SUSSEX MINERAL & LAPIDARY SOCIETY
40 YEARS ON
1972 – 2012

CONTENTS

Sgurr nam Boc beach, Isle of Skye. 100 yards from shore

A MINERAL

A mineral is a wondrous thing
At least it is to me
For in its ordered structure
Lies a world of mystery.

The secrets that it has withheld
For countless ages past
And clung to most tenaciously
Are being learned at last.

Each year using new techniques
Or with a new device
We make our knowledge more complete
Our data more precise.

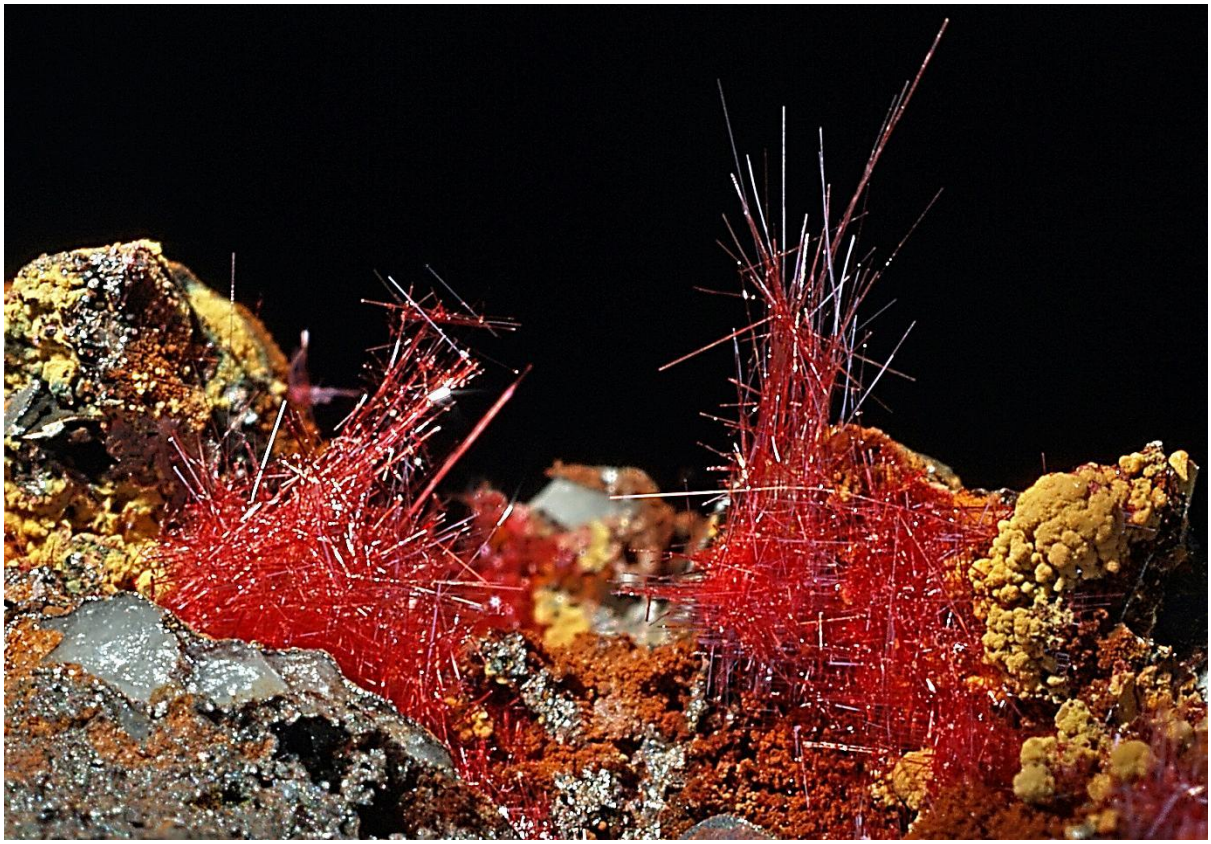
But let us not in trying to solve
A mineral mystery
Forget that minerals are a part
Of natural history.

Nor in our quest
When probing an unknown
Forget that every mineral
Has a beauty of its own.

With progress in technology
Each year sees new machines
That try to copy nature
By sophisticated means.

But for all those modern methods
We cannot yet compete
With the world of ordered beauty
That lies beneath our feet.

C.S. Hurlbut



Cuprite, var: chalcotrichite Fowey Consols Mine, Cornwall FOV 8mm (photo: John Hall)

INTRODUCTION

The Sussex Mineral and Lapidary Society (SMLS) celebrated its 40th anniversary in 2012 and during these 40 years the Society has developed and changed in a variety of different and interesting ways.

This publication attempts to record some of these developments so that members can understand how the current Society has evolved, recognise some of the most significant changes that have taken place and the roles that various members have taken. The strength of SMLS does not just rely on its officers and committee but the very active and enthusiastic roles played by so many members over these 40 years: operating our library, running raffles, organising refreshments, demonstrating lapidary techniques, leading field trips, setting up micromount study evenings, mounting displays, setting up stands at fairs, writing reports of meetings, creating poems, quizzes, drawings, taking photographs, making banners…

Our journal has appeared every two months since 1973 and this provides a very useful source of information and reference. Mark Oddy produced a very useful analysis (Oddy, 2012) based on the first 200 issues of the SMLS journal and this publication draws heavily on the material and structure contained within this article.

IN THE BEGINNING

It is somewhat surprising that a mineral and lapidary society should be formed in Sussex, a location based on young sedimentary rocks with very limited potential for mineral collecting. However, despite this the Sussex Mineral and Lapidary Society (SMLS) has gone from strength to strength over the last 40 years. Society members have combed the UK in search of minerals, have developed one of the best one-day mineral shows in the UK, organised 26 overseas trips and has a membership of over 130.

