

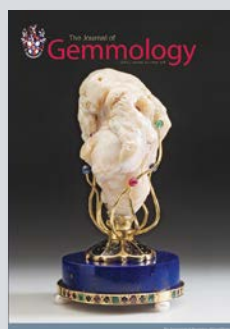
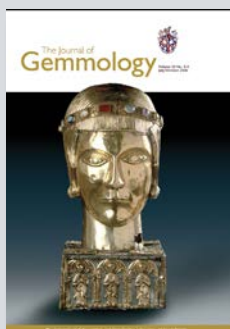
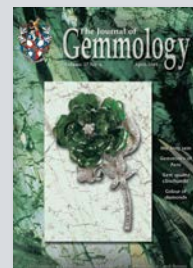
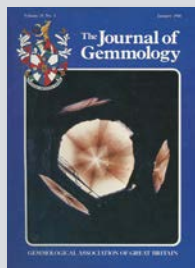


# *The Journal of* **Gemmology**

## CUMULATIVE INDEX

Volumes 1–34

1947–2015



# An Introduction

By Carol M. Stockton

It was a singular honour to be invited to prepare the cumulative index for 67 years (1947–2013) of *The Journal of Gemmology*. It has taken over a year to put together that index. Little did I realize what a rewarding journey it would be through the history of gemmology. Born on the very heels of World War II, *The Journal's* first issue covered various issues in gem identification, synthesis and treatment, some of which continue today: natural versus cultured pearls, the cutting and significance of jade in China, the use of scientific instruments in gemmology, the Gemmological Association's first public exhibition of gemmology, concerns with gem fraud, two reports on synthetic sapphire and spinel, a summary of Robert Webster's research thesis on ivory, a report on the status of the diamond industry (in 1945) and an introduction to the shadow method of determining refractive index. That is a staggering scope for a first issue! It is also an excellent representation of the state of gemmology at the time.

The early issues of *The Journal* also set the tone for lectures, editorials and articles that enabled their authors to deliver knowledge often not previously set forth in writing, including personal knowledge of historical events and people. Thus we are able to glean knowledge from Dr W. F. P. McLintock's '40 Years of Gemmology', Dr Kathleen Lonsdale on 'The Atomic Structure of Diamond', Robert Webster on 'Luminescence in the Service of Gemmology', Basil Anderson on 'Gem Testing Without Instruments' and Dr J. F. H. Custers' talk on 'Recent Research on Diamonds including Artificial Coloration'. Some of the information contained in these cannot be found anywhere else. Such accounts, as well as a plethora of other historical information of gemmological significance, are indexed under the headings: 'Editorials and other musings', 'Education, gemmological', 'The Gem Testing Laboratory of Great Britain (and its predecessors)', 'History', 'Lectures [transcripts of]', 'Museums and gem collections', 'Nomenclature and classification' and 'Obituaries'. For the particularly assiduous researcher of history, it may also be worthwhile perusing the pages identified under 'Proceedings...and Notices', as well as 'Conference reports'.

This index was a collaborative effort among Brendan Laurs, Mary Burland and myself. (I did the grunt work.) Together, we tried to include all the anticipated entries by gem material, locality, method, origin and feature, with cross-references to avoid excess duplication. Invariably, with a project of this magnitude, something will have been left out. Should you discover such an instance, we ask that you let us know by emailing Mary at Mary.Burland@gem-a.com. Fortunately, since the index is electronically searchable, you should be able to find what

you are looking for, even if you cannot find it under the anticipated heading. An additional benefit of the electronic format is that it will be relatively simple to fix any errors or omissions that arise.

You may notice some differences between this cumulative index and the most recent volume indexes: This is a subject index only, so author names are no longer listed alphabetically. However, it should be relatively easy to locate articles by specific authors by searching for their names. Also this index does not include individual entries from the Abstracts section of *The Journal*; see the heading 'Abstracts' for page numbers where the Abstracts sections can be found. All book reviews are listed alphabetically under the heading 'Book Reviews', which appears at the end of the index (following 'Z' entries) since it occupies so many pages on its own.

In the past, book reviewers were identified solely by their initials. We tracked down the names of most of these reviewers for listing in this index, but a few mysteries remain. We hope to add the missing reviewer names to future editions of this index and ask readers to advise us if they can identify any of the following: AFH (1954), AG (reviews from 1950 to 1967), BJ (1968), DE (1977), FJ (1965), GA (1949), JB (1953), HW (1949–1958), KB (1965), MDSL (1949), MS (1970), MSJ (1970), PB (1950), PG (1959), PP (1969), SP (1953–1973), WAF (192) and WS (1950–1970). We are particularly eager to learn the identity of 'SP', who is *The Journal's* most prolific unidentified book reviewer.

A quick note on how to read the listings: Articles or notes begin with a brief description followed by the last name of the first author in parentheses. After this come the year, a slash, volume number (in bold font), a colon, and the inclusive page numbers. Such entries appear like this: (author)year/**volume**:pages. For most, the index does not provide an issue number, since page numbers are continuous throughout a volume. However, the first few issues of *The Journal* started over with page 1, so issue numbers are included for these. Entries with no author name given are listed as 'Anon' for the author, and errata are indicated as 'Err'.

The cumulative index will continue to be updated at approximately annual intervals. In closing, I would like to encourage *Journal* readers to make use of the index to explore facets (pun intended) of gemmology that they might not have considered before. It may seem that a perusal of an index might be no more rewarding than trying to read a dictionary. However, you may find that by scanning the listings, something unexpected may catch your attention and lead you into avenues of gemmology that you never explored before. Happy hunting!

# The Journal of Gemmology

## Cumulative Index

Volumes 1–34, 1947–2015

### A

#### Abalone

- pearl, X-radiograph of (Anon)1959/**7**:103  
shell, iridescent colours caused by diffraction of light (Liu)2002/**28**:1–5; (Tan)2005/**29**:395–399;  
letter on (Hoover)2006/**30**:103–104; response (Tan)2006/**30**:104–105

#### Abstracts (section of *The Journal*)

- 1949/**2**:22–26, 57–59, 153–158; 1950/**2**:204–210, 231–234, 320–323, 353–356; 1951/**3**:27–30, 81–82, 124–128, 145–148; 1952/**3**:193–198, 246–248, 309–311, 337–340; 1953/**4**:33–35, 71–77, 126–131, 176–182; 1954/**4**:212–215, 253–260, 311–318, 348–359; 1955/**5**:29–42, 88–95, 157–161, 222–234; 1956/**5**:260–269, 319–327, 371–382, 394–401; 1957/**6**:81–98, 172–190; 1958/**6**:215–222, 264–269, 371–387; 1959/**7**:8–16, 67–73, 104–112, 139–140  
1960/**7**:192–197, 228–235, 278–283, 309–313; 1961/**8**:33–42, 99–110, 155–160; 1962/**8**:228–236, 253–260, 289–299; 1963/**9**:17–20, 55–62, 102–107, 139–141; 1964/**9**:177–181, 205–206, 235–241, 270–274; 1965/**9**:292–301, 357–360, 402–406, 441–443; 1966/**10**:24–29, 61–63, 106–108, 135–137; 1967/**10**:171–173, 204–207, 242–244, 269–270; 1968/**11**:16–19, 49–56, 92–96, 129; 1969/**11**:216–219, 265–267, 324–326  
1970/**12**:18–20, 51–54, 77–89; 1971/**12**:173–182, 230–234, 354–361; 1972/**13**:25–26, 65–73, 105–109, 143–150; 1973/**13**:181–186, 227–232, 275–279, 318–329; 1974/**14**:29–36, 84–90, 132–140, 181–191; 1975/**14**:230–236, 293–298, 341–347, 388–395; 1976/**15**:31–33, 86–89, 137–148, 212–217; 1977/**15**:259–265, 323–335, 393–399, 454–458; 1978/**16**:55–57, 124–137, 198–212, 270–280; 1979/**16**:408–415, 470–486, 542–550  
1980/**17**:43–46, 119–131, 181–193, 259–269; 1981/**17**:337–341, 416–424, 480–497, 636–640; 1982/**18**:76–82, 161–170, 240–251, 345–352; 1983/**18**:432–444, 563–574, 651–662, 761–772; 1984/**19**:65–69, 174–186, 266–277, 370–374; 1985/**19**:437–441, 528–545, 630–640, 723–732; 1986/**20**:53–56, 124–129, 185–192, 244–251; 1987/**20**:306–311, 380–386, 490–498; 1988/**21**:40–44, 106–114, 194–197, 254–261; 1989/**21**:308–312, 448–455, 507–515  
1990/**22**:41–43, 103–114, 178–181, 235–242; 1991/**22**:305–309, 369–378, 439–447; 1992/**23**:104–115, 234–240; 1993/**23**:298–303, 364–373, 427–432, 491–493; 1994/**24**:112–118, 187–211, 289–294; 1995/**24**:370–376, 421–442, 514–519, 585–601; 1996/**25**:52–62, 142–153, 230–238, 306–309; 1997/**25**:358–368, 430–435, 493–500, 564–565; 1998/**26**:126–134, 188–194, 266–272; 1999/**26**:330–339, 397–401, 450–461, 543–545  
2000/**27**:45–52, 106–113, 171–175, 237–241; 2001/**27**:295–301, 362–369, 432–433, 488–499; 2002/**28**:43–53, 111–115, 175–179; 2003/**28**:302–306, 362–368, 430–437; 2004/**29**:48–52, 111–114, 235–240; 2005/**29**:350–356, 484–488; 2006/**30**:106–113, 234–24; 2007/**30**:338–343, 456–462; 2008/**31**:55–61, 132–135; 2009/**31**:300–308  
2010/**32**:106–111; 2011/**32**:224–332; 2012/**33**:82–90; 2013/**33**:170–171, 246–251  
see Literature of Interest after 2013

**Absorption spectra**, see Spectroscopy [various]

#### Actinolite

- green transparent (Anderson)1972/**13**:8  
in jadeite from Myanmar, microscopic studies of (Ou Yang)1993/**23**:278–284

#### Adularescence

- behaviour resembling, in jadeite (Li Jianjun)2008/**31**:125–131  
in moonstone—  
from Austria (Chaipaksa)2014/**34**:190  
smoky, from Sri Lanka (Harder)1994/**24**:179–182  
schiller and pseudochromatism (Ostwald)1965/**9**:309–324

#### Afghanistan

- beryl from Konar and Panjshir (Natkaniec-Nowak)2008/**31**:31–39  
ruby and spinel from, history of (Hughes)1994/**24**:256–267  
spodumene and tourmaline from Nuristan (Dunn)1974/**14**:170–174

**Africa**, see East Africa; specific countries; specific gem materials

#### Agate

- from Australia (Norwood)1968/**11**:31–41  
cameos, vs. shell (Farn)1976/**15**:7  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
doublet with glass (Kammerling)1991/**22**:459–462  
dyeing/staining—  
dyed with false dendrites (Zwaan)1965/**9**:283–285  
history of (Burbage)1967/**10**:195–197; (O'Donoghue)1974/**14**:114  
genesis of, video of lectures (Grabowski)2015/**34**:469  
from Guyana (Gosling)1990/**22**:76–79  
inclusions in, see 'Inclusions'  
nomenclature (Sarofim)1969/**11**:203–204  
from Scotland (Kennedy)1953/**4**:82–95; (Tait)1977/**15**:382–392  
simulant, paint with polished banding as humorous specimen (Webster)1965/**9**:290–291  
see also Chalcedony; Chalcedony simulants

**AGS**, see American Gem Society

#### Ajoite

- from Arizona (Axon)1964/**9**:263–267

#### Akoya

- 'keshi' cultured pearls from (Hänni)2006/**30**:51–58

#### Alabaster

- ornamental (Webster)1958/**6**:297–333

**Albite**, see Feldspar

#### Alexandrite

- from Brazil—  
blue (Pinheiro)2000/**27**:161–170  
deposits (Cassedanne)1993/**23**:333–354  
from Hematita (Schmetzer)2014/**34**:32–40  
cat's-eye/star from East Africa (Barot)1995/**24**:569–580  
colour change of (Halvorsen)2006/**30**:1–21  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
growth patterns in (Schmetzer)2011/**32**:129–144  
identification of natural vs. synthetic (Farn)1977/**15**:359–360; (Bank)1988/**21**:215–217; (Kennedy)2000/**27**:79–81  
inclusions in, see 'Inclusions'  
simulants (Kennedy)1954/**4**:244–249  
from Spain (Marcos-Pascual)1997/**25**:340–357

- from Tanzania (Dunn)1976/**15**:113–118;  
(Schmetzer)2011/**32**:179–209  
from Zimbabwe/Rhodesia (Probus)1962/**8**:204
- Alexandrite effect**, see Colour change
- Alexandrite, synthetic**  
cat's-eye (Koivula)1988/**21**:232–236; patent history of  
(Schmetzer)2013/**33**:137–148  
drusy, from Russia (Hyršl)1999/**26**:447–449  
early small crystals (Webster)1970/**12**:101–148  
electron spin resonance of (Troup)1983/**18**:421–431  
flux-grown, from Creative Crystals Inc.  
(Schmetzer)2012/**33**:49–81  
gallium content to distinguish from natural  
(Schrader)1986/**20**:108–113  
HOC method, from Russia (Schmetzer)2013/**33**:113–129  
identification of natural vs. synthetic (Farn)1977/**15**:359–360;  
(Bank)1988/**21**:215–217; (Kennedy)2000/**27**:79–81  
Inamori (Schmetzer)2013/**33**:137–148  
inclusions in, see 'Inclusions'  
Kyocera (Scarratt)1992/**23**:134, 136  
titanium-bearing (Schmetzer)2013/**33**:137–148
- Almandine**  
from Canada (Boyd)1983/**18**:544–562  
cat's-eye/star from East Africa (Barot)1995/**24**:569–580  
inclusions in, see 'Inclusions'  
infrared spectrum of (Adamo)2007/**30**:307–319;  
(Hainschwang)2008/**31**:23–29  
letter from 'Professor Church' on discovery of spectrum  
(Farn)1951/**3**:142–144  
star (Eppler)1958/**6**:195–212  
from USA (Dunn)1975/**14**:273–280;  
(Williams)2014/**34**:286–287  
see also Garnet
- Almandine-spessartine**  
star, from Madagascar (Schmetzer)2002/**28**:13–23  
see also Garnet
- Amazonite**  
see Feldspar
- Amber**  
box and beads of (Bubshait)1996/**25**:20–21  
from Canada (Field)1947/**1**(4):8–9; (Boyd)1983/**18**:544–562  
chatoyant (Safar)1998/**26**:20  
coated (Scarratt)1989/**21**:344–346  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
from Dominican Republic (Fraquet)1982/**18**:321–333  
from England (Kennedy)1953/**4**:82–95  
inclusions in, see 'Inclusions'  
International Amber Association newsletter  
(Laurs)2015/**34**:557  
International Amber Symposium, First, proceedings of  
(Fraquet)1989/**21**:347–350  
from Myanmar (Kammerling)1994/**24**:3–40; pages 25, 28  
(Err)1994/**24**:130; (Tay Thy Sun)2015/**34**:606–615  
myths associated with (Walters)1989/**21**:289–292  
pressed (Bubshait)1993/**23**:398  
processing in Lithuania (Laurs)2015/**34**:673–675  
reconstructed? (Farn)1976/**15**:15–16  
from Slovakian archaeological sites  
(Kadlečíková)2015/**34**:510–517  
specific gravity of (Farn)1976/**15**:6  
stress figures in (Webster)1951/**3**:72–76  
surface colour—  
stability of, letter on (Sturman)1995/**24**:369  
treated (Bahrain)1992/**23**:223–224;  
(Bubshait)1993/**23**:398–399; letter on  
(Hughes)1994/**24**:185–186  
treated and assembled (Safar)1998/**26**:17–19
- Amber simulants**  
plastic—  
beads (Bubshait)1996/**25**:21  
scented and with bee inclusions (Kennedy)2002/**28**:76  
resin (Farn)1976/**15**:12–13  
resin-embedded amber fragments (Scarratt)1989/**21**:296–297
- Amblygonite**  
from Brazil, facet-quality (Schunk)1955/**5**:154–156  
inclusions in, see 'Inclusions'  
infrared spectrum of (Hainschwang)2008/**31**:23–29
- American Gem Society**  
first conclave since war, announcement (Anon)1947/**1**(1):23  
and 'semi-precious stones', decision to discontinue use  
of term (Anon)1947/**1**(3):3; (Anon)1947/**1**(4):14;  
letters on (Ruff)1947/**1**(4):28; (Eppler)1948/**1**(6):9;  
(Ruff)1948/**1**(6):23–25
- Amesite**  
from Russia (Spiridonov)2006/**30**:91–102; pages 91, 93, 94  
(Err)2006/**30**:254
- Amethyst**  
from Brazil (Kiefert)1991/**22**:471–482;  
(Kitawaki)2002/**28**:101–108; (Williams)2014/**34**:288–289  
damaged by acid (Scarratt)1987/**20**:287–288  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
growth structure analysis (Schmetzer)1986/**20**:20–32; vs.  
synthetic (Kiefert)1991/**22**:471–482  
heat-treated, resembling 'golden' calcite (Axon)1965/**9**:308  
inclusions in, see 'Inclusions'  
infrared spectra of (Lind)1983/**18**:411–420  
from Korea (Kim)1990/**22**:204–206  
localities (Petsch)1973/**13**:265–269  
from Mexico (Mayers)1947/**1**(3):25–28  
Raman spectra of, in reliquary of St Eustace, Basle Cathedral  
(Joyner)2006/**30**:169–182  
see also Quartz
- Amethyst simulants**  
colourless, with diffused surface colour  
(Scarratt)1986/**20**:95–97  
doublets from Germany (Henn)2015/**34**:479–482
- Amethyst, synthetic**  
growth structure, vs. natural (Schmetzer)1986/**20**:20–32;  
(Kiefert)1991/**22**:344–354  
infrared spectra of (Lind)1983/**18**:411–420  
from Japan (Lind)1987/**20**:274–277  
twinning in (Kennedy)2001/**27**:271  
from USSR (O'Donoghue)1978/**16**:257–258  
zoned (Kennedy)2002/**28**:78
- Ammolite**, see Ammonite
- Ammonite**  
from England (Kennedy)1953/**4**:82–95  
fossil, from Canada (Wight)1981/**17**:406–415;  
(Boyd)1983/**18**:544–562  
inclusions in, see 'Inclusions'
- Amphibole**  
crystallography of (Mitchell)1950/**2**:237–274  
needles in almandine (Gübelin)1948/**1**(7):7–39;  
(Gübelin)1950/**2**:281–303  
see also Actinolite; Hexagonite; Hornblende; Pargasite;  
Rocks; Tremolite
- Analcime**  
averturescent zeolite from India (Talati)1978/**16**:186–190
- Andalusite**  
from Brazil, mining of (Ruplinger)1983/**18**:581–591  
chiastolite (Eppler)1971/**12**:256–262  
crystallography of (Mitchell)1950/**2**:237–274;  
(Mitchell)1986/**20**:18–19  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
inclusions in, see 'Inclusions'  
manganese lines in green (Anderson)1967/**10**:199–201
- Anderson, Basil W.**  
70th anniversary tribute to (Andrews)1971/**12**:241  
collection donated to GAGTL (Anon)1987/**20**:266  
memorial service (Anon)1984/**19**:283–284



