Confederation

The Newsletter of the Large and Small Queens Study Group

Number 15 April 2000

Further Discussion on Inks and Oxidation

John E. Milks

I was disappointed to see the comments of Mr. Hillson in the January 2000 issue of *Confederation* since it is possible that many others were as puzzled as he.

The article on "Hydrogen Peroxide Treatment of the 3-cent Small Queens" in the November 1999 issue of *Confederation* was intended in part as a critique of L. Krucynski's article in *Topics* Vol. 55, No. 1, page 17 (1998) on the browning of the Three Cent Small Queens. The conversion of red lead to lead dioxide does not take place by air oxidation either with or without acid catalysis. The occurrence of lead dioxide on the surface of the 3-cent Small Queens arises by a direct decomposition of red lead with acids. In addition, a hydrogen peroxide wash of the brown surface does not regenerate red lead from lead dioxide but decomposes it to lead hydroxide, a white material.

What this means is that the original colour of a 3-cent Small Queen is irreversibly lost on prolonged exposure to an acidic environment and any attempt to improve the appearance of the stamp would be fraudulent.

At the time my article was written, I could not find a published alternative path to the browning of red lead other than by acids. However a review of my source material led to the discovery in the Colour Index that red lead (Pigment Red 105) is blackened by hydrogen sulfide, a notorious air pollutant which also tarnishes silver. Whether or not lead sulfide, the product of the reaction, can be decolourized under the mild conditions of the peroxide was can only be answered by separate experiment.

Although the term "oxidation" has had widespread usage for a long time by many prominent philatelists, any further use of this misnomer should be widely discouraged in an effort to shorten the list of misinformation in the philatelic literature.

With respect to some of Mr. Hillson's comments, he was correct in his reading of the presence of red lead in all 3-cent Small Queens. On the other hand it would appear that the bulk of his comments resulted from misreading 6-cent Small Queens for 6-cent Large Queens in the sentence referring to the appearance of brown colours in the 6-cent Large Queens from a mixture of red lead and a black substance.

As to the comment on the relationship of Orange Mineral, Orange Lead and Red Lead, these terms are synonymous and refer to the grade of the pigment in the ink composition.

Information on the yellow brown colour of the last printing of the 6-cent Large Queen which was followed by the yellow brown 6-cent Small Queen was mentioned on page 135 in *Maple Leaves* Vol. 22, No. 4, page 133 (1991). This colour comes from a large amount of an iron oxide component in the ink composition of the two Queens. Iron oxides in minerals have a much different chemistry from lead oxides and are not blackened by acids. Additional information on the dark brown, light brown and yellow brown 6-cent Large Queens can be found in *Topics* Vol. 50, No. 5, page 28 (1993).

Finally it should be noted that Mr. Hillson's reference to Venetian red as a derivative of red lead is not correct. Venetian red is an iron oxide and not a lead oxide. Also, I must admit that I have never seen a definition of Ward Black (not "hard black") in the 6-cent Large Queen recipe. A better description probably would be to call it a carbon black.

Commentary

John Hillson

First let me say that Dr. Milks is correct regarding Venetian Red - as he says it has nothing to do with red lead being a pigment of ferrous oxides. However, we part company on two points he makes.

I did not intend to give the impression that I believe all 3-cents Small Queens have red lead in their make-up. Frankly, I doubt it. Secondly, if I read the sixth paragraph of his letter correctly (page 1), he implies that the colour recipe for the 6-cent Large Queen was (originally) different from that of the replacement Small Queen.

Dealing with the latter point first, Boggs refers to the pages of recipes he illustrated as pertaining to both the Large and the Small Queens. It is in fact printed in the chapters on the Small Queens, although the recipe for the Twelve and a Half Cents is present. There is no doubt in my mind that the same recipes for both series were used throughout the first Ottawa printing period and variations in shade were due to the practice of adding to the colour ball, as described by the late Geoffrey Whitworth in his book on the 1859 series, rather than making up a new colour batch every day.

There is however clear evidence, as I pointed out twenty years ago, that the recipes were changed on the move to Montreal. At this point I would agree with Dr. Milks that the 3-cents, printed in Montreal, with one possible exception, did include red lead in the mix, and if I have read my Encyclopedia Brittanica correctly this time, so did the One Cent printed there.