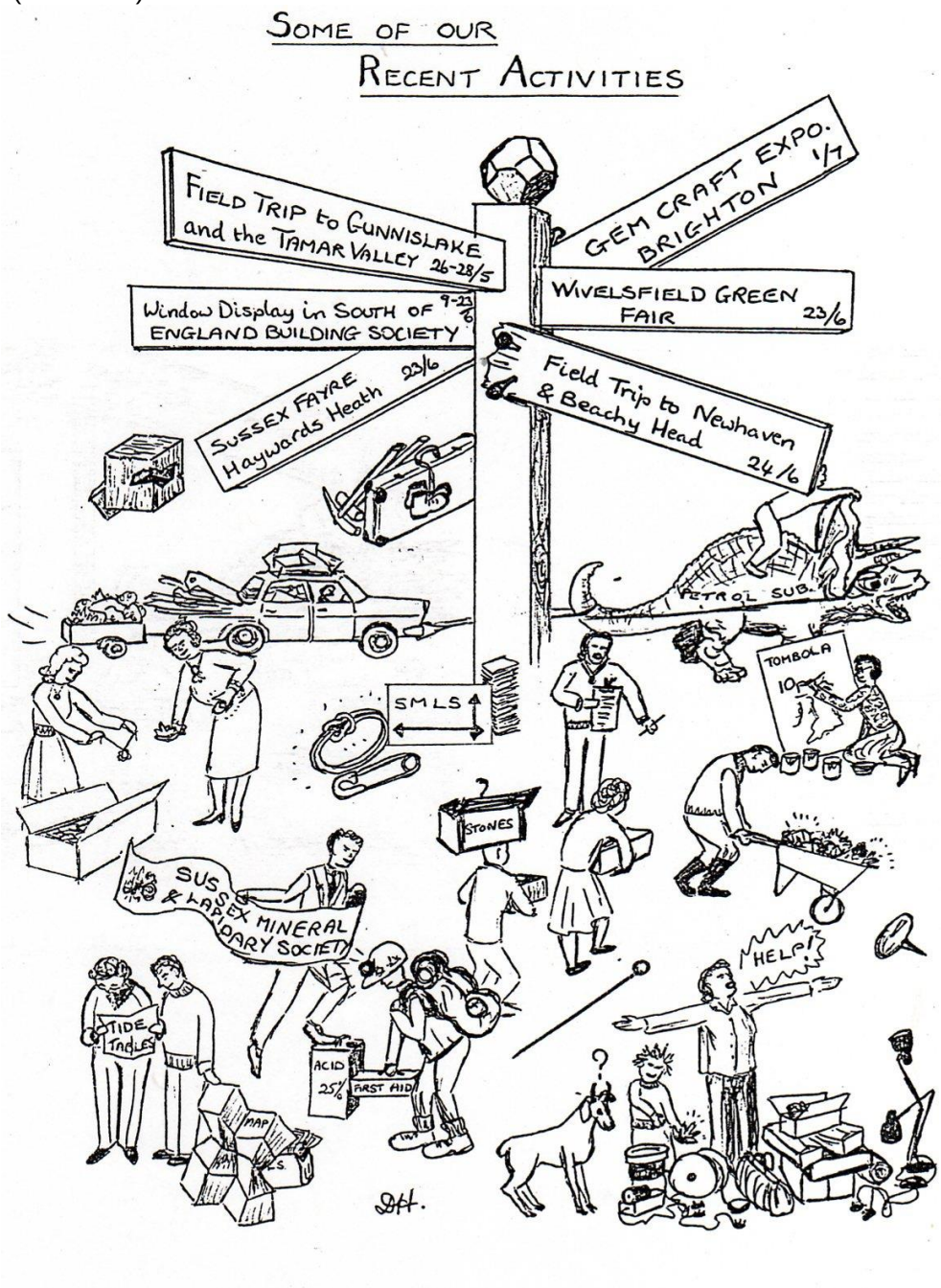
Eric Snelling wrote about the first 10 years of the Society (Snelling, 1982). "The inaugural meeting of the Sussex Mineral and Lapidary Society was held on 7th July 1972. About 25 like-minded people, responding to a notice in the Mid-Sussex Times, gathered in the King Edward Hall in Lindfield. With a fine specimen of Nutfield baryte occupying a position of splendid isolation in the centre of the table, the assembled company elected a committee, agreed the basic format of the Society and even organised a field trip. The first chairman was Norman Rogers and the secretary was Ken Fitch. They with Don Ford, Vernon Else and Malcolm Keeler had taken the initiative in proposing the formation of the Society.

At the first AGM in 1973, Roy Hodgkinson became chairman and, building on the work of his predecessor, he presided with memorable style and vigour until 1978. During his chairmanship the Society evolved many of its present features and in particular, the Rules and the Code of Practice were laid down. However, much of the drive and most of the action was provided by Kenneth Fitch who was a tireless secretary (and treasurer); In 1978 Roy Hodgkinson retired and Kenneth Fitch replaced him as chairman. Pam Pearce became secretary and has occupied that position with distinction continuously since that date. In 1981 John Pearce became chairman, bringing yet new style and ideas".

A complete table of all the SMLS officers during this 40 year period is shown as appendix 1. It is interesting to note that the first chairman and treasurer did not last the first year! In 1977 a change was made to the Society's rules that officers should **normally** serve for 3 years. (note the word normally) In practice this has resulted in the chairman changing every 3 years bringing new energy and ideas to the Society. In contrast the Society has held on to its officers in the other posts for as long as possible: Pam Pearce as secretary for 15 years, Colin Brough as secretary for 17 years (so far); Janice Kemplen for 8 years as treasurer, Eileen Lim for 7 years as treasurer and Donald Barratt for 5 years as vice-chairman and this has provided useful continuity. There are no restrictions on how long anyone can stay on the committee, but we suspect that John Pearce holds the record with 32 years (so far) with Colin Brough completing 20 years.

Like many Mineral and Lapidary Societies which started at this time, lapidary was predominant at first, but like other societies, the focus on lapidary diminished while the emphasis on mineral collecting grew. However although the number of lapidaries within the Society has decreased the standard of their work remains exceptional and some photographs of some superb examples can be seen later in this publication.

By 1979 the Society was very active and this is nicely captured in one of Daphne Hall's illustrations in journal 40 (see below).



Daphne Hall's illustration of SMLS activities in 1979

For the first 26 years we met in the Science laboratory in Oathall school, although occasionally we met in the Queens Hall in Cuckfield when the school was not available. Sometimes we met in Marle Place, Burgess Hill where we established a permanent lapidary workshop for a few years. However our main meeting room in Oathall School had no access to toilet facilities and at one stage the benches in the laboratory were removed and the room was converted into an Art room with students' work invading our space. It was decided that we needed bigger and better premises so in 1998 we moved to the Age Concern hall (now known as the Redwood Centre) adjacent to Clair Hall. It provided much more space - 2 halls, the larger one seating up to 80 people, while the second one provided space for displays and mineral sales, a well equipped kitchen, en-suite toilet facilities, storage space for our library - and our meetings have been held there ever since.