- obituary (Chisholm)1984/**19**:97; (Mitchell)1984/**19**:188;  
(Farn)1984/**19**:194, 283; letter on (Mitchell)1984/**19**:384
- Andesine**, see Feldspar
- Andradite**  
chemical composition of (Adamo)2007/**30**:307–319  
demantoid—  
as diamond simulant (Webster)1958/**7**:79–100  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
inclusions in, see 'Inclusions'  
from Italy (Hoskin)2003/**28**:333–336  
from Pakistan (Adamo)2015/**34**:428–433  
demantoid simulants—  
sphene (Axon)1965/**9**:308  
YAG (Mitchell)1967/**10**:145–148  
from USA (Laurs)2014/**34**:96  
see also Garnet
- Andranondambo**, see Madagascar
- Anglesite**  
infrared spectrum of (Hainschwang)2008/**31**:23–29
- Anhydrite**  
infrared spectrum of (Hainschwang)2008/**31**:23–29  
from Peru (Hyršl)2001/**27**:328–334
- Annealing**, see Diamond treatment
- Anorthite**, see Feldspar
- Antarctica**  
peridot from Ross Island (Taylor)1971/**12**:333
- Apatite**  
from Canada (Boyd)1983/**18**:544–562  
colourless—  
cat's-eye, from Brazil (Laurs)2014/**34**:8  
from Tyrol (Axon)1964/**9**:263–267  
blue (Andrews)1965/**9**:354–355; (Farn)1977/**15**:235  
from Bolivia (Hyršl)1998/**26**:41–47  
cat's-eye—  
from Asia, yellow (Macleod)1975/**14**:292  
from Brazil, colourless (Laurs)2014/**34**:8  
from East Africa (Barot)1995/**24**:569–580  
from Namibia (Johnston)2014/**34**:191  
from Tanzania (Gübelin)1983/**18**:592–595  
cryptocrystalline 'collophane' (Poirot)1983/**18**:515–519  
green—  
from Kenya (Zwaan)2014/**34**:289–290  
from Mozambique (Chaipaksa)2015/**34**:654  
from Myanmar (Axon)1964/**9**:263–267  
identification of (Farn)1977/**15**:363–364  
inclusions in, see 'Inclusions'  
infrared spectrum of (Hainschwang)2008/**31**:23–29
- Apps**, see Computer software
- 'Aqua Aura'**, see Treatment
- Aquamarine**  
from Afghanistan (Natkaniec-Nowak)2008/**31**:31–39  
from Australia (Brown)1985/**19**:707–722  
asterism in—  
(Schmetzer)2004/**29**:65–71  
from Brazil (Hyršl)2001/**27**:456–460  
from Canada (Boyd)1983/**18**:544–562  
cat's-eye/star from East Africa (Barot)1995/**24**:569–580  
from China, heat treatment of (Ruzeng)2007/**30**:297–301  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
from Ethiopia (Laurs)2014/**34**:8–9  
green, identification and fade testing of  
(Nassau)1996/**25**:108–115  
inclusions in, see 'Inclusions'  
from India (Phukan)1966/**10**:1–7  
large, from 'Marta Rocha' crystal (Scarratt)1989/**21**:296  
localities (Petsch)1973/**13**:265–269  
from Nigeria (Lind)1986/**20**:48  
'Santa Maria' from Brazil (Bank)2001/**27**:257–258  
simulated by doublets from Germany (Henn)2015/**34**:  
479–482
- in Townshend Collection of Precious Stones in Victoria and  
Albert Museum (O'Donoghue)1970/**12**:1–5  
see also Beryl; Beryl, synthetic
- Aragonite**  
from Bohemia (Andrews)1965/**9**:354–355  
infrared spectrum of (Hainschwang)2008/**31**:23–29  
see also Calcareous concretions; Shell
- Arco Valley Pearl**  
history and description of (Zwaan)2009/**31**:196–201
- Argentina**  
Velasco pegmatite district (Sardi)2008/**31**:85–89
- Arizona**, see United States of America
- Arkansas**, see United States of America
- Artificial neural networks**  
method of analysis for classification of emerald  
(Dereppe)2000/**27**:93–104
- Asia, South-east**, see specific countries
- Assembled gem materials**  
'Coque de perle' and 'Osmenda pearls'  
(Webster)1966/**10**:8–9  
doublet—  
beryl, colourless, with red adhesive to simulate ruby  
(Scarratt)1987/**20**:361  
diamond-topped (Webster)1958/**7**:79–100;  
(Scarratt)1986/**20**:36–37; with synthetic sapphire  
base (Mitchell)1983/**18**:385  
garnet and glass (Farn)1977/**15**:236–237  
glass and dendritic agate (Kammerling)1991/**22**:459–462  
'modern', from Germany and India (Henn)2015/**34**:479–  
482  
opal (Anderson)1971/**12**:205–206; (Farn)1972/**13**:122–  
123  
quartz and beryl (Farn)1960/**7**:270–273  
ruby and synthetic ruby (Hughes)1988/**21**:8–10  
ruby, synthetic, with natural-appearing sheen  
(Choudhary)2014/**34**:110–111  
sapphire, natural green and synthetic ruby (Anderson)  
1972/**13**:96–97; (Duroc-Danner)1988/**21**:12–14  
sapphire, natural green and synthetic sapphire  
(Anderson)1972/**13**:4  
spinel and strontium titanate (Anderson)1972/**13**:6  
spinel, synthetic, sold as 'soudé sur spinelle' to simulate  
emerald (Webster)1952/**3**:199–201  
inclusions in, see 'Inclusions'  
lapis lazuli, crushed and bonded with plastic  
(Farn)1974/**14**:57–58  
mosaic with half 'pearls' (Mitchell)1985/**19**:489–499;  
page 493 (Err)1985/**19**:647; letter on  
(Mitchell)1985/**19**:737–738  
pearl—  
composite (Scarratt)1992/**23**:133; page 133  
(Err)1992/**23**:252  
in mounting (Farn)1978/**16**:234–235  
peridot fragments in polymer (Choudhary)2015/**34**:401–402  
star simulants and synthetics (Pough)1961/**8**:14–20  
synthetic corundum and strontium titanate, to simulate  
diamond (O'Donoghue)1975/**14**:224–225  
testing of (Farn)1960/**7**:270–273  
triplet—  
beryl—  
simulating Colombian emerald in jewellery  
(Laurs)2014/**34**:109  
'Smaryl', simulating emerald  
(Webster)1966/**10**:120–122  
opal and quartz (Gübelin)1959/**7**:119  
Opalite or Opal Essence (Scarratt)1993/**23**:473–480  
types and properties (Webster)1964/**9**:160–176; letter on  
(Goldie)1964/**9**:249–251  
see also Amber; Ammonite; Asterism; Emerald simulants;  
Opal simulants

## Asterism

- in alexandrite, synthetic titanium-bearing (Schmetzer)2013/**33**:137–148
- in assembled gem materials (Pough)1961/**8**:14–20
- in beryl (Eppler)1960/**7**:183–191; (Harding)2002/**28**:231–234; (Schmetzer)2004/**29**:65–71
- causes of (Breebaart)1957/**6**:72–74; (Eppler)1958/**6**:195–212; (Killingback)2005/**29**:312–315; letter on (Killingback)2005/**29**:482
- in corundum (Tait)1955/**5**:65–72
- in diamond (Mitchell)1981/**17**:584–588; page 588 (Err)1982/**18**:107; (Currie)1986/**20**:52; page 52 (Err)1986/**20**:199; letter on (Stern)1986/**20**:135; letter on (French)1986/**20**:135; (Hainschwang)2014/**34**:306–315
- in diopside (Eppler)1967/**10**:185–188; (Martin)1967/**10**:235–241
- in enstatite (Eppler)1967/**10**:185–188
- fake (Schmetzer)2002/**28**:41–42, 109–110; letter on (Schmetzer)2002/**28**:109–110
- in garnet—
  - rhodolite from Tanzania (Kammerling)1990/**22**:16–18
  - from Sri Lanka (Kumaratilake)1998/**26**:24–28
- in gems—
  - from East Africa (Barot)1995/**24**:569–580
  - from Sri Lanka (Kumaratilake)1997/**25**:474–482
- in glass (Webster)1954/**4**:210–211
- in pyroxene, black (Ponahlo)1968/**11**:12–15
- in quartz—
  - aventurine (Webster)1954/**4**:210–211
  - rose, from Madagascar (Schmetzer)2006/**30**:183–191
  - spheres, light spots on (Killingback)2008/**31**:40–42
  - from Sri Lanka (Schmetzer)2003/**28**:321–332
- rarity of (Kennedy)1960/**7**:303–308
- in rutile (Harding)2002/**28**:231–234
- in sapphire—
  - diffusion-induced (Tay Thye Sun)2015/**34**:576–578
  - from Kenya (Barot)1989/**21**:467–473
  - synthetic (Anon)1947/**1**(5):1–4
- in spinel—
  - (Eppler)1958/**6**:251–263
  - from Myanmar (Anderson)1954/**4**:335
  - from Sri Lanka (Kumaratilake)1998/**26**:24–28
- in synthetic gem materials (Breebaart)1957/**6**:72–74; (Pough)1961/**8**:14–20
- in zircon (Krzemnicki)2015/**34**:671–673

## Astrology

- significance of gems in (Nalliah)1971/**12**:365–366; (Farn)1984/**19**:224–227

## Australia

- agate from Queensland (Norwood)1968/**11**:31–41
- amazonite from Broken Hill (Axon)1964/**9**:263–267
- aquamarine from Queensland (Brown)1985/**19**:707–722
- chalcedony from Western (Willing)2003/**28**:265–279
- chrysoberyl from Harts Range (Farn)1978/**16**:229–231
- corundum from—
  - New South Wales (Broughton)1980/**17**:95–118; (Abduriyim)2006/**30**:23–36; (Sutherland)2009/**31**:203–210; Barrington (Sutherland)1998/**26**:65–85
  - Queensland (Norwood)1968/**11**:31–41; (Broughton)1979/**16**:318–337; pages 318, 319, 320, 324, 331 (Err)1979/**16**:431
  - zoning in (Rutland)1963/**9**:83; (Kiefert)1991/**22**:471–482
- emerald from, history of (Webster)1955/**5**:185–221; (Brown)1984/**19**:320–335
- emerald, synthetic Biron from (Scarratt)1987/**20**:289–291; page 289 (Err)1987/**20**:392

- Gemmological Association of (Anon)1947/**1**(2):9; (Anon)1948/**1**(5):31–32
- labradorite from (Chalmers)1971/**12**:267–271
- mining in Queensland (Norwood)1968/**11**:31–41
- nephrite from—
  - Cowell, South (Adams)2009/**31**:153–162
  - Eyre Peninsula, South, para-type (Nichol)2000/**27**:193–200
  - New South Wales (Chalmers)1971/**12**:267–271
- opal from—
  - origin of (Leechman)1956/**5**:362–370
  - Queensland (Norwood)1968/**11**:31–41
- pearls—
  - cultured blister, from (Anon)1959/**7**:74
  - fishing in (Anon)1953/**4**:192; (Anon)1954/**4**:309–310
- sapphire, blue, zoning in (Rutland)1963/**9**:83
- variscite from Western (Willing)2008/**31**:111–124

## Austria

- emerald from Habachtal (Webster)1955/**5**:185–221; (Gübelin)1956/**5**:342–361
- moonstone from (Chaipaksa)2014/**34**:190
- Museum of Fine Arts, Vienna, St Michael goblet in (Tillander)1970/**12**:65–70

## Aventurescence

- in analcime from India (Talati)1978/**16**:186–190
- in oligoclase from USA (Henn)2004/**29**:72–74

## Aventurine, see Quartz

## Axinite

- colour-change, from Tanzania (Williams)2014/**34**:191–192
- ferro-, from Sri Lanka (Jobbins)1975/**14**:368–375; (Hänni)1982/**18**:20–27
- inclusions in, see 'Inclusions'
- infrared spectrum of (Hainschwang)2008/**31**:23–29
- in jewellery at Sotheby's (Hinks)1962/**8**:279
- from Mexico (Axon)1964/**9**:263–267; (Pough)1966/**10**:10–17
- X-ray diffraction of ferro- and magnesio- (Jobbins)1975/**14**:368–375
- see also Magnesioaxinite

## Azurite

- faceted (Trumper)1964/**9**:158–159; (Axon)1964/**9**:263–267
- with malachite from Peru (Hyršl)2015/**34**:564