The exception is the rose-carmine of 1888, which I thought was a synthetic ink. It is my understanding that synthetic inks are not based on natural ingredients - otherwise they wouldn't be synthetic. Also synthetic is the aniline ink used for the second Ottawa 3 Cents, so they couldn't be based on red lead either if that is correct.

That leaves the first Ottawa printings. Of the three pigments listed for the 3 Cents value, the first Rose Pink is a vegetable derivative. The second, Persian Red, I presume is derived from Persian Gulf Oxide, which is a hematite. That leaves Orange Mineral which Dr. Milks states is a synonym of red lead. Could it not be a mixture derived from yellow and red cadmium sulphides in which case the first Ottawa's have no red lead content either?

The reason I doubt that they have is simply the phenomenon that we laymen will doubtless continue to call "oxidation", however erroneously, does not seem to affect these printings, while it can clearly effect the Montreal printings - other than those emanating from the six months at the Gazette Building.

At the CPS convention before last, somebody asked if ambient temperatures could make a difference to the perf measurements. Since quite a few of the items are stuck on envelopes, I couldn't see that it would.

Out of curiosity, when I got home I measured a common SQ and then drowned it in water for an hour. I then measured it again. Its grain was horizontal so there was absolutely no difference to its width, but it had grown by about 2 mm. It shrank back to its normal size while drying.

I concluded that unless one kept ones collection in a bath, ambient temperatures would be of little significance off cover and none at all on.

(Ambient temperatures perhaps not, but what about ambient humidity? - Ed.)

As for the point John Jamieson makes about gum, the gumming operation may affect the size of the sheets while wet. They aren't perforated until quite dry, so I think that one is a bit of a red herring.

I really can't see that hinge debris will make the slightest bit of difference, even to the small area of the stamp affected. Having said that, I always wash the backs of used stamps to clear such debris, because if allowed to build up it can cause permanent stretching in the form of a hump.

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Letter Box

I really liked John Jamieson's articles about perf differences. From my 27-years experience perfing Large Queens, I've held the view that "Perf 12" = the 11.9 to 12.1 range, which is basically 12 plus or minus 0.1.

This means that the permutations and combinations of collecting "Perf 12" on the 5 cent LQ means you need at least 3 stamps, not counting "complex" perfs.

I fully realize my view is at odds with the V G Greene Foundation, but I confirm that this does happen, especially on the vertical perfs of a 5 cent LQ where sides are 12.1 while the top and bottom can be 11.9 or 12.0. I have long believed these should be cataloged as "Perf 12" and the price in the catalog maybe should drop.

Jim Watt

The issue of perf 11.9 vs. 12.1 for the commonly called perf 12 needs to be resolved. Particularly, was there a change from 11.9 to 12.1 (or vice versa) at the transition from Ottawa to Montreal? John Jamieson's article adds an interesting sidelight. It appears the question can be resolved only by careful examination of mint copies.

Samuel Rock

Regarding the recent articles by Dr. Milks, he was kind enough to inform me of his ideas some time ago. I find his argument concerning the browning of the 3 cent orange certainly acceptable from a scientific viewpoint. I would certainly not feel slighted or held up to ridicule by his article. He may be right and I may be wrong.

Also, maybe both of us are right. The wonderful thing about science is that scientists can design experiments to test the theories. It will take me some time to design and carry out these experiments and I promise to report these to you.

Did you know that a fluorescent yellow ink was used on the 1 cent small queens from 1890 to about 1893? Quite an interesting story.

Len Kruczynski

I have one "late" comment on the update of "Shoemaker's Three Cent Small Queen Classifications" by Ron Ribler in the third quarter issue of BNA Topics.

I have a single, pair, and strip of three, each dated in March 1889 and in rather typical "second Ottawa" vermillion shades. Each of these items is on vertical wove paper which I would classify as the same as that used for the vast majority of the "rose-carmine'" 41a's - Shoemaker's paper H.

Actually, it was these items that contributed to my opinion that whoever originally classified the rose carmines with Scott 41 instead of 37 knew what he/she was talking about.

It's only been over the last few years that I've noted current thinking has it that the rose-carmines are "Montreals". Regardless, I would suggest that there could be another item added to the classification list for 1889 vermillion shade stamps on vertical wove, Paper H, if and when such an update is ever made.

Bob Turkowski

WANTED

I am looking to purchase used blocks of the 8 cent Small Queen.