The Redwood Centre is not only used for our monthly meetings, but being attached to Clair Hall is used for the 3 talks at our annual Sussex Mineral Shows.

MEMBERSHIP

Over the first 10 years the membership grew to about 60, but with the introduction of the Sussex Mineral Show in 1988 and the organisation of overseas trips (1990 onwards) the membership increased to over 130. Whereas the early membership was largely drawn from the Haywards Heath area, membership became much more wide spread across the UK with even 5 or 6 members living overseas.

The only remaining founder member, who is still a member of SMLS, is Don Ford.
This made us wonder who else joined SMLS in the early days. Fortunately Pam Pearce holds the first SMLS secretary's (Ken Fitch) record book and we extracted the following list which goes up to 1991:

SMLS MEMBERS 1972 – 1991 who were still members in 2012

Member number	Member's name	Date of joining
4	Don Ford	1972
130	John Hall	1974
159	Pam Pearce	1975
175	Donald Barratt	1976
181	John Pearce	1976
188/9	Bryan and Betty Treherne	1977
216	Julie Pearce (now D'Ablaing)	1977
279	Pam Fielding	1980
289	Joan Smithers	1980
292/3	Jeff and Sheila Jeffery	1980
299/300	Brian and Betty Prowse	1980
301	Kath Hassall	1980
314	Tony Lee	1981
323	Terry Denney	1981
336	Derek Underdown	1982
340	John White	1982
349	John Cooper	1983
354	Janet Wade	1983
381	Richard Symonds	1984
382	Clive Deacon	1984
384	Brian Craik-Smith	1984
394	Joan Ratcliffe	1985
432	Mark Curtis	1990
437	Stephen Silverstein	1990
436	Mike Brooke	1990
446/7	Colin and Andrew Brough	1990
474	Peter Moore	1991

Over the years we have awarded honorary membership of SMLS to 13 people (up to 2012) who have made exceptional contributions to SMLS. Details of these members and an outline of their particular contributions are outlined below:

SMLS HONORARY MEMBERS 1972-2012

1988	Terry Readman	Lady Luck Opal Mine, Yowah, Brisbane, Australia ***Donated two black opals from the Lady Luck mine to SMLS. We raffled each separately : 60 tickets at £5 each. He also created and donated to SMLS our "Best in Show" competition trophy.***
1988	Maurice and Sylvia Grigg	Indian Queens, Cornwall. ***Maurice led us into many of the China Clay Pits in the St. Austell area and also invited us to explore the specimens in his teaching collection. Mounted a display of China Clay minerals at the 1990 Sussex Mineral Show***
1988	Lowry Cherry	Loch Eynort, Isle of Skye, Highlands, Scotland ***Transported members of SMLS from Loch Eynort both in his yacht and clinker-built boat and landed them on Sgurr nam Boc beach on many occasions.***
1992	Lubov Vakhroneyeva & Galina Ivanova	Irkutsk Mineral Museum ***Mounted a display of Siberian minerals and artefacts at the 1991 Sussex Mineral Show and hosted a visit by 10 SMLS members to Irkutsk, Siberia in 1992.***
1996	Alain Marchal	Massif Central, France ***Led SMLS on our trips to the Massif Central, France and hosted us at his Millau mineral shows.***
1996	Hilary Corke	Abinger Hammer, Surrey ***Our SMLS Competition judge for 19 years.***
1997	Bob Symes	Natural History Museum, London ***Gave many excellent talks to SMLS and at our Shows. Hosted visits by SMLS and our overseas Polish and Russian guests to the NHM. Judged our Show competition.***
2001	Ian Bruce	Crystal Classics, Somerset ***Mounted a display of Australian minerals at the 1995 Show Invited us to visit and collect underground in the Tsumeb mine. Helped SMLS to develop the Sussex Mineral Show through a competition and provided a superb challenge trophy for the winners***
2007	Cyril Merritt	Hove, Sussex ***On the committee for 10 years (1982-92) and field trip coordinator for 5 years (1987-91.) He donated the Merritt collection to SMLS to raise funds for the Society and the micromount collection for study purposes***
2009	Pam Pearce	Burgess Hill, West Sussex ***On the committee for 17 years. journal editor for 18 months and secretary for 16 years. Over the years she organised a variety of fund raising events and various SMLS dinners. With John she started the overseas trips.***
2009	John Pearce	Burgess Hill, West Sussex ***Been on the committee for over 30 years holding the posts of treasurer, vice-chairman and chairman (twice), Editor of the SMLS journal for over 180 issues. Organised the Sussex Mineral Shows for 25 years. Initiated (with Pam) and led many of the SMLS Geotourism trips.***

THE JOURNAL

The most important person involved with any journal is the Editor and in this respect the Society has been most fortunate. Eric Snelling's excellent Journal Review in the 100th issue contains a list of all the Editors (see below):

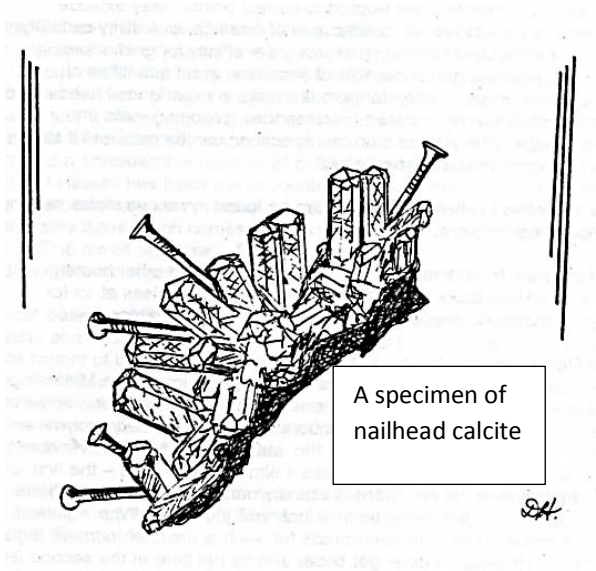
Editor	SMLS Journal Issue Numbers
Ken Fitch	1-3
Margaret Cahill	4-21
David Nunn	22-24
Pam Pearce	25-33
Pauline Fitch	34 - 57
John Pearce	58 - 100

the remarkable fact is, that 140 issues later, this list does not need updating, as we only have to change John Pearce's not-out record (since 1982) from 100 to 240! As we must all realise the Journal lies at the heart of this Society, recording events for posterity, and without the constant cajoling of all those Editors requesting copy, we would have no history.(Oddy, 2012).

