure 9.

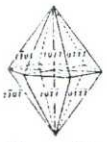


Figure 10.

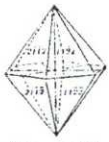
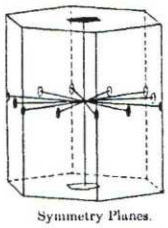


Figure 11.

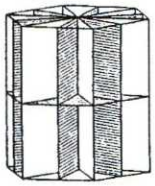
B. Hexagonal Division Crystal Classes

1. Dihexagonal-Dipyramidal Class

Symmetry notation: C, $1A_6$, $6A_2$, 7P.



Symmetry Planes.



Beryl ($Be_3Al_2Si_6O_{18}$) crystallizes in this class. This class that has the maximum symmetry of the crystal system. A center of symmetry; a unique "c" axis of 6-fold (60°) (hexagonal) rotation axis of symmetry; a 2-fold (180°) rotation axis of symmetry along each of the three "a" axes; a 2-fold (180°) rotation axis of symmetry along the bisectors of the "a" axes; and a plane of symmetry perpendicular to each of the symmetry axes.

This leads to a total of, a center of symmetry; one 6-fold (60°) rotation axis; six 2-fold (180°) rotation axes; and seven planes of symmetry. *See Figure 12.*

Figure 12.

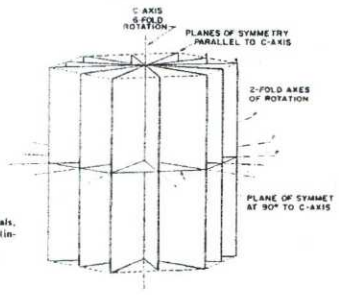


Fig. 9-2 Orientation of symmetry planes and axes in beryl crystals, showing their relationships to the first order hexagonal prism (indicated in dashed outlines).

$1A_6$ = 1 axis of six-fold symmetry

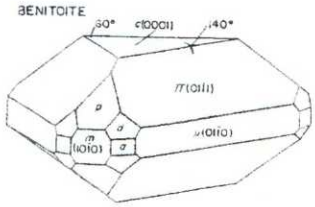
$6A_2$ = 6 axes of two-fold symmetry

7 P = 7 planes of symmetry

These notations are read as follows: C, $1A_6$, $6A_2$, 7P.

2. Ditrigonal-Dipyramidal Class

Symmetry notation: C, $1A_6$, 1P.



PINACOID *c*, FIRST ORDER PRISM *m*, SECOND ORDER PRISM *a*/11$\bar{2}$0/, FIRST ORDER DIPYRAMID *p*/10$\bar{1}$1/, SECOND ORDER DIPYRAMID *d*/22$\bar{4}$1/, THIRD ORDER PRISM *s*, THIRD ORDER DIPYRAMID *r*.

Benitoite ($BaTiSi_3O_9$) crystallizes in the class. This class has a center of symmetry, a unique "c" axis of 6-fold (60°) (hexagonal) rotation axis of symmetry and a horizontal plane of symmetry. This leads to a total of one 6 fold (60°) rotation axis and one plane of symmetry. *See Figure 13.*

Ditrigonal dipyramid and stereogram.

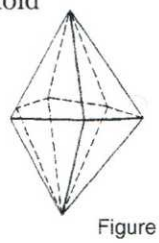
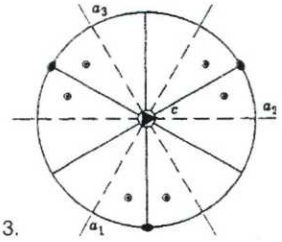


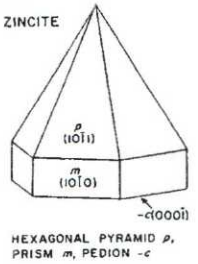
Figure 13.



3. Dihexagonal-Pyramidal Class

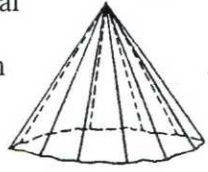
Symmetry notation: $1A_6$, 6P.