## B

### Backscattered electron imaging

- of chondrodite from Sri Lanka (Zwaan)2002/**28**:162–168; letter on (Zwaan)2002/**28**:239
- of chrysoberyl cat's-eye, inclusions in (Soman)1985/**19**:412–415; page 412 (Err)1985/**19**:553
- of coral, natural, treated, and simulants (Aliprandi)1983/**18**:401–410
- of corundum from Tanzania, inclusions in (Hänni)1987/**20**:278–284
- of emerald from Brazil (Pulz)1998/**26**:252–261; inclusions in (Miyata)1987/**20**:377–379
- of garnet—
  - demantoid from Pakistan (Adamo)2015/**34**:428–433
  - tsavorite in matrix, from Kenya (Key)1989/**21**:412–422
- of inclusions—
  - in emerald (Moroz)1999/**26**:357–363
  - in ruby from Thailand (Gübelin)1971/**12**:242–252
  - in sapphire—
    - from Madagascar (Gübelin)1997/**25**:453–470; page 468 (Err)1997/**25**:576
    - from Rwanda (Krzemnicki)1996/**25**:90–106
  - zircon in corundum and effects of heat treatment (Rankin)2003/**28**:257–264
- of jadeite—
  - black (Ou Yang)1999/**26**:417–424
  - from Myanmar (Franz)2014/**34**:210–229
  - in rock from Mexico (Ostrooumov)2010/**32**:1–6

- of jades from Myanmar (Franz)2014/**34**:210–229  
of kosmochlor jade from Myanmar (Franz)2014/**34**:210–229  
of maw-sit-sit from Myanmar (Colombo)2000/**27**:87–92;  
(Franz)2014/**34**:210–229  
of musgravite from Sri Lanka (Schmetzer)2005/**29**:281–289  
of omphacite jade from—  
Italy (Adamo)2006/**30**:215–226  
Myanmar (Franz)2014/**34**:210–229  
of ruby and sapphire from New Zealand  
(Grapes)2004/**29**:8–14  
of sapphire glass fillings (Scarratt)1986/**20**:203–207  
of taaffeite-spinel, heat-treated  
(Schmetzer)1999/**26**:353–356  
see also Scanning electron microscopy
- Bahrain**  
pearl fishing in (Scarratt)1986/**20**:147–148
- Bakelite**, see Plastic
- Balas ruby**, see Spinel
- Balfour, Ian**  
obituary (Roux)2013/**33**:184
- Band theory**, see Colour, cause of
- Barite**  
from Colorado (Andrews)1965/**9**:354–355  
infrared spectrum of (Hainschwang)2008/**31**:23–29
- Bead**  
historic, in man-made deposit in Sri Lanka  
(Francis)2002/**28**:25–31  
‘kakuten’—  
of horse teeth (Kakoi)2006/**30**:193–199  
‘ojime’ of tooth (Sunagawa)2002/**28**:33–40  
stringing, threads for (Webster)1971/**12**:275–283
- Becke lines**, see Microscopic techniques; Refractive index
- Benitoite**  
crystallography of (Mitchell)1950/**2**:237–274  
fluorescence of (Mitchell)1980/**17**:149
- Beryl**  
from Afghanistan (Natkaniec-Nowak)2008/**31**:31–39  
from Argentina (Sardi)2008/**31**:85–89  
bicoloured, from India (Aliprandi)1987/**20**:352–355  
from Bolivia (Hyršl)1998/**26**:41–47  
from Brazil, photo of crystal (Bessem)1950/**2**:203  
from Canada (Boyd)1983/**18**:544–562  
cat’s-eye (Eppler)1958/**6**:195–212  
cat’s-eye/star from East Africa (Barot)1995/**24**:569–580  
crystal morphology and growth in pegmatites  
(Sunagawa)1999/**26**:521–533  
crystallography of (Mitchell)1950/**2**:237–274  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
green—  
from Nigeria (Schwarz)1996/**25**:117–141  
from Pakistan (Rafiq)1985/**19**:404–411  
heliodor—  
(Kennedy)1954/**4**:244–249  
heat treated to blue (Field)1952/**3**:226–229  
identification and fade testing of  
(Nassau)1996/**25**:108–115  
from Madagascar (Webster)1966/**10**:84–95  
inclusions in, see ‘Inclusions’  
infrared spectrum of (Hainschwang)2008/**31**:23–29  
irradiated, colour of (Rink)1990/**22**:33–37  
from Madagascar, yellow (Webster)1966/**10**:84–95  
Maxixe—  
from Brazil (Farn)1973/**13**:293–295  
colour centre in colourless from India  
(Mathew)1998/**26**:238–251  
identification and fade testing of  
(Nassau)1996/**25**:108–115  
and Maxixe-type—  
blue and green (Nassau)1973/**13**:296–301  
electron paramagnetic resonance spectra of  
(Andersson)1979/**16**:313–317  
from Russia (Andersson)2011/**32**:145–149  
radiation damage in (Koivula)1988/**21**:165–166  
red, from Utah, USA (Hosaka)1993/**23**:409–411;  
(Harding)1995/**24**:581–583;  
(Fumagalli)2003/**28**:291–301  
from Somaliland (Kinnaird)2000/**27**:139–154  
star (Eppler)1960/**7**:183–191; (Harding)2002/**28**:231–234;  
(Schmetzer)2004/**29**:65–71  
surface etch features on crystals (Koivula)1988/**21**:142–143  
from USA—  
California (Johnson)1969/**11**:274–296  
Utah (Hosaka)1993/**23**:409–411;  
(Harding)1995/**24**:581–583; (Fumagalli)2003/**28**:291–301  
water in (Schmetzer)1990/**22**:215–223  
see also Aquamarine; Assembled gem materials; Emerald;  
Pezzottaite
- Beryl simulants**, see Assembled gem materials; Emerald simulants
- Beryl, synthetic**  
‘amber’ to brownish red, cobalt-bearing  
(Taylor)1967/**10**:258–261  
red, Russian hydrothermal (Henn)1999/**26**:481–486;  
(Fumagalli)2003/**28**:291–301  
various colours, ANICS chemical vapour deposition  
(Scarratt)1988/**21**:135  
see also Emerald, synthetic
- Beryllium (Be) diffusion**, see Diffusion treatment
- Beryllonite**  
from USA (Dunn)1975/**14**:208–212
- Biaxial gems**  
optic axis of (Cartier)2004/**29**:228–234  
refractive index measurement of  
(Sturman)2007/**30**:434–442, 443–452  
and doubling of images (Sturman)2002/**28**:210–222  
see also Crystallography; Optic character; Refractive index;  
specific gem materials
- Bibliographies**  
gemmological, 1850–1953 (Anon)1954/**4**:263–268  
opal (Leechman)1955/**5**:44–46
- Bieberite**  
crystal simulated by potassium ferricyanide  
(Anderson)1971/**12**:153–154
- Biggs, Margaret J.**  
obituary (Callaghan)2001/**27**:374, 436–437
- Birefringence**  
determination—  
and basics of (Mitchell)1947/**1**(4):15–20  
using Brewster-angle meter  
(Harding)1999/**26**:539–542  
using refractometer (Sturman)2010/**32**:74–89  
device to facilitate (Farrimond)1994/**24**:105–108;  
letter on (Hurlbut)1994/**24**:184–185;  
response (Farrimond)1994/**24**:185; letter on  
(Hughes)1994/**24**:185–186  
and dispersion ratio in visual optics  
(Hodgkinson)2014/**34**:281–283  
and double refraction divergence  
(Cartier)2002/**28**:223–226; letter on  
(Cartier)2003/**28**:301; (Cartier)2003/**28**:489–493  
and doubling of images (Sturman)2002/**28**:210–222  
mathematics of (Schell)1993/**23**:422–426  
see also Crystallography; Optic character; Refractive index;  
Strain; specific gem materials
- Biron synthetic emerald**, see Emerald, synthetic
- Bisbeeite**  
with shattuckite from Democratic Republic of Congo  
(Zwaan)2015/**34**:663–666

- Bleaching**  
of jadeite, wax- and polymer-impregnated (Tan)1995/**24**:475–483  
see also Treatment
- Bobdownsite**  
from Canada, faceted (Tait)2014/**34**:97
- Boleite**  
faceted (O'Donoghue)1983/**18**:596–597
- Bolivia**  
ceruleite from southern (Schmetzer)1978/**16**:86–90  
gems and ornamental stones from (Hyršl)1998/**26**:41–47  
phosphophyllite from Potosí (Dunn)1978/**16**:90–93
- Bonanno, Antonio C.**  
obituary (Dale)1996/**25**:247
- Bone**  
'musselcracker' fish palate (Mitchell)1988/**21**:81–82  
resin imitation of, cast polyester (Scarratt)1992/**23**:218–222  
see also Odontolite; Teeth
- 'Bone turquoise'**, see Odontolite
- Book reviews**, see end of Index, after 'Z' entries  
see also Other Book Titles
- Bosshart, George**  
obituary (Harding)2011/**32**:250–251
- Bragg, Lawrence**  
obituary 1971/**12**:322
- Brazil**  
alexandrite—  
blue, from Minas Gerais (Pinheiro)2000/**27**:161–170  
and chrysoberyl deposits (Cassedanne)1993/**23**:333–354  
from Hematita (Schmetzer)2014/**34**:32–40  
amblygonite from Minas Gerais, facet-quality (Schunk)1955/**5**:154–156  
amethyst—  
from Caxarai Mine, Rondônia (Kitawaki)2002/**28**:101–108  
from São Paulo (Williams)2014/**34**:288–289  
andalusite from Santa Teresa, Ouro Preto (Ruplinger)1983/**18**:581–591  
apatite from, colourless cat's-eye (Laurs)2014/**34**:8  
beryl from Minas Gerais, photo of crystal (Bessem)1950/**2**:203  
brazilianite from Minas Gerais (Trumper)1951/**3**:1–13  
chrysoberyl from, purple to reddish purple (Schmetzer) 2014/**34**:32–40  
emerald—  
from Carnaíba (Schwarz)1989/**21**:474–486  
from Ceará (Schwarz)1988/**21**:168–178  
chemical signature of (Pulz)1998/**26**:252–261  
determination of geographical origin of (Cronin)2012/**33**:1–13  
history and localities (Webster)1955/**5**:185–221  
inclusions in, see 'Inclusions'  
from Minas Gerais (Hänni)1987/**20**:446–456  
from Socotó (Schwarz)1990/**22**:147–163; page 163 (Err)1990/**22**:249  
euclase from Minas Gerais (Bastos)1969/**11**:312–314  
garnet from, treatment of (Eeckhout)2004/**29**:205–214  
herderite, green, from (Dunn)1976/**15**:27–28  
kunzite from Urucum mine, large crystal (Laurs)2015/**34**:386  
lepidolite from Araçuaí (Laurs)2014/**34**:102–103  
petalite from (Anderson)1972/**13**:95–96  
phenakite from (Gübelin)1979/**16**:357–362  
quartz—  
from Bahia State with dumortierite inclusions (Laurs)2015/**34**:391–392  
rose (Cassedanne)1991/**22**:273–286  
rhodochrosite from Minas Gerais (Zwaan)2015/**34**:473–475  
sapphire from Mato Grosso (Eppler)1964/**9**:199–204  
topaz from—  
Minas Gerais, spessartine inclusions in (Koivula)1991/**22**:366–368  
Ouro Preto—  
Imperial (de Costa)2000/**27**:133–138;  
(Sabioni)2003/**28**:283–290  
mining of (Ruplinger)1983/**18**:581–591  
tourmaline from—  
(Cassedanne)1996/**25**:263–298  
Cruzeiro mine, new production (Laurs)2014/**34**:106–107  
trade difficulties in (Anon)1963/**9**:108–109
- Brazilianite**  
as gem material (Trumper)1951/**3**:1–13
- Brewster-angle meter**, see Refractometer
- Bridges, Campbell**  
discoverer of tsavorite (Bridges)2014/**34**:230–241
- Bright line technique**, see Refractometer
- Brilliance**  
in diamond, faceted—  
description of (Cowing)2005/**29**:274–280  
measurement of (Cowing)2000/**27**:209–227  
optical attributes of (Nelson)1989/**21**:434–447; page 440 (Err)1989/**21**:520  
round brilliant cut (Cowing)2007/**30**:320–330  
faceting 'brilliant cut' to maximize (Knight)1960/**7**:167–177  
and lustre, speculations on (Lewis)1948/**1**(8):9–17
- Bromellite**  
colourless (Webster)1970/**12**:101–148
- Brown, Grahame**  
obituary (Mercer)2008/**31**:71
- Brucite**  
imitation of nephrite and Shoushan stone (Li Jianjun) 2010/**32**:67–73
- Bruton, Eric Moore**  
interview with (Bruton)1987/**20**:443–445  
obituary (Callaghan)2001/**27**:307, 372
- Buckingham, William Charles**  
obituary (Baker)2007/**30**:478
- Burma**, see Myanmar
- C**
- Cairncross, J.K.**  
obituary (Callaghan)2003/**28**:310, 372
- Calcareous concretions**, see Pearl, non-nacreous
- Calcite**  
cathodoluminescence and CL spectra of inclusions in (Ponahlo)2002/**28**:85–100  
drusy specimen of 'dog-tooth spar' (Anon)1964/**9**:275  
infrared spectrum of (Hainschwang)2008/**31**:23–29  
optic behaviour with filters in microscope (Kibe)1953/**4**:70  
from Peru (Hyršl)2001/**27**:328–334  
see also Filters; Jade simulants; Marble; Serpentine; 'Swiss jade'
- California**, see United States of America
- Cambodia [formerly Kampuchea]**  
corundum from Pailin (Jobbins)1981/**17**:555–567;  
(Sutherland)1998/**26**:65–85
- Cameo**  
carnelian antiquities in Sri Lanka (Francis)2002/**28**:25–31  
garnet antiquities (Thoresen)2013/**33**:201–222  
history of (Dick-Larkam)1948/**1**(5):33–36  
shell—  
vs. agate (Farn)1976/**15**:7  
structure of (Mitchell)1982/**18**:334–338
- Campbell, Ian**  
obituary (Rothon)2015/**34**:630–631
- Campbell-Smith, Walter**  
obituary (Mitchell)1989/**21**:517



## Canada

amber from British Columbia (Field)1947/**1**(4):8–9  
ammonite, fossil, from Alberta (Wight)1981/**17**:406–415;  
(Boyd)1983/**18**:544–562  
bobdownsite, faceted, from Yukon (Tait)2014/**34**:97  
carletonite from Mont-Saint-Hilaire, Québec  
(Wight)1996/**25**:24–44  
chondrodite from Ontario (Zwaan)2002/**28**:239  
corundum localities (Boyd)1983/**18**:544–562  
diamond—  
James Bay Diamond Syndicate (Field)1951/**3**:15–21;  
(Field)1951/**3**:119–123  
localities (Boyd)1983/**18**:544–562  
not found in (Anon)1963/**9**:108–109  
prospecting in (Field)1949/**2**:108–111  
diopside, colourless, from Québec  
(Krzemnicki)2014/**34**:291–292  
education in (Field)1952/**3**:285–288  
feldspar localities (Boyd)1983/**18**:544–562  
frauds common in (Field)1952/**3**:285–288  
gems and localities—  
(Field)1950/**2**:187–194; (Boyd)1983/**18**:544–562  
Bay of Fundy (Field)1948/**1**(5):20–30  
British Columbia (Field)1949/**2**:6–15  
Québec and Ontario (Field)1948/**1**(6):13–22;  
(Field)1948/**1**(8):21–33  
garnet from—  
grossular (Wight)1982/**18**:126–130; hessonite,  
fracturing in (Koivula)1985/**19**:579–583  
localities (Boyd)1983/**18**:544–562  
hackmanite from Mont-Saint-Hilaire, Québec  
(Wight)1996/**25**:24–44  
hornblende from Northwest Territories  
(Wight)1986/**20**:100–107; page 103 (Err)1986/**20**:199  
idocrase from Québec (Wight)1983/**18**:738–745  
kyanite from Ontario (Field)1953/**4**:24–26  
Mont-Saint-Hilaire, Québec, gems and deposits  
(Wight)1996/**25**:24–44  
natrolite from Mont-Saint-Hilaire, Québec  
(Wight)1996/**25**:24–44  
nephrite from—  
British Columbia (Adams)2009/**31**:153–162  
localities (Boyd)1983/**18**:544–562  
ortho-type (Nichol)2000/**27**:193–200  
quartz from (Boyd)1983/**18**:544–562  
rhodochrosite from Mont-Saint-Hilaire, Québec  
(Wight)1996/**25**:24–44  
Royal Ontario Museum (Field)1953/**4**:118–119  
ruby from Nova Scotia (Mossman)2007/**30**:279–286  
rutile, marketing in (Field)1952/**3**:327–329  
scapolite from Québec (Field)1952/**3**:327–329  
serandite, shortite, siderite, sodalite and sphalerite from  
Mont-Saint-Hilaire, Québec (Wight)1996/**25**:24–44  
sphene from Ontario (Field)1953/**4**:24–26  
Toronto Gem Lab (Field)1956/**5**:292–293  
villiamite and willemite from Mont-Saint-Hilaire, Québec  
(Wight)1996/**25**:24–44