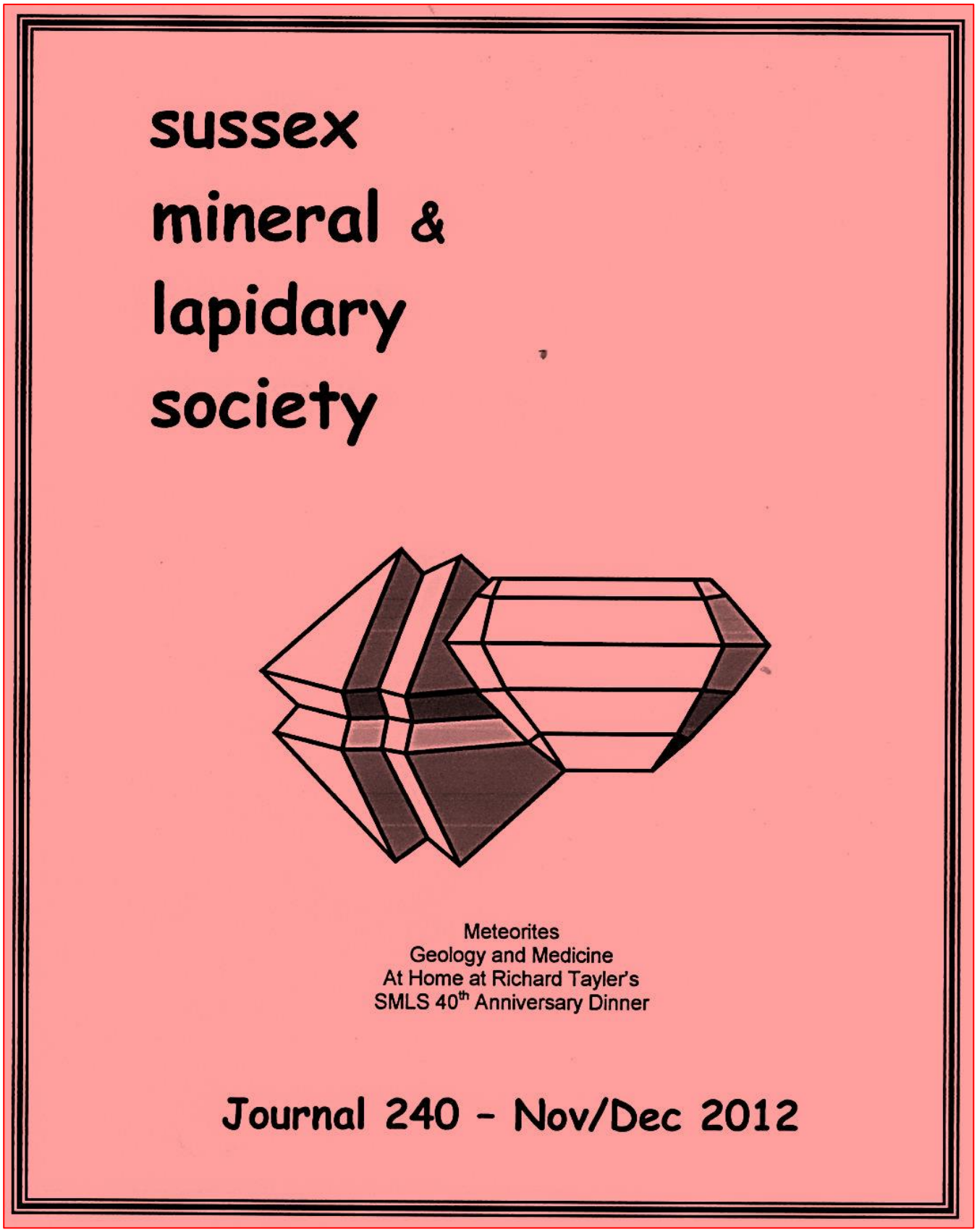
Issues of the SMLS journal have been produced continuously and distributed every two months. The first thing one notices is how little the Journal has visually changed since No.1 came out in January 1973. The first editor, Ken Fitch, came up with a bi-monthly A4 format, a Society Logo (see appendix 2) and a mix of what became regular items, that has not changed to this day. Thus the first issue contained a list of Officers, Committee Meeting Minutes – 45 members and funds of £27, a future programme, a report on the monthly meeting – 2 films were shown, and a report on a field trip to Radstock.

The early issues were produced laboriously with a type writer and ink duplicator and sometimes the print was barely legible (see appendix 3 which compares an early ink duplication with modern day photocopying). Gradually word processors took over, contributions were E-mailed to the editor and copies of the journal were photocopied. A coloured front cover first appeared in 1976 an example is given on page 6) and the first colour printing appeared in the 2001. An example of a full colour page is reproduced on page 7, it records aspects taken from the SMLS visit to the Auvergne in 2010 with photos of stibnite and the basaltic column sections (orgues) as well as an intense planning session by three of the participants balanced on a log. The cover of Journal 100 was based on a coloured photograph by John Hall of a Sheppey baryte (see page 75), and the inclusion of coloured Show Posters began in 1991

Ken Fitch produced comprehensive indices for journals 1-24 (1973-1976), 25–54 (1977-1981) and 55-84 (1982–1986). No indices were produced for some years after that, but since journal 196 (July 2005) a list of key articles in each issue is printed on the corresponding front cover (see example on page 6).



The character of any journal is invariably improved by the inclusion of lighter fare to leaven the serious stuff. So thank heavens for the likes of Daphne Hall and Kathleen Hassall. These two livened up many a page with their humour, their literary and artistic skills. Daphne's sketches brought to life many amusing incidents from field trips she went on, (see, for example, her illustration of nailhead calcite)



Example of a coloured cover with details of the main articles

SMLS Visit to the Auvergne in 2010

Daphne contributed dozens of mineralogically inspired cartoons and crosswords and as if that wasn't enough she illustrated a considerable number of articles with accurate drawings of minerals and fossils (see for example the zeolite crystals in the account of the trip to Famara Risco, Lanzarote in the Overseas Field trip section).

Kathleen Hassall has been the undoubted Queen of the Ode, now sadly something of a lost art. The Journals carry many examples of her poetry, none more so than the 25th Anniversary issue which carries no less than two examples of her work: 'Ode to a Field Trip', and 'A Club for all Seasons' (the latter is reproduced in the Passage of Time section on page 77).

