NAME:	Robert J. (Jim) Clanin
LABOR CATEGORY:	Professional Geologist, Mining Engineer, Mining Instructor, Certified Safety Trainer underground and surface specializing in mining gem deposits, mineral specimens and high grade ore deposits.
LEVEL:	Expert Instructor and Trainer, Miner and Geologist
CITIZENSHIP:	USA
HIGHEST DEGREE:	BSc. in Geology
YEARS OF EXPERIENCE:	35 years
YEARS OF WORK IN A DEVELOPING COUNTRY CONTEXT:	7 12 years
ALL EDUCATION:	Always learning, each mineral deposit is different.
LANGUAGES:	American English, British English and some Kiswahili.
COUNTRIES OF WORK EXPERIENCE:	USA, Kenya, Tanzania, Madagascar, Nigeria, United Kingdom, Pakistan and Brazil

## **EXPERIENCE SUMMARY:**

I am a US Citizen with capabilities to teach, train and improve mining and extraction methods in the gem sector anywhere in the world. I have nearly 40 years of experience in the field of mining gem deposits in the USA as well as several East African and West African Countries, United Kingdom, Pakistan and Brazil.

In my 37 years experience I have worked in a wide spectrum of job environments conducting geologic mapping, surveying, feasibility studies, sample collecting, systematic prospecting, exploration and mining as well as teaching mining techniques and safety to miners themselves.

As a Geological Consultant I have mapped and written many reports on sedimentary, igneous and high-grade metamorphic deposits and am adaptable to any geologic environment. Some of my reports have gone to heads of state in countries like Kenya and Tanzania and were ultimately used to develop land-use policies. I have attended meeting

on ministerial levels in both these countries and candidly discussed development of their area's mineral industry with any cultural or environmental problems that may stem from the operations.

As a Mining Engineer I have developed many mines in East Africa and the United Kingdom as well as in the USA. This includes developing long-term plans for underground mine layout, safety training of the miners, as well as the actually carrying out mining operations i.e., drilling, blasting, mucking and ground support.

Having worked in various places in the world I have used explosives manufactured in many different countries including; Spain, UK, South Africa, Brazil, Mexico and the USA. I can mix my own Blasting Agents on site and can use any type of initiating devices.

As an administrator I took care of logistics, payroll and transportation. In some remote areas in East Africa that meant keeping track of every liter of petrol and gallon of water. Some operations have as many as 200 miners and support personnel. In many cases supplies had to be transported over many kilometers of rough African savanna to the site.

I am good at multi-tasking and organization and can think outside the box.

I also have years of experience of cleaning and preparation of mineral specimens using various chemicals to achieve the highest salable product.

Sincerely,

R.J. Jim Clanin

#### **EMPLOYMENT RECORD:**

R.J. Jim Clanin Bethel, ME 04217 Web site: www.jcmining.com

February, 2006 – Present **JCMining, Inc.** PO Box 715 Bethel, ME 04217

September and October 2014, worked the Fisher Quarry, Topsham, Maine for blue topaz and tourmaline.

August 3<sup>rd</sup> – Sept. 2<sup>nd</sup>, 2014. Consultant to Mozambique Gems, Ltd. Returned to install the new equipment and rebuild the entire washing plant.

April 3-18<sup>th</sup> 2014, consultant to Mozambique Gems, Ltd., at an alluvial deposit producing Paraiba type tourmaline near the town of Nampula, Mozambique. This trip was to evaluate their washing plant and give them an assessment and recommendations to rectify the problems they have been having. Also looked at a NYF pegmatite producing good color aquamarine beryl and amazonite and some pockets of yellow tourmaline. Also looked at another alluvial deposit producing pink and red tourmaline. Found the necessary equipment in Johannesburg, RSA.

September and October, 2013, worked the Fisher Quarry, Topsham Maine, for blue topaz and tourmaline. Hit the beginnings of the Black Bear Pocket.

June – August, 2013 Consultant for Mine Invest in Brazil. Consulted in 2 regions in Minas Gerais, Santa Rosa Valley and the Resplendor region for tourmaline.

Summer/Fall 2012- present Developing the Fisher Quarry, Topsham, Maine, for colored tourmaline and topaz.