**Carborundum** see Moissanite, synthetic

### Care of gems and jewellery

cosmetics, effects of (Webster)1964/**9**:255–259  
jewellery cleaner 'Jewellax' (Anon)1962/**8**:206–207  
ultrasonic cleaning, dangers of (Anderson)1972/**13**:94

### Carletonite

from Canada (Wight)1996/**25**:24–44

**Carnelian**, see Chalcedony

**Carving**, see Lapidary arts

### Cassiterite

from Bolivia (Hyršl)1998/**26**:41–47  
from Mexico (Axon)1964/**9**:263–267

prospecting for (Taylor)1994/**24**:155–160

### Catapleite

blue (Ostwald)1964/**9**:182–184

### Cathodoluminescence [CL]

and CL spectra of inclusions (Ponahlo)2002/**28**:85–100  
of diamond—  
for 'fingerprinting' (Read)1979/**16**:386–407  
internal (Bulanova)2005/**29**:377–386  
vs. synthetic (Sunagawa)1995/**24**:485–499  
of diamond, synthetic—  
and CL spectra of De Beers' experimental  
(Ponahlo)1992/**23**:3–17  
vs. natural (Sunagawa)1995/**24**:485–499  
pink CVD (Kitawaki)2010/**32**:23–30  
of emerald, natural vs. synthetic (Ponahlo)1988/**21**:182–193  
method—  
Luminoscope (Read)1979/**16**:386–407  
pulsed (Solomonov)1996/**25**:299–305  
quantitative (Ponahlo)1988/**21**:182–193  
of pearl, cultured, from China (Huang Fengming)  
2003/**28**:449–462  
of ruby, natural vs. synthetic (Ponahlo)1988/**21**:182–193;  
(Solomonov)1996/**25**:299–305  
see also Fluorescence, ultraviolet [UV]; Luminescence

**Cat's-eye**, see Chatoyancy; specific gem materials

**Cause of colour**, see Colour, cause of

**Cavity filling**, see Filling, fracture or cavity

### Celestite

infrared spectrum of (Hainschwang)2008/**31**:23–29

**Cellulose**, see Plastic

**Central Selling Organisation [CSO]**, see De Beers; Diamond

### Ceruleite

from Bolivia (Schmetzer)1978/**16**:86–90  
stabilized (Schmetzer)1983/**18**:734–735

### Cerussite

infrared spectrum of (Hainschwang)2008/**31**:23–29

**Ceylon**, see Sri Lanka

### Chalcedony

blue (Hänni)2001/**27**:275–285  
from Bolivia (Hyršl)1998/**26**:41–47  
carnelian—  
antiquities from Sri Lanka (Francis)2002/**28**:25–31  
from Slovakian archaeological sites  
(Kadlečíková)2015/**34**:510–517  
chrome—  
from Australia (Willing)2003/**28**:265–279  
from Bolivia (Hyršl)1998/**26**:41–47  
review (Hyršl)1999/**26**:364–370  
cosmetics, effects of (Webster)1964/**9**:255–259  
dyed to imitate amazonite (Williams)2014/**34**:303–304  
from England (Burbage)1972/**13**:139–142  
genesis of, video of lectures (Grabowski)2015/**34**:469  
jasper from Slovakian archaeological sites  
(Kadlečíková)2015/**34**:510–517  
onyx, ornamental (Webster)1958/**6**:297–333  
photomicrographs in ordinary and polarized light  
(Anon)1951/**3**:33  
see also Agate; Chrysocolla; Quartz

### Chalcedony simulants

glass, blue (Hänni)2001/**27**:275–285

### Chambersite

faceted (O'Donoghue)1983/**18**:596–597

**Chameleon diamond**, see Diamond, coloured

**Chanthaburi-Trat**, see Thailand

**Charge transfer**, see Colour, cause of

### Charoite

deposits in former USSR (Spiridonov)1998/**26**:111–125  
from Russia (Jobbins)1978/**16**:1–4

**Chatham**, see Emerald, synthetic; Ruby, synthetic; Sapphire,  
synthetic

## Chatoyancy

- in alexandrite—
    - from Brazil (Cassedanne)1993/**23**:333–354
    - synthetic (Koivula)1988/**21**:232–236; titanium-bearing (Schmetzer)2013/**33**:137–148
  - in apatite—
    - from Asia, yellow (Macleod)1975/**14**:292
    - from Brazil (Lauris)2014/**34**:8
    - from Namibia (Johnston)2014/**34**:191
    - from Tanzania (Gübelin)1983/**18**:592–595
  - in axinite, cat's-eye, from Tanzania (Williams)2014/**34**:191–192
  - in beryl (Eppler)1958/**6**:195–212
  - causes of (Eppler)1958/**6**:195–212; (Killingback)2005/**29**:312–315; letter on (Killingback)2005/**29**:482
  - in chrysoberyl (Eppler)1958/**6**:251–263; from Brazil (Cassedanne)1993/**23**:333–354
  - and 'coffee-and-cream' effect (Killingback)2015/**34**:524–530
  - in diopside (Ito)1987/**20**:292–293; paramagnetic (Kent)1973/**13**:308–311
  - in gems—
    - from East Africa (Barot)1995/**24**:569–580
    - from Sri Lanka (Kumaratilake)1997/**25**:474–482
  - in kornerupine from Sri Lanka (Korevaar)1977/**15**:225–230
  - in kunzite (Ito)1987/**20**:292–293
  - in kyanite (Ito)1986/**20**:161–162
  - in iolite (Kammerling)1991/**22**:395–398
  - in labradorite, paramagnetic (Kent)1973/**13**:308–311
  - letter on 'Asterism and chatoyancy' (Killingback)2005/**29**:482
  - in nephrite from Taiwan, tremolitic (Flamini)1978/**16**:153–161
  - and paramagnetism in diopside and labradorite (Kent)1973/**13**:308–311
  - in peridot (Borg)1980/**17**:1–4; page 2, Figure 1a (Err)1980/**17**:144
  - in petalite (Ito)1986/**20**:161–162
  - in quartz (Eppler)1958/**6**:251–263
  - rarity of (Kennedy)1960/**7**:303–308
  - in sapphire from Myanmar (Schmetzer)1987/**20**:346–349
  - in scapolite (Eppler)1958/**6**:251–263; (Ito)1987/**20**:292–293
  - in sillimanite (Ito)1986/**20**:161–162; (Ito)1987/**20**:292–293; from India (Zwaan)1982/**18**:277–281
  - in tanzanite (Kammerling)1991/**22**:395–398
  - in tourmaline—
    - (Eppler)1958/**6**:251–263
    - from Brazil (Cassedanne)1996/**25**:263–298
    - inclusions causing (Graziani)1982/**18**:181–193
  - in zircon (Eppler)1958/**6**:251–263; from Sri Lanka (Ito)1987/**20**:292–293; (Gunawardene)1988/**21**:88–91
- see also 'cat's-eye' under specific gem materials

## Chapside Hoard

- discovery of (Gosling)1995/**24**:395–400
- and George Fabian Lawrence, letter on (Blackmore)1995/**24**:513; response (Gosling)1995/**24**:513

## Chelsea filter, see Filters

## Chemical analysis, see specific methods

## Chemical composition (quantitative)

- of alexandrite—
  - blue, from Brazil (Pinheiro)2000/**27**:161–170
  - from East Africa (Barot)1995/**24**:569–580
  - from Spain (Marcos-Pascual)1997/**25**:340–357
  - synthetic—
    - flux-grown (Schmetzer)2012/**33**:49–81
    - HOC-grown (Schmetzer)2013/**33**:113–129
    - titanium-bearing (Schmetzer)2013/**33**:137–148
- of amesite from Russia (Spiridonov)2006/**30**:91–102; pages 91, 93, 94 (Err)2006/**30**:254
- of analcime, aventurescent, from India (Talati)1978/**16**:186–190

- of andesine, reportedly from Tibet (Abduriyim)2009/**31**:283–298
- of anorthite, ruby and pargasite assemblage (Schmetzer)2003/**28**:385–391
- of apatite—
  - from East Africa (Barot)1995/**24**:569–580
  - inclusions in almandine from USA (Dunn)1975/**14**:273–280
- of aquamarine—
  - from Afghanistan (Natkaniec-Nowak)2008/**31**:31–39
  - from East Africa (Barot)1995/**24**:569–580
  - from Nigeria (Lind)1986/**20**:48
  - synthetic, flux-grown (Schmetzer)2012/**33**:49–81
- of axinite—
  - ferro-, from Sri Lanka (Hänni)1982/**18**:20–27
  - magnesioaxinite from Tanzania (Jobbins)1975/**14**:368–375
- of beryl—
  - bicoloured, from India (Aliprandi)1987/**20**:352–355
  - colourless, with Maxixe-type colour centre (Mathew)1998/**26**:238–251
  - from East Africa (Barot)1995/**24**:569–580
  - including aquamarine and morganite (Natkaniec-Nowak)2008/**31**:31–39
  - green, from Pakistan (Rafiq)1985/**19**:404–411
  - Maxixe, from Brazil (Farn)1973/**13**:293–295
  - morganite—
    - from Afghanistan (Natkaniec-Nowak)2008/**31**:31–39
    - from Afghanistan and Madagascar (Hänni)2003/**28**:417–429
    - from Nigeria (Schwarz)1996/**25**:117–141
  - red, natural and Russian hydrothermal synthetic (Fumagalli)2003/**28**:291–301
  - red, Russian hydrothermal synthetic (Henn)1999/**26**:481–486
- of ceruleite (Schmetzer)1978/**16**:86–90
- of chalcidony, chrome (Hyršl)1999/**26**:364–370
- of clinohumite from Siberia (Henn)2001/**27**:335–340; (Addendum)2001/**27**:443
- of chondrodite from Sri Lanka (Zwaan)2002/**28**:162–168
- of chrysoberyl, vanadium-bearing natural and synthetic (Schmetzer)2013/**33**:223–238
- of chrysotile inclusions in demantoid from Italy (Hoskin)2003/**28**:333–336
- of clinocllore from Russia (Spiridonov)2006/**30**:91–102; pages 91, 93, 94 (Err)2006/**30**:254
- of corundum from basalt fields, Australia and Cambodia (Sutherland)1998/**26**:65–85
- of diaspore from Russia (Spiridonov)2006/**30**:91–102; pages 91, 93, 94 (Err)2006/**30**:254
- of dickite from Thailand (Saminpanya)2009/**31**:211–225
- of diopside, chrome, from USSR (Schrader)1984/**19**:213–217
- of emerald—
  - from Austria (Gübelin)1956/**5**:342–361
  - from Brazil (Pulz)1998/**26**:252–261; Carnaíba (Schwarz)1989/**21**:474–486; Ceará (Schwarz)1988/**21**:168–178; Minas Gerais (Hänni)1987/**20**:446–456; Socotó (Schwarz)1990/**22**:147–163; page 163 (Err)1990/**22**:249
  - from Colombia (Schwarz)1992/**23**:225–233; irradiated (Schrader)1988/**21**:237–251; letter on (Schmetzer)1989/**21**:521–522
  - from Egypt (Grubessi)1990/**22**:164–177; pages 174, 175, 176 (Err)1990/**22**:249
  - inclusions in, see 'Inclusions'
  - from Madagascar (Schwarz)1992/**23**:140–149
  - natural vs. synthetic (Hänni)1982/**18**:138–144; (Schrader)1983/**18**:530–543
  - from Nigeria (Lind)1986/**20**:48; (Schwarz)1996/**25**:117–141

- from Pakistan (Hussain)1993/**23**:402–408; and green beryl (Rafiq)1985/**19**:404–411
- from Spain (Marcos-Pascual)1997/**25**:340–357
- synthetic—
- hydrothermal (Mashkovtsev)2004/**29**:215–227; (Schmetzer)2006/**30**:59–74
  - inclusions in, see 'Inclusions'
- from Zambia (Bank)1974/**14**:8–15; page 14 (Err)1974/**14**:96
- from Zimbabwe (Kanis)1991/**22**:264–272; Rhodesia (Metson)1977/**15**:422–434; Sandawana (Gübelin)1958/**6**:340–354
- of enstatite—
- from Kenya (Schmetzer)1982/**18**:118–120
  - from Mexico (Dunn)1978/**16**:236–238
  - from Sri Lanka (Zoysa)1985/**19**:419–425; near-colourless (Harding)1982/**18**:213–216
- of euclase (Anderson)1980/**17**:18–29
- gallium content, problems with use in distinguishing natural vs. synthetic gem materials (Schrader)1986/**20**:108–113
- of garnet—
- almandine from East Africa (Barot)1995/**24**:569–580
  - almandine inclusions in ruby from Myanmar (Peretti)1996/**25**:3–19
  - antiquities in J. Paul Getty Museum (Thoresen)2013/**33**:201–222
  - from Brazil (Eeckhout)2004/**29**:205–214
  - cat's-eye almandine-spessartine from Madagascar (Schmetzer)2002/**28**:13–23
  - colour-change—
    - from East Africa (Jobbins)1975/**14**:201–208
    - from Madagascar (Krzemnicki)2001/**27**:395–408; (Schmetzer)2009/**31**:235–282
    - from Norway (Hysingjord)1971/**12**:296–299
    - from Tanzania (Jobbins)1978/**16**:161–171
  - demantoid from Pakistan (Adamo)2015/**34**:428–433
  - grossular—
    - from Canada (Wight)1982/**18**:126–130
    - from East Africa (Barot)1995/**24**:569–580
  - hessonite from Sri Lanka (Mathavan)2000/**27**:65–72
  - from Russia (Spiridonov)2006/**30**:91–102; pages 91, 93, 94 (Err)2006/**30**:254
  - tsavorite from Kenya (Key)1989/**21**:412–422; and Tanzania (Bridges)2014/**34**:230–241
  - tsavorite from Madagascar (Mercier)1997/**25**:391–393
  - tsavorite from Pakistan (Jackson)1992/**23**:67–70
- and infrared spectra of (Adamo)2007/**30**:307–319
- pyrope-almandine, purple, from East Africa (Rossman)2015/**34**:656–658
- pyrope-spessartine-grossular from Tanzania (Schmetzer)1982/**18**:194–200
- relationship to structure and refraction of light (Teerstra)2008/**31**:105–110
- rhodolite from East Africa (Barot)1995/**24**:569–580
- from Somaliland (Kinnaird)2000/**27**:139–154
- spessartine-grossular from Madagascar (Schmetzer)2002/**28**:235–239
- star, from Madagascar (Schmetzer)2002/**28**:13–23
- uvarovite from Russia (Spiridonov)2006/**30**:91–102; pages 91, 93, 94 (Err)2006/**30**:254
- of glass—
- blue, imitating chalcedony (Hänni)2001/**27**:275–285
  - filling in—
    - ruby (Scarratt)1984/**19**:293–297
    - sapphire, compared with basalt (Scarratt)1986/**20**:203–207
  - grey, imitating iolite (Dunn)1976/**15**:113–118
  - prehistoric, from Sri Lanka (Harder)1993/**23**:267–273
  - red, used by Fabergé (Harding)1989/**21**:275–287
- of helvite in tourmalinated quartz (Dunn)1975/**14**:335–338
- of hornblende, pargasitic, from Northwest Territories, Canada (Wight)1986/**20**:100–107; page 103 (Err)1986/**20**:199
- of idocrase from Canada (Wight)1983/**18**:738–745
- of jadeite—
- black (Ou Yang)1999/**26**:417–424
  - chrome (Ou Yang)2001/**27**:321–325
  - from Myanmar (Franz)2014/**34**:210–229
- of jadeite-bearing rock from Mexico (Ostrooumov)2010/**32**:1–6
- of kornepine from East Africa (Barot)1995/**24**:569–580
- of kosmochlor jade from Myanmar (Franz)2014/**34**:210–229
- of kyanite—
- from East Africa (Barot)1995/**24**:569–580
  - grey, and inclusions in (Ghera)1988/**21**:83–87; pages 83, 84 (Err)1988/**21**:201
- of maw-sit-sit from Myanmar (Gübelin)1965/**9**:372–379; (Colombo)2000/**27**:87–92; (Franz)2014/**34**:210–229
- microchemical analysis method (Webster)1947/**1**(4):4–7
- of monazite from Sri Lanka (Jobbins)1977/**15**:295–299
- of moonstone from Sri Lanka (Harder)1992/**23**:27–35
- of musgravite—
- from Africa (Schmetzer)2007/**30**:367–382
  - from Sri Lanka (Schmetzer)2005/**29**:281–289
- of natrolite—
- from Pakistan (Gnos)1999/**26**:308–312
  - from USA (Dunn)1976/**15**:113–118
- of nephrite—
- from Australia (Nichol)2000/**27**:193–200
  - from Canada (Nichol)2000/**27**:193–200
  - from Italy (Nichol)2005/**29**:305–315
  - from Korea (Kim)1995/**24**:547–550
  - from Poland (Nichol)2001/**27**:461–470
  - from Taiwan, tremolitic (Flamini)1978/**16**:153–161
- of obsidian from Chile (Hyršl)1999/**26**:321–323
- of omphacite jade—
- (Ou Yang)2003/**28**:337–344
  - from Italy (Adamo)2006/**30**:215–226
  - from Myanmar (Franz)2014/**34**:210–229
- of opal—
- iridescent hyalite, from Mexico (Hänni)1989/**21**:488–495
  - from Indonesia (Einfalt)2007/**30**:383–398
- of pegmatite from East Africa (Simonet)2000/**27**:11–29
- of peridot—
- from Mexico (Dunn)1978/**16**:236–238
  - from Nevada (Führbach)1998/**26**:86–102; page 93 (Err)1998/**26**:203
  - from Sri Lanka (Gunawardene)1985/**19**:692–702
- of phenakite from Spain (Marcos-Pascual)1997/**25**:340–357
- of phlogopite inclusion in painite (Hornytzkyj)1983/**18**:500–503
- of prosopite (Dunn)1976/**15**:205–208
- of pyrrhotite inclusions in almandine from USA (Dunn)1975/**14**:273–280
- of rhodonite (Dunn)1976/**15**:76–80
- of ruby—
- from Australia (Sutherland)2009/**31**:203–210
  - from East Africa (Barot)1995/**24**:569–580; (Rankin)2003/**28**:473–482
  - with glass filling (Scarratt)1984/**19**:293–297
  - from Kenya (Key)1991/**22**:484–496
  - from Nepal (Harding)1986/**20**:3–10
  - from New Zealand (Grapes)2004/**29**:8–14
  - by spectrophotometric/spectrochemical analysis (Alexander)1948/**1**(8):4–8