Eric Snelling also occasionally broke into verse, intentionally producing the worst pun of the Journal by writing a 'Ge-Ode' in 1997 (see the UK Field trip section).

There were quizzes:

A LIGHT HEARTED COMPETITION

1. **Forever……..**
2. **The young man won't, but I wonder if that old …… ……..**
3. **Saucy young lady……**
4. **Will you take the……. ……shall I drive**
5. **Dry bloomers?**
6. **At the Boy Scouts' …….. the fire by rubbing two sticks together.**
7. **Four pints equal two ……**
8. **Eve won't but ……..**
9. **Black policeman ……**

Pauline Fitch

Tongue-in-cheek definitions:
The new mineral discovery, Administratium, was announced in Journal No.117 in 1992. It has 1 neutron, 75 associate neutrons, 125 deputy associate neutrons and ??? assistant deputy associate neutrons. Administratium is inert, etc etc.

However our personal favourite verse was submitted by Richard and Margaret Symonds in Journal No.124 in 1993. The subject was 'Eveite', a typical teenage daughter whose traits were cleverly allied with mineral properties (see overpage).

David Nunn contributed his first Geo-news column in 1974. He then went on to develop his well known series of cartoon style articles on famous British geologists and many other geologically related subjects. His most recent topic was 'Books', the bibliography of geologically related subjects, which appeared in 2005. He produced a cartoon on the famous palaeontologist Mary Anning in 1977 and this is reproduced on page 10.

Brian Prowse has submitted many technical articles, particularly on the morphology of crystals, which would not disgrace the pages of academic journals. His 'Useless Information' series was succeeded by the six- part 'Crystal Clear' series (see page11), and we have additionally learnt from him how to differentiate pyrite from marcasite, bevelled edges from truncated edges, and how to ask and ask again if you are not happy with an answer, even if it comes from the Natural History Museum – witness the morphology of harmotome story as told in Journal No.79 in 1986. (see his letter to the editor on page 12) also John Hall's article in the Series ***Finding Out About Minerals: 2 Calcite*** on pages 13 and 14)

The two most prolific authors in the pages of the Journal have been Ken Fitch and John Pearce. Ken wrote countless articles on all aspects of lapidary in the 1970s and 1980s, and John Pearce has more recently graphically described dozens of field trips, and also many of the guest speakers' talks – particularly when he has forgotten or failed to persuade, at the last minute, some unsuspecting member to do so!

Eric Snelling first wrote in the now famous, never issued Journal No.2; it only appeared in draft form. Amongst many contributions over the years, perhaps his reviews to mark the 100th issue of the Journal, and then the 21st Anniversary of the Society are striking examples of his concise writing.

A mention must also go to Dorothy and Cyril Merritt for many field trip reports and in particular their 3 part story of a private trip to the Strontian Mines in 1987.

EVEITE

Formula: $C_x(H_2O)_y$

Irregular sometimes massive, often showing daughter growths of twinned octahedron in upper segment. Cleavage: often perfect.

Atomic mass: ***accepted as 118, but known to vary from 90 to 460. Measurements tend to give values higher than indicated.***

Colour: ***pure specimen turns rosy pink when discovered in its native state, but liable to turn green when placed alongside a better specimen.***

Brittle, soluble in liquids, but becomes malleable when subjected to alcohol.

Surface is usually covered with a painted film. Boils at nothing and often freezes without reason. Melts if given special treatment. Bitter if incorrectly used. Yields to pressure when applied to correct points. May explode spontaneously if left alone with a specimen of Adamite, its activity certainly increasing if introduced to alcohol. Has a great affinity for gold, silver, platinum and precious gems; capable of absorbing great quantities of expensive substances. Highly dangerous except in experienced hands, often becoming unstable when exposed to telephones, shopping malls and coiffeurs. Possession of more than one specimen can be risky and if strong bonds are formed, may even be illegal.

Occurrence: copious quantities in all urban areas. Can be found in various states ranging from virgin metal to common ore.

Uses: ***its chief uses are for running homes, making dinners and other homely comforts, thankless tasks that it is deemed Adamite is useless at, or for ornamental purposes, especially in sports cars and convertibles.***

A final historical note is provided by an article written by Martin West in June 1974. He quotes a survey that predicts that the world supply of gold, silver, mercury, lead, zinc, platinum and copper(almost), would run out by 2000, even at exponential rates of the then current production. The author then adds doom to gloom by adding in the 1974 power restrictions (remember?), and concludes that by the time that anybody born in 1974 is old enough to vote, matters will be very serious indeed! (hindsight is a wonderful thing). However he then cheers up and goes on to say that this will be great for mineralogists as new mines will open up with new dumps – and suggests that we should get prepared for a field trip to West Hoathly Iron Works in 2001?!

Mary Anning (1799-1847)

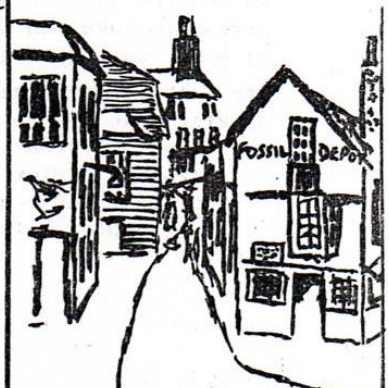
Nº 2 FAMOUS EARTH SCIENTISTS

BY .D. J. W. NUNN.

Mary Anning was but a child when her first great fossil treasure was obtained. Her father had died in 1810; and the support of the family depended on the sale of fossils, which were purchased by visitors and by passengers who passed through the town of Lyme Regis, on coaches.

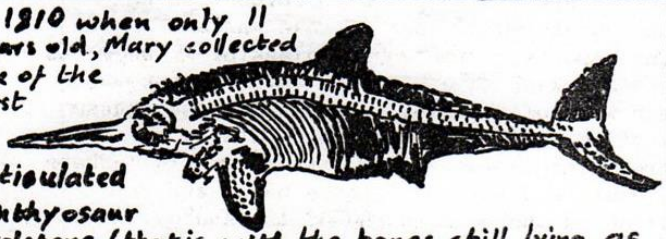
Although in no sense a scientific worker, she did much to advance knowledge by her diligence and aptitude in collecting specimens.

Ammonites were Mary's chief objects for sale.