Mining seasons of 2009, 2010 and 2011 developed the pegmatite systems at the Songo Pond Mine for blue aquamarine and other rare minerals.

January 2010 gave an 8 day course on "The Fundamentals of Mining for Gemstones and Mineral Specimens" in Nigeria for the Ministry of Mines and Steel Development of the Federal Republic of Nigeria, a sustainable management of mineral resources project contract no: mmrp/con/a.1.1.5/09/01.

August 12-19, 2009 field observations and reconnaissance trip to Nigeria for the Ministry of Mines and Steel Development of the Federal Republic of Nigeria, a Sustainable Management of Mineral Resources Project contract no: mmrp/con/a.1.1.5/09/01. Reconnaissance trip to many mines across Nigeria to pick 5 for future teaching sites. I producid a teaching curriculum outline and needs analysis for the Ministry of Mines and Steel Development of the Federal Republic of Nigeria Sustainable Management of Mineral Resources Project.

February-June, 2008, designed and built a man-powered ventilation system for USAID Pakistani Project PISDAC III in use for remote mine sites in need of ventilation in the Northern Areas of Pakistan. The unit is bicycle powered and, as well as a ventilation system, is equipped with a large drill chuck to hold various tools to sharpen tools and to shape or drill metal or wood. The unit was built to be disassembled and packed into the rugged Himalayan mountains of northern Pakistan.

April-August, 2007 consulting for USAID Pakistani Project PISDAC III, evaluation of mining techniques, mineral potential and safety for the gem mining sector in the Northern Areas of Pakistan. In the month of July I visited many mining areas in the Himalayan

Mountains across the Northern Areas including; the Hunza Ruby Mines, Chumar Bakhoor, Bulachi, Stak Nala, Braldu Valley, Basha Valley, Shingar Valley and Astore. Final Report and Teaching Curriculum was 300+ pages.

2006, Prospecting and mapping different pegmatites in the Newry area for Coromoto Minerals. Exploration of various pegmatites throughout the region for JCMining. Marketing contents of Pocket 11 of 2005 from Mt. Mica Mine, Oxford Co. Maine. Cleaned and prepared large specimens for Coromoto Minerals in my laboratory.

February, 2005 – February, 2006 **Coromoto Minerals, LLC.** 48 Lovejoy Rd. South Paris, ME 04281

Developed underground tunneling system at the famous Mt. Mica Mine, Oxford Co. Maine. My mining assistant and I uncovered several pockets of colored tourmaline with one pocket more than 12 meters long and more than 2 meters high. I had to drill 22 highly accurate holes 2.5 meters deep in a very tight pattern to initiate the burn to advance the tunnel. Some parts of the tunnel system are 8 meters wide and 5 meters high.

My mining assistant and I also lowered the decline into the Orchard Quarry by 2.5 meters over a 25 meter length looking for gem heliodor. Buckfield, Oxford Co. Maine.

March, 2001 – January, 2005 JCMining Co. 8557 Rancho Canada #38 El Cajon, CA 92021

Development of the Cryo-Genie Mine Pegmatite, Warner Springs, San Diego Co. California, USA. I was responsible for mapping the pegmatite, determining the best way to work the deposit and then mining it. As the operator of the mine I did all the drilling, blasting and timbering. I also gave Mine Safety and Health Administration (US Federal Government) Approved safety courses yearly. I designed and built the pneumatic hoisting and dumping system and installed the utilities (lighting, ventilation, compressed air and water).

October 1999 – February 2001 **UK Mining Ventures** PO Box 2347 Fallbrook, CA 92088

I worked as a Geologist, Mining Engineer and Lab Technician at the Rogerley Mine, Weardale, County Durham, England, mining for gem and specimen quality daylight fluorescent fluorite. Responsible as a Geologist: Mapped structural and geological anomalies in the Great Limestone to determine potential producing targets and set the daily drilling plan.

Responsible as the Mining Engineer: Carried out the daily drilling and blasting, timbering, laying mine rail, mucking using a Emico 12B pneumatic mucker, using an ICS hydraulic diamond chain saw to remove and trim specimens.