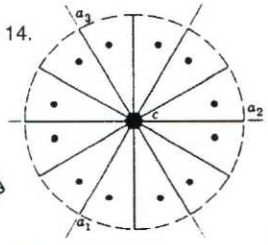
Zincite (ZnO) crystallizes in this class. This class has a unique "c" axis of 6-fold (60°) (hexagonal) rotation axis of symmetry and six planes of symmetry set vertically at 60° intervals with the "c" axis at their common intersection. This leads to a total of one 6-fold (60°) rotation axis and six planes of symmetry. *See Figure 14.*



HEXAGONAL PYRAMID *p*, PRISM *m*, PEDION -*c*

Figure 14.



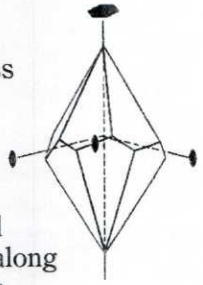


Dihexagonal pyramid and stereogram.

4. Hexagonal-Trapezohedral Class

Symmetry notation: $1A_6$, $6A_2$.

High temperature Quartz (SiO_2) crystallizes in this class. This class has a unique "c" axis of 6-fold (60°) (hexagonal) rotation axis of symmetry; a 2-fold (180°) rotation axes of symmetry along each of the three "a" axes; a 2-fold (180°) rotation axes of symmetry along the bisectors of the "a" axes. This leads to one 6-fold (60°) rotation axis and six 2-fold (180°) axes of rotation symmetry. *See Figure 15.*

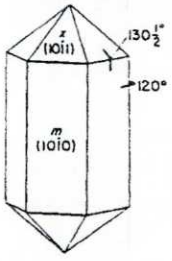


(t) Hexagonal trapezohedron

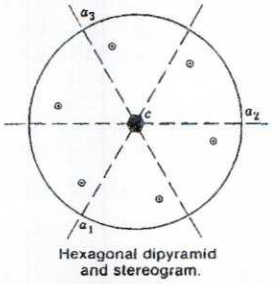
Figure 15.

5. Hexagonal-Dipyramidal Class

Symmetry notation: C, $1A_6$, 1P.



Apatite [$Ca_5(PO_4)_3(F,OH,Cl)_3$] crystallizes in this class. This class has a center of symmetry; a unique "c" axis of 6-fold (60°) (hexagonal) rotation axis of symmetry; and one horizontal plane of symmetry. This leads to a center of symmetry, one 6-fold (60°) axis of rotation and a plane of symmetry. *See Figure 16.*



Hexagonal dipyramid and stereogram.

Figure 16.

6. Trigonal-Dipyramidal Class

Symmetry notation: C $1A_6$ (=$1A_3$, 1P).

There are no gem minerals crystallizing in this class. This class has a unique "c" axis of 6-fold (60°) (hexagonal) axis of rotoinversion. This is equivalent to a 3-fold (120°) (Trigonal) axis of rotation symmetry and one plane of symmetry at right angles to the "c" axis. This leads to one 3 fold (120°) axis of rotation and a plane of symmetry. *See Figure 17.*

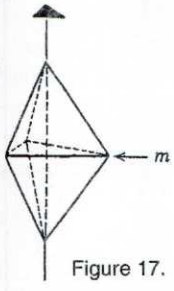


Figure 17.

(u) Trigonal dipyramid

7. Hexagonal-Pyramidal Class

Symmetry notation: $1A_6$.

Nepheline [(Na,K)$AlSiO_4$], a non gem mineral, crystallizes in this crystal class. This class has a unique "c" axis of 6-fold (60°) (hexagonal) rotation axis of symmetry. *See Figure 18.*

Nepheline

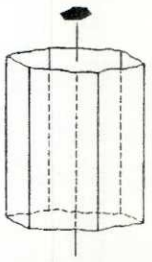


Figure 18.

(h) Hexagonal prism

C. Rhombohedral Division Crystal Forms

1. Rhombohedron

See Figure 19.

2. Scalenohedron

See Figure 20.

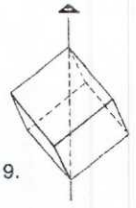


Figure 19.

(z) Rhombohedron

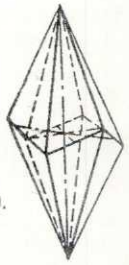
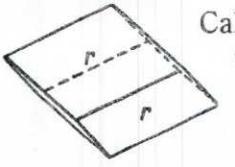


Figure 20.