Mary Anning's "fossil depot" at Lyme Regis about 1810.

In 1810 when only 11 years old, Mary collected one of the first



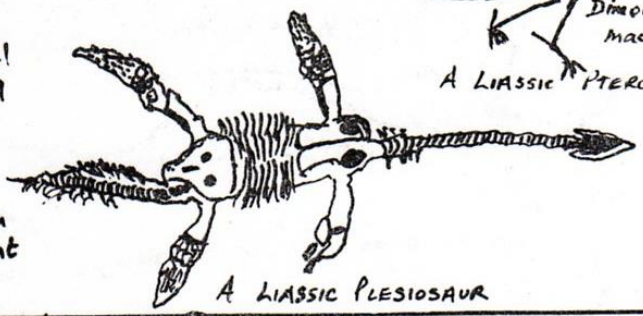
articulated ichthyosaur skeletons (that is with the bones still lying as though connected).

In 1824 she found the first articulated skeleton of the great jurassic plesiosaurus, and in 1828 she discovered the first British pterosaur (flying reptile)

Dimorphodon Macronyx

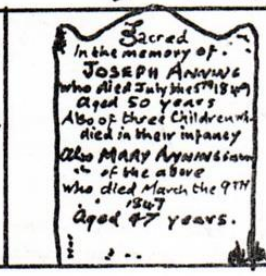
A LIASSIC PTEROSAUR

As luck would have it, just at this time a prominent personage interested in natural history happened to be staying in Lyme Regis. He was Sir Everard Home, physician to the king and professor of anatomy and surgery at London University. Sir Everard bought the Ichthyosaur.



A LIASSIC PLESIOSAUR

Many famous scientists came to Lyme Regis to see Mary and her famous fossil sites. Mary had grown into a renowned professional dealer in fossils and an expert in her own right on fossil saurians.


Sacred
In the memory of
JOSEPH ANNING
who died July 21st 1845
aged 50 years
Also of three Children who died in their infancy
Also MARY ANNING daughter of the above
who died March the 9TH 1847
aged 47 years.

She died in middle age, in 1847. Her grave lies in the little churchyard in Lyme Regis and there is also a glass window to commemorate her, but her true memorial is the collection of her fossils which are on display as national treasures in the NATURAL HISTORY MUSEUM, LONDON

CRYSTAL CLEAR No 2

****

Perfection in crystals is the exception rather than the rule, as far as external form is concerned at least. Although interfacial angles are always constant for a particular form, individual faces can be so distorted that they bear little resemblance to the perfect shape. Dodecahedrons of Garnet often provide ideal specimens for study in this respect, since quite large specimens suitable for contact goniometry are not difficult to obtain.

For the purpose of illustration the octohedron is a much simpler form to portray, and Fig. 1 illustrates the readily recognisable form of the octahedron. The interfacial angles between faces 111 and $1\bar{1}1$ of the Isometric System octahedron is $70^{\circ}31'$, which can easily be checked on cleaved Fluorite octahedrons.

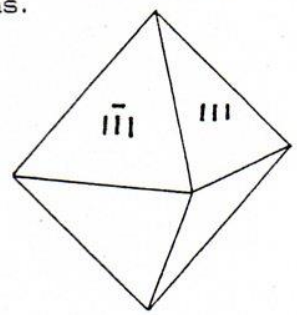


Fig. 1

Fig. 2 illustrates an octahedron, since the form has eight faces, but it may not be readily be identified as such by the untrained eye. Reference to Fig. 3 will show how the normal form of an octahedron can be elongated in one direction to produce a different shape, and yet it is obvious that the angle between adjacent faces has not altered.
To portray the elongation more clearly, all three diagrams have been turned anti-clockwise about the vertical axis from a more conventional projection.

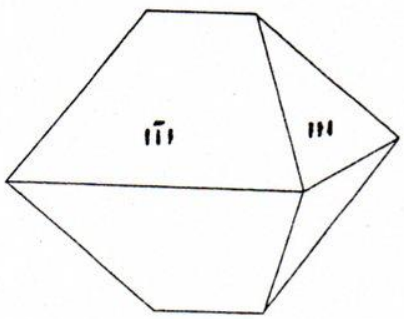


Fig. 2

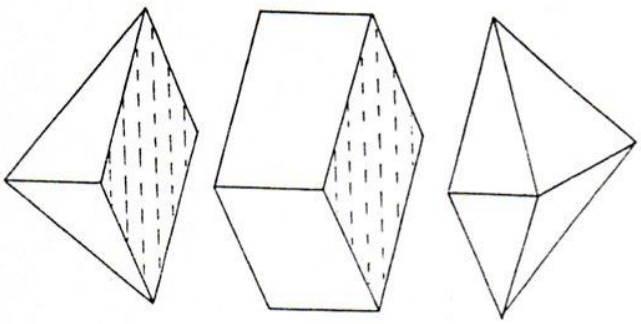


Fig. 3

It is this constancy of interfacial angles in all crystals of the same substance that is the basis of morphological crystallography.

Brian Prowse

There was also an excellent series of articles in the series ***Finding Out About Minerals*** and one written by John Hall on Calcite is reproduced in full below:

Glenview
Uckfield

10th Feb 2001

Dear Editor,

I feel sure that I am only one of many readers who will have noticed and written to you concerning your "deliberate mistake" in the article on the field trip to South Wales, in Journal 169, (Jan/Feb 2001). What a cunning ploy to monitor the alertness of your readers.

The use of the word bevelled in the caption to Fig 1 on page 9 might be acceptable if used by a carpenter to describe the results of using his plane on the edge of a table, but in mineralogical terms is totally wrong in this instance. An edge of the cube in the figure has been **truncated**, and the single additional face thus formed is that of the dodecahedron (110). A **bevelled** edge on a cube produces two additional faces, those of the tetrahexahedron (hk0).

The three axes of the Isometric System are of equal length, and because a truncated edge is formed equally between two adjacent faces, that is the "new face" intercepts two of the three axes equally, the indices must be (110). However, bevelled edges, by definition in mineralogical terms, cannot intercept the axes at equal lengths, and the resultant variable indices are given the general form (hk0). Because their intercepts are variable many tetrahexahedral forms are possible, for example (210), (310), (320), (530) etc. with the first two probably the most common. The diagrams in Figs 1 and 2 may be helpful in identifying cubes modified by dodecahedral faces (**truncated edges**), and those of the tetrahexahedron (**bevelled edges**) respectively.