- synthetic—  
 Kashan (Henn)1985/**19**:469–478  
 Knischka (Gunawardene)1983/**18**:365–378; page 375 (Err)1983/**18**:778  
 from Thailand (Saminpanya)2003/**28**:399–413  
 from Vietnam (Long)2004/**29**:129–147
- of sapphire—  
 from Australia (Sutherland)2009/**31**:203–210  
 blue (Abduriyim)2006/**30**:23–36; diffusion-treated (Ruzeng)2005/**29**:455–460  
 from East Africa (Barot)1995/**24**:569–580  
 from Laos (Saminpanya)2003/**28**:399–413  
 from Madagascar (Kiefert)1996/**25**:185–209; (Milisenda)1996/**25**:177–184; (Cartier)2009/**31**:171–179  
 from New Zealand (Grapes)2004/**29**:8–14  
 from Rwanda (Krzemnicki)1996/**25**:90–106  
 by spectrophotometric/spectrochemical analysis (Alexander)1948/**1**(8):4–8  
 from Thailand (Saminpanya)2003/**28**:399–413  
 from Vietnam (Long)2004/**29**:129–147
- of sapphirine from Sri Lanka (Harding)1990/**22**:136–140
- of scapolite—  
 from East Africa (Barot)1995/**24**:569–580  
 gem-quality (Dunn)1978/**16**:4–10  
 from Tanzania (Graziani)1981/**17**:395–405  
 violet (Zwaan)1979/**16**:448–451; (Jackson)1980/**17**:235–238
- of serpentine from Korea (Kim)1998/**26**:156–164
- of sinhalite (Anderson)1952/**3**:315–321
- of spessartine from Nigeria (Lind)2000/**27**:129–132
- of sphalerite from Zaire (Henn)1985/**19**:416–418
- of sphene—  
 from Russia (Spiridonov)2006/**30**:91–102; pages 91, 93, 94 (Err)2006/**30**:254  
 from Sri Lanka (Gunawardene)1981/**17**:381–385; (Zwaan)1981/**17**:624–635; page 627 (Err)1982/**18**:107; letter on (Mitchell)1981/**17**:647
- of spinel—  
 blue, from Pakistan (Harding)1987/**20**:403–405  
 inclusion in peridot from Mexico (Dunn)1978/**16**:236–238  
 from Tajikistan (Ananyev)2012/**33**:15–18
- of taaffeite—  
 from Africa (Schmetzer)2007/**30**:367–382  
 from Sri Lanka (Schmetzer)2005/**29**:290–298, 461–466  
 vs. taprobanite (Schmetzer)1983/**18**:623–634; page 629 (Err)1983/**18**:778  
 zincian (Schmetzer)1985/**19**:494–497
- of thortveitite (Chapman)2008/**31**:1–6
- of topaz from Mexico (Dewonck)1998/**26**:29–39
- of tourmaline—  
 colour-change—  
 with chromium (Bank)1988/**21**:102–103  
 from Tanzania (Halvorsen)1997/**25**:325–330; letter on (Nassau)1997/**25**:491; response (Halvorsen)1997/**25**:491–291
- dravite—  
 from East Africa (Dunn)1978/**16**:90–93  
 inclusions in ruby from Myanmar (Peretti)1996/**25**:3–19  
 from East Africa (Barot)1995/**24**:569–580
- elbaite—  
 from Scotland (Jackson)1982/**18**:121–125  
 from USA (Dunn)1975/**14**:357–368; page 364 (Err)1976/**15**:52  
 from Madagascar, elbaite and liddicoatite (Dunn)1978/**16**:172–176  
 trapiche, from Zambia (Schmetzer)2011/**32**:151–173
- uvite (Dunn)1977/**15**:300–308; (Takahashi)1998/**26**:226–237  
 vanadium-bearing, from Madagascar (Schmetzer)2007/**30**:413–433  
 yellow, from Kenya (Hänni)1981/**17**:437–442; (Simonet)2000/**27**:11–29
- of tremolite inclusions in ruby from Myanmar (Peretti)1996/**25**:3–19
- of turquoise from China (Qi Lijian)1998/**26**:1–11
- of wurtzite from Tanzania (Henn)2015/**34**:669–671
- of zircon—  
 cat's-eye, untreated and heat-treated, from Sri Lanka (Gunawardene)1988/**21**:88–91  
 from Nigeria (Kanis)1990/**22**:195–202  
 from Sri Lanka, various colours (Rupasinghe)1986/**20**:168–170; letter on (Nassau)1987/**20**:328  
 of zoisite from East Africa (Barot)1995/**24**:569–580  
 see also Backscattered electron imaging; Electron microprobe analysis; Neutron activation analysis; Spectrometry [various]; Spectroscopy [various]; specific gem materials
- Chemical fingerprinting**  
 of emerald to determine geographical origin (Cronin)2012/**33**:1–13  
 of ruby from East Africa (Rankin)2003/**28**:473–482
- Chemical vapour deposition [CVD]**, see Diamond, synthetic
- Chialstolite**, see Andalusite
- Chile**  
 obsidian from (Hyršl)1999/**26**:321–323
- China**  
 andesine, reportedly from Tibet (Abduriyim)2009/**31**:283–298  
 aquamarine from Altai, heat treatment of (Ruzeng)2007/**30**:297–301  
 CVD synthetic diamonds seen in (Song)2012/**33**:45–48  
 gemmological education in (Nelson)1990/**22**:224–232  
 lapidary arts in (Ruff)1947/**1**(1):6–7  
 nephrite from Taiwan (Adams)2009/**31**:153–162  
 pearls, cultured, from—  
 Donggou, Ezhou, Hubei (Fengming)2003/**28**:449–462  
 freshwater (Wehrmeister)2007/**30**:399–412  
 Sanya, Hainan, blister (Fengming)2004/**29**:37–47  
 Yangxin, Hubei (Jobbins)1990/**22**:3–15  
 ruby from, history of (Galibert)1995/**24**:467–473  
 sapphire from—  
 Changle, Shandong, blue (Abduriyim)2006/**30**:23–36  
 history of (Galibert)1995/**24**:467–473  
 treatment with oxidation (Wang Chuanfu)1992/**23**:195–197; letter on (Nassau)1993/**23**:441; response (Wang Chuanfu)1993/**23**:441  
 scheelite from Inner Mongolia (Williams)2014/**34**:202–203  
 taaffeite from (Anderson)1967/**10**:148–151  
 turquoise from Hubei Province (Qi Lijian)1998/**26**:1–11
- Chisholm, J.R.H.**  
 retiring as editorial chair (Anon)1986/**20**:2  
 obituary 1988/**21**:2, 46
- Chivor**, see Colombia
- Chondrodite**  
 inclusions in, see 'Inclusions'  
 from Ontario, Canada (Let)2002/**28**:239  
 from Sri Lanka (Zwaan)2002/**28**:162–168; letter on (Zwaan)2002/**28**:239  
 from Tanzania (Clark)2015/**34**:655
- Chromite**  
 deposits of Saranovskoye, Ural Mountains, gems from (Spiridonov)2006/**30**:91–102; pages 91, 93, 94 (Err)2006/**30**:254



## Chrysoberyl

- from Australia (Farn)1978/**16**:229–231
- from Brazil (Cassedanne)1993/**23**:333–354; purple to reddish purple (Schmetzer)2014/**34**:32–40
- cat's-eye—
  - with 'coffee-and-cream' effect (Killingback)2015/**34**:524–530
- from India (Soman)1985/**19**:412–415; page 412 (Err)1985/**19**:553
- from Sri Lanka (Mitchell)1952/**3**:305–308
- crystallography of (Mitchell)1950/**2**:237–274
- gallium content to distinguish from natural (Schrader)1986/**20**:108–113
- growth patterns in (Schmetzer)2011/**32**:129–144
- inclusions in, see 'Inclusions'
- infrared spectrum of (Hainschwang)2008/**31**:23–29
- from Myanmar (Schmetzer)2015/**34**:434–438
- from Sri Lanka (Zoysa)1987/**20**:486–489
- from Tanzania (Schmetzer)2011/**32**:179–209
- Usambara effect in (Halvorsen)2006/**30**:1–21
- vanadium-bearing (Schmetzer)2013/**33**:223–238
- see also Alexandrite

## Chrysoberyl, synthetic

- colourless (Schmetzer)1985/**19**:682–691
- titanium-bearing (Schmetzer)2013/**33**:137–148
- vanadium-bearing from Kyocera (Schmetzer)2013/**33**:223–238
- see also Alexandrite, synthetic

## Chrysocolla

- from Indonesia (Einfalt)2006/**30**:155–168
- from Peru (Hyršl)2001/**27**:328–334; (Clark)2014/**34**:9–10
- from Spain (Laurs)2015/**34**:472
- see also Chalcedony

## Chudoba, Karl F.

- obituary (Anderson)1977/**15**:223, 269

## CIBJO

- Blue Books online (Laurs)2014/**34**:3
- Coral Book* online (Laurs)2015/**34**:649

## Citrine, see Quartz; Quartz, synthetic

## Clam pearl, see Pearl, non-nacreous

## Claringbull, Frank

- obituary (Jobbins)1991/**22**:311, 330

## Clarity enhancement, see Filling, fracture or cavity; specific gem materials

## Classification, see Nomenclature and classification

## Cleaning of gems and jewellery, see Care of gem materials

## Clinochlore

- from Russia (Spiridonov)2006/**30**:91–102; pages 91, 93, 94 (Err)2006/**30**:254

## Clinohumite

- deposits in former USSR (Spiridonov)1998/**26**:111–125
- inclusions in, see 'Inclusions'
- large brownish orange (Choudhary)2007/**30**:303–306
- orange, reportedly from USSR (Scarratt)1984/**19**:115, 117–119
- from Siberia (Henn)2001/**27**:335–340; (Addendum)2001/**27**:443

## Clinzoisite

- from Mexico (Pough)1966/**10**:10–17

## Coating

- 'Aqua Aura' method (Kammerling)1992/**23**:72–77
- of amber (Scarratt)1989/**21**:344–346
- of coral with plastic (Scarratt)1984/**19**:108–109
- of diamond—
  - accidental (Abramson)1986/**20**:34
  - with film, foil and 'fluor' (Schiffmann)1969/**11**:233–255
- of emerald with amorphous carbon (Choudhary)2014/**34**:242–246
- of glass to imitate pearl (Kennedy)1988/**21**:211–214

- Lechleitner synthetic corundum overgrowth (Gunawardene)1985/**19**:557–570; page 569 (Err)1985/**19**:742

- patents, for topaz—(Schmetzer)2006/**30**:83–90; (Schmetzer)2008/**31**:7–13

## of quartz—

- to simulate emerald rough (Smith)1988/**21**:28–29
  - to simulate star sapphire (Mayerson)2015/**34**:485–486; letter on (Stern)2015/**34**:604
- see also Emerald, synthetic

## Cobalt

- in beryl, synthetic (Taylor)1967/**10**:258–261
- in spinel—
  - blue (Mitchell)1977/**15**:354–358
  - synthetic (Anderson)1954/**4**:281–281; (Taylor)1967/**10**:258–261

## Collections, see Museums and gem collections

## Colombia

- emerald—
  - from Burbar (Eppler)1963/**9**:123–126
  - chemical properties of (Schwarz)1992/**23**:225–233
  - from Chivor (Johnson)1961/**8**:126–152
  - deposits, formation and history of (Webster)1955/**5**:185–221; (Bosshart)1991/**22**:355–361
  - growth structure and inclusions in (Eppler)1961/**8**:72–77; (Poirot)1971/**12**:271–274
  - irradiated (Schrader)1988/**21**:237–251; letter on (Schmetzer)1989/**21**:521–522
  - new source, unknown (Anderson)1972/**13**:1–2
  - origin determination (Schwarz)1992/**23**:225–233; (Cronin)2012/**33**:1–13
  - from Peñas Blancas (Ringsrud)2013/**33**:187–199
  - properties of (Bosshart)1991/**22**:409–425
  - trapiche, from Peñas Blancas (Ringsrud)2013/**33**:187–199
  - treatment of (Bosshart)1991/**22**:500–503
  - see also Inclusions
- euclase from Chivor (Duroc-Danner)1996/**25**:175–176

## Colophane, see Apatite

## Colorimetry

- of colour-change gems (Liu)1999/**26**:371–385
- commercial (Buzalewicz)1961/**8**:81–83
- and filters (Nelson)1985/**19**:597–624; page 620 (Err)1986/**20**:259
- of garnet, colour-change, from Madagascar (Krzemnicki)2001/**27**:395–408; (Schmetzer)2009/**31**:235–282
- gemmological system (Yu)1978/**16**:259–269
- Nelson-Lovibond Gemstone Colorimeter (Nelson)1986/**20**:217–236
- of tourmaline, colour-change—
  - from Mozambique (Liu)2006/**30**:201–206
  - from Tanzania (Liu)1999/**26**:386–396
- visual, for diamond colour grading (Read)1980/**17**:29–42