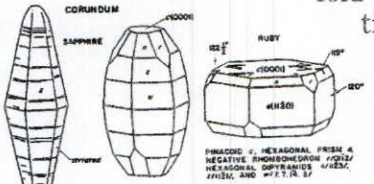
D. Trigonal (or Rhombohedral) Division Crystal Classes

1. Hexagonal-Scalenohedral Class

Symmetry notation: C, $1A_3$, $3A_2$, 3P.



Calcite ($CaCo_3$), Corundum (Al_2O_3) and Hematite (Fe_2O_3) crystallize in this class. This class has a center of symmetry; a unique "c" axis of 3-fold (120°) (trigonal) rotation axis of symmetry, three (3) horizontal crystallographic axes of 2-fold (180°) rotation axes of symmetry and three (3) vertical planes bisecting the angles between the horizontal axes. This leads to a center of symmetry; one 3-fold (120°) axis of rotation, three 2-fold (180°) axes of rotation and three planes of symmetry. *See Figure 21.*



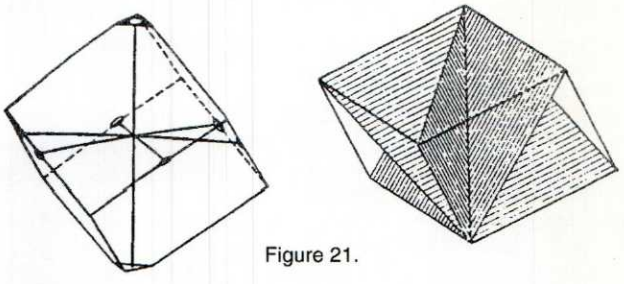
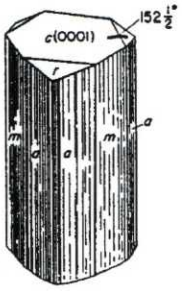


Figure 21.

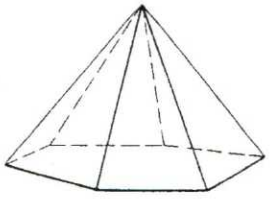
2. Ditrigonal-Pyramidal Class

Symmetry notation: $1A_3$, 3P.

Tourmaline [(Na,Ca) (Li,Mg,Al)-(Al,Fe,Mn)$_6$(BO_3)$_3$-(Si_6O_{18})(OH)4] crystallizes in this class. This class has a unique "c" axis of 3-fold (120°) (Trigonal) rotation axis of symmetry and 3 planes of symmetry that intersect this axis. This leads to one 3-fold (120°) axis of rotation and three planes of symmetry. *See Figure 22.*



TOURMALINE



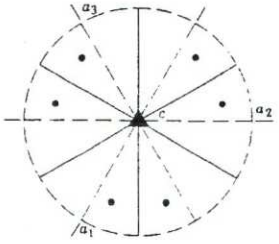


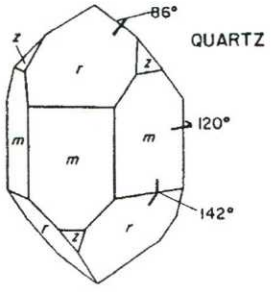
Figure 22.

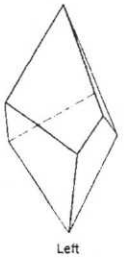
Ditrigonal pyramid and stereogram

3. Trigonal-Trapezohedral Class

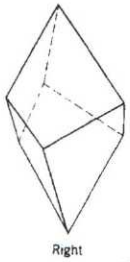
Symmetry notation: $1A_3$, $3A_2$.

Low temperature Quartz (SiO_2) crystallizes in this class. This class has a unique "c" axis of 3-fold (120°) (Trigonal) rotation axis of symmetry and the three (3) horizontal "a"crystallographic axes are 2-fold (180°) rotation axes of symmetry. This leads to one 3-fold (120°) axis of rotation and three 2-fold (120°) axes of rotation symmetry. *See Figure 23.*





Left



Right

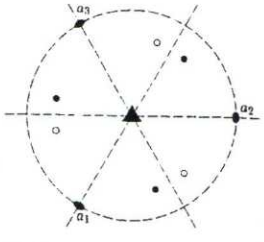
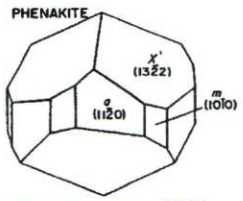


Figure 23.

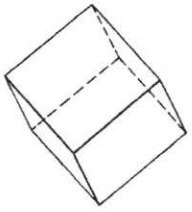
4. Rhombohedral Class

Symmetry notation: C, $1A_3$.



FIRST ORDER PRISM *m*, SECOND ORDER PRISM *a*, THIRD ORDER RHOMBOHEDRON *x'*.

Dolomite [$CaMg(CO_3)_2$], Phenacite (Be_2SiO_4) and Willemite (Zn_2SiO_4) crystallize in this crystal class. This class has a center of symmetry; a unique "c" axis of 3 fold (120°) (Trigonal) rotation axis of symmetry. *See Figure 24.*



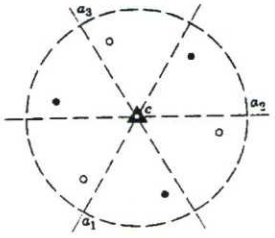
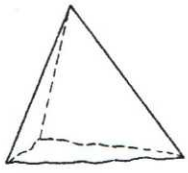


Figure 24.

5. Trigonal-Pyramidal Class

Symmetry notation: $1A_3$.

There are no gem minerals crystallizing in this crystal class. This class has a unique "c" axis of 3-fold (120°) (Trigonal) rotation axis of symmetry. *See Figure 25.*



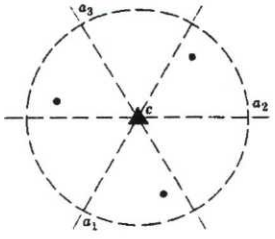


Figure 25.

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BOOK REVIEW

By Thom Underwood

Why would a gemologist care about Leadership and the New Science, *especially since it's a book about Quantum Physics and Chaos Theory?*

I am leery of books that don't increase my gemological or computer knowledge, but this book is so engaging and well written and that I would like to share it's more poignant and illuminating points with my colleagues.

We are all are busy organizing the areas of our lives—family, business, volunteer activities—and the approach we take makes the difference in the success we achieve.

The areas of my life—the appraisal end, the computer part and the family part—impact each other and, through reading this book, I am learning how an open perspective helps me understand those relationships. It is that open perspective that is the key to understanding our Brave New World of business organization.

Briefly, let me share a quote from the book: "Participation, ownership, subjective data—each of these organizational insights that I gain from quantum physics, whether I take them literally or metaphorically, quickly return me to a central truth. A quantum universe is enacted only in an environment rich in relationships. Nothing happens in the quantum world without something encountering something else. Nothing is independent of the relationships that occur. I am constantly creating the world—evoking it, not discovering it—as I participate in all its many interactions. This is a world of process, not a world of things."[1]

Quantum physics and all that stuff have been around for many years. *Dance of the Wu Li Masters* was the first bridge from science to our everyday world. In it, Gary Zukav talked of how physicists were paying attention to events and interactions rather than to things as they had during Newtonian science era, "The Newtonian model of the world is characterized by materialism and reductionism—a focus on things rather than relationships and a search, in physics for the basic building blocks of matter."[2]

To apply this new science, we must look at the processes at work in our world. Cause and effect take on new dimensions and "process" is the way that things come to be created and enriched. "The quantum mechanical view of reality strikes against most of our notions of reality. Even to scientists it is admittedly bizarre. But it is a world where relationship is the key determiner of what is observed..."[3]

An enticing way to view our work is suggested. "If nothing exists independent of its relationship with something else, we can move away from our need to think of things as polar opposites."[4] Perhaps we will come to relish the process of learning instead of seeing it as a competitive event and openly share knowledge, encourage each other and nurture our individual growth —through Web Pages, AGA, Polygon, and communicating with and even mentoring newcomers.

Changes in how we view the world are themselves in process and we are invited to throw away our rigidity. We can train ourselves to be clear, hope for the best, and look for the best in every situation. We can create environments that work for us in positive ways. We don't have to be stuck in negativity. By defining our relationship with our families, our business partners and our colleagues, we define our reality! An exciting concept!!!!

Dr. Wheatley describes how to create this kind of environment, "To live in a quantum world, to weave here and there with ease and grace, we will need to change what we do. We will need to stop describing tasks and instead facilitate process." We need to work at building relationships and nurturing growing, evolving things. All of us will need better skills in listening, communication and facilitating groups because these are the talents that build strong relationships. The era of the rugged individual has been replaced by the era of the team player.[5]

My wife and I stumbled upon this book while in West Virginia. We know little about Dr. Margaret Wheatley but would love to invite her to a future AGA conference to facilitate some processes of growth in our organization. Her biography states that Ms. Wheatley is co-founder of the Berkan Institute, a non-profit educational and research foundation that facilitates communities of inquiry and support among those experimenting with new organizational forms. She has a Ph.D. from Harvard and a Masters from New York University and has consulted to a wide variety of Fortune 500 clients. Right now she is living in Utah but the grapevine tells us she often comes to San Diego so we hope to make a connection with her soon!!

I hope the quotes inspire you to purchase the book. Lynn and I are reading the book in a study group for the second time because we found it such a powerful way to begin facilitating the processes needed in our business. If you would like the book call the publisher, Berrett Koehler, at 800-929-2929.

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[1]Margaret Wheatley. *Leadership and the New Science* (San Francisco: Berrett Koehler, 1992) p.68.

[2]p. 9.

[3]p. 34.

[4]p. 34.

[5]p. 38.

(continued from page 2)

It provides a way of advertising and stating to potential members, the industry at large and the public what AGA is about.

It can help focus those who wish to contribute to the organization and industry in a meaningful way.

In short, a well written and thought out mission statement can be a cohesive bond to our organization.

To be functional, mission statements should be short so that people can memorize and internalize them. But they also need to be comprehensive. These appear to be contradictory concepts. How can something be short and comprehensive? By being simple, general, generic.

Perhaps I can give an example for illustrative purposes only.

The mission of AGA is:

To provide a forum for free discussion of gemological science, ethics, and related topics.

To help educate our membership, the jewelry industry and the public.

To explore new technologies and discoveries.

To provide the opportunity for members to serve and learn together in areas that fill the void that is left by other gemological teaching organizations.

To have any real meaning it would have to a be a truly collaborative effort by providing all members an opportunity to give input. Perhaps a small committee could be formed to act as a clearing house to field written suggestions submitted by the membership. Resulting in 2 or 3 sample statements to be published for review in the Cornerstone and comments and later voted on for acceptance in a general election.

Our greatest liability has not been our small membership, lack of money, long distances or limited physical resources. In my opinion, it has been our lack of focus as an interdependent group! The interdependent group is an association of independent people who come together for the purpose of organizational synergy. Interdependence creates an accomplishment greater than one individual can achieve. This is the concept of "The end result is greater than the sum of the parts."

I believe that together we can create an ideal that can inspire and create enthusiasm that is larger than any AGA leader or administration. The bottom line is ...we need to conserve and enhance our limited, but significant assets, we need to make all of our actions count to a clear vision that we all can share. No longer can we afford to make efforts to build without a clear blueprint. We need a blueprint that matches our goals and aspirations 10 - 20 years down the road.

"Where there is no vision the people perish" Proverbs

To submit suggestions for an AGA mission statement write to:

Craig A. Lynch
3730 West Michigan Avenue
Glendale, Arizona 85308

Please send me a membership application for Accredited Gemologists Association

Name _____

Address _____

City _____ State _____ Zip _____

Phone # _____

Application Guidelines

Membership with full voting privileges is available to professionals holding gemological diplomas from accepted institutions.
Associate Membership is available to students of gemology and avocational gemologists.
Supplier Membership is available to providers of goods & services to the gem & jewelry industry.

Membership Dues & Fees

$25 Processing Fee (one-time, non-refundable) will be retained by AGA.
$125 Initial Voting Member Dues.
$75 Initial Associate Member Dues.
$175 Initial Supplier Member Dues.
Make checks payable to Accredited Gemologists Association, in US funds.
Membership is renewable annually (Voting $100, Assoc. $50, Supplier $150).

Return This Request To:

Stanley Cohen, AGA Membership Chair
4747 South Hulen, Ste 109
Fort Worth, TX 76132
817/346-2611 voice • 817/370-8720

AGA will not discriminate against any applicant based upon race, creed, color, national origin, age or gender. Applicants are required to meet substantial member qualifications, and to adhere to the AGA Code of Ethics.