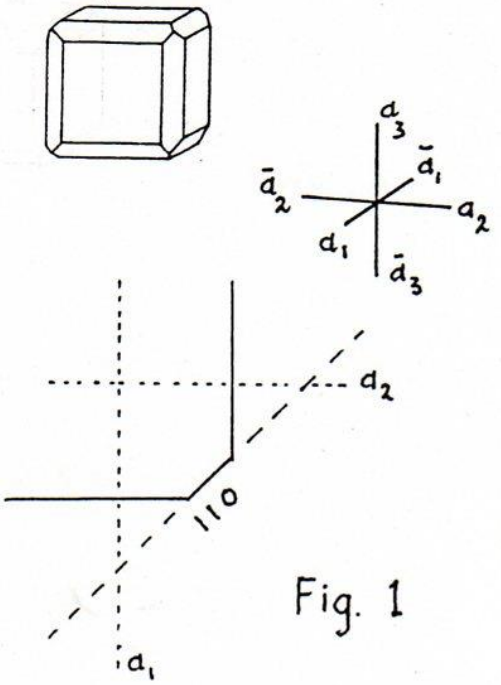


Fig. 1

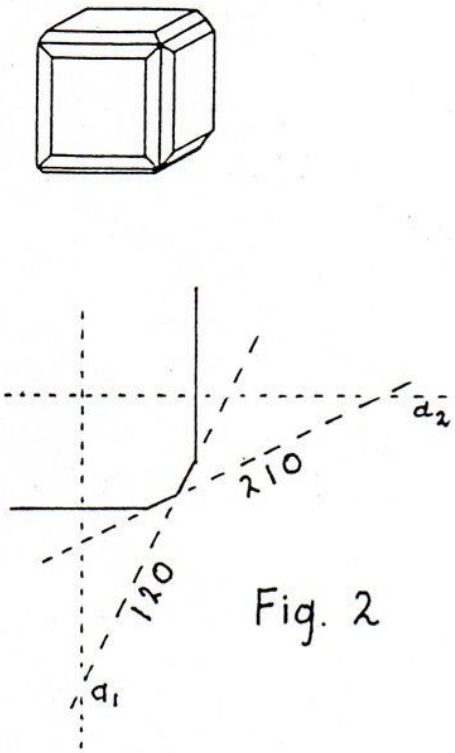


Fig. 2

Brian Prowse.

FINDING OUT ABOUT MINERALS 4 CALCITE

PHYSICAL PROPERTIES

Chemical Composition.	$CaCO_3$ (Calcium Carbonate).
Crystal System.	Hexagonal - trigonal.
Hardness.	3 on cleavage faces, slightly less on crystal faces.
Specific Gravity.	2.71
Cleavage. (see also structure)	Perfect on $(10\bar{1}1)$ rhombohedral. These cleavage faces do not normally coincide with crystal faces. There is also parting on $(01\bar{1}2)$ and (0001) but the true cleavage is much more distinct and a valuable aid in identification.
Fracture.	Conchoidal, difficult to observe owing to perfect cleavage.
Colour.	Colourless when pure but can be almost any hue if impurities or inclusions are present. Therefore not a good identification point.
Streak.	White.
Lustre.	Crystalline varieties vitreous to pearly, transparent to translucent. Earthy types dull.
Formation.	When atmospheric carbon dioxide dissolves in water carbonic acid is formed.

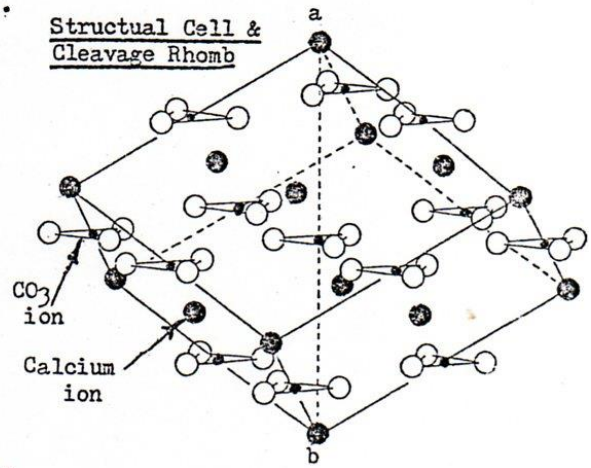
$$\underset{\text{Carbon dioxide}}{CO_2} + \underset{\text{Water}}{H_2O} = \underset{\text{Carbonic acid (in solution)}}{H_2CO_3}$$

Under ideal conditions of concentration, pressure and temperature certain metal ions, calcium ions in the case of Calcite, will replace hydrogen ions in the acid giving $CaCO_3$. Calcite shares this chemical formula with its trimorphs Aragonite and Vaterite. It is the combination of chemical composition and the way these chemical 'bits' are arranged (structure) that make Calcite an individual species. Calcite is also formed by chemical and organic precipitation from both marine and fresh water creating limestones, and from deposits of mainly organic material rich in calcium carbonate producing chalk. As Calcite is slightly soluble it may be redeposited when a solution is subjected to chemical inbalance or evaporation. This commonly occurs in limestone areas around springs and in caves (stalactites etc.), these deposits are known as tufa.

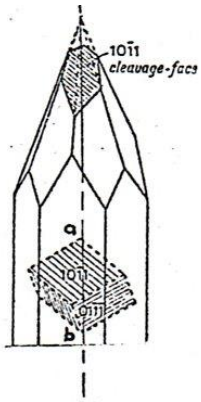
Structure. The structure of Calcite is based on the rhombohedron. For those unfamiliar with this three dimensional figure it can perhaps be best described as a cube or rectangular prism that has been partly compressed across two diagonally opposite corners producing distortion of the original shape. The resulting rhombohedral form retains the original edge lengths and parallelism but none of the right-angles between faces, these now being either greater or less than 90°. This angular deviation from a right-angle for the structual cell of Calcite is approximately 15°, therefore the angles between adjacent faces become close to 75° or 105°.

The arrangement of Ca and CO_3 ions is shown in this diagram. The Ca ions are positioned at the corners and centres of each rhomb face. The CO_3 ions are placed as shown at the centre of each edge and cell centre, lying on a plane perpendicular to the shortest diagonal axis ab. This particular arrangement causes planes of weakness in the structure parallel to the rhomb faces producing the perfect rhombohedral cleavage. The diagram is not of the smallest unit cell but serves to describe the structure in general.