Please contact Jack Forbes, PO Box 2010, Dartmouth, NS B2W 3X8.

Dated Large Queens wanted. Contact Ben Cohen, 748 Niagara St., Winnipeg, MB R3N 0W3

I need a 12 1/2c LQ. single franking, on cover from Canada to Newfoundland. Please let me know if you have one to spare and your asking price. Roy Sass, PO Box 31054, Walnut Creek, CA 94598

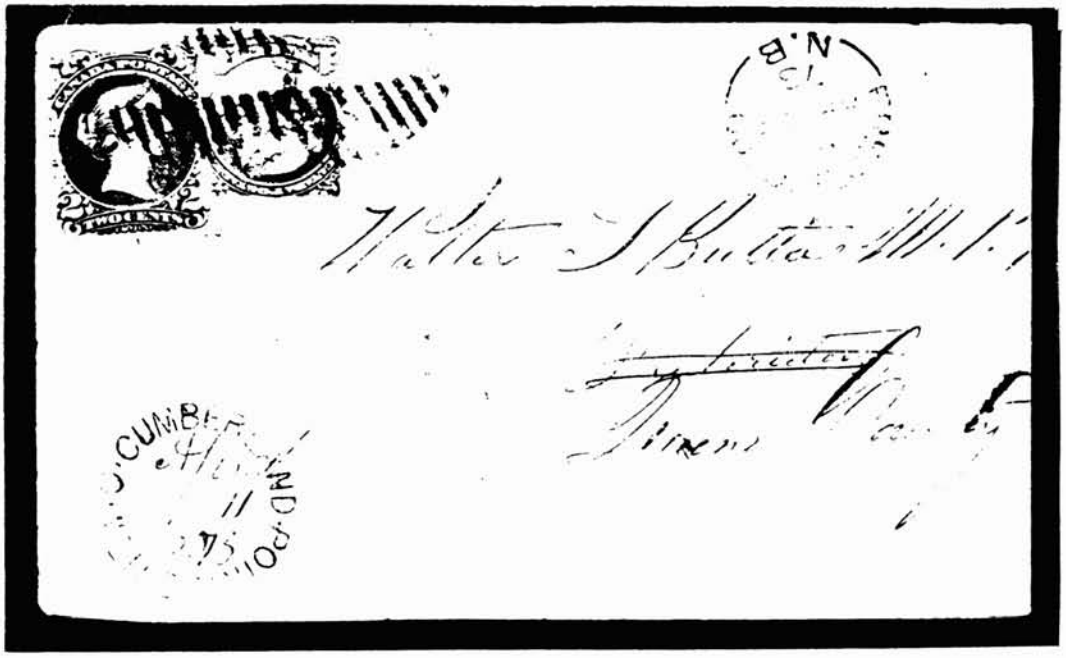
My Favorite Covers

T. R. Morgan

Pictured is a cover from Berthier-En-Haut, Canada East, to Rome, Italy. It is franked by a 6-cent brown Plate II Large Queen and a 15-cent reddish purple Large Queen. These paid the 21-cent rate per quarter-ounce which was in effect from September 29, 1869 until February 9, 1870.

The cover is postmarked Jan 26 70, and went by steamer to England. It received transit marks at London (11 Fe 70) and then at Calais (12 Fevr 70). On the reverse are two arrival postmarks of Rome 17 Feb 70.

Also pictured is a cover from W. O. Cumberland Point N B to Fredericton, N. B. What is interesting here is that the date April 11 1873 is hand-written within the Cumberland Point marking. The stamps are a 2-cent green LQ amd a 1-cent deep orange SQ.



Chairman's Column

Ron Ribler

Using the Internet

Many, but not enough, of our members use the Internet and the resources it offers. I have been using the net for years and it has proven to be a valuable and rapid communication vehicle. Email permits instant transmission of your message to the recipients and waits for the reader to read the mail and respond just as quickly. I believe that, if the Internet provided no other features, the email feature would make it worthwhile. The whole world is at your fingertips.

Without email, our Study Group could not function as it does. Roy Sass, our editor, lives in California and I live in Florida. Virtually all our contacts are via email including this column and other Study Group business.

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Book Review

Ron Ribler

Richard Morris has outdone himself! His handsome new Color Guide System for Large & Small Queens & Widow Weeds & Registration Stamps of Canada is a mouthful but is an incomplete description. It also includes the engraved post card colors.

As you may already be aware, Mr. Morris has produced color guides using Munsell color chips for all the Small Queens and the Widow Weeds.

Expanding the work to include the Large Queens and the RLS makes this color guide invaluable to any collector of these issues. The colors in the guide are matched to the colors of actual stamps and are not generic in any way. The color definitions are supplemented with discussions of printings, perforations, and papers. It is a masterful work.

The color chips are smaller than those in the earlier color guides, but that does not effect their utility. He has added three shades for the Three Cents Small Queen, making a total of 18. The 16 shades of the 15-cent Large Queen represents the full spectrum for that stamp.

The Color Guide System is beautifully crafted on heavy paper with interleaves and is available in three formats:

1) Hard cover three-ring binder,

2) Spiral-bound soft cover,

3) and for those who already have all three of the Small Queen Color Guides, a hard cover loose-leaf version containing all but the Small Queens and Widow Weeds.

Every collector of the Large Queens, Small Queen, or RLS should own this book. It will repay the investment many times over in the time saved and in the correct identification of the collection. It certainly is a worthy addition to any philatelic library.

Richard Morris at Pittsboro Philatelics can be contacted at 7 Malcolm Street, Norfolk, MA 02056-1411. The full versions are US$58 postpaid. The Special edition is US$30 postpaid.

Editor's Column

Roy Sass

We are having a lively exchange regarding the printing of the Small Queens, in which our members have been discussing various chemical terms and definitions. (Editors love to receive letters.) For those of you like me whose chemistry knowledge ended in high school, I did a bit of research on the web.

I fully admit to copying verbatim from Britannica.com (the Encyclopedia Britannica website) the definitions of INK, DYE, PIGMENT, SULFUR DYE, and HEMATITE. I edited out portions of the articles that did not deal with our subject. I hope these are helpful.

Please check the code number above your name on the address label. If the last two digits are 98 or 99, you owe dues for the current year. Please remit your US$5 or C$8 so that you will continue to receive our newsletter.

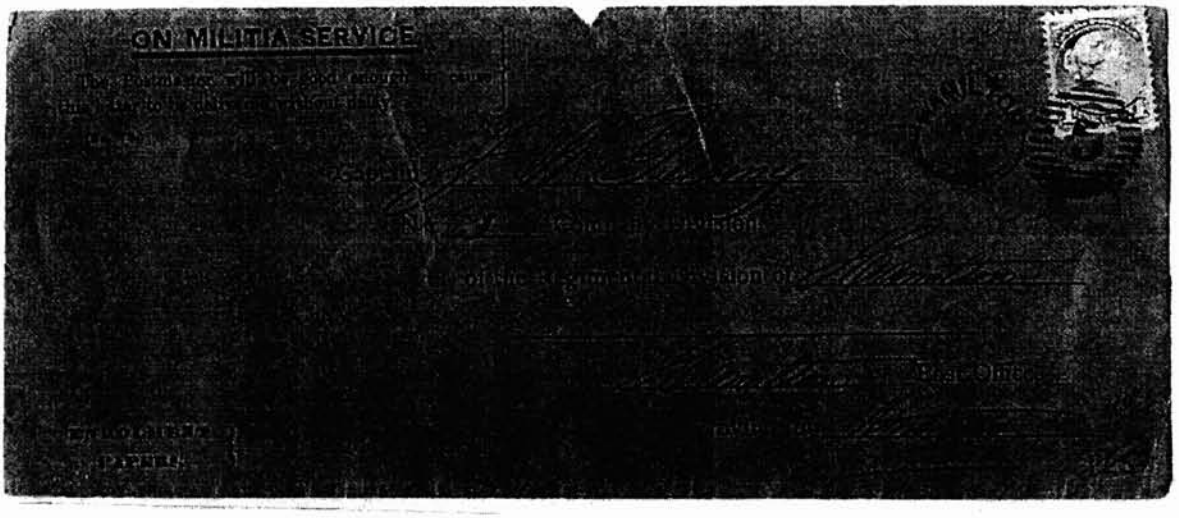
I have been asked about our surplus balance from member dues. For the first two years of the newsletter, I have had access to the company photocopy machine and a supply of old, incorrectly logo'ed envelopes. Our expenses were almost exclusively postage.

I now have to use an outside source for copying plus I need to purchase envelopes from the store. The cost of a 6 page (3 sheet) newsletter is now around $50 and an 8 page (4 sheets) newsletter is about $60.

QUESTIONS

Bob Turkowski has submitted a photocopy of a ratty but interesting 1c small queen cover dated 13 January 1873 with a nice strike of the Hamilton duplex. There are no markings on the back of the cover.

He is wondering if anyone in the study group knows what rate this cover is paying: drop letter; circular; "government form rate" from Firby's "Canadian Posted Letter Guide"; other? Any enlightenment would be appreciated.



Chairman's Column

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Using the Internet

Without email, our Study Group could not function as it does. Roy Sass, our editor, lives in California and I live in Florida. Virtually all our contacts are via email including this column and other Study Group business.

We also receive queries and information from members who might not otherwise take the time and trouble to phone or write a letter. Email gets our attention and we try to answer every one promptly.

Stamp collecting is made easier on the net also. Remember that the net is a worldwide facility and stamp collectors live in all corners of the planet. Many auction houses put their catalogues on the net for anyone to use. Other dealers list their wares on sites such as stampfinder.com and zillionsofstamps.com where prices are set as if you went to the shop to purchase the stamps.

Then there are online auctions such as eBay where you can buy or sell just about anything. The philatelic listing on the auctions are huge and most people find items they can use or get rid of those they no longer want. In a sense, the net serves as a large club where collectors buy, sell and exchange not only materials but also information.

Then there are chat rooms, where you can hold "conversations" with collectors having similar interests. If you want information about almost anything, with patience you can find the answers on the web. Besides, it is EASY!

If you use a computer and are not on the net, I urge you to open this window to the world. If you are thinking about getting a computer, you will find the Internet more than I have suggested. If you prefer snail mail and writer's cramp and don't mind waiting 2 weeks to complete a communications cycle that can be accomplished in minutes, then by all means get out the postage, sharpen the quill, and fill the inkwell.

Definitions of Printing Terms

Copied Verbatim from Britannica.com

INK is a fluid or paste of various colours, but usually black or dark blue, used for writing and printing. It is composed of a pigment or dye dissolved or dispersed in a liquid called the article.

Writing inks date from about 2500 BC and were used in ancient Egypt and China. They consisted of lampblack ground with a solution of glue or gums, molded into sticks, and allowed to dry. Before use, the sticks were mixed with water. Various coloured juices, extracts, and suspensions of substances from plants, animals, and minerals also have been used as inks, including alizarin, indigo, pokeberries, cochineal, and sepia.

For many centuries, a mixture of a soluble iron salt with an extract of tannin was used as a writing ink and is the basis of modern blue-black inks. The modern inks usually contain ferrous sulfate as the iron salt with a small amount of mineral organic acid. The resulting solution is light bluish black and, if used alone on paper, appears only faintly. After standing it becomes darker and insoluble in water, which gives it a permanent quality. To make the writing darker and more legible at the outset, dyes are added. Modern coloured inks and washable inks contain soluble synthetic dyes as the sole colouring matter. The writing fades in strong light and rinses out of washable fabrics but lasts for many years if not subjected to such effects.

India ink is a dispersion of carbon black in water; the suspension is stabilized with various substances, including shellac in borax solution, soap, gelatin, glue, gum arabic, and dextrin. It is used mainly for drawing.

Modern printing inks are usually less fluid than writing inks. The composition, viscosity, density, volatility, and diffusibility of ink are variable.

The Chinese experimented with printing at least as early as AD 500, with inks from plant substances mixed with coloured earths and soot or lampblack. When Johannes Gutenberg invented printing with movable type in Germany in about 1440, inks were made by mixing varnish or boiled linseed oil with lampblack. For more than 300 years such inks continued to be used with little modification in their composition.

In 1772 the first patent was issued in England for making coloured inks, and in the 19th century chemical drying agents appeared, making possible the use of a wide variety of pigments for coloured inks. Later, varnishes of varying stiffness were developed to make inks for different papers and presses. Varnish was replaced by mineral oil in inks when high-speed newspaper presses were introduced. The oil base penetrated rapidly into newsprint and dried quickly. It was not until the beginning of the 20th century that ink-making became a complicated chemical-industrial process.

PIGMENTS are any of a group of compounds that are intensely coloured and are used to colour other materials. Pigments are insoluble and are applied not as solutions but as finely ground solid particles mixed with a liquid. In general, the same pigments are employed in oil- and water-based paints, printing inks, and plastics.

Pigments may be organic (i.e., contain carbon) or inorganic. The majority of inorganic pigments are brighter and last longer than organic ones. Organic pigments made from natural sources have been used for centuries, but most pigments used today are either inorganic or synthetic organic ones. Synthetic organic pigments are derived from coal tar and other petrochemicals. Inorganic pigments are made by relatively simple chemical reactions--notably oxidation--or are found naturally as earths.

Inorganic pigments include white opaque pigments used to provide opacity and to lighten other colours. The most important member of the class is titanium dioxide. White extender pigments are added to paints to lower their cost or improve their properties. This class includes calcium carbonate, calcium sulfate, diatomaceous silica (the remains of marine organisms), and china clays.

Black pigments are primarily created from particles of carbon. Carbon black, for example, is used to give black colour to printing inks. Iron-oxide earth pigments yield ochres (yellow-

Definitions

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browns), siennas (orange-browns), and umbers (browns).

Certain compounds of chromium are used to provide chrome yellows, oranges, and greens, while various compounds of cadmium yield brilliant yellows, oranges, and reds. Iron, or Prussian, blue and ultramarine blue are the most widely used blue pigments and are both inorganic in origin.

DYES are any of a group of complex organic compounds that are intensely coloured and are utilized to colour other materials.

Dyes are used to colour textiles, paper, leather, and many other substances. During the process, dye molecules are deposited from solution onto the material in such a way that they cannot be subsequently removed by the solvent in which they were dissolved. Dyes are generally prepared synthetically from coal tar and petrochemicals.

The craft of dyeing is several thousand years old. The major dyes known to the ancients were those obtained from the madder and indigo plants, together with Tyrian purple (chemically, an indigo derivative), which was obtained from mollusks.

Many of the dyeing processes discovered during antiquity are still used today. An example is the application of an inorganic chemical called a mordant. This substance is applied to a material before the dye to help the dye adhere to the material by precipitating in it as an insoluble metal salt.

The first synthetic dye, mauveine, was discovered in 1856 by the British chemist William Henry Perkin. It was an unexpected product of a reaction with a coal-tar derivative. As a result, a large-scale coal-tar-dye industry arose during the latter part of the 19th century. The basic raw materials were organic substances containing so-called aromatic hydrocarbons in which carbon atoms are linked in six-membered rings.

The chemical structure of dye molecules has proved to be relatively easy to modify, and a wide range of coal-tar dyes have become available. Developments in chemical synthesis have led to the production of many new dyes that adhere strongly to many different types of substances.

Fibres absorb dyes particularly well because they are porous and exert chemical forces on dye molecules. Dyes are held onto fibres by ionic forces, hydrogen bonding, or other attractive forces.

SULFUR DYES are any of a group of sulfur-containing, complex synthetic organic dyes applied from an alkaline solution of sodium sulfide (in which they dissolve) to cellulose, where they become substantive to the fibre. On exposure to air, the dyes in the fibre are oxidized back to their original insoluble form. Sulfur dyes are fast to washing, perspiration, and light but have poor resistance to chlorine bleach. Most colours are available, especially subdued and deep shades, rich blacks, and navy, but not bright red and orange.

HEMATITE

(from the Greek word for "blood," in allusion to its red colour), is a heavy and relatively hard oxide mineral, ferric oxide (Fe_2O_3), that constitutes the most important iron ore because of its high iron content (70 percent) and its abundance.

Many of the various forms of hematite have separate names. The steel-gray crystals and coarse-grained varieties have a brilliant metallic lustre and are known as specular iron ore; thin scaly types are called micaceous hematite.

Much hematite occurs in a soft, fine-grained, earthy form called red ochre or ruddle. Intermediate between these types are compact varieties, often with a reniform surface (kidney ore) or a fibrous structure (pencil ore).

Red ochre is used as a paint pigment; a purified form, rouge, is used to polish plate glass.

The most important deposits of hematite are sedimentary in origin; the world's largest production (nearly 75,000,000 tons of hematite annually) comes from a sedimentary deposit: the Lake Superior district in North America. Other important deposits include Labrador and Quebec.

Hematite is found as an accessory mineral in many igneous rocks; commonly as a weathering product of siderite, magnetite, and other iron minerals; and almost universally as a pigmenting agent of sedimentary and other rocks.