Responsible as a Lab Technician: Supervised the use of acids and bases to clean the fluorite specimens and the use and maintenance of bead blasting equipment, rock saws, and vacuum chambers.

# December 1996 – May 1999 Technical Director, Oro Tanzania and Oro Kenya

Exploration and development of several gem mining projects.

Project one was sampling three alluvial deposits in the Tunduru area in southern Tanzania. The first area was in the true Kalahari Formation north of the bridge on the Muhuwesi River on the Tunduru-Masasi Road. Here, the conglomerate unit was to deep beneath the sand unit to be reach with traditional mining methods.

The second area is called Mbeya, about 15km south of the bridge in a section of uplifted basement complex. Here, our crew was able to reach gem bearing conglomerate but nothing of value was recovered.

The last area is called Kitowelo and is located about 125 kms northeast of the town of Tunduru. I was able to complete a isopact map of the conglomerate on our claims in the area before the monsoon rains began.

Project two; Landaban garnet mines located about 40 kms south of the Merelani Tanzanite mines. This is a series of pegmatites that occurs in the fault between a horst and graben. This deposit has been in operation by the locals for more than 25 years. Mining was carried out in a very primitive way. With a hammer and chisel the miners broke the rock and then carried it out in a sack on their back. Several miners working together could bring 1.5 tons of rock to the surface per day. Oro introduced a compressor and jackhammers to dig through the rock so the method of removing the muck had to change. I designed and built a chute system that was man powered and built out of local materials. When materials were not available I improvised. The main pulley in the hoist was made from the front wheel of a motorcycle. I was able to increase the amount of muck brought to the surface to 57 tons per day from a 40 meter depth.

The mine also had ventilation and lighting, both operated off the electrical system of the compressor so no extra equipment, i.e. generator, was needed.

Project three was a grass root gold exploration project. Alluvial gold had been panned from the area around the town of Nachingwea in southeastern Tanzania by the locals for

about a year when Oro Tanzania was able to obtain 3 Exclusive Prospecting Licenses in the area. Samples from quartz veins in place produced assay values of 500 grams of free milling gold per ton of ore. Geologic maps and 8 quarterly reports were produced for the government over a period of two years. Unfortunately, timing was bad, the price of gold dropped below \$300 per ounce. Another company has recently reopened this project.

Project four was the development of a blue marble dimensional stone quarry located in the Kajiado area about 40 kms southeast of Nairobi, Kenya. Although a very nice color there were too many fractures in the marble to be suitable for anything other than tiles. A white granitic rock was also sampled for the Italian dimensional stone market.

July to September 1996 Consultant to Maarifa Mining Co. (T) Ltd. Arusha, Tanzania

Reconnaissance trip to a grass roots gold deposit in the Dodoma region of south-central Tanzania. Sampling of the alluvial and rock en situ produced some good gold values and it seems to be a regional deposit. I produced a report but again the price of gold was low.

April to July 1996 Consultant to Nuova Serpentino d'Italia s.p.a. Nairobi, Kenya

Primary testing of marble and granitic deposits as dimensional stone quarries.

September 1995 – August 1996 World Gem Mining, Ltd. Sole Proprietorship Kikuyu, Kenya

Systematic prospecting for ruby and tsavorite garnet on the Jamunga, Angu Shimu I-VI and the Last Frontier I & II mining locations in south-eastern Kenya.

July – August 1995 **Consultant to the Ndusi Mine** Garba Tula, Isiolo District, Kenya

Exploration and development of the Ndusi Sapphire Deposit in central Kenya.

October – December 1994 World Gm Mining, Ltd. Sole Proprietorship Kikuyu, Kenya

The Samburu District Project. Systematically mapped and sampled five sapphire deposits in this district. The Lekiji Location produced massive blue and white corundum in a matrix of green fuchite mica. The larger pieces were in the tons and suitable for tables. The Swari Location produced a multitude of colors of corundum. Among the different colors were crystals, barrel to tabular shaped, in blue, green and yellow. Another location I found lighter shade of blue corundum along the road. In 15 minutes I had picked up 17 kgs of crystals. The final location I prospected was barrel shaped blue corundum crystals in a biotite schist matrix. This formation can be traced for more than 100 kilometers.