Structual Cell & Cleavage Rhomb



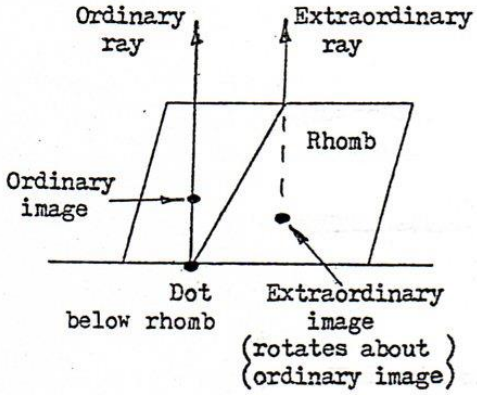
If a cleavage rhomb is held between finger and thumb at points a and b (remember its the shortest diagonal of the four) and rotated, it will be seen to present the same aspect 3 times in one complete revolution. This diagonal ab is known as the triad axis and corresponds to the vertical axis in a prismatic crystal, see diagram. This is not meant to imply that all cleavage rhombs come from the centre of crystals but merely to illustrate the orientation of cleavage planes within a crystal.



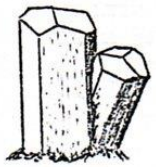
Prismatic Crystal of Calcite

An Interesting Optical Property.

Transparent cleavage fragments possess high Double Refraction demonstrated by viewing a dot through a rhomb of the Calcite variety Iceland Spar which is exceptionally transparent. The viewer will see the images of two dots, one of which will rotate about the other if the rhomb is turned. This is caused by the image taking two different paths as it passes through the mineral. Both these light rays vibrate in a single plane at right-angles to each other. This single plane vibration is readily proved by viewing the rhomb through a slowly rotating polariser (a lens of Polaroid sunglasses will do) when only one dot image is visible at any point of time. The appearance or disappearance of each image changing with every 90° of polariser rotation.

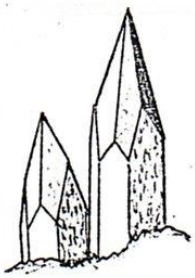


Crystal Morphology. Calcite occurs in a greater variety of crystal forms than any other known mineral. Lack of space permits descriptions of only three of the commonest forms. Rhombohedral crystals are found with a variety of angles between faces but only rarely are these identical with the structual rhomb angles. Prismatic (six sided) crystals often with rhombohedral terminations are fairly common in some areas. When this takes the form of a flat rhombohedron ($10\bar{1}2$) the crystals are known as 'nail-heads' from the similarity to the heads of ancient nails made by striking the end of an iron wire at an angle in three places. Finally there is the scalenohedral or 'dog-tooth' form. The scalenohedron can be likened to a steep six sided pyramid with the interfacial angles alternating between blunt and sharp. Twinning is common especially on the unit ($10\bar{1}1$) and other rhomb faces and on the basal pinacoid (0001), a plane perpendicular to the vertical axis, which produces double terminated crystals.



Nail-head crystals

Prism terminated by flat rhombohedron.



Dog-tooth crystals

Prism terminated by scalenohedron.

Now after taking all that in you might like to answer the questions on page 15 !

References and further reading.

Read, H.H. Rutley's Elements of Mineralogy, Allen & Unwin.

Evans, R.C. An Introduction to Crystal Chemistry, C.U.P.

Sorrel, C.A. & Sandstrom, G.F. The Rocks & Minerals of the World, Collins.

Whitten, D.G.A.& Brooks, J.V.R. The Penguin Dictionary of Geology, Penguin.

Cox, K.G., Price, N.B. & Harte, B. An Introduction to The Practical Study of Crystals, Minerals and Rocks, McGraw-Hill.

John Hall

In the early years we had frequent write ups in the local press, which were reproduced in the journal but this has decreased markedly over the years. In 1996 we had a fairly comprehensive write-up by Phil Dennett from the ***Mid Sussex Times*** and the first part of it is reproduced below:

Rock on !

You know people are serious about a hobby when they buy a boat to aid their pastime.

That is what John Pearce and his pals have done to get to rocks on some of the most beautiful but bleakest parts of Britain.

Though they sometimes have to climb them, they really want to collect them. John's photograph albums dispel any notion that being chairman of the Sussex Mineral and Lapidary Society is as cosy as something like stamp collecting.

John and a hardcore of the 100-strong society brave the elements to collect rocks, minerals, gemstones and fossils from far-flung corners of the world.

As thousands of Russians with previous convictions know, Siberia is not short of minerals or rocks and the society once took a field trip there.

But you are just as likely to find them scouring Sussex, Scotland or Cornwall.

Getting the best sometimes means clambering down rocks or even going in the chilly depths of underground caves. The boat was bought to reach a tricky coastal spot in Skye.

Member and climbing expert Peter Hay, from Hove, gets roped up to teach members how to look after themselves safely in quarries and slippery mountain slopes….".

In recent times some journals have been uploaded onto the SMLS website The six most recent issues of the journal are only available within the members' section of the website while earlier journals after journal 229 (Jan/Feb 2011) are freely available to all.

Bound copies of all SMLS journals are held by the Booth Museum of Natural History in Hove and the Mineral section of the Natural History Museum in London.

SMLS WEBSITE

Having a website enables us to increase public awareness of our Society and its activities and provides members with information about the Society, both current and past events. The main public website is separated from a members-only section which members have to use individual passwords to gain access.

In recent times the journals have been uploaded onto the SMLS website and members can opt to receive a hard copy of the journal or a digital version by E-mail. The digital copy has the advantage of having all its photos in full colour and it is easy to click onto links within the text. The six most recent issues of the journal are only available within the members' section of the website while earlier journals after journal 229 (Jan/Feb 2011) are freely available to all.

After 3 years of trying to unravel the mysteries of creating a website for SMLS, Colin Brough and John Pearce met with Gary Morse from the Southampton Society of Minerals and Fossils. Gary Morse has experience of creating websites and he quickly helped us to establish our first website in 1979

http://website.lineone.net/~smls/

Needless to say our first attempt soon became out of date and too limited. However, we were very lucky to have Gary Atkinson as a SMLS member who is a professional web designer. He totally re-designed our website with a new address which still operates today:

www.smls.org.uk

This started to operate in 2003 with Gary Atkinson as our web master. The home page is shown below: