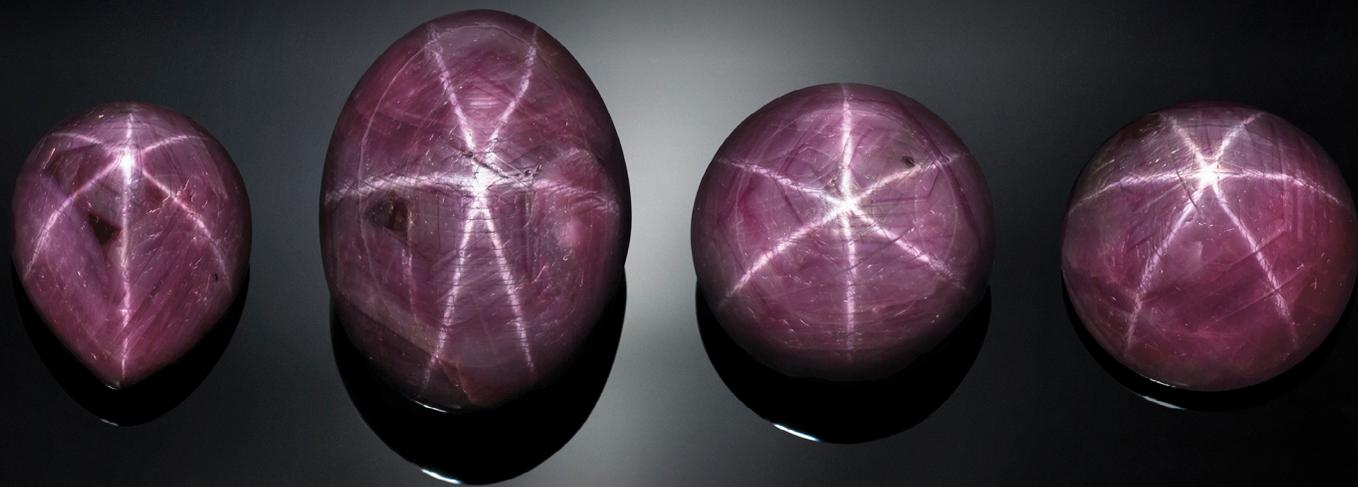


A quarter century ago, a modest mountain man intrigued by the geological formations of his native western North Carolina made an extraordinary discovery. Believing he had come across an unprecedented collection of remarkably rare star rubies, he personally lacked the funds necessary to bring his findings to the public. In any case, logic suggested that what he found couldn't possibly be what he thought it to be. After all, star rubies are most often found in distant parts of the globe such as Burma and Sri Lanka.

Nevertheless convinced of the importance of his discovery, he enlisted the support of friends and neighbors who became the "investors" who made the testing, transport and appraisals of those stones possible. As a result of those efforts, the stones ultimately found their way to London's Natural History Museum where they proved to be a sensation. Referred to now as the Mountain Star Ruby Collection, these four star rubies are as compelling and stunning as any the world has ever seen.

Mountain Star Ruby Collection



Guernsey's



RUBY ORIGIN REPORT

August 17, 2011

Weight **139.40 carat**
 Measurements **28.62 x 21.77 x 19.00 mm**
 Shape **Oval**
 Cutting Style: Crown **Cabochon**
 Cutting Style: Pavilion **Polished**
 Transparency **Semi-Translucent To Opaque**
 Color **Purplish Red**
 Phenomenon **Asterism**

CONCLUSION

Species **NATURAL CORUNDUM**
 Variety **NATURAL STAR RUBY**
 Source Type **NCL Type I**
 Geographic Origin **INCONCLUSIVE**

TREATMENT

No indications of heating (NTE)

Comments:

This ruby has been named the "Appalachian Star Ruby".

Any statement on geographic origin is an expert opinion based on a collection of observations and analytical data.

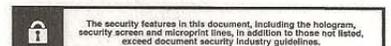
GIA REPORT 2135699928



No Indications of Heating	Indications of Heating (no residue)	Indications of Heating with Residue in Fissures				
		TE1	TE2	TE3	TE4	TE5
NTE	TE	Minor Residue in Fissures		Moderate Residue in Fissures		Significant Residue in Fissures



510112740915





RUBY ORIGIN REPORT

August 17, 2011

Weight **86.54 carat**
 Measurements **21.65 x 21.60 x 18.80 mm**
 Shape **Round**
 Cutting Style: **Double Cabochon**
 Transparency **Semi-Translucent To Opaque**
 Color **Purplish Red**
 Phenomenon **Asterism**

CONCLUSION

Species **NATURAL CORUNDUM**
 Variety **NATURAL STAR RUBY**
 Source Type **NCL Type I**
 Geographic Origin **INCONCLUSIVE**

TREATMENT

No indications of heating (NTE)

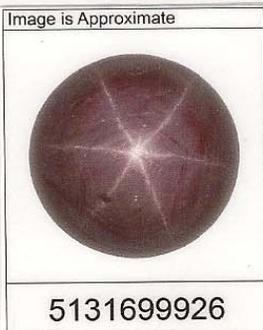
Comments:

This ruby has been named the "Smokey Mountain Two-Star Ruby".

There is asterism on both the crown and the pavilion.

Any statement on geographic origin is an expert opinion based on a collection of observations and analytical data.

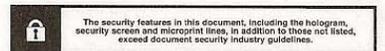
GIA REPORT 5131699926



No Indications of Heating	Indications of Heating (no residue)	Indications of Heating with Residue in Fissures				
		TE1	TE2	TE3	TE4	TE5
NTE	TE					
No Indications of Heating	Indications of Heating	Minor Residue in Fissures		Moderate Residue in Fissures		Significant Residue in Fissures



210512752329





GIA REPORT 2135699929

RUBY ORIGIN REPORT

August 17, 2011

Weight **52.36 carat**
 Measurements **21.20 x 17.50 x 13.30 mm**
 Shape **Pear**
 Cutting Style: Crown **Cabochon**
 Cutting Style: Pavilion **Polished**
 Transparency **Semi-Translucent To Opaque**
 Color **Purplish Red**
 Phenomenon **Asterism**

CONCLUSION

Species **NATURAL CORUNDUM**
 Variety **NATURAL STAR RUBY**
 Source Type **NCL Type I**
 Geographic Origin **INCONCLUSIVE**

TREATMENT

No indications of heating (NTE)

Comments:

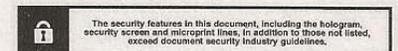
This ruby has been named the "Misty Star Ruby".

Any statement on geographic origin is an expert opinion based on a collection of observations and analytical data.



No Indications of Heating	Indications of Heating (no residue)	Indications of Heating with Residue in Fissures				
		TE1	TE2	TE3	TE4	TE5
No Indications of Heating	Indications of Heating	Minor Residue in Fissures		Moderate Residue in Fissures		Significant Residue in Fissures

110212740917





RUBY ORIGIN REPORT

August 17, 2011

Weight **64.16 carat**
 Measurements **21.90 x 21.95 x 12.80 mm**
 Shape **Round**
 Cutting Style: **Cabochon**
 Transparency **Semi-Translucent To Opaque**
 Color **Purplish Red**
 Phenomenon **Asterism**

CONCLUSION

Species **NATURAL CORUNDUM**
 Variety **NATURAL STAR RUBY**
 Source Type **NCL Type I**
 Geographic Origin **INCONCLUSIVE**

TREATMENT

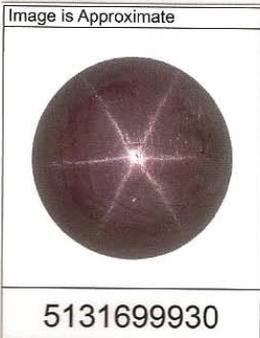
No indications of heating (NTE)

Comments:

This ruby has been named the "Promise Star Ruby".

Any statement on geographic origin is an expert opinion based on a collection of observations and analytical data.

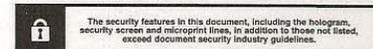
GIA REPORT 5131699930



No Indications of Heating	Indications of Heating (no residue)	Indications of Heating with Residue in Fissures				
		TE1	TE2	TE3	TE4	TE5
No Indications of Heating	Indications of Heating	Minor Residue in Fissures		Moderate Residue in Fissures		Significant Residue in Fissures



510112742579





Analytical Report

Date: August 17, 2011

Re: Analyses and results for NATURAL CORUNDUM, NATURAL STAR RUBY, WEIGHING 86.54 CTS, described in GIA Ruby Analytical Report & Origin # 5131699926.

Overview

The following **Analytical Report** sets forth the various types of analyses that were undertaken during the examination of the cited gemstone. These form the basis for our conclusions. The **Analytical Report** may also describe other analyses and results required by the client / owner.

Introduction

The purpose of this Analytical Report is to describe the examination process and our conclusions concerning the cited gemstone.

The more complex analytical data set forth herein may require further explanation. If so, please arrange for a meeting with a member of GIA's gemological staff.

The gemological data detailed in this Analytical Report include: refractive indices, S.G., fluorescence, and a description of any relevant inclusions. The instruments available for the collection of more sophisticated data include but may not be limited to: EDXRF, IR, and Raman spectrometers, UV/visible/NIR spectrophotometers, RTX for microradiography, and LA-ICP-MS.

Audience for the Document

This Analytical Report has been prepared at the specific request of the client / owner of the cited gemstone.

Methods

Refractive indices were measured with a standard gem refractometer using a monochromatic light that stimulates the light produced by a sodium arc lamp.

Specific Gravity (S.G.) determinations were calculated by the hydrostatic technique using an appropriately fitted Mettler electronic balance with water at room temperature.

UV fluorescence was observed using a GIA UV Lamp Model 745000 with both 365 and 254nm radiation.

Microscopic observations were made using various GIA Gemolite microscopes at or between 10 and 65x magnifications.

Raman spectra were collected using a Renishaw inVia Raman microscope fitted with a 514nm Argon Ion laser.

Chemistry was determined using a Thermo ARL Quant'x EDXRF Analyzer and/or a Thermo X Series II ICP-MS linked to a New Wave (UP-213) laser Ablation System.

PLEASE REFER TO IMPORTANT LIMITATIONS ON THE BACK OF THIS DOCUMENT.



Results

Gemological Properties

Index of refraction:
Birefringence:
Optic character:
Optic sign:
Hydrostatic specific gravity:
Optical absorption spectrum:
Ultraviolet fluorescence:
 Long wave Strength / Color
 Short wave Strength / Color
Inclusions:

1.76 spot reading
N/A
DOUBLY REFRACTIVE - UNIAXIAL
NEGATIVE
3.98
Chrome lines

WK-MED RED
INERT

Hexagonal banding composed of reflective tiny needles and particles. Repeated twinning and minute fractures throughout. Included orangy brown crystals reaching surface

Advanced Instrumentation

Quantitative analysis - EDXRF

Quantitative analysis using element-in-corundum standards shows moderate Titanium (Ti), low Gallium (Ga) moderate chromium Cr, high iron (Fe).

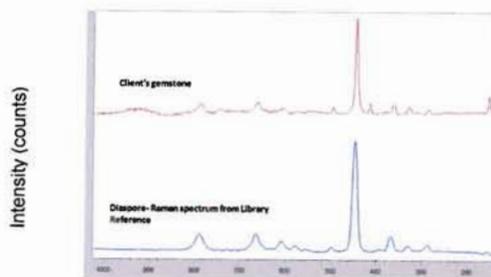
Figure 1

	Al ₂ O ₃	TiO ₂	V ₂ O ₅	Cr ₂ O ₃	Fe ₂ O ₃	Ga ₂ O ₃
weight percentage (wt%)	99.06	0.072	0.007	0.157	0.692	0.004
parts per million in atomic weight (ppma)		Ti	V	Cr	Fe	Ga
		184	15.7	421	1770	8.7

Microspectrometry - Raman

The red spectrum is the client's sample. The blue spectrum is a known diaspore spectrum from Raman reference library. Diaspore is a common mineral component of corundum.

Figure 2



Raman shift (cm-1)

PLEASE REFER TO IMPORTANT LIMITATIONS ON THE BACK OF THIS DOCUMENT.



Image - Inclusion

Orangy crystals identified as Anatase by Raman Microspectrometry.

Figure 3



Image - Inclusion

Hexagonal growth zones highlighted by exsolved rutile. Top left inclusion identified as Kyanite by Raman Microspectrometry.

Figure 4



Conclusions

The above data is consistent with NATURAL CORUNDUM, NATURAL STAR RUBY.
Treatment: No indications of heating

References

Gubelin E.J. and Koivula J.I. PHOTOATLAS of Inclusions in Gemstones. Volume 3. Opinio Publishers, Basel, Switzerland

Webster, Robert. Gems: Their Sources, Descriptions, and Identification, 5th ed. Elsevier Butterworth-Heinemann. 1994.

The Appalachian Star Ruby



The “Appalachian Star Ruby.” The ultimate in a natural star ruby, certified by the Gemmological Association and Gem Testing Laboratory of Great Britain, this ruby weighs 139.40 carats and displays an exquisite six-ray asterism. It’s exceedingly rare beauty expresses the universal appeal of a one-of-a-kind precious stone.

The Misty Star Ruby



The “Misty Star Ruby.” The ultimate in a natural star ruby, certified by the Gemmological Association and Gem Testing Laboratory of Great Britain, this ruby weighs 52.31 carats and displays an exquisite six-ray asterism. It’s exceedingly rare beauty expresses the universal appeal of a one-of-a-kind precious stone.

The Smoky Mountain Two Star Ruby



The “Smoky Mountain Two Star Ruby.” The ultimate in a natural star ruby, certified by the Gemmological Association and Gem Testing Laboratory of Great Britain, this ruby weighs 86.56 carats and displays an exquisite six-ray asterism on top of the stone as well as the bottom. It’s exceedingly rare beauty expresses the universal appeal of a one-of-a-kind precious stone.

The Promise Star Ruby



A large and beautiful 64.16 ct. round cabochon with medium deep purplish red semi-translucent color and a perfect star, sharp, centered and well-defined. It measures 21.8mm in diameter and 12.8mm deep.

Gemmological Association and Gem Testing Laboratory of Great Britain

◆ 27 GREVILLE STREET, (SAFFRON HILL ENTRANCE), LONDON EC1N 8SU ◆

Association Services
(071) 404 3334
Fax (071) 404 8843

Laboratory Services
(071) 404 3334
Fax (071) 404 8843

GEM TESTING REPORT

J. Wayne Messer,
Rt 3 Box 46,
Chandler,
N.C. 28715.
U.S.A.

Report No. 120380

Date 13th November 1991

THIS REPORT IS NOT TRANSFERABLE AND IS ISSUED SUBJECT TO THE CONDITIONS PRINTED OVER LEAF

Examined, a loose red, semi-translucent, oval, cabochon-cut stone, measuring approximately 28.6 x 21.7 x 19.1 mm., and weighing 139.43 ct.

Found to be a **NATURAL STAR RUBY.**

n.b. The customer has named this stone "THE APPALACHAIN STAR RUBY".

Signed


Alan J Clark FGA DGA

Signed


Ana I. Castro FGA DGA

Gemmological Association and Gem Testing Laboratory of Great Britain

◆ 27 GREVILLE STREET, (SAFFRON HILL ENTRANCE), LONDON EC1N 8SU ◆

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GEM TESTING REPORT

J. Wayne Messer,
Rt 3 Box 46,
Chandler,
N.C.28715.
U.S.A.

Report No. 120377

Date 13th November 1991

THIS REPORT IS NOT TRANSFERABLE AND IS ISSUED SUBJECT TO THE CONDITIONS PRINTED OVERLEAF

Examined, a loose red, semi-translucent, round, double cabochon-cut stone, measuring approximately 21.5 mm. in diameter and 18.8 mm. in depth, and weighing 86.56 ct.

Found to be a **NATURAL STAR RUBY.**

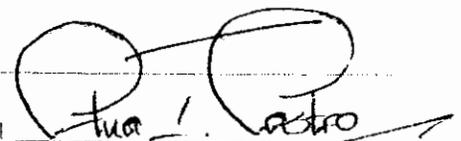
n.b. The customer has named this stone "THE SMOKY MOUNTAIN TWO STAR RUBY".

Signed



Alan J Clark FGA DGA

Signed



Ana I. Castro FGA DGA

Gemmological Association and
Gem Testing Laboratory of Great Britain

♦ 27 GREVILLE STREET, (SAFFRON HILL ENTRANCE), LONDON EC2N 8SU ♦

Association Services
(071) 404 3334
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Laboratory Services
(071) 404 3334
Fax (071) 404 8843

GEM TESTING REPORT

J. Wayne Messer,
Rt 3 Box 46,
Chandler,
N.C.28715.
U.S.A.

Report No. 120379

Date 13th November 1991

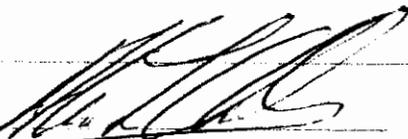
THIS REPORT IS NOT TRANSFERABLE AND IS ISSUED SUBJECT TO THE CONDITIONS PRINTED OVER PAGE 1

Examined, a loose red, semi-translucent, pear-shaped, cabochon-cut stone, measuring approximately 21.2 x 17.6 x 13.4 mm., and weighing 52.37 ct.

Found to be a **NATURAL STAR RUBY.**

n.b. The customer has named this stone "THE MISTY STAR RUBY".

Signed



Alan J Clark FGA DGA

Signed



Ana I. Castro FGA DGA

GEM TESTING REPORT

“PROMISE STAR RUBY”

(NOT SHOWN)

*The
Mountain Star Ruby
Collection*

MOUNTAIN STAR RUBY COLLECTION

This Collection comprises some of the finest of the largest star rubies in the world

Summary of Key Points in Scientific Factual Documentation

Introduction	Page 1
Chemical Analyses, Appraisals, Certifications & Expert Opinions	Page 3
Public Recognition, Exhibition & Publicity	Page 9
Charitable Contributions – Tax Issues	Page 12
Federal Trade Commission Guides for Jewelry, Precious Metals, & Pewter Industries (Excerpts)	Page 19
Background & Reference Information	Page 22

INTRODUCTION

The Mountain Star Ruby Collection comprises four of the most magnificent star rubies in the world ~ The Appalachian Star Ruby, The Smokey Mountain Two Star Ruby, The Promise Star Ruby, and The Misty Star Ruby. Each one is a unique museum-quality gem in its own right. Together they are the arguably the most breathtaking set of star rubies ever assembled into one collection.

Carat for carat, specimens such as these in the Mountain Star Ruby Collection, are the most prized and expensive of all gemstones ~ even more so than the largest and finest quality diamonds. One reason is their rareness. Rubies are 50 times more rare than diamonds.

The superb, natural and totally untreated gems of the Mountain Star Ruby Collection are:

The Appalachian Star Ruby ~ At 139.43 carats, it is larger than the famous Rosser Reeves Star Ruby on display at the Smithsonian Institution's Museum of Natural History. It is a 28.6 x 21.7 x 19.1 mm oval cabochon with a semi-translucent brilliant deep red color. Its star is sharp, perfectly centered and well-defined, with very straight unbroken rays.

The Smokey Mountain Two Star Ruby ~ This amazing 86.56 carat gem exhibits sharp, centered and well-defined perfect stars on both its top and bottom! It has a strong, medium dark red semi-translucent color, with a visible crystal structure. This round cabochon measures 21.5 mm in diameter and 18.8 mm in depth.

The Promise Star Ruby ~ A beautiful 64.17 carat round cabochon, it is also a medium deep red. Its perfect star is sharp, centered and exceptionally well-defined. Its semi-translucency reveals a visible crystal structure. It measures 21.8 mm in diameter and 12.8 mm deep.

The Misty Star Ruby ~ This is an unusual pear-shaped cabochon weighing 52.37 carats, and measuring 21.2 mm long x 17.6 mm wide x 13.4 mm deep. It is also a strong, rich semi-translucent red, with interesting slight color zoning in its crystal structure. Its star also exhibits exceptionally perfect asterism.

All of the gems in the Mountain Star Ruby Collection were discovered in Western North Carolina by Mr. Jarvis Wayne Messer. Mr. Messer is the sole owner of the Collection, and has the exclusive right to sell and transfer ownership to the buyer. The collection is free and unencumbered; there are no liens against it.

Mr. Messer desires to sell the Collection to benefit himself and his investors, and if possible, to give the buyer an opportunity to share these incomparable rubies with the public, by putting them permanently on display in a major gem and mineral museum.

The mystique and value of rubies goes back thousands of years. Ruby is the gem most often mentioned in the Bible. The Book of Job, for instance, declares that, "the price of wisdom is above rubies." True rubies reached Europe from India in Greek times. Marco Polo wrote that the king of Serendip (from which we get the word "serendipity"), today's Sri Lanka, had a ruby over four inches long. Magical powers have always been attributed to rubies. Owners could expect wisdom, health, happiness, and good luck in gambling and with the opposite sex. In Myanmar (formerly Burma), rubies are called *Ma Naw Ma Yu* – "Desire Fulfilling Stones." The Burmese consider rubies the King of Gems and the Gem of Kings.

In addition to, and because of its breathtaking beauty, extreme rarity, and museum quality and size, the Mountain Star Ruby Collection is an especially sound investment, defying the fluxuations of the world's securities and commodities markets. Connoisseurs and major investors collect world-class gems to offset the cyclical nature of paper-based investments because of gems' almost universal acceptance, and their unprecedented value/weight concentration. (For example, a \$1 million gold brick weighs 156 pounds. The Mountain Star Ruby Collection, at a total of 342.53 carats (12 ounces) is valued at almost 100 times that amount.)

The Collection's signature piece, The Appalachian Star Ruby, was exhibited in October 1992 at the Natural History Museum of London, where it drew 150,000 of visitors in one month. The entire Mountain Star Ruby Collection would be a priceless addition to any museum's permanent collection. In fact, the famed Weinman Mineral Museum has already agreed to accept the donation of this Collection, to insure it for its full current appraised value of some \$92 million, and to provide a special display area for it in its new, enlarged facility set to open in early 2008. Such a charitable donation would ensure a very substantial tax write-off for any buyer.

All in all, the gems in the Mountain Star Ruby Collection are easily among if not the finest of the largest star rubies in the world.

CHEMICAL ANALYSES, APPRAISALS, CERTIFICATIONS & EXPERT EVALUATIONS

1. North Carolina State University Minerals Research Laboratory, Asheville, NC

Chemical Analysis Record, January 30, 1991, performed by analyst Albert Wilds:

"The sample submitted to the Minerals Research Laboratory was qualitatively scanned for the elements present using X-Ray Fluorescence. The elements that were identified are aluminum, iron, and chromium. The aluminum appears to be largest component with iron and chromium being present at trace levels. Titanium was also found at trace levels."

2. Edward P. Lilly III, Chemist

Graduate, University of North Carolina, degree in Applied, Organic and Nuclear Chemistry, member of the Mossbauer Research Group, author of research papers published in several scientific journals.

Current Data Chart: Appalachian Star Ruby, May 5, 1991

"The following tests accompanied by their results have been conducted on the Appalachian Star. The data, at this juncture, confirms the chemical requirements for a star ruby to the extent of carat weight, specific gravity, refractive index, elemental analysis, and absorption spectroscopy.... Conclusion: All data indicate that this stone is a high quality star ruby of enormous value. All measurements have been confirmed independently and recorded."

Analysis and Characterization of the Appalachian Star Ruby, August 23, 1991

This is a 14-page detailed report discussing "the testing and verification of the physical properties, chemical composition, quality, durability and rarity of The Appalachian Star Ruby. The analyses were conducted by a lapidary, a gemologist, several scientists, and their research facilities." It states that:

"The established data were compared to published data found in trade literature thus confirming the Appalachian Star Ruby to be a rare, high quality gemstone."

The report goes on to point out that:

The rarity of the star stones must be stressed because only one percent of all rubies are of gem quality, and out of that one percent, even less have the asterism phenomenon chemically present within the (Appalachian Star Ruby) compound. Moreover, large star rubies of gem quality are much more rare, thus highly prized and incredibly valuable."

The report concludes that:

This characteristic of asterism in conjunction with the quality data, the beauty and enormity of the stone, all contribute to distinguish and verify the value of the (Appalachian Star) ruby. The market value of this stone can only be determined by comparing it to other stones of similar beauty, quality, rarity, and hardness."

As described earlier, the Rosser Reeves Star ruby has an estimated value of \$180,000 per carat (Note: 1991 dollars). There have been no documented rubies such as The Appalachian Star Ruby discovered in recent history. Additionally, as demand for unique precious stones like the Appalachian Star Ruby increases and availability decreases, the

desire to own them will only grow. Therefore, it is concluded from the compiled research that this... ruby is a world class gemstone of extreme value."

3. **Appraisals by Tammy R. Jenkins, G.G., Appraisal & Gem Service, Inc., June 6, 2002**

Appraiser qualifications

- President, Appraisal & Gem Service, Inc.
- Graduate Gemology Degree, Gemological Institute of America (GIA)
- Certificate for Insurance Replacement appraisal, GIA
- Certificate of Colored Stones, GIA, graduated with honors
- Additional certifications from GIA

Appraisal of entire **Mountain Star Ruby Collection**, including The Appalachian Star Ruby, The Smokey Mountain Two Star Ruby, The Misty Star Ruby, and The Promise Star Ruby

- Certification and appraisals done June 6, 2002, and valid through June 4, 2007
- March 28, 2006 Ms. Jenkins re-attested to the appraisals, stating "(I) believe the appraisal to be a true and accurate assessment of quality and value."
- Appraisals based on standard GIA Tangible and Intangible Factors
 - Tangible Factors include Cut, Color, Clarity, Carat Weight, Phenomena, and Treatment
 - Intangible Factors include Rarity, Natural Availability, Beauty, Special Properties & Precedence, Consumer Demand, Worldwide Fame & Recognition, and Comparables

Overall assessment, based on GIA standards above, *"In my professional opinion, the appraisal reflects the approximate cash value. I believe this to be a true and accurate assessment of quality and value."*

Individual appraisals of each of the gems in the Mountain Star Ruby Collection, based on the standard GIA Factors cited above:

- **Appalachian Star Ruby**, 139.43 cts., oval Star Ruby cabochon (28.6mm x 21.7mm x 19.1mm dpth), semi-translucent - slp RED

Individual Star Ruby Grading Sheet covering GIA Tangible Value Factors – "Cut: Excellent," "Finish & Polish: Excellent," "Clarity: Semi-translucent with visual crystal structure," "Color: Strong, medium dark," "Phenomena: Asterism sharp, center and well-defined 6 point star," "Rarity: Extremely rare," "Natural in Origin – no treatment." Intangible Factors also evaluated at highest levels – "Rarity: Extremely rare 'one of a kind'," "Natural Availability: None Known," "Beauty: Exceptional, phenomenal star," "Special Properties & Precedence: Large size with striking asterism," "Consumer Demand: Connoisseur Collector, Museum Exhibitor, Special Markets," "Worldwide Fame & Recognition: Exhibited at the Natural History Museum of London. Displayed, televised, and written up in newspapers," "Comparables: (available through seller only using market data approach and auction hammer prices)." Note: A list of 30 comparables from 1920 to 2000, including Carat Weight, Stone, Sold Through, Date Sold, Sales Amount and Approximate 2000 Value is provided in the Mountain Star Ruby Collection documentation maintained by Mr. Messer.

- **Smokey Mountain Two Star Ruby**, 86.56 cts., round double Star Ruby cabochon (21.5mm dia. x 18.8mm dpth), semi-translucent – sip RED

Individual Star Ruby Grading Sheet covering GIA Tangible Value Factors – grading at highest levels (see Appalachian Star Ruby grading above). Intangible Value Factors also evaluated at highest levels (see Appalachian Star Ruby above).

- **Promise Star Ruby**, 64.17 cts., round Star Ruby cabochon (21.8mm dia. x 12.8mm dpth), semi-translucent – sip RED

Individual Star Ruby Grading Sheet covering GIA Tangible Value Factors – grading at highest levels (see Appalachian Star Ruby grading above). Intangible Value Factors also evaluated at highest levels (see Appalachian Star Ruby above).

- **Misty Star Ruby**, 52.37 cts., pear Star Ruby cabochon (21.2mm x 17.6mm x 13.4mm dpth), semi-translucent – sip RED

Individual Star Ruby Grading Sheet covering GIA Tangible Value Factors – graded at highest levels (see Appalachian Star Ruby grading above). Intangible Value Factors also evaluated at highest levels (see Appalachian Star Ruby).

4. **Appraisal findings of the Gemmological Association and Gem Testing Laboratory of Great Britain (G.A.G.T.L.)**

Evaluation by Dr. Roger Harding FGA, PhD Gemology, Director of Gemmology, G.A.G.T.L., Nov. 13, 1991

"I have today examined four star rubies weighing 124.28 cts., 86.56 cts., 52.37 cts, and 139.43 cts., and belonging to Mr. Wayne Messer, and consider them to be most attractive stones. It is a privilege to have seen these exceptional stones."

G.A.G.T.L. of Great Britain Gem Testing Reports, Nov. 13, 1991

- **The Appalachian Star Ruby** – "Examined a loose red, semi-translucent oval, cabochon-cut stone measuring approximately 28.6 x 21.7 x 19.1mm, and weighing 139.43 cts. Found to be a NATURAL STAR RUBY (report's emphasis)." Alan J. Clark FGA, DGA and Ana I. Castro FGA, DGA
- **Smokey Mountain Two Star Ruby** – "Examined a loose red, semi-translucent, round, double cabochon-cut stone, measuring approximately 21.5mm in diameter and 18.8mm in depth, and weighing 86.56 cts. Found to be a NATURAL STAR RUBY (report's emphasis)." Alan J. Clark FGA, DGA and Ana I. Castro FGA, DGA
- **Misty Star Ruby** – "Examined a loose red, semi-translucent, pear-shaped, cabochon-cut stone, measuring approximately 21.2 x 17.6 x 13.4mm, and weighing 52.37 cts. Found to be a NATURAL STAR RUBY (report's emphasis)." Alan J. Clark FGA, DGA and Ana I. Castro FGA, DGA

5. **Alan J. Clark FGA, DGA of the G.A.G.T.L. of Great Britain**, June 12, 1992, regarding inclusions found in Mountain Star Ruby Collection gems:

"The even density of inclusions is critical to the sharpness and brightness of the star seen in the stone, and is also the reason why star stones are usually of a darker color. In general, comparatively transparent stones that are usually faceted rarely show satisfactory stars."

6. **Cally C. Hall, FGA, Museum Gemologist, The Natural History Museum of London**, October 6, 1992

"I was particularly impressed by the superb 6-rayed star that is exhibited by the (Appalachian Star) ruby. The rays are straight and sharp and intersect well. I feel that the beauty of the ruby lies in the quality of the star whatever country the ruby is from.

The rarity of the stone goes without saying as at 139.43 carats it must be one of the heaviest in the world that shows good star. The durability of the ruby with a hardness of 9 on Mohs scale of hardness is harder than all gems apart from the diamond. In my opinion, therefore, The Appalachian Star Ruby is a very fine specimen and has the three attributes of a gemstone, beauty, rarity, and durability."

7. **Cally Hall, FGA, Interview, Thames News Television**, October 6, 1992

"A stone like this (The Appalachian Star Ruby) was found as a short hexagonal prism which means that it has a flat top and a flat base and six flat sides. But it's not until you actually cut it and polish it that you can tell how good the star would be. And in this case it was done very well, because the star is superb."

8. **Cally Hall, London Daily Mail**, October 7, 1992

The world's finest ruby was enough to dazzle even an expert in gems yesterday. "It is quite breathtaking," said Cally Oldershaw (Hall) with stars in her eyes at the sight.

9. **Cally Hall, FGA, Radio Interview, London**, October 1992

"There are a number of things (about The Appalachian Star Ruby) – firstly its size, and secondly its star. It's a star ruby and that is particularly rare. Just one percent of corundum, which ruby and sapphire belong to the family called corundum, less than one percent have a star. And this is a particularly fine star. The star has six rays or three intersecting lines that intersect at a perfect spot at the top of the stone. And each of the lines is absolutely straight. It's a fabulous star!

(Interviewer): How is the star formed? Is it actually in the ruby or is it just the light shining on the ruby that causes that star?

Both. You need the light shining on the ruby to show the star, but the star is formed by inclusions within (the ruby). And the inclusions are a mineral called rutile which is titanium oxide. And the mineral grows small needle-like crystals. And it groups, parallel groups of these crystals within the stone cause the star.

The value of the stone – we can't put a definite value on the stone because it still belongs to the man who found it. Until it's exchanged hands, and a price has been paid, it won't have a true value. But we can say that the stone is very valuable. And because we can't put a price on it we can also call it priceless."

10. **Professor Paul Henderson, Associate Director (Earth Sciences), The Natural History Museum of London,** October 20, 1992

"Your stone is an exceptionally fine star ruby and we welcome the opportunity to see and display it.... It has certainly received considerable publicity...and has formed the centerpiece of several illustrated talks."

11. **Cally Hall, FGA, Museum Gemologist,** January 5, 1993, she said:

"The Appalachian Star Ruby was well received here in London, and greatly appreciated and enjoyed by those who were able to see it. It is a good museum piece with a fine star. I wish you every success with your plans to introduce the ruby to a larger audience and trust they will appreciate the beauty of your star stone."

12. **M. Sue Scott-McKenzie, G.G. (GIA), I.S.A., G.A.A., MSSM Appraisal Services,** Asheville, NC, November 9, 1993:

"The 139.43 carat Appalachian Star Ruby possesses all the attributes of color, cut and polish, beauty, translucency, durability, rarity, and phenomenal asterism. Such a rare combination places Mr. Messer's gem in a realm apart – a museum/collector's gem worthy of a king's crown or scepter! In gems of this caliber it matters not where the ruby was discovered. Many knowledgeable colleagues of distinction have shared my appreciation for this gem and have added to its dossier. I have no doubt that this lovely gem will soon take its rightful place among the rest of the world's most prized and cherished treasures."

13. **Kempton H. Roll, President, Colburn Gem & Mineral Museum,** August 14, 1994:

"We congratulate you for your discovery of the "Appalachian Star Ruby" and, more importantly, your recognition of the original corundum crystal as being a ruby with the possibility of possessing asterism. We are very pleased that the Gemological Association and Gem Testing Laboratory of Great Britain, the world authority on such matters, has officially verified your find as being indeed a natural red corundum with six-pointed asterism, i.e., a "star ruby"; one of the world's most precious gemstones. You are also to be complimented on your skill in revealing your discovery to the gem world. All North Carolinians are the beneficiaries of your efforts. Your perseverance in properly identifying and documenting the stone has affirmed to the world the uncommon gem resources of North Carolina's Appalachian Mountains."

14. **Joette M. Humphrey, Graduate Gemologist (GIA),** Hendersonville, NC, August 17, 1994:

"I recently had the privilege of examining the 139.43 ct. "Appalachian Star" ruby belonging to Mr. Jarvis Messer. The beautiful color and large size of this ruby, combined with the perfect six-point star make this gemstone incalculably rare. In my opinion, it would be impossible to determine an approximate value due to its uniqueness. Once the gemstone has been sold, a determined value might be possible. I appreciate the opportunity to comment on the "Appalachian Star" since it is truly a national treasure."

15. **Jose Santamaria, Executive Director, Weinman Mineral Museum,** September 27, 2006:

"It was a pleasure to meet with you (Mr. Messer) and your associates last week to view your outstanding gemstones and to discuss the possibility of displaying them here at the Weinman Mineral Museum. The Appalachian Star, Misty Star, Promise Star, and Smokey Mountain

Two-Star rubies would make the most magnificent display of star corundum we could ever assemble."

16. **Julian C. Gray, Curator, Weinman Mineral Museum**, September 29, 2006:

"Thank you so much for bringing the four star rubies from the Mountain Star Ruby Collection for us to view. The stones are among the most beautiful gemstones we have ever seen and we are honored to be among the few who have had the opportunity to examine them first hand. The asterism exhibited in these rubies is perhaps the sharpest and finest example of that property I've ever seen. That they are from North Carolina is truly amazing as these are certainly the finest North American rubies ever discovered."

17. **Donald Haack, President, and W. Scott Falconer, Graduate Gemologist, Donald Haack Diamonds & Fine Gems, Ltd.**, Nov. 29, 2006:

"Thank you for showing us your four loose cabochon cut gemstones.... We concur with the findings of The Gemmological Association and Gem Testing Laboratory of Great Britain that these are in fact 'Natural Star Rubies.' The asterisms are definitive and the plum (purple-red) color is consistent with the above, and these are truly unique and one of a kind gemstones. Thanks again for sharing your treasures."

18. **Dr. Roger R. Harding, Director of Gemmology (retired), FGA, PhD, Gemmological Association and Gem Testing Laboratory of Great Britain**, March 16, 2007

Stated in a telephone conversation that "I remember the Mountain Star Ruby Collection very well from when I was requested to identify and verify the minerals as natural star rubies," calling them "wonderful specimens."

19. **Tammy Jenkins, G.G., President, Appraisal & Gem Service, Inc.**, March 20, 2007

Stated in a telephone conversation that the Mountain Star Ruby Collection "is an incredible collection... This is a world-class collection!"

PUBLIC RECOGNITION, EXHIBITION AND PUBLICITY

1. WTVD 11 News, 1991

The newscaster began his interview with Mr. Messer by showing a close-up of the Appalachian Star Ruby and saying, *"Would you believe that this gem came from the North Carolina mountains?!... Somewhere in the western North Carolina mountains, Wayne Messer has discovered another world-class stone – this is The Appalachian Star Ruby.*

Mr. Messer replied, *"It's fascinating. Just having the stone itself – finding it here in North Carolina, and knowing that the beauty, the natural beauty of North Carolina is here – it's just amazing!"*

2. TV 7 Eyewitness News, Ashville – John George Reporting, 1991

Mr. Messer and Sam Fore, the lapidary who cut The Appalachian Star Ruby, were interviewed by news anchor John George, who stated, *"Now he's discovered one of the world's largest rubies."* Mr. Messer replied, *"I look for these stones, and that's the difference between the person who does look for it and search for it, and the person who just digs to be digging."* Mr. Fore, the lapidary, commented, *"This is really a dream of a lapidary to be able to have the opportunity to cut the big one, the rare one. And so my dream has been fulfilled."*

3. ABC Good Morning America, April 1991

A photograph of The Appalachian Star Ruby was shown on Good Morning America. Anchorman and host Charles Gibson commented, *"How would you like to have this in your Easter Basket?"* Co-host Barbara Walters called it *"absolutely breathtaking!"*

4. Colburn Gem & Mineral Museum, Asheville, NC, July 1992

The Appalachian Star Ruby was first exhibited publicly at the grand opening of the Colburn Mineral Museum in Asheville, North Carolina in 1992.

Earl Davis, President, commented:

"...The display of your stone 'Made' the show. It dominated the displays, being so much more spectacular than any other item. We thank you again for your kindness in allowing the Museum to show that prize stone."

5. Channel 13 News, Darcel Grimes, July 1992

"Well actually we know what this star is – it's a multi-million dollar star ruby now on display at the new Colburn Mineral Museum at Park Place in Asheville. The Appalachian Star Ruby was found in North Carolina, and is one of the largest found in the United States. Western North Carolina is a gem of a state to find precious stones, and the museum highlights the area's geological wonders. The Appalachian Star Ruby, and its companion, The Smokey Mountain Star Ruby, will be displayed at Colburn for several more days, so we can all see it."

6. Natural History Museum of London, Oct. 1992

The Appalachian Star Ruby was displayed to the public at the Natural History Museum of London October 6-30, 1992. According to a letter from Clare Stokes of the museum (May 5, 1993), some 150,000 people viewed the gem while it was on display.

- The museum's Mineralogy Newsletter (Sept. 20, 1992) described The Appalachian Star Ruby as "a perfect six-rayed natural star ruby weighing 139.43 carats, thought to be the finest in the world."
- The Natural History Museum described the Appalachian Star Ruby as, "the finest star ruby in the world," and that it "will take pride of place in the Gemstones display at the Earth Galleries." (Press Releases, Oct. 1992)
- In its Diary October 1992, the museum called The Appalachian Star Ruby "the biggest known star ruby in the world."
- The exhibit of The Appalachian Star Ruby in London generated over 20 major newspaper and press reports.

7. **Kevin Richardson, MOMART PLC.,** London, October 2, 1992

Mr. Richardson, who arranged for the import of The Appalachian Star Ruby for the exhibition at the Natural History Museum of London, said in a report:

"Seeing the item (The Appalachian Star Ruby) for the first time in proper light and listening to the enthusiastic discussions of the experts, I realized that this was no ordinary gem. 'Larger,' 'Superior,' 'Brighter' were commonly used to describe this stone. Comparisons were made with previously discovered rubies, but it soon became clear that this stone was beyond comparison.... It was the rarest and most beautiful ruby ever uncovered."

8. **New Scientist,** October 1992

The world's heaviest ruby went on public display for the first time this week at the Natural History Museum in London. ... The gemstone, named the Appalachian Star Ruby by its finder, is 28.6 millimetres high and weighs 139.43 carats (27.89 grams). This is just a fraction more than the Rosser Reeves Ruby for Shr Lanka, on display at the Smithsonian in Washington, DC, and which is valued at around \$25 million. The Appalachian ruby was found by Wayne Messer in his native North Carolina and kept it in a small private display until this week. When the stone is held up to the light, it displays a perfect six-pointed star.

9. **The Australian Gemmologist: the Journal of the Gemmological Association of Australia,** February 1993

Featured The Appalachian Star Ruby on its cover. It said,

"This rare star ruby from the north-east of the USA weighs 139.43 carats and measures 28.6mm in length, and displays a perfect six-rayed star when it catches the light.... (It) weights more than the famous Rosser Reeves Ruby on display in the Smithsonian Institution."

10. **UNC-TV North Carolina Now,** August 29, 1994

Mr. Messer, and Mr. Sam Fore, the lapidary who cut the Appalachian Star Ruby, appeared on this widely watched program. Their press release announcing the program characterized The Appalachian Star Ruby as:

"...the world's finest of the largest star rubies in the world...."

The interviewer opened by commenting, "As a child, Jarvis Wayne Messer made a hobby out of collecting interesting rocks and pebbles that he would find. Eventually that hobby led to the discovery of one of the world's most priceless gems. And in 1990 at a secret location in the North Carolina mountains, Mr. Messer unearthed the Appalachian Star, a 139.43 carat ruby – the world's largest.

In describing how he found the gem, Mr. Messer said, "I dug down about eight feet into the ground. And when I found it, there was a red-tailed hawk that soared right over the top of me. And I thanked my God...."

Addressing Mr. Fore, the interviewer asked, "And you were able to determine that this (Appalachian Star Ruby) was indeed priceless? What makes it priceless?" To which Mr. Fore replied, "Well actually, two main attributes – which would be the star itself, the very brilliant star, plus the beautiful pigeon blood red ruby color."

When the interviewer asked Mr. Messer about putting a price on the ruby, he concluded, *I think that it's worth what a willing buyer is willing to pay a willing seller.*"

11. **Meg Parsons, ABC Good Morning America**, September 19, 1994

"I called the Natural History Museum in London, and was assured by gemologists there that The Appalachian Star Ruby is one of the finest in the world.... I hope... we can work out a future appearance on the show."

12. **Grove Park Inn**, Asheville, NC, 1994

News conference and display of The Appalachian Star Ruby. Joette Humphrey, Graduate Gemologist (GIA), appraiser, said at the new conference,

"What makes it so incredible is the perfect star. When you see a perfect star of that size and that color, it's just amazing. I've never seen anything like it in my life."

BACKGROUND AND REFERENCE INFORMATION

NOTE: The information provided here was compiled from numerous sources, and is provided for reference purposes only. Any potential buyer is urged to perform his own due diligence.

Other Famous Named Star Rubies

1. The Rosser Reeves Star Ruby

Weighing 138.7 carats, the Rosser Reeves Star Ruby, discovered in Sri Lanka, is famous for its fine color and well-defined star. Advertising mogul Rosser Reeves donated the gem to the Smithsonian in 1965. He supposedly carried it around in his pocket as a lucky stone, calling it his "baby." He bought the gem from Robert C. Nelson Jr. of New York who was acting on behalf of Firestone & Parson of Boston. Firestone & Parson, in turn, were selling the stone for Mr. Paul Fisher of New York. Mr. Robert Fisher, Paul's father, had bought the ruby at auction on London in 1953. At that time the ruby weighted just over 140 carats, but was heavily scratched; a few carats were removed in the polishing, which also helped center the gem's star.

2. The DeLong Star Ruby

This star ruby weighs 100.32 carats, and is housed in the American Museum of Natural History in New York City. This gem was discovered in Burma in the early 20th Century. It was sold by Martin Ehrmann to Edith Haggin DeLong for \$21,400 in 1937. She, in turn, donated it to the Museum in 1937. The most famous story about this ruby is that it was a part of an infamous jewel heist in 1964, (modeled on the fantastic robbery of jewels from the Topkapi Museum in Istanbul depicted in the movie "Topkapi,") carried out by Jack Murphy (Murph the Surf) and an accomplice. They were quickly arrested, but many of the jewels taken in the robbery were never recovered. The DeLong Star Ruby and the Star of India sapphire fell into the hands of the Mafia, and were ransomed for \$25,000 at a designated drop-off site – a Florida phone booth.

3. The Midnight Star Ruby

This 116.75 carat star gem from Sri Lanka is a deep purple-red. It is also a part of the American Museum of Natural History's collection in New York City. It too was stolen in the "Murph the Surf" heist. Many gemological experts consider The Midnight Star to be a sapphire due to its purplish color.

4. Neelanjali Star Ruby

At 1,370 carats, this is thought to be the world's largest known double-star ruby, with a twelve-point asterism. This ruby belongs to G. Vidyaraj and is reported to be in Bangalore, India.

5. Rajaratna Star Ruby

At 2,475 carats, this gem is considered to be one of the world's largest star rubies, and supposedly is the largest known gem-quality ruby. In Sanskrit, "Rajaratna" means "King's Jewel." This gem also belongs to G. Vidyaraj of Bangalore, India. The story goes that it was given in a box, along with four other gems (possibly including the Neelanjali Star ruby), to Mr. Vidyaraj's ancestors during the fall of the Vijayanagar Empire (1646). Legend has it that the gems adorned the crown of Emperor Srikrishnadevarayalu (1509–1529).

6. Eminent Star Ruby

This 6,465 carat star ruby weighted over 30,000 carats in the rough. Considered of mediocre-to-poor quality, it is believed to have originated somewhere in India. It is currently owned by Kailash Rawat of Eminent Gems in New York City.

7. Unnamed Famous Star Rubies

- 310 carat star ruby discovered in Sri Lanka in May 1941 (current location unknown).
- 25.2 carat 12-rayed star ruby discovered in Sri Lanka in 1950 (current location unknown)
- 24.13 carat star ruby from Sri Lanka, 1984?, (current location unknown)

Judging Quality of Star Rubies

The Ruby & Sapphire Buying Guide; How to Spot Value & Avoid Ripoffs, Renee Newman, 1991

Color: The evaluation of color in star rubies and sapphires is similar to that of faceted stones, but overall grading is more lenient. Generally, the more saturated and pure the body color, the more valuable the stone is. Medium and medium-dark tones tend to be the most prized

The Star: Your main concern when judging a star ruby or sapphire should be: Is it easy to see the star when you look at the stone under a single source of direct light? ...questions to ask are as follows: 1) Is the star centered? 2) Is the star sharp and well defined? 3) Are the rays straight? 4) Are all the rays present? 5) Do the rays extend completely across the stone? 6) Is there a good contrast between the star and the background? Appraisers normally indicate the degree to which the stars conform to the above standards.

Transparency: Gemologists use the following terms to describe gem transparency (the amount of light which passes through the gem):

Transparent: Objects seen through the stone look clear and distinct.

Semi-transparent: Objects look slightly hazy or blurry through the stone.

Translucent: Objects are vague and hard to see. (Imagining what it is like to read print through frosted glass will help you understand the concept of translucency.)

Semi-translucent: Only a small fraction of light passes through the stone, mainly around the edges.

Opaque: Virtually no light passes through the stone.

The highest quality star rubies and sapphires are semi-transparent. As a general rule, the more transparent a star stone is, the greater the value.

Clarity: It is normal for star rubies and sapphires to have flaws. It is usually best to avoid stones with a lot of surface cracks because they may not be very durable...

GIA Insider, September 27, 2002, "How Should I Evaluate a Star Gem?"

When you grade a star stone, you should consider the quality of the star and the gem's body color, cut and clarity. The best star corundum is semi-transparent, but most star rubies and sapphires are translucent to opaque (see John S. White below). In the best gems, the body color

is similar to fine-color ruby or sapphire, although dealers often allow more purple in the color of star ruby. Inclusions tend to reduce saturation, and the resulting brownish or grayish body color can diminish value considerably. Use a standard daylight-equivalent fluorescent grading light to judge the gem's body color.

To examine the star, hold a penlight about 6 in. from it. Move the light back and forth to see how the star moves across the stone's surface. The star should be sharp and intense, and the rays should be straight and evenly spread, not "pinched." The star should be complete, with no missing rays. It should be centered at the top of the dome, and it should extend across the entire stone. It should "roll" or travel easily across the surface of the cabochon as you move the light back and forth.

The cabochon shape should be pleasing and symmetrical. The dome must be fairly high in order for the star to be sharply focused. If the dome is too shallow, the star will be weak, and it will lack sharp contact of the rays at the center. Check to see if there's excessive weight below the girdle – it shouldn't amount to more than 20 percent of the gem's total depth. Look for chips at the girdle.

You can test the gem's symmetry by spinning it on its base on a flat surface. If the stone "wobbles," or the star seems to move back and forth, the stone is asymmetrical.

As with chatoyancy (having a changeable luster), there is a very fine balance between transparency and the definition and intensity of the star. Too much silk will make the body appear translucent or opaque, but if there is too little, the star will be faint. The best star corundum has fine transparency with just enough silk to show a well-defined star. It should be free from strong color banding, cracked, and other distracting inclusions. If the cracks reach the surface, they might trap dirt and weaken the stone. Surface polish should be good, without any imperfections that disturb the movement of the star across the surface.

Gems & Jewelry, Joel E. Arem, Ph.D., Mineralogist and Smithsonian Curator, 1975

In the case of star corundum the color, centering of the star, the sharpness of the star, and the proportion of the weight concentrated above the girdle are important factors in valuation. The star should have no missing rays and should be clearly visible under a single light source. Greater transparency usually indicates greater value, and in all cases, larger stones are more valuable than smaller ones.

Star Rubies and Opaqueness

John S. White, who retired in 1991 as Curator of the Mineral & Gem Collection of the Smithsonian, wrote in the May-June 2005 issue of Rocks & Minerals:

I am favored in being the recipient of the Gemological Institute of America's twice-monthly Internet newsletter, the GIA Insider. ...the newsletter usually carries an abbreviated article (with the author seldom identified) about some aspect of gemological testing. The 13 August 2004 issue, for example, contained the article, "What Are the Identifying Characteristics of the Trade's Opaque Red, Pink, and Purple Gems?" I do wish the gem folks would cease misrepresenting the term "opaque." The same series even carried a reference to opaque star ruby. In any case, calling a star stone opaque requires a huge leap of logic. If a substance is opaque, light cannot penetrate it. If light cannot penetrate it, light cannot be reflected from oriented inclusions of rutile

needles. It light cannot be reflected from oriented rutile needle inclusions, there can be no star effect. Ergo, a star ruby, or any other star stone, is not opaque!

Star Rubies and Heating

Natural star rubies are not heated.

Newman says, "The unusually high temperatures at which the stones are heated often melt the silky mineral fibers in them that are responsible for creating the star effect.

Fred Ward, in his book Rubies & Sapphires (1998), says, "Stars, a soft appearance, and collector preference are three valid reasons to keep stones natural. Although heating does not remove inclusions, it will dissolve rutile needles. Obviously, no one wants to remove a star..., so owners leave stars alone...."

Buying and Selling Collector Quality Gems

Here's an interesting observation from Richard Hughes, in his book Ruby & Sapphire:

Every gem trader has his or her own preferred bargaining tactics. Skillful application of such stratagems often translates into business success.

Studied indifference is one common ploy, but difficult to maintain when one's eyes are afire with the sight of a great jewel. In such cases, it helps to use an intermediary. Because intermediaries do not have emotional attachment to the purchase (or sale), they typically achieve better results, which is why brokers are a common feature of the gem business.

One of the keys to any negotiation is to get the other party to make the first offer. This is particularly important when haggling over something for which you are unsure of the true market price. (There is nothing more deflating than making an offer and hearing a lightning-quick "yes" issue from the seller's lips.) Similarly, if you are selling and the buyer makes an offer you will accept, ponder it a bit before replying.

There is a common tendency when bargaining over a stone to denigrate it, thinking that telling the seller you don't like it will produce a lower price. While it does no harm to gently point out a gem's defects, this should be done in a graceful and subtle manner. Telling someone that their stone resembles "the slime on a lizard's back" not only angers the seller, making any price reduction less likely, but it begs the question of why you want to buy something that bad.

In the end, as Bangkok dealer Gerry Rogers has repeatedly lectured me, buying is like selling. When selling, the last thing you want is to upset your customer. And so it is with buying. Complimenting the seller on his good taste in gems is far more likely to produce the desired price than the reverse.

The Appalachian Star Ruby



In 1992, thousands of connoisseurs of rare gemstones flocked to London's Natural History Museum to view an historic find: a huge, natural star ruby of a size and quality to rival the famous Rosser Reeves ruby on display at the Smithsonian Institute in Washington, D.C.

Experts in the field lavished praise and admiration on this beautiful gemstone known as the "Appalachian Star" for its size, brilliance, durability, rarity, and the perfection of the six-rayed star gracing its center. For a month it was the stellar attraction of the Museum's collection of rare gemstones.

This was the first time this ruby was displayed outside of the United States since its discovery in 1990. Experts described it as "exceptionally fine", "superb", "in a realm apart", "worthy of a king's crown or scepter", and "the finest star ruby on earth".

The asterism or "star" in a star ruby is formed by inclusions of rutile (titanium oxide). The minerals grow small, needle-like crystals which form the rays of the star. The natural substance of a ruby is corundum, the next hardest mineral after diamond. A perfect ruby, such as the Appalachian Star, has more value than a diamond or emerald of equivalent size because it is more rare, especially the Appalachian Star which is exceptionally large and beautiful in color, cut and polish.

Rubies have captured the human imagination from time immemorial and have been the treasured property of kings, emperors and each ensuing level of the aristocracy. The mystique surrounding the ruby has held, at various periods in history, that it can preserve health, control passion, reconcile disputes, cure illnesses, guard the home, and even confer invulnerability upon its owner. The Appalachian Star is, without a doubt, in a class by itself in this respect.

In a more practical level, no investment withstands the ravages of time and fluctuations of the world economy than a precious gemstone, whose value rests not with the vicissitudes of the market, but in its inherent rarity and beauty. **The investment value of this rare and precious gem cannot be overstated!**



THE
NATURAL
HISTORY
MUSEUM



BY APPOINTMENT TO
HER MAJESTY THE QUEEN
TRANSPORTER OF FINE ARTS
MOMART PLC, LONDON

NATURAL HISTORY MUSEUM 2nd October 1992

Rembrandt, Picasso, Constable, Mother Nature, Degas, Monet, Michelangelo. Can you spot the odd one out? Each is a virtuoso in his or her own right, with the ability to create objects of immense beauty, rarity and value. Lesser mortals marvel at the creations by these masters of aura.

Possessing an item created by these technicians of loveliness is a constant source of man's fantasies. Even to hold such an item, albeit for just a moment, is often reward enough for some. I have been privileged in my time to hold, care for, protect some of the world's most precious artifacts, each one unique and irreplaceable. Whether it be a 15 ton Henry Moore Bronze or, more recently a Natural Star Ruby, the task is equally as honourable and rewarding.

On 2nd October 1992, I arranged the import of the "Appalachian Star Ruby" which was destined for exhibition at the Natural History Museum. Rubies are not something I know that much about and had therefore not given too much thought to what I was about to encounter. After all, a ruby is just a ruby. Isn't it? The customs formalities went according to plan and the journey to the museum was without incident. Finding our way into the museum proved to be the most difficult task of the morning but eventually, we located the right people.

The Precious Gems Department was waiting for the arrival of the stone and it seemed that the whole of the department had turned out in eager anticipation to receive the ruby. It was not until the stone was revealed to the gathered masses that I became aware of the importance of the piece. Seeing the item for the first time in proper light and listening to the enthusiastic discussions of the experts, I realised that this was no ordinary gem. "Larger", "Superior", "Brighter" were commonly used to describe the stone. Comparisons were made with previously discovered rubies, but it soon became clear that this stone was beyond comparison. Even to my untrained eye it was obvious that this was not just a ruby. It was the rarest and most beautiful ruby ever uncovered. Mother Nature had excelled herself once again. She had worked for millions of years to produce a precious object of unprecedented beauty. Rembrandt, Picasso, Constable, Degas, Monet and Michelangelo are amongst the greatest craftsmen in the world but each one would succumb to the wonders of the greatest artist of them all.

The "Appalachian Star Ruby" can be seen at the Natural History Museum until 30th October. I would strongly recommend a visit.


MOMART PLC
205 RICHMOND ROAD, LONDON E8 3NJ



Gemmological Association and
Gem Testing Laboratory of Great Britain

27 GREVILLE STREET, (SAPPHIRE HILL ENTRANCE), LEAMINGTON SPA, CV31 3JF

Associate Services
(071) 404 3334
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GEM TESTING REPORT

J. Wayne Messer,

Reference No. 120380

Date: 13th November 1991

THIS REPORT IS NOT TRANSFERABLE AND IS ISSUED SUBJECT TO THE TERMS AND CONDITIONS OF THE ASSOCIATION'S REPORTING SERVICE.

Examined, a loose red, semi-transparent, oval, cabochon-cut stone, measuring approximately 28.6 x 21.7 x 19.1 mm., and weighing 139.43 ct.

Found to be a **NATURAL STAR RUBY**.

n.b. The customer has named this stone "THE APPALACHIAN STAR RUBY".

Signed

Alan J Clark FGA DGA

Ana I. Castro FGA DGA



THE
NATURAL
HISTORY
MUSEUM

Department of Mineralogy

Our ref
GJER/mf1

Your ref

Date

6 October 1992

Director

44 71 938 8859

Facsimile

44 71 938 9268

Dear Mr Messer

I would like to thank you for loaning The Appalachian Star Ruby to the Natural History Museum, London for temporary display.

It has been greatly appreciated by both the public and members of staff and judging by the interest shown by television, radio and newspaper representatives today at the press launch, there may be many more visitors to see what is a fine exhibition piece.

I was particularly impressed by the superb 6-rayed star that is exhibited by the ruby. The rays are straight and sharp and intersect well. I feel that the beauty of the ruby lies in the quality of the star.

The rarity of the stone goes without saying as at 139.43 carats it must be one of the heaviest in the world that shows a good star.

The durability of the ruby with a hardness of 9 on Mohs' scale of hardness is harder than all gems apart from diamond.

In my opinion, therefore, The Appalachian Star Ruby is a very fine specimen and has the three attributes of a gemstone beauty, rarity and durability.

Yours sincerely

MRS C HALL, FGA
Museum Gemmologist

The Natural History Museum, Cromwell Road, London SW7 5BD Telephone 071-938 9123



THE
NATURAL
HISTORY
MUSEUM

Mr J W Messer

Professor Paul Henderson
Associate Director (Earth Sciences)
Keeper of Mineralogy

Our ref PH/SHoK

Your ref

Date 20 Oct 1992

Direct line 071-938 9226

Facsimile 071-938 9268

Dear Wayne

As mentioned in our earlier conversations, I am now writing to express formally our appreciation of the time and trouble you have incurred in enabling the Museum to display the Appalachian Star Ruby as a short-term loan.

The exhibit itself and the associated illustrative material have proved both eye-catching and educational to the visiting public. It has certainly received considerable publicity, which the Museum greatly welcomes, and has formed the centre-piece of several illustrated talks.

Your stone is an exceptionally fine star ruby and we welcome the opportunity to see and display it.

Yours sincerely

Paul Henderson

PAUL HENDERSON

The Natural History Museum, Cromwell Road, London SW7 5BD Telephone 071-938 9123

M

November 9, 1993

To Whom It May Concern:

I have been privileged to hold in the palm of my hand a unique product of Mother Nature - The remarkable Appalachian Star Ruby. My thanks go to Mr. Jarvis Wayne Messer, discoverer and owner of this gemstone, for allowing me to be among the first to share in his appreciation for this world class, one-of-a-kind, precious gem.

The 139.43 carat Appalachian Star Ruby possesses all the attributes of color, cut and polish, beauty, translucency, durability, rarity, and phenomenal asterism. Such a rare combination places Mr. Messer's gem in a realm apart - a museum/collector's gem worthy of a King's crown or scepter! In gems of this calibre it matters not where the ruby was discovered. It is here to be enjoyed and appreciated standing upon its own merits.

I have enjoyed observing Mr. Messer's efforts, over the past several years, to introduce his Appalachian Star Ruby to the world and to document its attributes. Many knowledgeable colleagues of distinction have shared my appreciation for this gem and have added to its dossier. I have no doubt that his lovely gem will soon take its rightful place among the rest of the world's most prized and cherished treasures.



Scott McHenry
H. Sds Scott-McHenry,
G.G. (G.I.K.)
I.S.A., G.A.A.



Mr J W Messer
PO Box 1359
CANDLER
North Carolina 28715
USA

Professor Paul Henderson
Associate Director (Earth Sciences)
Keeper of Mineralogy

Our ref PH/SMcK

Your ref

Date 20 Oct 1992

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Your stone is an exceptionally fine star ruby and we welcome the opportunity to see and display it.

Yours sincerely

PAUL HENDERSON



Mr W Messer
PO BOX 1359
Candler
NORTH CAROLINA
USA

Department of Mineralogy

Our ref
CJEH/mfl

Your ref

Date
5 January 1993

Direct line
44 71 938 8869

Facsimile
44 71 938 9268

Dear Mr Messer

The Appalachian Star Ruby was well received here in London and greatly appreciated and enjoyed by those who were able to see it. It is a good museum piece with a fine star. I wish you every success with your plans to introduce the ruby to a larger audience and trust they will appreciate the beauty of your star stone.

Yours sincerely

Mrs CALLY HALL, FGA

MOMART PLC

199-205 Richmond Road
London E8 3NJ
Tel 081-986 3624 (six lines)
Fax 081-533 0122
Telex 894062

Mr Wayne Messer
Rt.3 Box 46
Candler
North Carolina
NC 28715

Date
10 May 1993
Ref.

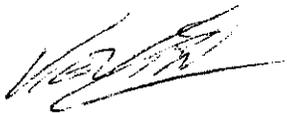
Dear Wayne

I hope this letter finds you well. Please find enclosed the letter from The Natural History Museum which I hope is satisfactory. The figures quoted are far higher than those given to me over the phone, and proves that the ruby was certainly a crowd puller.

Let me know if you need anything further and I will see what I can do. How did you get on with the Guinness Book of Records? I'm looking forward to seeing the stone in next year's edition.

Please give my best regards to your wife and make sure you let me know next time you are over.

Yours sincerely



Kevin Richardson

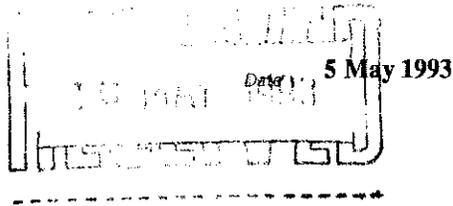


**Mr Kevin Richardson
MOMART Ltd
199 Richmond Road
London
E8 3NJ**

Department of
Administrative Services

Our ref

Your ref



Direct line **9205**

Facsimile **071-938-9121**

Dear Kevin ,

Appalachian Star Ruby - Visitor Numbers

I have checked the dates on the file and the Ruby was on exhibition from 1 October 1992 to 31 October 1992 .

The number of visitors for October 1992 was 150,000 which compares with 149,000 in October 1991 and 116,000 in September 1992 .

I hope these figures are of assistance to you and Mr Messer .

Please let me know if you need further information .

Yours sincerely

Clare Stokes

**Clare Stokes
Financial Accountant**



MINERALOGY NEWSLETTER

No. 178

20th September 1992

Visiting Group

The Visiting Group to the Collections will be here during the week of 28 September. The Curation Team, Paul Henderson, Bob Symes, Monica Grady and Chris Stanley will all be 'visited' by the Group. Other staff should remain on stand-by from Tuesday to Thursday of that week should they be required.

Andrew Graham

We give Andrew a fond farewell when he leaves the Museum on 2 October to start a new career in school teaching. Exactly 20 years ago Andrew joined the Natural History Museum, first as a Senior Research Fellow and then the permanent staff as an SSO in 1975. He became a PSO (Grade 7) in 1978 and then Deputy Keeper in 1989. During much of this time he has worked on meteorites and ocean floor deposits and has also served the academic community through his contributions to learned societies, especially the Meteoritical Society. He will also be missed for his many contributions to the social well-being of the Museum including the Wine Tasting Group. We wish him every success in his new career.

Fellowship

Bob Hutchison has been awarded a Fellowship by the Japan Society for the Promotion of Science worth £2500-3000 which will support him for 2-3 weeks in April 1993 on a visit to Professor Noboru Nakamura, Kobe University.

Mineralogy & Museums II

Paul Henderson, Bob Symes and Alan Criddle attended the conference at the Royal Ontario Museum, Toronto, from 10-11 September.

Paul also visited The Field Museum in Chicago, The National Museum of Natural History of the Smithsonian Institution and the World Bank in Washington.

Bob Symes and Alan Criddle both gave talks at the meeting, Alan's was "Through a glass darkly, or ore minerals revealed" and Bob spoke on marketing mineralogy.

Alan took part in a field trip to the famous mineral locality, Mont St. Hilaire, where he collected a variety of minerals. He also attended the business meetings of the Commission on New Minerals and Mineral Names of the IMA, on 8-9 September, also at ROM.

Gemstones

The Appalachian Star Ruby from N. Carolina will be on loan to the museum from 6 to 30 October. It is a perfect six-rayed natural star ruby weighing 139.43 carats, thought to be the finest in the world. It will be on display in the Gemstones section of the Earth Gallery. Cally will be talking to the public in the Earth Gallery on Sat 10 Oct. The talks will start at 11.30am and 2pm and the new ruby will be included.

Anon. Min. Abs.

Has any subscriber to Mineralogical Abstracts not received the September issue? One copy arrived in the department without an address label - it may be claimed from Andrew Clark.

Educational meteorites

Bob Hutchison is preparing teaching packages of meteorites for distribution to schools and universities by the British National Space Centre. The packages will contain four meteorite specimens which the students can handle, plus embedded samples from NASA. They are designed for three age ranges; undergraduates, sixth-formers and younger school children.

Seminar Room

Double booking of the seminar room has occurred recently. In future there will be a booking diary, held by Monica Grady. If anyone is organising meetings, workshops, etc. which require use of the room please see Monica. Prior booking for afternoon tea is not required (yet).

Cameca Update

The Cameca has been repaired following its partial melt-down (caused by over-cooling!) and is awaiting a visit from PGT to bring the resolution of the ED detector up to specification.

Seminars

Three formal seminars have already been arranged between now and Christmas:

22 Oct. Dr David Smith, Museum National d'Histoire Naturelle, Paris.
The Raman Spectroscopy of Gemstones.

11 Nov. Rob Bowell. 9 Dec. Dorian Smith.
Further details to be announced.



THE APPALACHIAN STAR RUBY

On display at The Natural History Museum - 6-30 October 1992

Cally Oldershaw, The Natural History Museum's gemmologist, holds the finest star ruby in the world. This Appalachian Star Ruby from the USA is on public display at the Museum from 6 to 30 October 1992. It will take pride of place in the Gemstones display of the Earth Galleries.

This rare star ruby weighs 139.43 carats and measures 28.6mm in length. As its name implies, a natural star ruby displays a perfect six-rayed star when it catches the light.

Cally will give guided tours of this ruby and the gemstones collection on Saturday 10 October at 11.30am and 2pm.

Photographer:

Harry Taylor, The Natural History Museum Photo Unit

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Please return to Press Office
Cromwell Road London SW7 5BD Telephone 071-938 9388



**Analysis and Characterization
of the
Appalachian Star Ruby.**

By Edward P. Lilly III, Chemist

23 August 1991

Summary

The following results were obtained from various analyses on the Appalachian Star Ruby; Mass-139.36 to 142.5cts; Refractive Indices-1.76-1.77; Specific Gravity-3.9832g/cm³; Absorption Spectrum(Angstrom units)-6942, 6928, 6680, 6592, 6100-5000, 4765, 4750, 4685; Acid tests-Insoluble in 18M H₂SO₄, 12M HCl, 16M HNO₃, 18M H₃PO₄, Aqua regia; X-ray fluorescence analysis-Aluminum most abundant with trace levels of chromium, iron and titanium.

Fluorescence analysis strong, red emission. X-ray diffraction results-Al₂O₃ crystal lattice structure, hexagonal(trigonal) crystal structure.

The established data was compared to published data found in the trade literature thus confirming the Appalachian Star ruby to be a rare, high quality gemstone.

Introduction

Precious stones and the gems cut from them to illuminate their brilliance and color are fascinating objects. The most valued gems next to the very desirable diamond are the ruby and sapphire who share with the emerald and the pearl the positions of most precious

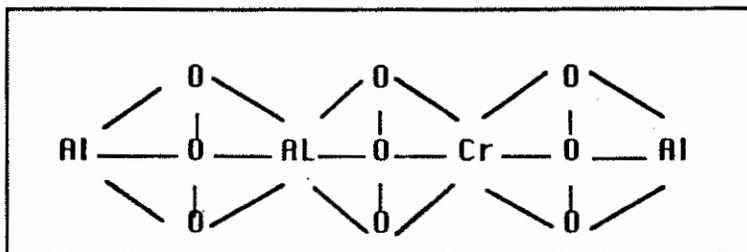
jewels in the world. Celebrated throughout history in art and literature; worn by the rich; epitomizing luxury and power; obtained by strenuous labor and transformed by lapidary skill and determination; a precious stone is a tangible vision of value which never loses its luster, whether as a piece of ornate jewelry, a fabulous museum bauble, or simply as an investment to a collector.

Chemically both rubies and sapphires are composed the same simple molecule, Al_2O_3 or aluminum oxide. This molecule known as corundum (due to its crystal structure) occurs in nature in a variety of colors. In fact, both the terms ruby and sapphire- although the same general molecule- simply refer to the color of the corundum material. The name ruby is derived from the Latin *rubrum* meaning "red in color."

Pure corundum is rarely found in nature in clear form. Often transition metal impurities are impregnated into the host crystal during formation and produce the color in many precious stones. However, if small traces of a compound known as chromium oxide, Cr_2O_3 , a transition metal oxide, intrude into the crystal lattice structure during the formation of the deposit, the colorless aluminum oxide is transformed into a ruby and becomes the characteristic red color. The trivalent chromium ions replace trivalent aluminum ions in the corundum crystal field. In chromium metal, each atom possesses 24 electrons, consisting of nine pairs - which are inactive in respect to color due to pairing - and six which are unpaired. In a Cr^{+3} compound, three of the six are used in forming covalent chemical bonds and three remain unpaired thus stimulating the color of the

compound. In ruby, each chromium ion is surrounded by six oxygen atoms in a distorted octahedral environment at distances and in a geometry orchestrated by the corundum crystal structure.

This transformation occurs due to intense pressure and heat during contact metamorphism between alumina-rich magmas and limestone, or by regional metamorphism of alumina-rich, silica-poor rocks. Within the primary lattice structure of the aluminum oxide, an Al^{+3} ion is displaced by a Cr^{+3} ion thus doping the lattice with an occasional chromium oxide face (figure below).



Ruby crystal lattice structure

After this displacement occurs, light waves do not penetrate the stone as it did before. The light waves, in particular ultraviolet waves, now penetrate the stone and are re-emitted at a different wavelength. The resulting feature is an influence on the ligand (Cr^{+3}) or crystal field. The crystal field exists at certain energy levels and is influenced by light energy from a ground state to a higher energy state.

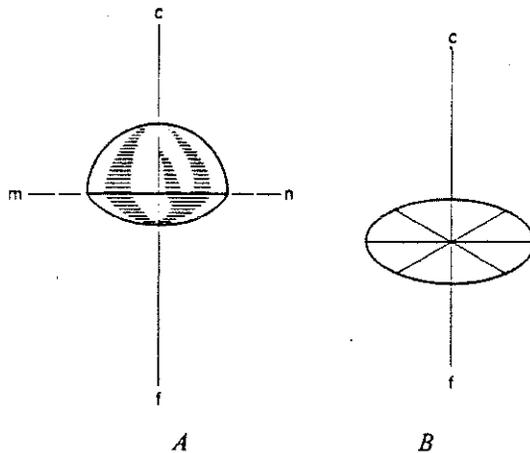
This phenomenon is also referred to as fluorescence. The ruby has the ability to absorb the blue and violet wavelengths of light and re-emit them as red light of a longer wavelength; the explanation for

the intense red color apparent to the naked eye. The fluorescent glow is stimulated by the ultraviolet rays present in sunlight, which curiously enough also cause sunburn.

The color of rubies vary from fiery vermilion to violet red, but because they are pleochroic (varying light absorption patterns), different colors can be found in the same stone; bright or sometimes brick red in one direction, tending towards deep carmine in another. As discussed earlier the color is mainly dependent on the quantity of chromium oxide present within the corundum structure. Chemically, about one percent of chromium oxide is required to give a deep red color. Despite the varying red colors found in the ruby it must be understood that sapphires cannot be deep red. In the past, many thought that sapphires could possess the rich carmine and sometimes the pink, but chemically this is a misnomer. Only corundum containing Cr^{+3} is considered ruby and its color is consistently a light to dark red hue.

The brightest red and thus the most valuable stones often have areas full of inclusions in the form of tiny rutile needles called silk. Ruby occasionally contains rutile which is composed of TiO_2 (titanium oxide) and trace amounts of Fe_2O_3 (iron oxide). The needles of rutile are arranged in intersecting lines in accordance with the symmetry of the crystal structure. They are created when the stone is formed: when the temperature falls the rutile is no longer soluble in the aluminum oxide and forms separate crystals. When the rutile needles are abundant, and the ruby is cut *en cabochon*, with its base parallel to the base of the prism, a silk-like reflection becomes visible in

bright light. These bundles of fibers are arranged in such a manner that they lie parallel to the lateral axes of the stone and at right angles to the vertical axes(See below).



38. The star stones. In *A*, the stone is cut cabochon so that the vertical crystal axis, *cf*, passes through the top of the dome. The three sets of silk inclusions lie at right angles to the vertical axis, and intersect at angles of 60°: *B* shows the directions of the silk inclusions, or cavities

Diagram and description of an en cabochon cut to reveal silk inclusions and asterism.

This reflection appears as a six-rayed star, known as an asterism, and the closer and more dense the rutile needles are the more pronounced the star. This effect is considered highly prized, contributing in the past to the aura of mystery surrounding some gems.

The most striking characteristic of rubies is the development of the six-rayed star, arranged in perfect sixty degree symmetry, which shifts its center as the stone is moved. Although rubies are found to be opaque, translucent, and transparent, the asterism effect is not very pronounced in the transparent stones, if at all. It is the opaque to translucent rubies which produce the distinct and highly prized asterism . Such stones are invariably given a round or oval cabachon cut too accent the star effect.

Star rubies of good or even above average color are distinctly

valuable, as much so as transparent, faceted stones of similar color. Often, rubies with the same carat weight as a diamond often sell for higher prices due to their extreme rarity. The rarity of the star stones must be stressed because only one percent of all rubies are of gem quality, and out of that one percent, even less have the asterism phenomenon chemically present within the compound. Moreover, large star rubies of gem quality are much more rare, thus highly prized and incredibly valuable. For instance, the renown 138-carat Rosser Reeves star ruby, on exhibit at the Smithsonian Institute, is valued at \$25 million dollars or roughly \$180 thousand dollars per carat.

The largest cuttable ruby ever found weighed 400cts rough and was divided into three sections. Other famous stones of exquisite beauty are the Edward ruby(167ct) in the British Museum of Natural History in London, the Long Star ruby(100ct) in the American Museum of Natural History, and the Peace ruby(43ct) thus named as it was discovered shortly after the end of the first world war.

Until now, most rare but magnificent star rubies have been found in Burma, with some star corundums found in Sri Lanka having brown or grayish-red colors. However, some dark asteriae have been discovered in Australia and a few dull red, opaque specimens have been found in India.

Yet, there has been a recent discovery of a magnificent six-rayed 142.5 carat stone named the Appalachian Star Ruby. This blood red gem was found by J. Wayne Messer and originally weighed 377 carats rough. The ruby was cut en cabochon by lapidary Samuel

Fore and possesses a very distinct asterism as described by noted gemnologist Michael Greene of Wick and Greene Jewelers located in Asheville, N.C..

The purpose of this report is to discuss the testing and verification of the physical properties, chemical composition, quality, durability, and rarity of the Appalachian Star Ruby. The following data and analyses were conducted by a lapidary, a gemnologist, several scientists and their research facilities.

Discussion & Results

The physical properties of precious stones are basically the fingerprint for identifying them from a multitude of similar compounds and minerals. Additionally, various qualitative measurements can be administered in order to specifically verify a particular gem and its innate, singular quality. Within the gemnological, chemical, and lapidary literature there exists a tremendous stockpile of relevant, consistent data on a variety of rocks and minerals. When researching a particular material, there exists a multitude of sources in the current literature of which data can be compared to verify the compound.

The following table was extracted from Gemstones Of The World and utilized as comparative data during the analysis of the Appalachian Star.

RUBY Corundum Group



Color: Varying red
Color of streak: White
Mohs' hardness: 9
Specific gravity: 3.97–4.05
Cleavage: None
Fracture: Small conchoidal, uneven, splintery, brittle
Crystal system: Hexagonal (trigonal); hexagonal prisms or tablets, rhombohedrons
Chemical composition: Al_2O_3 , aluminium oxide

Transparency: Opaque, translucent, transparent
Refractive index: 1.766–1.774
Double refraction: –0.008
Dispersion: 0.018
Pleochroism: Strong; yellow-red, deep ruby-red
Absorption spectrum: 6942, 6928, 6680, 6592, 6100–5000, 4765, 4750, 4685
Fluorescence: Strong; ruby-red

The published data above was the outline for the investigation on the Appalachian Star ruby. Several tests were conducted by the author and the others were conducted by independent scientists from the southeastern United States. The tests performed on the Appalachian star were mass(carat weight), specific gravity(density), absorbance spectroscopy, index of refraction, x-ray fluorescence spectroscopy, ultraviolet fluorescence testing, acid solubility testing and powdered x-ray diffraction spectroscopy.

Before further discussion on the results of the experiments on the Appalachian Star, explanation of its physical properties and the instrumentation used to identify these properties will be quite helpful in understanding why and how these tests were performed. Each one of the following analyses assisted in identifying the ruby's physical properties; just as a fingerprint or retina scan would identify any individual person amongst thousands.

Mass- The weight of a material in the Earth's gravitational field. Three independent measurements were made on the ruby; by the author, the lapidary who cut the stone, Samuel Fore, and by Wick & Greene Jewelers.

Specific Gravity- The weight of a particular material compared to the weight of the same volume of water. For example, a gem with a specific gravity of 1.76 is therefore 1.76 times as heavy as the same volume of water.

The measurement was conducted by the author using a Mettler electronic scale adjusted to be utilized as a hydrostatic balance. The ruby was first weighed in air, and then in water (in a cage within a beaker of water). The difference in weight corresponds to the weight of the displaced water and therefore the volume of the stone. Once the volume and mass of the stone are established, specific gravity can be determined by the relationship:

$$\text{specific gravity} = \frac{\text{mass of stone}}{\text{volume of stone}}$$

Index of Refraction- is the measure of the amount a material refracts or bends light. An analogy to this principle is observing a reed growing in a pond. If you look closely at the reed where it leaves the water, it appears to be bent. This is simply an illusion as light is refracting upon entering the water and the reed appears to bend at the air/water interface.

The index of refraction of the ruby was measured using a Duplex II Refractometer and a Gemolite Mark V binocular microscope by Wick & Greene Jewelers.

Absorption Spectrum- The absorption spectrum of a stone are the bands or wavelengths of light which have passed through it. Certain wavelengths of light are absorbed and the color of the gem is formed from the remaining mixture of the original white light.

The testing instrument was a Beckman DU spectrophotometer

and the measurement was conducted by the author. The wavelengths are measured in angstrom units (1 angstrom = 1 ten millionth of a millimeter) and also in nanometers (1 Nm = 1 millionth of a millimeter).

Acid Solubility - is a measure of the solubility of materials in concentrated acids. A simple but useful test, acid solubility helps in determining the durability, hardness and integrity of the crystal structure within a gem. This experiment was conducted by the author using Pyrex test tubes and hot, concentrated inorganic acids.

X-ray Fluorescence Spectrum - is an elemental analysis which determines the identity and quantity of metals present in a material.

The device used in this process is a KeveX XRF spectrometer and was conducted by Albert Wilds at the Minerals Research Laboratory (for additional information, see the instrument description pamphlet at the end of this report).

Fluorescence analysis - is a qualitative test which is accomplished by bombarding a sample with ultraviolet wavelengths of light. As described in the introduction, certain compounds re-emit the UV light at a longer wavelength thus giving the ruby the appearance of a piece of hot coal under a red filter. In ruby, the chromium content is the source of the fluorescence.

This experiment was conducted by Martin Fox and the owner of the stone and also verified independently by the author.

Powdered x-ray diffraction - This procedure is the single most important analysis to the identification of a gemstone. When a beam of x-rays are directed at a solid, much of it passes through the solid, some of the rays are absorbed and converted to heat energy, and the rest are scattered. It is the scattered x-rays that are important

because every compound scatters or diffracts the x-rays in a unique pattern. The pattern is dependent on how each atom within a compound is aligned and the planes of symmetry in which they are ordered. This fingerprint analysis can almost singlehandedly identify the compound and its structure without any other testing necessary.

The x-ray diffraction study was completed by senior research scientist James Hubbard and his team at the Georgia Technical Research Institute.

The following table compiles the findings of the experiments performed on the Appalachian Star ruby and compares the data to results found in the literature.

Appalachian Star Ruby			
Data Table			
Quantitative Results			
Test	Instrument	Results	Published Results
1. Mass(carat wt)	AE100 METTLER	139.36-142.5ct	none
2. Specific Gravity (density)	Hydrometer	3.9832g/cm ³	3.97-4.05g/cm ³
3. Refractive Indices	Duplex II Refractometer	1.76-1.77	1.766-1.774
4. Absorption Spectrum (Angstrom units)	Beckman Model DU Spectrophotometer	6942, 6928, 6680, 6100-5000, 4685, 4765, 4750,	Identical
5. Acid Solubility	Pyrex Test Tubes 20ml @ 50° C.	Insol.-H ₂ SO ₄ , HCl, HNO ₃ , H ₃ PO ₄ , Aqua Regia	Identical
6. X-ray Fluorescence	KeveX XRF Spectrometer	Al ⁺³ , Cr ⁺³ , Fe ⁺³ , Ti ⁺²	Identical
7. Fluorescence	LW fluorescent lamp, #25-A red filter, EPP film	strong; carmine to blood red emission	medium to strong
8. X-ray diffraction	Rigaku Geiger-Flex diffractometer, D-Max-B systems software	Alpha Al ₂ O ₃ , Corundum structure	Identical

Conclusions

The data compiled on the Appalachian Star ruby verifies that it is a high quality star ruby possessing all of the physical properties and chemical characteristics necessary to be described as such. The physical data acquired on the Appalachian Star parallels the published data on other ruby material consistently. There is no deviation from the literature on any of the comparable data confirming the ruby is of the highest quality. Continuing studies on this stone will simply add to the technical data already established at this time.

As outlined in the introduction, the asterism effect is the product of tiny rutile needles embedded into the crystal structure of the ruby. This characteristic of asterism in conjunction with the quality data, the beauty and the enormity of the stone, all contribute to distinguish and verify the value of the ruby. The market value of this stone can only be determined by comparing it to other stones of the similar beauty, quality, rarity, and hardness.

As described earlier, the Rosser Reeves Star ruby has an estimated value of \$180,000 dollars per carat. There have been no documented rubies such as Appalachian Star ruby discovered in recent history. Additionally, as demand for unique precious stones like the Appalachian Star ruby increases and the availability decreases, the desire to own them will grow. Therefore, it is concluded from the compiled research that this 142.5 carat ruby is a world class gemstone of extreme value.

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Acknowledgements

The author of this paper and owner of the Appalachian Star would like to express appreciation to the following individuals and groups for their contribution to this undertaking; to the Chemistry Department at the University of North Carolina-Asheville for use of their facilities and instrumentation; to Albert Wilds at N.C.S.U Mineral Research Laboratory; to James Hubbard at Georgia Tech.; and to Michael Greene at Wick & Greene Jewelers. Without the contributions of these individuals and their facilities this project would not have been possible.

About the Author

E. P. Lilly III received a Bachelor of Arts in Chemistry from the University of North Carolina-Asheville after serving four years in the U.S. Marines. While at UNCA, Mr. Lilly studied applied inorganic and nuclear chemistry and was a member of the Mossbauer research group composed of several chemists and physicists. For three years, he researched a variety of inorganic compounds from cytotoxic(anti-tumor) complexes to antimony carbonyl metal cluster compounds and published his findings in several journals.

The author lives in Asheville, North Carolina, where he works as a science and mathematics instructor while pursuing a masters degree in chemical education.

NORTH CAROLINA STATE UNIVERSITY
MINERALS RESEARCH LABORATORY

Asheville, North Carolina

CHEMICAL ANALYSIS RECORD

Date: January 31, 1991

Copies to: Wayne Messer
James T. Tanner
Albert Wilds

Analysis requested by: Wayne Messer

Kind of sample: Red Rock

Analyze for: See Below

Sample No.

Lab. No.

ANALYSIS

Note: This analysis is representative only of the sample submitted and is not to be construed to guarantee the integrity, quality, or size of any particular mineral deposit.

All Results in Percent (%)

<u>Lab. No.</u>	<u>Designation</u>	<u>SiO₂</u>	<u>Al₂O₃</u>	<u>Fe₂O₃</u>	<u>CaO</u>	<u>MgO</u>	<u>K₂O</u>	<u>Na₂O</u>	<u>LOI</u>	<u>TiO₂</u>
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The sample submitted to the Minerals Research Laboratory was qualitatively scanned for the elements present using X-Ray Fluorescence.

The elements that were identified are aluminum, iron or chromium. The aluminum appears to be the largest component with iron and chromium being present at trace levels. Titanium was also found at trace levels.

Date Completed: January 30, 1991


Analyst: Albert Wilds

Remarks:

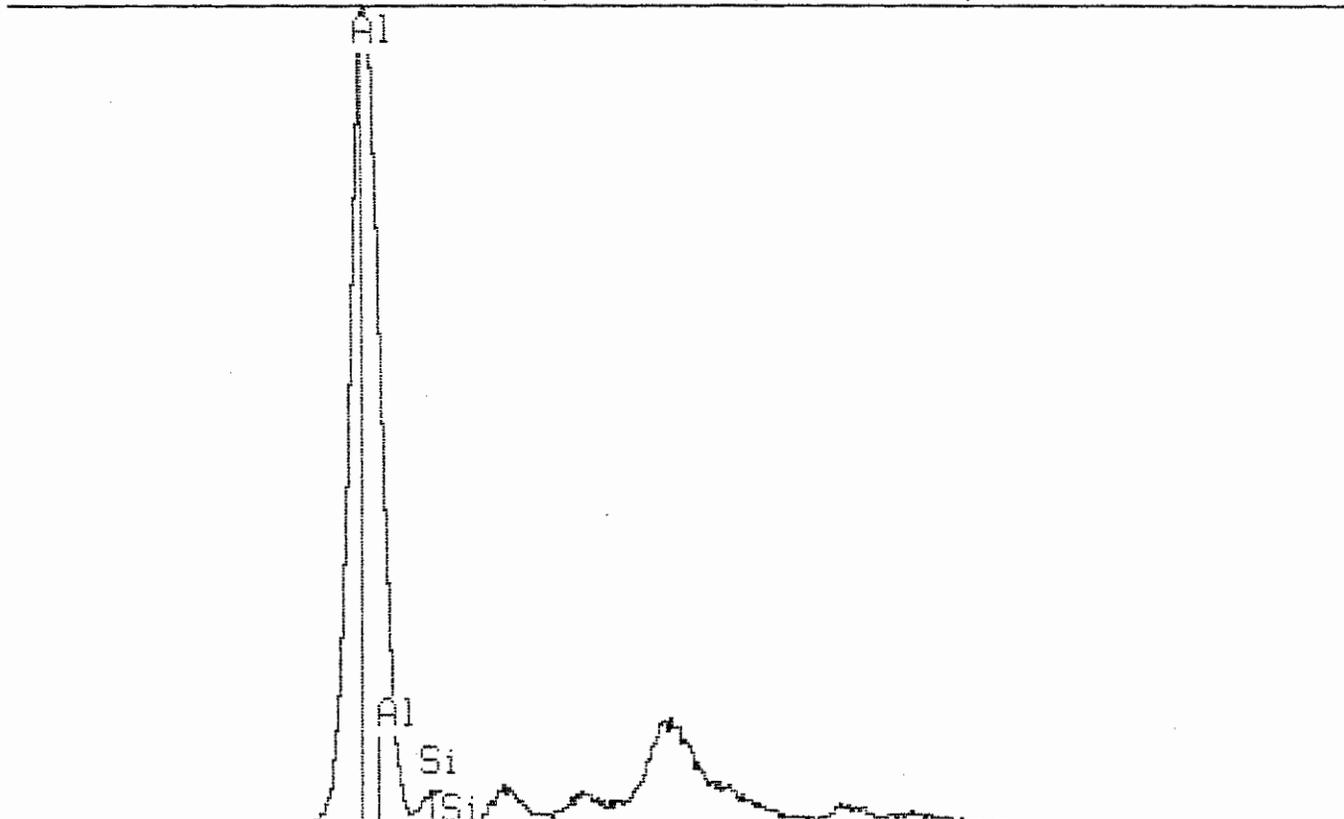
30-Jan-1992 15:01:49

BA/CL;

A1=1 P1=1 P2=2

Preset= 100 secs

Vert= 5529 counts Disp= 1 Comp= 2 Elapsed= 100 secs



← 0.160 Range= 10.230 keV 5.210 →

Integral 0 = 122003

1 2 3 4 5

30-Jan-1992 14:51:44

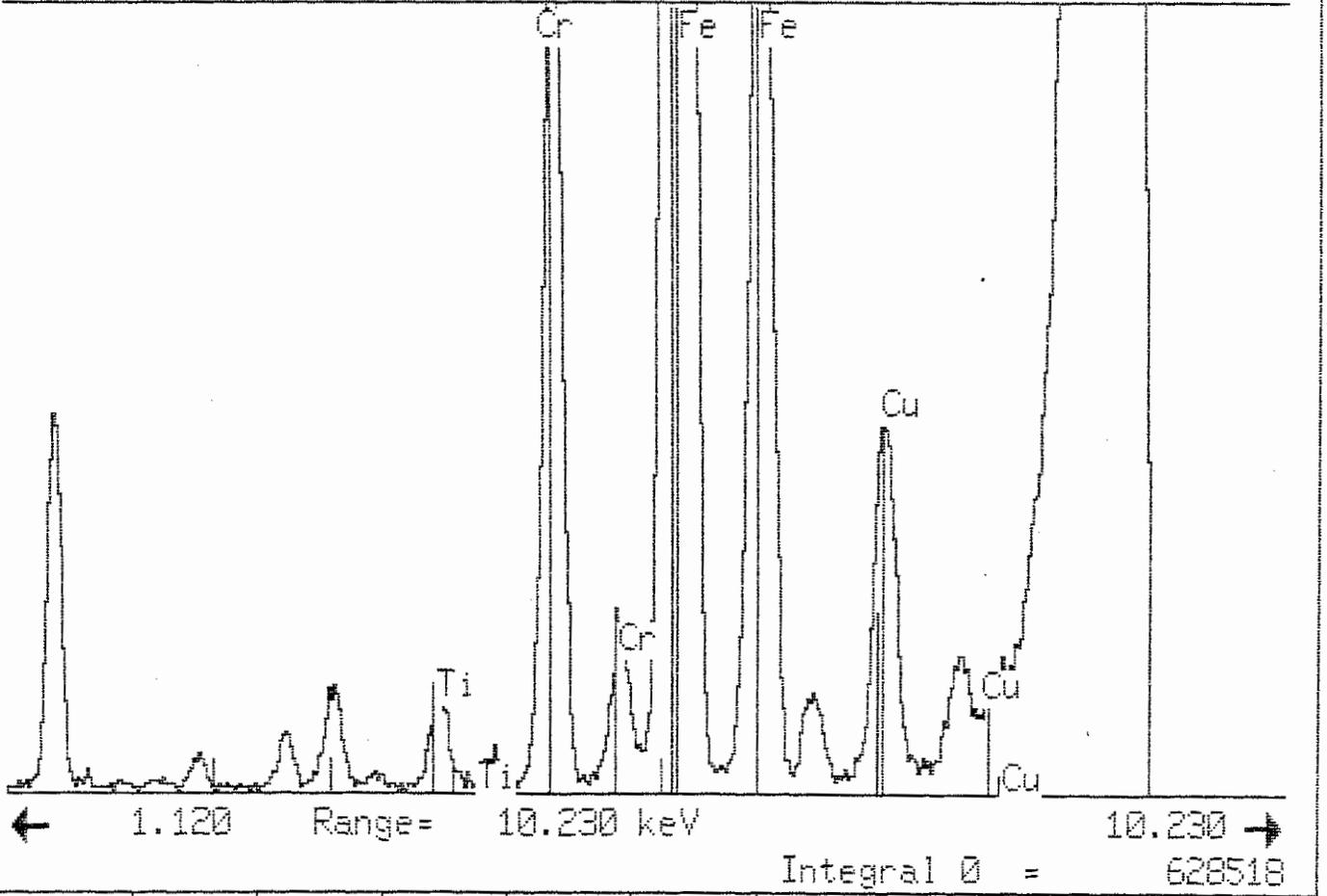
A1=1 P1=1 P2=2

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Comp= 2

Preset= 240 secs

Elapsed= 240 secs



GEORGIA TECH RESEARCH INSTITUTE
GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA 30332

GTRI

August 20, 1991

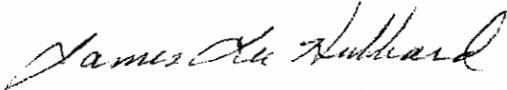
E. P. Lilly III
159 Barnard Avenue
Asheville, NC 28804

Dear Mr. Lilly:

The ruby material which you submitted to our lab has been analyzed for chromium content using the electron microprobe. The material was ground to a fine powder which was packed to a smooth surface. Two areas were analyzed, each about 100 square microns. The results of the two analyses were the same and showed the chromium content of the sample to be 0.11 percent.

Please let me know if we can be of further service to you.

Sincerely,



James Lee Hubbard
Senior Research Scientist
Materials Characterization Branch
Material Science and Technology Laboratory

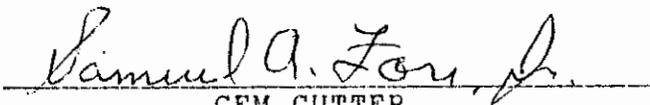
"EXHIBIT A"

I feel that my following comments can only begin to give the recognition that Mr. Wayne Messer's Appalachian Star Ruby deserves.

It is very rare that a gem cutter has the opportunity to cut ruby material of this size not to mention being able to just hold a ruby of this size in your hands. It was indeed an extreme pleasure to have been given this rare opportunity.

This ruby material exhibits unusually strong chatoyancy which gives way to an extremely brilliant six ray star asterism. After the completion of my final polish, I removed the stone from the dop stick and commenced cleaning the stone. It was by sheer accident that I discovered just how strong the chatoyancy really was. I was sitting between two (2) light sources located just overhead when I saw two (2) 6 ray stars. I thought at first that my eyes were deceiving me, but I knew that the crystal had no twinning characteristics and therefore knew that the double star was being created by the very strong chatoyancy and high polish. Needless to say, this was one of the most exciting moments of my lapidary career.

I wish to extend my deepest appreciation to Mr. Wayne Messer for giving me the opportunity to cut yet another world class stone.


GEM CUTTER

I, Samuel A. Fore, Jr., do solemnly swear that my signature which appears on the foregoing document labeled "EXHIBIT A", is my signature, and was executed by me on the 18th day of JULY, 1991.

STATE OF NORTH CAROLINA

COUNTY OF HENDERSON

On this 18th of JULY, 1991, personally appeared before me, the said named SAMUEL A. FORE JR., to me known and known to me to be the person described in and who executed the foregoing instrument and he acknowledged that he executed the same being duly sworn by me, made oath that the statements in the foregoing instrument are true.

My commission expires JULY 18, 1992, 19 .

James R. Boy
Notary Public

(Official Seal)

SWORN AFFIDAVIT
OF AUTHENTICITY

I, Samuel A. Fore, Jr., do solemnly swear on this the 29th day of JULY, 1991, that the sample piece of ruby corundum submitted to Mr. E. P. Lilly for chemical analysis was the unused piece weighing 58.2 carats and was sliced off the original 377 carat rough from which the Appalachian Star Ruby was cut.

STATE OF NORTH CAROLINA

COUNTY OF HEWDERSON

On this 29th of JULY, 1991, personally appeared before me, the said named SAMUEL A. FORE JR., to me known and known to me to be the person described in and who executed the foregoing instrument and he acknowledged that he executed the same being duly sworn by me, made oath that the statements in the foregoing instrument are true.

My commission expires JANUARY 15,, 1992.

James R. [Signature]
Notary Public

(Official Seal)

Herbicide heals

FIVE children in Sweden with a fatal inherited disease have responded well to treatment with a drug that started life as a herbicide. Researchers at ICI's toxicological laboratories found when they screened a potential synthetic herbicide called NTBC that it affects the metabolism of the amino acid tyrosine.

This is the same metabolic pathway which leads to the disease, tyrosinaemia type I. Normally, a liver transplant is the only treatment that will prevent an early death from liver disorders associated with the disease.

ICI alerted Swedish researchers at the University of Gothenburg who specialise in studies on tyrosinaemia type I, and in February 1991 a trial began to test whether the herbicide was beneficial.

Sven Lindstedt and his colleagues speculate in *The Lancet* (3 October, p 813) that NTBC blocks the breakdown of tyrosine, and this prevents the build-up of compounds that attack the liver.

Food ethics

BRITAIN's government has set up a committee to examine ethical issues relating to genetically modified foods. John Polkinghorne, the president of Queen's College Cambridge, is chairing a study into the subject. It will investigate such issues as future trends in the production of transgenic organisms and the ethical concerns raised by the use of food products derived from them.

Francs for science

THE French cabinet has approved an increase of 5.25 per cent in funding for research and development for 1993, taking spending up to 61.3 billion francs (£500 million).

The package specifies an increase of 7.2 per cent for space research, including development of the Hermes space plane and the Ariane 5 heavy launcher. Nuclear research gets almost 7 per cent more, aeronautics gets 6.2 per cent more and the human genome project and AIDS research receive some 10 per cent more.



H. Taylor/NHM

Star ruby makes its first appearance

THE world's heaviest ruby went on public display for the first time this week at the Natural History Museum in London. It is being held above by Cally Oldershaw, the museum's gemologist. The gemstone, named the Appalachian Star Ruby by its finder, is 28.6 millimetres high and weighs 139.43 carats (27.89 grams). This is just a fraction more than the Rosser Reeves Ruby from Sri Lanka, on display at the Smithsonian Institution in Washington DC, and which is valued at around \$25 million. The Appalachian ruby was found by Wayne Messer in his native North Carolina and kept in a small private display until this week. When the stone is held up to the light, it displays a perfect six-pointed star.

France ranked fourth in 1990 in terms of total spending on science as a percentage of gross domestic product. It spent 2.4 per cent, ahead of Britain's 2.2 per cent, but behind Japan, the US and Germany.

Suburban science

THE US National Science Foundation looks likely to be dragged kicking and screaming into the suburbs of Washington.

The NSF now occupies four buildings in downtown Washington. It asked the General Services Administration several years ago to find it new and larger offices. But when the GSA leased a building in Arlington, a half-hour taxi ride from the centre of government, the NSF tried to veto the move. It protested that its "role in the science and technology process would be significantly diminished" if it left its current headquarters two blocks from the White House.

Congress's General Accounting Office, called in to investi-

gate, reported last week that the NSF's protests had no merit. "We could find no evidence that NSF will not be able to accomplish its mission in Arlington," said the GAO. While the location may be less convenient for agency staff attending meetings downtown, the GAO found that Arlington offered other attractions: There are 43 "eating establishments" within two blocks of the new location, compared to only 11 near the White House.

Goodbye, Tokyo

JAPAN should move its research facilities away from their present concentration in the Tokyo area and increase basic research, according to the country's annual Science and Technology Agency report released last week.

The Kanto plain around Tokyo contains 25 per cent of Japan's population and has an economy bigger than Britain's. It also hogs most of the research facilities.

Virtual Mars

MARS, or a small part of it, is to be recreated near Toulouse in order to test space vehicles. The simulated Martian landscape is part of a project called GEROMS, announced last week by the French space agency CNES.

Mario Delail, who leads the programme at CNES, says robots will be tested in a studio equipped with Martian craters, lighting, gravity and horizon which will be programmed into space robots' memories. A larger, outdoor Martian landscape will be used to test the manoeuvrability of automatic space vehicles.

"We'll be watching the results from the Mars Observer carefully to get a better idea of how to design our site," Delail said. The Mars Observer was launched by NASA on 25 September, and is due to go into orbit round Mars in August next year.

The first vehicle to go through its paces at Toulouse will be the Russian space vehicle Marsokhod, which is scheduled to travel to Mars in 1996. Marsokhod will contain a robot that will leave the vehicle and venture out on to the Martian landscape.

Foreigners welcome

THE Chinese Academy of Sciences has performed a major political U-turn in introducing its new constitution. Chinese scientists living outside the mainland are now eligible for election—including scientists from Taiwan, Macao and Hong Kong. Foreign scientists who have made significant contributions to China's scientific and technological development will also be eligible for election.

Under the new constitution, which has been approved by China's Council of State, foreign members of the academy will have the right to talk at academy meetings and submit papers for publication. But China's conservatives need not worry that outsiders will be a disruptive influence. According to the constitution, academicians can be expelled if they act in a manner detrimental to the reputation of the academy or the interests of the state. □

Appalachian Star Ruby Breaks Records

FRONT PAGE

By Peggy Gossett
Editor

11028

The Rosser Reeves has been displaced as the world's largest star ruby by a local man's priceless Appalachian Star Ruby.

The 138.7-carat Rosser Reeves Ruby from Sri Lanka displayed at the Smithsonian Institute's Hall of Gems in Washington, D.C. was previously documented as the record gemstone prior to certification of the Appalachian Star Ruby found by Jarvis Wayne Messer of Buncombe County.

Messer, who currently lives on Mount Pisgah, grew up working on his grandfather's farm in the Jonathan Creek section of Haywood County. He says he graduated from a "pebble puppy" to a "rockhound" when he was a young boy.

He has found numerous other valuable gemstones over the years, including the 1,005-carat Southern Cross sapphire which he found a few years ago below the Old Pressley Mine near Tom Woods' log barn in Canton.

Messer is amazed that people have not realized how much wealth the mountains of Western North Carolina hold.

"These are the oldest mountains in the world and we're dealing with some old materials," Messer said.

There are 325 different varieties of gems and minerals in the Western North Carolina mountains, he said.

In order for Messer to prove the value of his ruby, it had to pass three tests: durability (it rated 9 on a scale of 10), rarity (less than 1% of the corundum dug in the world will star like the Appalachian Star Ruby), and beauty.

"When the Appalachian Star stayed on display at the Natural History Museum in London, England for 30 days last October, it proved the beauty of the ruby," Messer noted.

The Appalachian Star, when held up to light, displays a perfect six-point star. The rays are straight, sharp and intersect well, experts say.

"I feel the beauty lies in the quality of the star," Messer said.

The month-long display at the London museum was the first time the Appalachian Star had been shown outside of the United States.

It was displayed at the Colburn Mineral Museum at Pack Place in Asheville last July. Messer said a mineralogist suggested that he take

the Appalachian Star to the Testing Laboratory of Great Britain for certification. Messer said the ruby was certified within eight or nine hours.

(See RUBY on Page 3)



Jarvis Wayne Messer (right), a native of Haywood County now residing on Mount Pisgah, is shown at the Natural History

Museum of London where his priceless ruby, The Appalachian Star, was on display.

ENTERPRISE

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FEB 24 1993

BURRELLE'S 923

26 e... SB

Ruby

(From page 1)

"I wanted to take it to the oldest gemological unit in the world," he said. "They've seen more stones than anyone and they are the same people who authenticated the crown jewels of Great Britain."

The museum was the natural next step for Messer's ruby.

"In my opinion, the Appalachian Star Ruby is a very fine specimen," said Cally Oldershaw, the museum's gemologist. Although a value can not be placed on the ruby until it is actually purchased, Ms. Oldershaw has declared that the Appalachian Star is very valuable.

In fact, security was increased at the London museum while the ruby was on display, since it was given such high profile.

The Rosser Reeves ruby is valued at approximately \$25 million. The highest price a ruby has sold for was \$100,639 per carat in the case of a 4.12 carat caspian shaped ruby.

The Appalachian Star has been documented as the largest, finest star ruby in the world by expert gemologists. It is 28.6 meters high and weighs 138.7

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Extract from
Hartlepool Mail

7 OCT 1992

Rough ruby goes on show

⁹²³
THE recently-discovered Appalachian Star, which is worth millions of pounds, goes on show at London's Natural History Museum tomorrow.

The rough ruby crystal, said to be the finest star ruby in the world, was found by self-confessed "old rock hound" J. Wayne Messer in his native North Carolina.

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Extract from
Chelsea News - London

7 OCT 1992

Keeping an eye on
not so little gem

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Extract from
Birmingham Evening Mail

Ruby Tuesday

⁹²³
The recently-discovered ruby Appalachian Star, which is worth millions of pounds, went on show at London's Natural History Museum today.

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Extract from
Scunthorpe Evening Telegraph - Lincs.

8 OCT 1992

JUST FANCY THAT

THE recently-discovered Appalachian Star, which is worth millions of pounds, is to go on show at London's Natural History Museum. The rough ruby crystal, said to be the finest star ruby in the world, was found by self-confessed "old rock hound" J. Wayne Messer in his native North Carolina. ⁹²³

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Extract from
Wrexham Evening Leader

5 OCT 1992

A real gem

THE Appalachian Star, worth millions of pounds, goes on show at London's Natural History Museum tomorrow. ⁹²³

The rough-ruby crystal was found by self-confessed "old rock hound" J. Wayne Messer in North Carolina.



Diamonds may be a girl's best friend but rubies, especially if they are worth more than \$25 million, have that little extra fascination. So if you have got a taste for jewels, but don't want to break the bank, pop along to the Natural History Museum to see the finest star ruby in the world.

Wayne Messer is at almost 140 carats, the Appalachian Star Ruby displays a perfect six-rayed star when it catches the light. It was found by a self-confessed "old rock hound" Wayne Messer in North Carolina. Pictured with the security guards is museum gemmologist Cally Oldershaw.

139.43 CARATS

'Appalachian Star' ruby unveiled for U.S. showing

BY JIM WOOLDRIDGE

Times-News Staff Writer

ASHEVILLE — A small crowd at the Grove Park Inn applauded Monday when a blood-red ruby, the Appalachian Star, was unveiled for its first official showing in the United States.

The pecan-size stone which has been on display in London's Museum of Natural History, was found by Jarvis Wayne Messer, a Cherokee descendant who lives in the Mount Pisgah area.

He said he is offering the rare gem for sale to the highest bidder. No minimum price has been set, but he said it could be several million dollars.

An appraiser with Shelley's Jewelry of Hendersonville, Joette Humphrey, said she couldn't put a price on the stone. Its size

and quality exceeds any she has dealt with, she said after viewing it.

"What makes it so incredible is the perfect star. When you see a perfect star of that size and in that color, it's just amazing. I've never seen anything like it in my life," Humphrey said.

It weighs 139.43 carats, .73 carat more than the 138.7-carat Rosser Reves ruby in the Smithsonian Institution in Washington, D.C.

When discovered in 1991 and before being cut by Sam Fore of Hendersonville, the stone weighed 377 carats and was almost as large as a chicken egg, Messer said.

"Enough of it was exposed to show me how large it was," he said, adding he will continue to explore in this and other locations.

APPALACHIAN continues on page 11A



ASSOCIATED PRESS

Wayne Messer holds his 139.43 carat ruby, The Appalachian Star, after a news conference in Asheville Monday.

'Appalachian Star' ruby is unveiled in the U.S.

Continued from page 1A

He has a friend who is a member of the Gemological Trade Society of Great Britain. The friend persuaded him to put it on display in the London museum in 1992.

The London *Daily Mail* said it "produces a perfect, six-rayed star. The *New Scientist* wrote "the Appalachian Star is said to be the finest star ruby in the world."

Messer found it while digging in permatite dikes, the dried gravels of ancient stream beds. Some rubies are enclosed in other rock, some are free of any other material.

"I worked that pit now and then for three years before I found the Appalachian Star," he said. "I couldn't work it every day because

where I was digging.

"The day I found it, a red-tailed hawk soared over me, and I took it as a good omen. When I dug out the stone, enough of its color was exposed to show me what I had found."

Rubies come from the mineral family *corundum*, aluminum oxides that are among the hardest of materials. The Appalachian Star has a Mohl rating of 9. Only diamonds register 10 on that scale.

"We held the unveiling to tell the world that it's for sale," Messer said.

Asked what price he would consider, he said he wouldn't set a limit, but predicted the price will be "a million dollars or more."

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Extract from
Daily Mirror - London

- 5 OCT 1992

923 Ruby Tuesday
THE Appalachian Star, a US ruby worth about £14million, goes on show at London's Natural History Museum tomorrow.

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Extract from
Greenock Telegraph - Renfrewshire,
Scotland.

- 5 OCT 1992

923 Gem of a stone
THE recently discovered Appalachian Star, which is worth millions of pounds, goes on show at London's Natural History Museum tomorrow.
The rough ruby crystal, said to be the finest star ruby in the world, was found by self-confessed "old rock hound" J Wayne Messer in his native North Carolina.

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Extract from
Daily Telegraph - London

- 5 OCT 1992

Star attraction

923 The recently discovered Appalachian Star, said to be the finest ruby of its kind and worth millions, goes on show at London's Natural History Museum on Tuesday.

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Extract from
Financial Times - London

5 OCT 1992

Winding-up order sought on bank:
The Bank of England is petitioning to wind up London-based Mount Banking Corporation, a private bank with 3,000 mainly Asian depositors.
Page 8
923 Ruby on show: The Appalachian Star, said to be the world's finest star ruby, goes on show tomorrow at the Natural History Museum, London. The stone, found in North Carolina, has been cut into a 139.43 carat gem.

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Extract from
Eastern Daily Press - Norwich

Star attraction

The Appalachian Star, said to be the world's finest ruby, goes on show at London's Natural History Museum tomorrow.

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Extract from
Birmingham Post

Shining in London

The recently-discovered Appalachian Star, which is worth millions of pounds, goes on show at London's Natural History Museum on Tuesday. The rough ruby crystal, said to be the finest star ruby in the world, was found by self-confessed "old rock hound" J Wayne Messer in North Carolina. He cut and polished it into a the 139.43 carat star ruby which displays a perfect six-rayed star when it catches the light.

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Extract from
Halifax Evening Courier

5 OCT 1992

NATIONAL NEWS BRIEFS

Star of show

THE recently-discovered Appalachian Star, which is worth millions of pounds, goes on show at London's Natural History Museum tomorrow. The rough ruby crystal, said to be the finest star ruby in the world, was found by self-confessed "old rock hound" J Wayne Messer in his native North Carolina.

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Extract from
Oxford Mail

5 OCT 1992

LONDON: The Appalachian Star, a rough ruby,

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London SE17 1JE

Extract from
Western Morning News - Plymouth

5 OCT 1992

Crystal on show

THE recently-discovered Appalachian Star ruby crystal, which is worth millions of pounds, goes on show at London's Natural History Museum tomorrow.

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Extract from
Nottingham Evening Post

5 OCT 1992

What a gem!

THE recently-discovered Appalachian Star, said to be the world's finest star ruby in the world and worth millions of pounds, goes on show at London's Natural History Museum tomorrow. It was found by self-confessed "old rock hound" J. Wayne Messer in his native North Carolina.

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Extract from
Belfast Newsletter

New 'star' on show

THE recently-discovered Appalachian Star, which is worth millions of pounds, goes on show at London's Natural History Museum tomorrow.

The rough ruby crystal, said to be the finest star ruby in the world, was found by self-confessed "old rock hound" J Wayne Messer in his native North Carolina.

He cut and polished it into the 139.43 carat star ruby which, as its name implies, displays a perfect six-rayed star when it catches the light. The gem will be on view throughout the month.

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Extract from
Colchester Evening Gazette - Essex

5 OCT 1992

Star gem on show

THE recently-discovered Appalachian Star, a rough ruby crystal worth millions of pounds, discovered by self-confessed "old rock hound" J Wayne Messer in his native North Carolina goes on show at London's Natural History Museum tomorrow.

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Extract from
Oxford Mail

5 OCT 1992

LONDON: The Appalachian Star, a rough ruby,

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224-236 Walworth Road,
London SE17 1JE

Extract from
Express & Echo - Devon

Gem of stone

THE recently-discovered Appalachian Star, worth millions of pounds, goes on show at London's Natural History Museum tomorrow. The rough ruby crystal, said to be the finest star ruby in the world, was found in North Carolina, SA.

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Extract from
New Scientist - London

10 OCT 1992



H. Taylor/PHM

Star ruby makes its first appearance

THE world's heaviest ruby went on public display for the first time this week at the Natural History Museum in London. It is being held above by Cally Oldershaw, the museum's gemologist. The gemstone, named the Appalachian Star Ruby by its finder, is 28.6 millimetres high and weighs 139.43 carats (27.89 grams). This is just a fraction more than the Rosser Reeves Ruby from Sri Lanka, on display at the Smithsonian Institution in Washington DC, and which is valued at around \$25 million. The Appalachian ruby was found by Wayne Messer in his native North Carolina and kept in a small private display until this week. When the stone is held up to the light, it displays a perfect six-pointed star.

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Extract from
Northern Echo - Darlington

14m gem: The recently-discovered Appalachian Star, worth millions of pounds, goes on show at London's Natural History Museum tomorrow. The 139.43 carat ruby, said to be the finest in the world, is valued at about £15m.

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Extract from
Daily Mail - London

7 OCT 1992

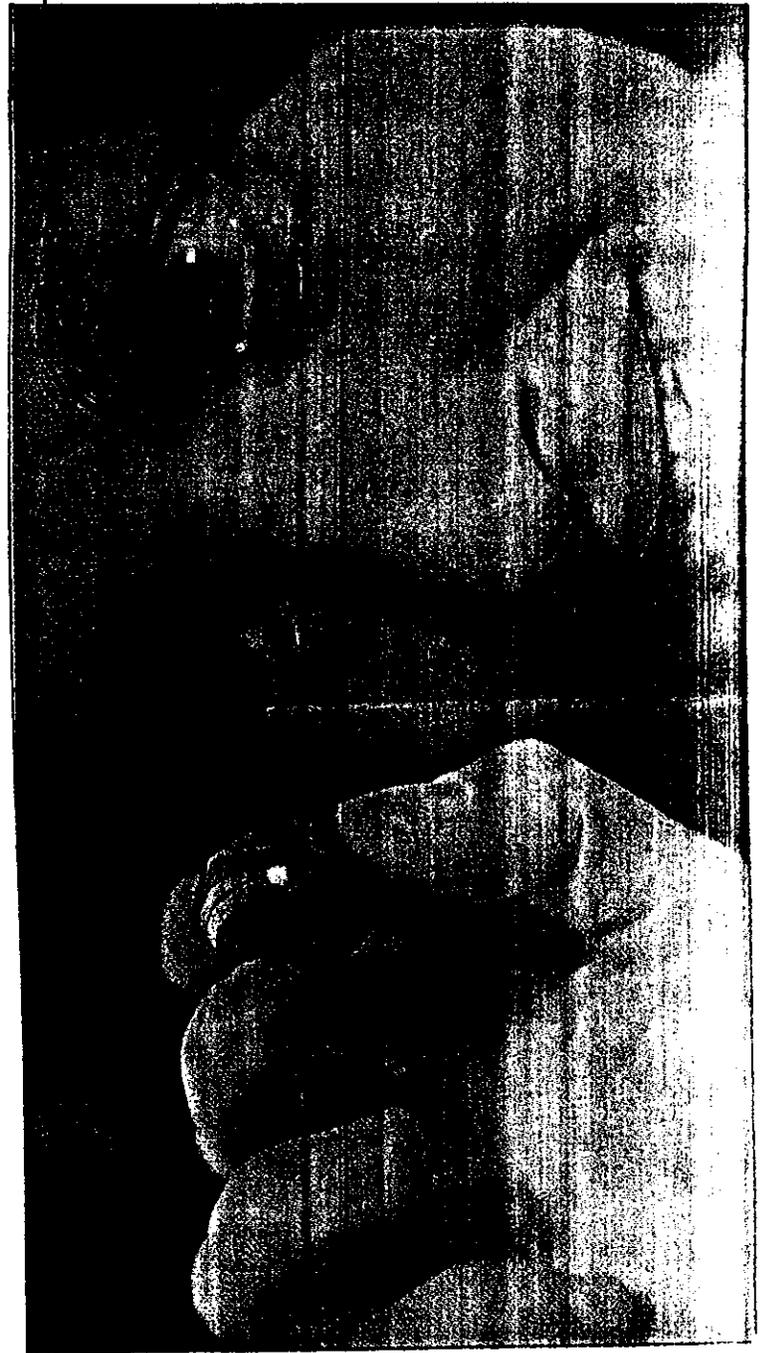
Starstruck at the sight of a £15m ruby

THE world's finest ruby was enough to dazzle even an expert in gems yesterday.

It is quite breathtaking, said Cally Oldershaw, with stars in her eyes at the sight. And she wasn't just thinking of its value, put at more than £15million.

Cally is a gemologist at London's Natural History Museum, where the 139.43 carat Appalachian Star Ruby

is on show for a month. It was a stunning spectacle, for when the ruby catches the light it produces a perfect six-rayed star. The Appalachian Star, an inch-long pebble-shaped stone, was discovered in North Carolina two years ago by an amateur geologist. It will be under strict guard all the time it is in Britain. Cally said: 'It is the first time this gem has been seen outside America.'



LETTERS TO THE EDITOR

Crime bill debate brought forth interesting paradoxes

Editor, the Citizen-Times:

The crime bill that just passed Congress presented some interesting paradoxes. Many right-to-life members would not support the bill because of its ban on assault weapons. These congressmen claim that would be an infringement on our freedom. The freedom to assault, I guess.

They also claim that there is too much "pork" for social programs aimed at preventing crimes. Somehow they believe enforcing the laws with more prisons and police is the only answer. The expense of keeping someone in prison is more than sending someone to college and should be revented when possible.

All of this attention avoids the cause of the disease to deal with the symptoms. Why does the United States, the bastion of freedom, have one of the highest percentages of prison population? Why do we have the most violent crime of the industrialized world?

The increasing inequality of wealth and the possibilities of wealth are a pollution in our atmosphere. While in most developed countries the difference between the highest and lowest paid workers is seven to 10 times, here it is more like 20 times.

In Minneapolis a gang member breaks the hold of the gangs when he lands a decent job at the post office. Decent jobs are not available to many of us.

The baseball club owners are right, we need a cap on salaries, as well as a bottom. A guaranteed income, last encouraged by President Nixon, could streamline many of our overly bureaucratic government programs and provide a secure, dignified life while a salary cap inhibits our greed.

The advocates of no gun control but for government control over women's bodies claim we may need guns to fight an oppressive tyrant. In this country an oppressive tyrant who gained control would have access to the most sophisticated military equipment on Earth, making even the "Street Sweeper" seem inadequate. Perhaps a real revolution would necessarily not include guns.

Boone Guyton
Candler

Gem hunters, learn first

Editor, the Citizen-Times:

The lucky citizens of Asheville actually got the first public glimpse of Jarvis Wayne Messer's "Appalachian Star Ruby" two years before visi-

tors to the Natural History Museum of London (Citizen-Times, Aug. 8). It was first displayed to the public at the Colburn Gem and Mineral Museum here in Asheville.

The occasion was the grand opening of the museum in its new location at the Pack Place Arts and Science Center. Messer, the ruby's discoverer and owner, loaned it to the museum to help focus attention both to the museum and its new venue as well as to his own unique discovery.

It was the museum's directors who advised him to seek formal documentation to verify his find from the Gemological Association and Gem Testing Laboratory of Great Britain, the world authority on such matters. As Bob Terrell explained in his article, it is indeed a genuine natural red corundum with six-pointed asterism, i.e., a "star ruby."

We congratulate Messer for his find and now his success in revealing it to the gem world. All North Carolinians are the beneficiaries. His discovery and perseverance have reaffirmed to the world the uncommon gem resources of Western North Carolina's mountains.

However, your readers should be aware that nature has managed to disguise even the finest of rubies to all but the trained - or lucky - eye, so before every would-be pebble pup and rock hound heads for the hills to launch the "Great Ruby Rush of '94," we suggest they first acquaint themselves with what to look for at the Colburn Gem Museum in Pack Place.

Kempton H. Roll
Asheville

Roll is president of Colburn Gem and Mineral Museum.

Columnist Dave Barry gets reading assignment

Editor, the Citizen-Times:

I would like to register a complaint regarding a column by Dave Barry (Citizen-Times Aug. 13).

He refers to the creator of the human body as an idiot. As a Christian for 41 years, I find it distressing to read a description of a great and mighty God as an idiot.

I assume this individual has average intelligence or his article would not be in your paper. Please ask him to read the Bible from cover to cover before using this description of my savior again. Even if he claims to be an atheist, he may gain some respect for the beliefs of other people after reading the Bible.

Winford C. Ray
Waynesville



GOOD MORNING AMERICA

TO: Jarvis Messer

FROM: Meg Parsons

RE: Appalachian Star Ruby

DATE: September 19, 1994

Dear Mr. Messer:

I am sorry we have not been able to get a segment with you and your stone on the air. As we have discussed, the news has been volatile lately.

I called the Natural History Museum of London, and I was assured by the gemologists there that the Appalachian Star Ruby is one of the finest in the world. The people you were in contact with in London were also impressed with you. They remembered fondly your dealings with them.

I hope once things become less hectic on the news side of things, ie: a slow down during the O.J. Simpson trial and quiet in the Caribbean, we can work out a future appearance on the show.

I will be in touch with you.

Sincerely,

A handwritten signature in cursive script that reads "Meg Parsons".

Meg Parsons

FIRE AND BLOOD

Rubies in Myth, Magic, and History

Diane Morgan

PRAEGER

Westport, Connecticut
London

reflections. The stone is set in a platinum ring and flanked by two triangular-shaped diamonds. The ruby is now on display where it can be seen by the general public, and which indeed now belongs to the American public.

The Appalachian Star ruby, a 139.43 carat stone, was found by Jarvis Wayne Messer in his native North Carolina, along with the “Smoky Mountain Two Star Ruby,” an 86.56 carat round double Star Ruby, which displays a perfect six-pointed star. It is considered to be the world’s heaviest ruby, and went on public display at the Natural History Museum in London in 1992. This is just slightly heavier than the Rosser Reeves Ruby from Sri Lanka.

Kings and queens aren’t the only people to be drenched in rubies. So was Elizabeth Taylor—almost literally. In her autobiographical book, *My Love Affair With Jewelry*, she writes about the time husband Mike Todd presented her with an astonishing Cartier ruby-and-diamond necklace. “I was in the pool, swimming laps at our home, and Mike came outside to keep me company. I got out of the pool and put my arms around him, and he said, ‘Wait a minute, don’t joggle your tiara.’”

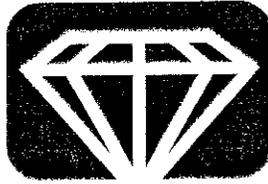
The Queen of England might not wear a tiara while swimming laps, but apparently this was ordinary practice for Taylor, who wore the one Todd had given her, telling her that she was his “queen.” She wore it for the first time at the Academy Awards, when Todd’s film *Around the World in 80 Days* won for Best Picture. However, she was also sensible enough not to wear her tiara when she met the real Queen Elizabeth in 1976, as the Queen was wearing *hers*. It doesn’t do to have competing tiaras.

At any rate, in reference to the ruby and diamond necklace, Taylor continues breathlessly,

He was holding a red leather box, and inside was a ruby necklace, which glittered in the warm light. It was like the sun, lit up and made of red fire. First Mike put it around my neck and smiled. Then he bent down and put matching earrings on me. Next came the bracelet. Since there was no mirror around, I had to look into the water. The jewelry was so glorious, rippling red on blue like a painting. I just shrieked with joy, put my arms around Mike’s neck, and pulled him into the water after me.

The whole episode was captured on camera in a home movie taken by Eve Johnson, wife of actor Van Johnson.

Taylor also owns a fabulous ruby ring, given to her by another husband, Richard Burton. This one was a Christmas gift, shoved in the bottom of a Christmas stocking. It was designed by Van Cleef & Arpels and “perfect,”



COLBURN
GEM & MINERAL
MUSEUM
at Rock Place

August 14, 1994

Mr. Jarvis Wayne Messer
P.O. Box 1359
Candler, NC 28715

Dear Jarvis:

We congratulate you for your discovery of the "Appalachian Star Ruby" and, more importantly, your recognition of the original corundum crystal as being a ruby with the possibility of possessing asterism. We are very pleased that the Gemological Association and Gem Testing Laboratory of Great Britain, the world authority on such matters, has officially verified your find as being indeed a genuine natural red corundum with six-pointed asterism, i.e., a "star ruby"; one of the world's most precious gem stones.

You are also to be complimented on your skill in revealing your discovery to the gem world. All North Carolinians are the beneficiaries of your efforts. Your perseverance in properly identifying and documenting the stone have reaffirmed to the world the uncommon gem resources of North Carolina's Appalachian Mountains.

The Directors of the Museum hope that the public, awakened by your efforts, will be aware that Mother Nature has managed to disguise even the finest of rubies to all but the trained - or lucky - eye. So before every would-be pebble pup and rock hound heads for the hills to launch the "Great Ruby Rush of '94," we urge you to suggest they first visit the Colburn and acquaint themselves with what to look for.

We wish you all the best in your future endeavors.

Sincerely yours,

Kempton H. Roll, president

cc: E. Davis, C. Miles