#### August 1994

# **Consultant to Schueb's Tsavorite Mine**

Nairobi, Kenya

Schueb's Tsavorite Mine is located near Magama Ridge, Taita-Taveta District, in southeastern Kenya. Here, I created a geologic map and did feasibility study for economic viability of Tsavorite garnet mine.

June 1994 **Consultant to Nantome Location** Voi, Kenya

Development and market testing of sapphire specimens from the Nantome Location, Samburu District, North-central Kenya.

# May 1994 **Consultant to Toroka Exploration Co. Inc.** Nairobi, Kenya

Tested the quantity and quality of a wollastonite deposits in the Kajiado District, Kenya, just south of Nairobi.

October to December 1993 **Director, Megalith Mining Co.** Nairobi, Kenya

Coordinated two remote camps prospecting for sapphire in the Turkana District, extreme north-western Kenya near the boarder with Sudan. Each camp had a prospecting crew and support staff of 65. We spent 2 months testing alluvial deposits.

March – May 1993 **Consultant to ICA of Nairobi** Nairobi, Kenya

Tested the quality, quantity and species of a several diatomite deposits in the Great Rift Valley prior to the sale of the only company mining diatomite in Kenya. These deposits are the second largest diatomite deposits in Africa and has a multitude of uses.

January 1992 – January 1993 Rockland Kenya, Ltd.

#### Nairobi, Kenya

Mine Manager for the John Saul Ruby Mine in Mangari, southeastern Kenya. I changed the mining from open pit to underground mining because the rubies are within a plumositic pegmatite that is only a meter thick in the thickest area. Since this deposits in within the Tsavo West Game Reserve and we were not allowed to use explosives so the tunnels were excavated using jackhammers and some very strong young men. The plumosite was process through a heavy-media separator that separated the rubies and other heavy minerals from the other minerals, i.e., feldspar and mica.

Another deposit I managed was Hard Rock Ruby Mine about 7 kilometers from the John Saul Ruby Mine. Here I built a road down to the bottom of a rather deep (40 meter) pit. The method used in this part of the world is open pit mining digging down two meters and over one. Then use and many men as there are one-meter benches to remove the muck one shovel full at a time. I have seen as many as 27 men in a chain shoveling muck from a pit. Other minerals found at the deposits were yellow tourmaline and some low-grade green garnet and tanzanite.

August – December 1992 **Consultant to Emeralds International** Tel Aviv, Israel

Mine Manager, Geologist and Mining Engineer to the Ambodiakatra Emerald Mine in south-eastern Madagascar. I ran the day shift of about 75 men drilling and blasting and mucking with five large Poclain excavators. We were trying to beat the monsoons that were coming. Also prospected and sampled two other emerald deposits in the area.

January 1984 – June 1991 **Self Employed** Pala, California

Exploration and development of gem bearing pegmatites across California and into Baja California, Mexico. A list of mines include; The blue Lady Mine, Maple Lode Mine, Harriot Mine, Oceanview Mine, Stewart Lithia Mine, Tourmaline Queen Mine, Lithia Dyke, Hercules Mine, The Rose-Marie Mine and the Pack Rat Mine. These deposits produced mineral specimens and gem material of colored tourmaline, spessertine garnet, topaz, and beryl. I carried out all of the drilling and blasting.

July – November 1983 Gems of Pala – Ed Link Pala, California

Geologist and Mining Engineer to all of their mining operations. Mines include; the Sage Mine, The Ware Mine, Maple Load Mine, And the Blue Lady Mine. Duties include drilling, blasting and ground support.

August 1980 – September 1981 **Swoboda Inc.** Beverly Hills, California

Superintendent of Mines in the Pala District. Took over when Ed Swoboda and Bill Larson split up their partnership. Worked the Stewart Lithia Mine, Tourmaline Queen Mine, Goddess Mine and the Chief Mine. In charge of all operations and had a crew of 4 men.

June – August 1980 Western States Mining Corp. Coulterville, California

Chief geologist for Mariposa County, California operations. Mapped and correlated data from two drilling rigs searching for new gold enrichments on the Princeton Properties, Mariposa County, along the main mother load vein in the foothills of the Sierra Nevada Mountains.

July 1979 – June 1980 **McAlpine Gold Mine** Coulterville, California

Head Miner and Blaster during the development of the McAlpine Gold Mine. Designed and built the processing plant for the ore.

June 1977 – May 1980 **Oceanview Mine** Pala, California

Worked part time while attending San Diego State University studying Geology learning drilling, blasting and how to read a gem bearing pegmatite.

## **EDUCATION:**

Bachelor of Science degree in Geology from San Diego State University, San Diego, California. Graduated in 1983

## JOB RELATED SKILLS:

Strong organizational and multi-tasking skills in a broad spectrum of disciplines as well as strong communication skills with all types of people in different cultures.

Able to develop mines in remote areas into quasi-modern level of operation using local labor and materials. I can think outside the box to get the job done.

30+ years experience with explosives, both on the surface and underground using a wide variety of types of explosives and different types of initiators i.e., cap and fuse, electric caps, shock tubes and det cord.

# ACCREDITATION'S, LICENSES AND CERTIFICATES:

BSc. degree in Geology

Mine Safety and Health Administration (MSHA) Surface and underground Safety Instruction Qualification, 2000. MIIN # 69224874

Cal-OSHA & MSHA Instructor's 24 hour course, 1999

MSHA Certified Underground Miner

ATFE Blasting License Type 33-User of High Explosives

ATFE Type 22 Manufacturer of Blasting Agent

State of California Blasting License # 8786 from 2002-2007

Blasting Permits for San Diego County off and on for 25 years

Member of the International Society of Explosive Engineers, Member # 200304323 since 2000.

## **PUBLICATIONS AND LECTURES:**

Co-author on the article about the Mt Marie Mine, Oxford County, Maine for Gems and Gemology Magazine

Was on the abstract review committee for the Gemological Research Conference August 2010. Gave a talk on the Fundamentals of Mining for Gemstones and Mineral Specimens and how it differs from all other types of mining at the conference.

Lecture at Mount Blue State Park, 08/02/08, on minerals and gem mining.

Lecture at the West Paris Library, 07/23/08, on Physical Mineralogy to kids ranging in age from 6-12 years old.

Article: "Gemstone and Mineral Mining in Pakistan's Mountains", InColor Magazine, Spring 2008, International Colored Stone Association, ICA.

Lecture to the AFMS, Gorham, NH, 09/21/07, My experiences gem mining in various places in the world.

GIA, Gemological Research Conference, August 26 & 27, 2006. Gave 2 presentations; one on the development of different gem mines in East Africa and the US and the other on the alluvial deposits in Southern Tanzania.

Lecture at the Maine Mineral Symposium, May 13th, 2006. Gave a talk on mining different gem deposits in Africa and the US.

University of Oklahoma, 03/03/05 and again 10/10, Guest speaker for Dr. David London's Gemology class and another to an open forum. Talked about Gem Mining in Africa and the US.

San Diego State University Geology Department guest speaker. January 28<sup>th</sup>, 2004. "The Current Progress at the Cryo-Genie Mine, San Diego County, CA."

Geological Society Of America (GSA) Professional talk at the November 7<sup>th</sup> 2004, session T71. Gave a talk on the geology and mineralization of the Cryo-Genie Mine, San Diego County, California.

Co-authored the article "Tourmaline Discovery at the Cryo-Genie Mine, San Diego County, California", *Rocks and Minerals*, May/June 2003 Issue, Vol. 78, Number 3

Co-authored and article on Mt Marie Mine,

Author of the book "The Fundamentals of Mining for Gemstones and Mineral Specimens", 403 pages, published in Jan, 2012. ISBN : 978-0-615-50108-6

Gave talks to various Rock Clubs and Organizations over the years in California that include:

Fallbrook Gem and Mineral Society San Diego Mineral and Gem Society El Cajon Rock Club San Francisco Crystal Gazers Escondido Gem and Mineral Club Southern California Prospectors Association In Maine, the Rock and Mineral Clubs I've given talk to include: Portland Gem and Mineral Club Kennebec Gem and Mineral Club