## Colour, cause of

- in alexandrite, synthetic titanium-bearing (Schmetzer)2013/**33**:137–148
- in beryl, electron-irradiated (Rink)1990/**22**:33–37
- chromium (Chudoba)1957/**6**:53–62; (Farn)1961/**8**:30–32
- in chrysoberyl—
  - synthetic titanium-bearing (Schmetzer)2013/**33**:137–148
  - from Tanzania (Schmetzer)2011/**32**:179–209
- in corundum, diffusion-treated (Pisutha-Arnon)2006/**30**:131–143
- in diamond (Collins)1982/**18**:37–75; (Collins)2001/**27**:341–359; pages 341–359

- (Err)2001/27:443  
in emerald, synthetic—  
flux, Igemerald (Schmetzer)1998/26:145–155  
hydrothermal, Tairus (Schmetzer)2006/30:59–74  
in garnet, colour-change (Krzemnicki)2001/27:395–408;  
(Schmetzer)2009/31:235–282  
in gems (Findlay)1977/15:316–320  
in glass, prehistoric, from Sri Lanka  
(Harder)1993/23:267–273  
internal diffusion in heat-treated gems  
(Koivula)1987/20:474–477  
in jadeite (Harder)1995/24:508–511; page 508, 509, 510  
(Err)1995/24:619;  
in lapis lazuli (Ostwald)1963/9:84–101  
in opal (Anon)1949/2:20–21; letter on  
(Leechman)1949/2:102; (Leechman)1954/4:288–291;  
(Chisholm)1954/4:292–300; (Mitchell)1966/10:46–48  
in pearls, and discoloration (Lee)1954/4:273–280  
in quartz (Henn)2012/33:29–43; defects  
(Hutton)1974/14:156–166; smoky  
(Koivula)1986/20:208–209  
in ruby, Kashan synthetic (Schmetzer)2007/30:331–356  
in sapphire—  
diffusion-treated—  
with beryllium (Pisutha-Arnond)2006/30:131–143  
yellow and brown (Pisutha-Arnond)2004/29:77–103  
untreated vs treated (Schmetzer)2005/29:407–449  
Kashan synthetic pink (Schmetzer)2007/30:331–356  
untreated, heat-treated and diffusion-treated orange  
and pinkish orange (Schmetzer)2004/29:149–182  
yellow and orange-brown, natural and treated  
(Schmetzer)1983/18:607–622  
in sodalite (Paulin)1979/16:452–454  
in spinel, blue, from Pakistan (Harding)1987/20:403–405;  
letter on (Shigley)1988/21:120–121  
of topaz—  
irradiated, and defects in (Schmetzer)1987/20:362–368  
from Mexico (Dewonck)1998/26:29–39  
in tourmaline, colour-change (Halvorsen)2006/30:1–21  
in variscite (Willing)2008/31:111–124  
see also Diffusion treatment; Heat treatment; Irradiation;  
specific gem materials
- Colour centres**  
in beryl, Maxixe-type—  
blue and green (Nassau)1973/13:296–301  
colourless, from India (Mathew)1998/26:238–251  
in diamond (Collins)1982/18:37–75;  
(Collins)2001/27:341–359; pages 341–359  
(Err)2001/27:443  
in emerald, colour modified by radiation  
(Schrader)1988/21:237–251; letter on  
(Schmetzer)1989/21:521–522  
in quartz (Hutton)1974/14:156–166; (Henn)2012/33:29–43  
in topaz from Mexico (Dewonck)1998/26:29–39
- Colour change**  
in alexandrite, flux-grown synthetic  
(Schmetzer)2012/33:49–81  
in axinite from Tanzania (Williams)2014/34:191–192  
in chrysoberyl from Tanzania (Schmetzer)2011/32:179–209  
colorimetric study of (Liu)1999/26:371–385  
in garnet—  
from East Africa (Jobbins)1975/14:201–208  
from Madagascar (Krzemnicki)2001/27:395–408;  
(Schmetzer)2009/31:235–282  
from Norway (Hysingjord)1971/12:296–299  
in kyanite, blue, from East Africa  
(Bosshart)1982/18:205–212  
in monazite inclusions in topaz and garnet  
(Hornytzkyj)1981/17:373–380  
and selective reflection (Lewis)1947/1(4):10–14  
terminology (Chisholm)1954/4:292–300  
in tourmaline—  
with chromium (Bank)1988/21:102–103  
from East Africa, letter on (Schmetzer)1989/21:329  
green to red (Jones)1980/17:4–6  
from Mozambique (Liu)2006/30:201–206  
from Tanzania (Halvorsen)1997/25:325–330;  
letter on (Nassau)1997/25:491; response  
(Halvorsen)1997/25:491–291; (Liu)1999/26:386–  
396; (Halvorsen)2006/30:1–21  
Usambara effect (Halvorsen)1997/25:325–330;  
letter on (Nassau)1997/25:491; response  
(Halvorsen)1997/25:491–291;  
(Halvorsen)2006/30:1–21  
see also Alexandrite
- Colour, description of**  
CIE system for (Lewis)1952/3:289–304;  
(Lewis)1952/3:341–350  
classification (Schlossmacher)1951/3:23–26;  
(Chudoba)1971/12:262–266  
ColorMaster (Nelson)1986/20:217–236  
with filters and colorimetry (Nelson)1985/19:597–624; page  
620 (Err)1986/20:259  
FMIR body colour (Nelson)1986/20:217–236;  
(Nassau)1987/20:350–351; (Nelson)1987/20:460–466;  
(Nassau)1988/21:82  
lighting for (Ponahlo)1984/19:163–173;  
(Nelson)1986/20:217–236  
and measurement of (Lewis)1952/3:289–304;  
(Lewis)1952/3:341–350; (Day)1961/8:111–121  
and nomenclature of National Association of Goldsmiths of  
Great Britain revised (Anon)1948/1(6):1–9  
and perception of (Lewis)1952/3:249–267;  
(Anderson)1959/7:124–128; (Yu)1978/16:121–123;  
(Nassau)1979/16:311–312  
and terminology (Leak)1949/2:60–62  
see also Colorimetry
- Colour grading**, see Diamond; Diamond, coloured; Grading  
**Colour stability**  
of amber surface colour, letter on (Sturman)1995/24:369  
of aquamarine, green (Nassau)1996/25:108–115  
of beryl, Maxixe and 'golden' (Nassau)1996/25:108–115  
of pearl, black dyed (Gübelin)1959/7:120  
of sapphire, yellow (Hughes)1988/21:23–25  
see also Stability; specific gem materials
- Colour zoning**  
in amethyst from Brazil (Kitawaki)2002/28:101–108  
curved bands in synthetics (Anderson)1951/3:141  
in diamond, synthetic CVD, type Ib  
(Kitawaki)2015/34:594–604  
in emerald, synthetic—  
Lechleitner (Schmetzer)1990/22:20–32  
Seiko (Kennedy)1986/20:14–17  
in fluorite from Myanmar (Hlaing)2015/34:563–564  
in ruby—  
from Myanmar, fluorine in the role of  
(Peretti)1996/25:3–19  
from Nepal (Bank)1988/21:222–226  
from New Zealand (Grapes)2004/29:8–14  
in sapphire—  
from Australia (Rutland)1963/9:83  
golden sheen, reportedly from Kenya  
(Bui)2015/34:678–691  
heat-treated (Schmetzer)2007/30:268–278  
from Kenya, pink (Barot)1994/24:165–172  
from Madagascar (Kiefert)1996/25:209;  
(Milisenda)1996/25:177–184;  
(Cartier)2009/31:171–179  
from New Zealand (Grapes)2004/29:8–14

- synthetic, curved (Webster)1966/**10**:84–95  
 in spinel, synthetic (Anderson)1951/**3**:141  
 in tourmaline—  
 (Mitchell)1984/**19**:24–26  
 from Kenya, Cr- and V-bearing  
 (Williams)2015/**34**:476–477  
 see also Graining; Growth structure/zoning; Zoning
- Coloured stones**, see specific gem materials
- Composite materials**, see Assembled gem materials
- Computed tomography**, see X-ray computed microtomography
- Computer software**  
 Adamas Advantage Gem Identification Kit review (Read)1996/**25**:219–224  
 databases and maps for locating gem deposits (O'Donoghue)1986/**20**:87–90  
 for gem identification (Read)1980/**17**:239–249; page 248 (Err)1981/**17**:369  
 GEMDATA for gem identification (Read)1987/**20**:467–473  
 mobile apps—  
 for coloured stone information (Laurs)2015/**34**:383  
 for hallmarks, from Birmingham Assay Office (Laurs)2014/**34**:93  
 modelling of brilliance in diamond (Cowing)2000/**27**:209–227  
 for photomicrography (Prince)2014/**34**:188–189  
 spectroscopy spectra database (Laurs)2014/**34**:185  
 Spekwin 32 for spectroscopy (Laurs)2015/**34**:648–649  
 see also Digital imaging
- Concentration effect**, see Colour change
- Conch pearl**, see Pearl, non-nacreous
- Concretions**, see Pearl, non-nacreous
- Conference reports and information**  
 Accredited Gemologists Association Conference—  
 2014 Tucson (Laurs)2014/**34**:75–76  
 2014 Las Vegas (Roskin)2014/**34**:160  
 2015 Tucson (Laurs)2015/**34**:444–445  
 2015 Las Vegas (Laurs)2015/**34**:533–534  
 Canadian Gemological Association, 2015 (Laurs)2015/**34**:712–713  
 China Gems & Jewelry Academic Conference, 2013 (Tao Chen)2013/**33**:262  
 CIBJO Congress, 2013 (Laurs)2014/**34**:92  
 European Gemmological Symposium, 2nd (Anon)2008/**31**:144  
 Federation for European Education in Gemmology Symposium—  
 16th (Gavrilenko)2014/**34**:73–75  
 18th (Laurs)2015/**34**:716–718  
 Gem and Jewelry Institute of Thailand, 4th (Laurs)2015/**34**:446–447  
 Gem-A (GAGTL) Conference—  
 1991, 1st annual (Burland)1992/**23**:38–43  
 1992 (Burland)1993/**23**:294–297  
 1993 (Burland)1994/**24**:45–49  
 1994 (Anon)1995/**24**:379  
 1995 (Anon)1996/**25**:73  
 1996 (Anon)1997/**25**:376  
 1997 (Anon)1998/**26**:50  
 1998 (Anon)1999/**26**:340  
 1999 (Anon)2000/**27**:56  
 2000 (Anon)2001/**27**:308  
 2001 (Anon)2002/**28**:54  
 2002 (Anon)2003/**28**:309  
 2003 (Anon)2004/**29**:57  
 2004 (Anon)2004/**29**:249–250; (Anon)2005/**29**:364, 368  
 2005 (Anon)2006/**30**:121  
 2006 (Anon)2007/**30**:347  
 2007 (Anon)2007/**30**:465; (Anon)2008/**31**:62  
 2008, Centenary (Anon)2008/**31**:144  
 2009 (Anon)2009/**31**:312  
 2010 (Anon)2010/**32**:114  
 2011 (Anon)2011/**32**:237  
 2012 (Anon)2012/**33**:94  
 2013 (Laurs)2013/**33**:263–264; (Anon)2013/**33**:265  
 2014 (Laurs)2014/**34**:162, 350–351, 356  
 2015 (Laurs)2015/**34**:716–718  
 Gemmological Association—  
 1947, letter on (Anderson)1947/**1**(2):42  
 1981, Golden Jubilee Celebration (Anon)1982/**18**:104  
 Gemmological Society of Japan, 2014 Annual Meeting abstracts (Laurs)2014/**34**:279  
 Gemological Institute of China International Gems and Jewellery Conference, 2013 (Shen)2013/**33**:261  
 Gemstone Industry & Laboratory Conference, 2015 (Laurs)2015/**34**:445  
 Geological Society of America—  
 2013 anniversary (Skalwold)2013/**33**:263  
 2015 (Shigley)2015/**34**:718–719  
 Geological Society of South Africa Kimberly Diamond, 2nd (Janse)2014/**34**:351–352  
 German Gemmological Association—  
 2nd Technical Conference, 1978 (Read)1979/**16**:430–431  
 50th Anniversary (Read)1984/**19**:91–92  
 Hong Kong Jewellery & Gem Fair (Laurs)2013/**33**:254–255  
 Instituto Gemológico Español (Spanish Gemological Institute) 2014 Congress (Gavrilenko)2014/**34**:73–75  
 International Amber Symposium, 1st (Fraquet)1989/**21**:347–350  
 International Colored Gemstone Association Congress—  
 1985 (Anon)1985/**19**:645–646  
 2015 (Laurs)2015/**34**:558  
 International Conference on Crystal Growth, 2nd, gems at (Elwell)1968/**11**:115–118  
 International Gemological Symposium (GIA)—  
 1st (Anon)1982/**3**:262  
 2nd (Anon)1991/**8**:504  
 International Gemmological Conference—  
 8th, 1960, paper on irradiation of gems read at (Jones)1963/**9**:21–31  
 9th, 1962, talk on metamict zircons given at (Anderson)1963/**9**:1–6  
 15th, 1975 (Anon)1976/**15**:102–104  
 16th, 1977 (Farn)1978/**16**:150–151  
 17th, 1979 (Farn)1980/**17**:206–209  
 18th, 1981 (Anon)1982/**18**:176–178  
 19th, 1983 (Anon)1984/**19**:92–94  
 20th, 1985 (Anon)1986/**20**:69–70  
 21st, 1987 (Jobbins)1988/**21**:30–31  
 22nd, 1989 (Jobbins)1990/**22**:38–40  
 23rd, 1991 (Jobbins)1992/**23**:36–37  
 24th, 1993 (Jobbins)1994/**24**:50–51  
 26th, 1997 (Harding)1998/**26**:54–55  
 33rd, 2013 (Laurs)2013/**33**:255–260  
 34th, 2015 (Laurs)2015/**34**:622–626  
 Mallorca GemQuest 2015 (Laurs)2015/**34**:534–535  
 Mediterranean Gemmological and Jewellery Conference, 1st (Chapman)2015/**34**:626–627  
 National Association of Jewelry Appraisers—  
 41st Annual Winter ACE-It Education Conference (Dominy)2014/**34**:76–77  
 42nd Mid-Year (Fritz)2014/**34**:352–353  
 Pueblo Gem & Mineral Show lectures, audio recordings of (Laurs)2014/**34**:280  
 Santa Fe Symposium proceedings (Laurs)2014/**34**:280  
 Scottish Gemmological Association—  
 2014 (Fellows)2014/**34**:157–158;  
 2015 (Hodgkinson)2015/**34**:535–537



- Sinkankas Symposium—  
 12th (Laurs)2014/**34**:156–157; erratum 2014/**34**:207;  
 proceedings book 2015 (Laurs)2015/**34**:459  
 13th (Laurs)2015/**34**:532–533  
 Society of Geology Applied to Mineral Deposits, 13th  
 (Giuliani)2015/**34**:627–628  
 Swiss Gemmological Society—  
 2014 (Krzemnicki)2014/**34**:158–160;  
 2015 (Hügi)2015/**34**:537–539  
 World Diamond Conference, 2014 (Laurs)2015/**34**:560  
 World Emerald Symposium, First (Rohtert)2015/**34**:714–716  
 World of Gems, IV (Laurs)2014/**34**:353–354  
 see also Proceedings...and Notices
- Congo, Democratic Republic of the [formerly Zaire]**  
 andesine and labradorite from (Krzemnicki)2004/**29**:15–23  
 shattuckite and bisbeeite reportedly from  
 (Zwaan)2015/**34**:663–666  
 spessartine from (Clark)2014/**34**:299–300  
 tourmaline mining in (Laurs)2015/**34**:475–476
- Conoscope**, see Instruments
- Copal**  
 inclusions in, see 'Inclusions'  
 from New Zealand (Currie)1997/**25**:408–416  
 see also Amber simulants; Resin
- Coral**  
 black (Webster)1954/**4**:197–199  
 characterization of natural and treated (Natkaniec-  
 Nowak)2009/**31**:226–234  
 fossil, dyed blue (Webster)1963/**9**:138  
 Gilson simulant (Aliprandi)1983/**18**:401–410  
 heft as guideline (Farn)1976/**15**:125–126  
 from Japan (Levett)1947/**1**(2):11–12  
 natural, treated and simulants (Aliprandi)1983/**18**:401–410  
 plastic-coated bead (Scarratt)1984/**19**:108–109  
 scanning electron microscopy of natural and simulated  
 (Taki)1988/**21**:74–80  
 simulant, *Strombus gigas* shell beads  
 (Disner)2015/**34**:572–574  
 from South Africa (Pienaar)1981/**17**:589–601  
 with wax-filled cavities (Bubshait)1993/**23**:400  
 white, from Mediterranean Sea (Axon)1964/**9**:263–267
- Cordierite**, see Iolite
- Corrigendum**, see Errata
- Corundum**  
 from Australia—  
 Barrington (Sutherland)1998/**26**:65–85  
 determination of geographical origin  
 (Sutherland)2009/**31**:203–210  
 from basalt fields, comparison of  
 (Sutherland)1998/**26**:65–85  
 from Cambodia (Jobbins)1981/**17**:555–567;  
 (Sutherland)1998/**26**:65–85  
 from Canada (Boyd)1983/**18**:544–562  
 crystallography of (Mitchell)1950/**2**:237–274  
 deposits in Sri Lanka (Gunaratne)1976/**15**:29–30  
 diffusion treated—  
 with beryllium (Emori)2014/**34**:130–137  
 cause of colour (Pisutha-Arnond)2004/**29**:77–103;  
 (Pisutha-Arnond)2006/**30**:131–143  
 with chromium (Smith)2015/**34**:486–488  
 identification of (Kennedy)2001/**27**:272–274;  
 letter on (Schmetzer)2001/**27**:360–361;  
 (Kennedy)2001/**27**:486–487  
 methods of treatment (Pisutha-Arnond)2004/**29**:77–103  
 topaz-like (Schmetzer)2001/**27**:360–361  
 filled—  
 with coloured lead glass (Henn)2014/**34**:111–112  
 identification of (Hänni)1992/**23**:201–205; pages 202,  
 204, 205 (Err)1993/**23**:313  
 geuda, anomalous behaviour of (Perera)1991/**22**:405–407  
 in goodletite ornamental rock from New Zealand  
 (Brown)1996/**25**:211–217  
 heat treated—  
 behaviour of geuda (Gunaratne)1981/**17**:292–300;  
 (Perera)1991/**22**:405–407  
 effects on inclusions (Rankin)2003/**28**:257–264  
 geuda—  
 effects of heating (Gunaratne)1981/**17**:292–300  
 spectra of (Ediriweera)1989/**21**:403–404; page 404  
 (Err)1990/**22**:55  
 inclusions in, see 'Inclusions'  
 infrared spectrum of (Hainschwang)2008/**31**:23–29  
 irradiation of, effects on colour (Burbage)1957/**6**:74–77  
 from Laos (Saminpanya)2003/**28**:399–413  
 from Malawi, Chimwadzulu Hill—  
 (Rutland)1969/**11**:320–323  
 silk in (Mitchell)1983/**18**:520–522  
 untreated and heat-treated (Rankin)2002/**28**:65–75  
 natural vs. synthetic distinction (Bidny)2010/**32**:7–13  
 from Somaliland (Kinnaird)2000/**27**:139–154  
 star (Tait)1955/**5**:65–72; (Eppler)1958/**6**:195–212; dyed to  
 simulate ruby (Schmetzer)1994/**24**:253–255  
 from Tanzania (Hänni)1987/**20**:278–284  
 from Thailand (Saminpanya)2003/**28**:399–413  
 from Vietnam (Long)2004/**29**:129–147  
 see also Diffusion treatment; Heat treatment; Ruby;  
 Sapphire
- Corundum simulants**, see Assembled gem materials; Ruby  
 simulants
- Corundum, synthetic**, see Ruby, synthetic; Sapphire, synthetic
- Costa Rica**  
 jade from, history of (Ruff)1960/**7**:236–246
- Country of origin**  
 of corundum—  
 from Australia (Sutherland)2009/**31**:203–210  
 from Thailand and Laos (Saminpanya)2003/**28**:399–413  
 determination, reliability (Hänni)1994/**24**:139–148  
 of emerald (Cronin)2012/**33**:1–13; from Colombia  
 (Schwarz)1992/**23**:225–233; by photoluminescence  
 spectroscopy (Thompson)2014/**34**:334–343;  
 letter on (Schmetzer)2015/**34**:441–443; response  
 (Thompson)2015/**34**:443  
 of pearls, cultured (Hänni)2013/**33**:239–245; page  
 241 (Err)2014/**34**:89; determined by radiography  
 (Lorenz)1986/**20**:114–123; page 116 (Err)1986/**20**:199  
 of sapphire (Abduriyim)2006/**30**:23–36  
 see also individual gem localities
- Creative Crystals Inc.**  
 flux growth of alexandrite (Schmetzer)2012/**33**:49–81
- Crocoite**  
 as gemstone (O'Donoghue)1980/**17**:7–9
- Crossed filters technique**, see Filters
- Cryogenic cooling**  
 for infrared spectroscopy (Farn)1980/**17**:69–73; page 72  
 (Err)1980/**17**:282
- Crystallography**  
 of alexandrite, synthetic—  
 flux-grown (Schmetzer)2012/**33**:49–81  
 HOC-grown (Schmetzer)2013/**33**:113–129  
 of andalusite (Mitchell)1986/**20**:18–19  
 of asterism—  
 in diamond (Hainschwang)2014/**34**:306–315  
 in garnet (Schmetzer)2002/**28**:13–23  
 in garnet and spinel from Sri Lanka  
 (Kumaratilake)1998/**26**:24–28  
 in gems from Sri Lanka  
 (Kumaratilake)1997/**25**:474–482  
 in quartz from Sri Lanka (Schmetzer)2003/**28**:321–332  
 in rose quartz (Schmetzer)2006/**30**:183–191



- of beryl crystals from pegmatites (Sunagawa)1999/**26**:521–533
- and birefringence (Mitchell)1947/**1**(4):15–20
- of brazilianite (Trumper)1951/**3**:1–13
- of chatoyancy in gems from Sri Lanka (Kumaratilake)1997/**25**:474–482
- of chrysoberyl—  
(Schmetzer)2011/**32**:129–144  
from Brazil (Schmetzer)2014/**34**:32–40  
from Myanmar (Schmetzer)2015/**34**:434–438  
from Tanzania (Schmetzer)2011/**32**:179–209  
vanadium-bearing natural and synthetic (Schmetzer)2013/**33**:223–238
- cleavage and mineral structure (Mitchell)1950/**2**:237–274
- of diamond—  
CVD synthetic, with ‘tree ring’ growth pattern (Yan Lan)2015/**34**:702–710  
type II (Sunagawa)2001/**27**:417–425  
and double refraction divergence (Cartier)2002/**28**:223–226, 2003/**28**:301, 2003/**28**:489–493  
and doubling of images (Sturman)2002/**28**:210–222  
of euclase from Zimbabwe (Stocklmayer)1998/**26**:209–218  
of moissanite, synthetic (Nassau)1999/**26**:425–438  
and optic axis (Cartier)2004/**29**:228–234  
of pezzottaite (Hänni)2004/**29**:75–76  
properties measured with refractometer (Sturman)2010/**32**:74–89  
of quartz (Walton)1952/**3**:204–214  
and refraction of light (Walton)1947/**1**(2):19–23; (Teerstra)2008/**31**:105–110
- of ruby—  
from Myanmar (Peretti)1996/**25**:3–19  
from Tajikistan (Smith)1998/**26**:103–109  
synthetic—  
Knischka (Gunawardene)1983/**18**:365–378; page 375 (Err)1983/**18**:778  
twinning in Ramaura (Schmetzer)1994/**24**:87–93; page 91 (Err)1994/**24**:226  
trapiche from Myanmar (Liu)2015/**34**:660–662
- of sapphire—  
from Madagascar (Kiefert)1996/**25**:185–209  
from Rwanda, corrosion of (Krzemnicki)1996/**25**:90–106  
pink, from Tajikistan (Smith)1998/**26**:103–109  
synthetic, blue Chatham (Kiefert)1988/**21**:16–22
- of symmetrical polyhedra (Lurie)1992/**23**:207–214; letter on (Nassau)1993/**23**:441; response (Lurie)1993/**23**:441
- of topaz from Mexico (Dewonck)1998/**26**:29–39
- of tourmaline—  
brown, from Sri Lanka (Henn)1986/**20**:154–156  
trapiche (Schmetzer)2011/**32**:151–173  
uvite (Takahashi)1998/**26**:226–237
- of uniaxial gems (Kiefert)1991/**22**:344–354
- of water (Mitchell)1992/**23**:161–164
- of zincite, synthetic (Nowak)2007/**30**:257–267  
see also Growth structure/zoning; Twinning; Zoning
- Cubic zirconia [CZ]**  
as masterstones for diamond colour grading (Cowing)2008/**31**:77–83  
coloured (O’Donoghue)1978/**16**:257–258; (Read)1981/**17**:602–605  
simulating diamond (Duroc-Danner)2000/**27**:8–10; (Kennedy)2001/**27**:272  
simulating ruby (Kennedy)2001/**27**:270  
stability and growth of (Bosshart)1978/**16**:244–256; addenda (Err)1979/**16**:431  
see also Diamond simulants
- Cultured pearl**, see Pearl, cultured
- Cuprite**  
infrared spectrum of (Hainschwang)2008/**31**:23–29  
from Namibia (Dunn)1976/**15**:113–118
- Cuts and cutting**  
of amblygonite from Brazil (Schunk)1955/**5**:154–156  
asterism, fake (Schmetzer)2002/**28**:41–42, 109–110; letter on (Schmetzer)2002/**28**:109–110  
for brilliance in ‘brilliant cut’ gems (Knight)1960/**7**:167–177  
concave faceting (Morgan)2002/**28**:193–209  
experimental for optic study (Burbage)1967/**10**:195–197  
‘Facet Master’ machine for (Anon)1966/**10**:99  
historical facet designs collection (Laurs)2014/**34**:279; (Err)2015/**34**:383  
of jaspilite (Baranov)2009/**31**:163–169  
light, polarized, reflection and absorption in (Ostwald)1962/**8**:262–275  
‘Maltese Cross’ and ‘Star of David’ cuts (Pullishy)1992/**23**:19  
optimizing for beauty (Vasiliev)2004/**29**:25–36; (Rome)2004/**29**:109; (Vasiliev)2004/**29**:109–110; (Fürbach)2004/**29**:110; (Vasiliev)2004/**29**:110  
polishing, Beilby layer theory (Crowcroft)1981/**17**:459–465; letter on (Crowcroft)1985/**19**:466–467; response (Read)1985/**19**:552–553; letter on (Crowcroft)1986/**20**:70–71; response (Read)1986/**20**:134  
of rutile, synthetic (Eppler)1949/**2**:35–44; comment on (Waite)1949/**2**:166; letter on (Eppler)1950/**2**:280  
surface ‘fire marks’ or ‘chatter marks’ on sapphire (Eppler)1962/**8**:167–170  
of symmetrical polyhedra (Lurie)1992/**23**:207–214; letter on (Nassau)1993/**23**:441; response (Lurie)1993/**23**:441  
of topaz, blue, use of fluorescence for orienting (Leiper)1955/**5**:135–140  
see also Diamond, cuts and cutting of; Faceting; Lapidary arts
- CVD [chemical vapour deposition]-grown synthetic diamond**, see Diamond, synthetic
- Czech Republic**  
pearl from Bohemia, freshwater river (Hahn)1996/**25**:45–50
- Czochralski**, see Synthetics; specific gem materials
- D**
- Danburite**  
from Bolivia (Hyršl)1998/**26**:41–47  
crystallography of (Mitchell)1950/**2**:237–274  
from Mexico (Pough)1966/**10**:10–17
- Darkfield illumination**, see Lighting
- Datolite**  
from Lake Superior copper mines (Axon)1964/**9**:263–267
- De Beers**  
gift of rough diamonds to Gemological Institute of America (Anon)1955/**5**:240  
synthetic diamond—  
(Campbell)2000/**27**:32–44; letter on (Campbell)2000/**27**:124  
cathodoluminescence and CL spectra of experimental (Ponahlo)1992/**23**:3–17  
see also Diamond, synthetic
- Declinometer**, see Refractometer
- Demantoid**, see Andradite
- Democratic Republic of the Congo**, see Congo, Democratic Republic of the [formerly Zaire]
- Density**, see Specific gravity
- Dentine**, see Odontolite
- Diamond**  
asterism in (Mitchell)1981/**17**:584–588; page 588 (Err)1982/**18**:107; (Currie)1986/**20**:52; page 52 (Err)1986/**20**:199; letter on (Stern)1986/**20**:135; letter on (French)1986/**20**:135; (Hainschwang)2014/**34**:306–315

- atomic structure of (Burbage)1948/**1**(8):19–20;  
(Lonsdale)1949/**2**:1–4
- brooch in personal collection of Her Majesty the Queen  
(O'Donoghue)1969/**11**:307–311
- 'Colenso' in British Museum (Sweet)1961/**8**:84–85
- colour, cause of (Collins)1982/**18**:37–75;  
(Collins)2001/**27**:341–359; pages 341–359  
(Err)2001/**27**:443
- colour grading, see grading—colour
- crystallography of (Mitchell)1950/**2**:237–274
- damage to (Webster)1947/**1**(3):5–9; (Webster)1963/**9**:7–8;  
(Hänni)1987/**20**:339–343
- deposits—  
in Bolivia (Hyršl)1998/**26**:41–47  
in Canada—  
James Bay Diamond Syndicate  
(Field)1951/**3**:15–21; (Field)1951/**3**:119–123  
localities (Boyd)1983/**18**:544–562  
prospecting for (Field)1949/**2**:108–111  
in former USSR (Spiridonov)1998/**26**:111–125  
gold mines (Raal)1969/**11**:211–215  
'random notes' on (Chisholm)1955/**5**:77–85  
in South Africa (Anon)1953/**4**:38–44
- dispersion (Anderson)1968/**11**:42–45
- doublet (Webster)1958/**7**:79–100; (Mitchell)1983/**18**:385;  
(Scarratt)1986/**20**:36–37; (Grabowski)2015/**34**:468–469
- doubling of back facets (Mitchell)1956/**5**:307–309
- in fiction (Burbage)1948/**1**(8):19–20
- 'fingerprinting' (Alexander)1949/**2**:16–17;  
(Read)1979/**16**:386–407
- fluorescence, UV—  
for identification (Cotty)1956/**5**:339–341  
photography of (Webster)1966/**10**:84–95
- formation, clues in mineral inclusions  
(Gübelin)1982/**18**:297–320
- grading—  
background (Emms)1987/**20**:478–481  
clarity, objective (Cowing)2014/**34**:316–332  
colour—  
CZ masters for (Cowing)2008/**31**:77–83  
DiamondLite and DiamondDock  
(Cowing)2010/**32**:38–51  
Koloriskop grading lamp (Read)1979/**16**:386–407  
over-grading of blue-fluorescent  
(Cowing)2010/**32**:38–51  
spectroscopic methods of (Read)1979/**16**:386–407  
visual colorimetry for (Read)1980/**17**:29–42  
description of optical performance  
(Cowing)2005/**29**:274–280  
and marketing in USA (Liddicoat)1956/**5**:310–318  
optics measurement (Nelson)1989/**21**:434–447; page  
440 (Err)1989/**21**:520  
Pettersson proportion slide for measuring proportions  
(Anon)1968/**11**:127–128  
of proportions of mounted brilliant cuts  
(Currie)1986/**20**:171–176; pages 173, 176  
(Err)1986/**20**:259  
Scan.D.N. system (Tillander)1971/**12**:167–170  
Topcon diamond proportion hand scope  
(Bruton)1975/**14**:330–332  
see also Diamond, cuts and cutting of
- 'Great Table' of Tavernier actually ruby  
(Tolansky)1962/**8**:171–174
- growth structure and cathodoluminescence to distinguish  
from synthetic (Sunagawa)1995/**24**:485–499  
from Guyana, production (Lee)1981/**17**:465–479  
in historic sword from India (Harding)1988/**21**:3–7  
imitation crystals fashioned from quartz  
(Scarratt)1986/**20**:211
- inclusions in, types of minerals (Gübelin)1969/**11**:149–192  
from India (Mathur)1955/**5**:73–76; new pipe discovered  
(Field)1950/**2**:347
- industry in—  
1945, reprinted from *Jeweler's Circular-Keystone*  
(Anon)1947/**1**(1):51–55  
1950 (Foshag)1952/**3**:230–288  
2015, report from Antwerp World Diamond Centre  
(Laurs)2015/**34**:649
- industrial uses of, lecture to members on  
(Dale)1948/**1**(5):5–11
- internal growth structure (Bulanova)2005/**29**:377–386
- in Iran's Crown Jewels (Waite)1976/**15**:53–61
- Koh-i-Noor (Koh-i-Nûr)—  
examination by Sir D. Brewster, letter on  
(Price)1983/**18**:473–474  
recutting of (Israel)1992/**23**:176; letter on  
(Farn)1992/**23**:120–121
- localities, lecture to members on (Dale)1948/**1**(5):5–11  
from Myanmar (Kammerling)1994/**24**:3–40; pages 25, 28  
(Err)1994/**24**:130
- nomenclature—  
and disclosure standards from ISO (Laurs)2015/**34**:650  
use of 'blue-white' (Probus)1959/**7**:121
- optical absorption spectra at room temperature  
(Lifante)1990/**22**:142–145
- physicist's view of (Smith)1969/**11**:327–331
- production (Foshag)1952/**3**:230–288;  
(Norwood)1969/**11**:197–203;  
(Huddleston)1984/**19**:348–369; in India  
(Viswanath)1970/**12**:41–43
- radiation stains, green, as proof of limited heating  
(Hainschwang)2014/**34**:306–315
- replicas of famous (Willmott)1993/**23**:486–490  
in Roman period (Ogden)1973/**13**:179–180;  
(Ogden)1973/**13**:315–317
- Sancy (Jobbins)1977/**15**:240–242;  
(Tillander)1978/**16**:221–228;  
(Mitchell)1984/**19**:144–146; letter on  
(McGlashan)1981/**17**:433–434; testing in GAGTL  
(Farn)1986/**20**:166–167
- from Siberia (Huddleston)1984/**19**:348–369
- 'softening' in Pliny (Nassau)1991/**22**:399–403
- sorting of rough, automated (Read)1977/**15**:409–422
- 'Star of Arkansas' (Leiper)1957/**6**:63–71  
with synthetic-like DiamondView pattern  
(Delaunay)2014/**34**:107–108
- tabular, of unknown history (Jobbins)1984/**19**:1–7
- testing fallacies (Mitchell)1981/**17**:446–450
- thermoluminescence of (Sweet)1955/**5**:125–130
- in Townshend Collection of Precious Stones in Victoria and  
Albert Museum (O'Donoghue)1970/**12**:1–5
- type—  
and causes of colour (Collins)1982/**18**:37–75;  
(Collins)2001/**27**:341–359; pages 341–359  
(Err)2001/**27**:443  
classification based on light absorption and emission  
(Anderson)1963/**9**:44–54; (Read)1979/**16**:386–407
- Ia with high hydrogen content  
(Fritsch)1993/**23**:451–460
- II morphology and strain (Sunagawa)2001/**27**:417–425  
historic notes on (Chisholm)1955/**5**:77–85  
from USA, Arkansas (Leiper)1957/**6**:63–71  
weight estimation (Tisdal)1969/**11**:315–319;  
(Wilkins)1974/**14**:79–83
- X-radiography, mounted in jewellery  
(Moule)1981/**17**:300–305
- see also Diamond, coloured; Diamond, cuts and cutting of;  
Diamond, inclusions in; Diamond simulants; Diamond,  
synthetic; Diamond treatment; DiamondView imaging;  
Grading; Instruments

## Diamond, coloured

- black type IIb, electrically conductive (Scandella)1989/**21**:411
- blue—  
flat cut (Scarratt)1986/**20**:210–211  
Hope (Field)1958/**6**:370  
method to distinguish natural from treated (Custers)1960/**7**:291–293  
non-conductive (Emms)1993/**23**:275–278  
with red phosphorescence (Anderson)1964/**9**:215–221  
treated (Scarratt)1992/**23**:216–217
- brooch in personal collection of Her Majesty the Queen (O'Donoghue)1969/**11**:307–311
- brown—  
with 637 nm absorption line (Scarratt)1984/**19**:108, 110–111  
classification of (Hainschwang)2005/**29**:261–273  
reddish brown (Lu)2008/**31**:73–76  
spectral features of (Scarratt)1986/**20**:212
- cause of colour (Webster)1958/**7**:79–100; (Collins)2001/**27**:341–359; pages 341–359 (Err)2001/**27**:443
- chameleon (Scarratt)1984/**19**:98–100; (Emms)1993/**23**:274; (Fritsch)1993/**23**:451–460
- colour change, brown to green (Scarratt)1986/**20**:212–215
- green—  
with 637 nm absorption line (Scarratt)1984/**19**:108, 110–111  
cyclotron-treated (Farn)1977/**15**:359; (Scarratt)1987/**20**:288  
Dresden (Bosshart)1989/**21**:351–362  
natural type IIb (Scarratt)1989/**21**:346  
radioactive radium-treated (Scarratt)1985/**19**:653–654; (Scarratt)1986/**20**:147, 149–150
- magnetism and Barkhausen effect to separate from synthetic (Minster)1987/**20**:458–459; note on (Nassau)1988/**21**:103
- pink—  
from light brownish rough with radiation stains (Scarratt)1987/**20**:358–361  
type Ia (Scarratt)1986/**20**:36–38  
Williamson Pink in brooch in personal collection of Her Majesty the Queen (O'Donoghue)1969/**11**:307–311  
zoned (Emms)1993/**23**:275–276
- 'Premier Mine Diamond' type IIb, drawing of rough (Anon)1954/**4**:300
- purple (Moses)2002/**28**:7–12
- red—  
DeYoung (Shigley)1993/**23**:259–266  
second stone found in South Africa in 1926 (Jerome)1981/**17**:450–454
- spectra of (Scarratt)1979/**16**:433–447; fluorescence (Anderson)1962/**8**:193–202
- treated—  
forms of treatment (Schiffmann)1969/**11**:233–255  
identification of (Read)1979/**16**:370–371  
irradiation, absorption and type (Anderson)1963/**9**:44–54  
spectroscopic detection of (Woods)1986/**20**:75–82
- type Ia with high hydrogen content (Fritsch)1993/**23**:451–460
- yellow—  
'canary' (Anderson)1972/**13**:8; type Ib; (Collins)1980/**17**:213–222  
with 637 nm absorption line (Scarratt)1984/**19**:108, 110–111  
treated (Scarratt)1984/**19**:111–113; (Scarratt)1992/**23**:132–133
- see also Diamond, inclusions in; Diamond, synthetic; Diamond treatment

## Diamond, cuts and cutting of

- brilliance (Cowing)2000/**27**:209–227
- brilliant—  
girdle of (Gübelin Laboratory)1973/**13**:161–168  
flat, from India (Tillander)1968/**11**:125–126  
grading of proportions of mounted stones (Currie)1986/**20**:171–176; pages 173, 176 (Err)1986/**20**:259  
proportions (Webster)1958/**7**:79–100; (Cowing)2007/**30**:320–330  
weight analysis (Currie)1986/**20**:171–176; pages 173, 176 (Err)1986/**20**:259
- in Burgundian Court Goblet (Tillander)1970/**12**:44–50
- carving, horse-head (Panjikar)2015/**34**:571–572
- 'Computational Science' in analysis of models, letter on (Nassau)2005/**29**:349
- culet, in old brilliant cuts (Eppler)1967/**10**:218–223
- damaged facet edges (Webster)1963/**9**:7–8
- flat (Scarratt)1986/**20**:210–211
- in historic sword from India (Harding)1988/**21**:3–7
- history of—  
in Portuguese jewels during 16th–18th centuries (Galopim de Carvalho)2014/**34**:116–128  
over six centuries (Tillander)1965/**9**:380–401
- implications of internal growth structure (Bulanova)2005/**29**:377–386
- in India (Sevdermish)1999/**26**:439–446
- Koh-i-Noor (Koh-i-Nûr), recutting of (Israel)1992/**23**:176; letter on (Farn)1992/**23**:120–121
- lecture to members on (Dale)1948/**1**(5):5–11
- model for exhibition (Anon)1963/**9**:32
- naturals on cut stones (Webster)1958/**7**:79–100
- optical attributes of (Nelson)1989/**21**:434–447; page 440 (Err)1989/**21**:520
- optical performance and description (Cowing)2005/**29**:274–280
- Peruzzi cut of Saxon diamond, modified (Tillander)1968/**11**:81–83
- point cut, history of (Tillander)1971/**12**:316–321
- polishing (Holstein)1953/**4**:14–23
- portrait cut (Anderson)1971/**12**:208
- Princess cut (Anon)1961/**8**:153–154
- proportions—  
DiaMension Axiom instrument for measuring (Brosh)2014/**34**:185  
measurement and weight estimation (Tisdall)1969/**11**:315–319; (Wilkins)1974/**14**:79–83  
Pettersson proportion slide for measuring (Anon)1968/**11**:127–128  
scope for (Bruton)1975/**14**:330–332  
of standard round brilliant (Webster)1958/**7**:79–100; (Cowing)2007/**30**:320–330
- replicas of famous (Willmott)1993/**23**:486–490
- rose cut—  
with false pavilion in mounting (Farn)1965/**9**:355–356  
history of (Tillander)1998/**26**:219–221
- Saxon diamond (Tillander)1968/**11**:81–83
- in St Michael goblet (Tillander)1970/**12**:65–70
- 'The Star of Independence' on loan at Smithsonian museum (Dunn)1978/**16**:90–93
- tabular (Jobbins)1984/**19**:1–7
- weight estimation (Tisdall)1969/**11**:315–319; (Wilkins)1974/**14**:79–83
- see also Faceting; India; other Diamond entries
- ### Diamond, inclusions in
- apatite (Eppler)1961/**8**:1–13
- characteristics in clarity grading (Cowing)2014/**34**:316–332
- clouds—  
oriented gas bubbles (Gübelin)1950/**2**:281–303



star-shaped—  
 (Mitchell)1981/**17**:584–588; page 588  
 (Err)1982/**18**:107; (Currie)1986/**20**:52;  
 page 52 (Err)1986/**20**:199; letter  
 on (Stern)1986/**20**:135; letter on  
 (French)1986/**20**:135; (Wang)2002/**28**:143–152;  
 (Hainschwang)2014/**34**:306–315

cracks and fissures (Eppler)1961/**8**:1–13

diamond (Gübelin)1948/**1**(7):7–39;  
 (Gübelin)1950/**2**:281–303

etch channels (Taijin Lu)2002/**28**:129–135

formation of (Gübelin)1957/**6**:1–47;  
 (Gübelin)1982/**18**:297–320

garnet (Gübelin)1948/**1**(7):7–39; (Gübelin)1950/**2**:281–303;  
 (Chisholm)1955/**5**:77–85; (Eppler)1961/**8**:1–13;  
 (Farn)1963/**9**:39–41; (Harris)1969/**11**:256–262

HPHT-treated from NovaDiamond (De  
 Weerd)2000/**27**:201–208

ilmenite (Eppler)1961/**8**:1–13

from India (Phukan)1971/**12**:157–166

iridescent, confused with flash effect  
 (Kennedy)2001/**27**:271–272

isotropic and inert to LWUV (Webster)1960/**7**:220

irradiated (Schiffmann)1969/**11**:233–255

kyanite (Koivula)1998/**26**:222–225

laser drilling of (Lenzen)1974/**14**:69–72;  
 (Scarratt)1986/**20**:215; (Scarratt)1992/**23**:138–139;  
 (Horikawa)2001/**27**:259–263; ‘KM treatment’  
 (Horikawa)2001/**27**:259–263

magnetite (Harris)1969/**11**:256–262

mineral (Eppler)1961/**8**:1–13; (Gübelin)1969/**11**:149–192;  
 as clues to formation (Gübelin)1982/**18**:297–320

natural vs. synthetic (Sunagawa)1995/**24**:485–499

olivine (Eppler)1961/**8**:1–13

quartz (Gübelin)1948/**1**(7):7–39

rutile (Harris)1969/**11**:256–262

spinel (Harris)1969/**11**:256–262

syngenetic, identified by XRD (Harris)1969/**11**:256–262

synthetic—  
 pink CVD (Kitawaki)2010/**32**:23–30  
 yellow—  
 CVD, type Ib (Kitawaki)2015/**34**:594–604  
 De Beers (Scarratt)1989/**21**:341–343  
 from Russia (Sosso)1995/**24**:363–368  
 Sumitomo (Scarratt)1987/**20**:406–409  
 yellow-brown HPHT melee (Delaunay)2014/**34**:16–18

type Ia with high hydrogen content  
 (Fritsch)1993/**23**:451–460

type II (Sunagawa)2001/**27**:417–425

typical (Gübelin)1950/**2**:281–303; (Gübelin)1952/**3**:175–187

zircon (Gübelin)1948/**1**(7):7–39; (Gübelin)1950/**2**:281–303

### Diamond simulants

cubic zirconia (Duroc-Danner)2000/**27**:8–10;  
 (Kennedy)2001/**27**:272

detection of—  
 by immersion (Wilkins)1974/**14**:27–28  
 jeweller’s role (Webster)1947/**1**(1):20–23  
 Rayner Diamondscan (Read)1985/**19**:521–527

dispersion of (Anderson)1968/**11**:42–45

glass (Anon)1955/**5**:76; (Webster)1958/**7**:79–100

green, demantoid and silicon carbide  
 (Webster)1958/**7**:79–100

in Roman period, paste (Ogden)1973/**13**:179–180;  
 (Ogden)1973/**13**:315–317

sapphire and spinel, natural and synthetic colourless  
 (Webster)1958/**7**:79–100

sphene (Webster)1958/**7**:79–100

strontium titanate (Anon)1955/**5**:76;  
 (Webster)1958/**7**:79–100

synthetic corundum and strontium titanate doublet  
 (O’Donoghue)1975/**14**:224–225

synthetic moissanite (Nassau)1999/**26**:425–438;  
 (Kennedy)2001/**27**:271–272; (Kiefert)2001/**27**:471–481;  
 (Taijin Lu)2002/**28**:129–135; black  
 (Caplan)2015/**34**:399–401

synthetic rutile, ‘Titania’ (Webster)1958/**7**:79–100

types, as of 1947 (Webster)1947/**1**(1):20–23

YAG octahedron (Farn)1972/**13**:121–122

zircon, colourless (Webster)1958/**7**:79–100

see also Assembled gem materials; Cubic zirconia;  
 Gadolinium gallium garnet [GGG]; Moissanite, synthetic;  
 Strontium titanate; Yttrium aluminium garnet [YAG]

### Diamond, synthetic

CVD—  
 blue, on market (Laurs)2015/**34**:382

colourless to near-colourless—  
 identification of (Scarani)2014/**34**:2  
 with ‘tree ring’ growth pattern  
 (Yan Lan)2015/**34**:702–710

colourless to pale grey (Song)2012/**33**:45–48

melee—  
 colourless (Hainschwang)2015/**34**:518–522  
 yellow (Hainschwang)2014/**34**:300–302

pink (Kitawaki)2010/**32**:23–30; on market  
 (Laurs)2015/**34**:383

vapour deposition (Elwell)1977/**15**:377–382

yellow to brownish yellow type Ib  
 (Kitawaki)2015/**34**:594–604

De Beers—  
 (Probus)1960/**7**:182; (Campbell)2000/**27**:32–44; letter  
 on (Campbell)2000/**27**:124

cathodoluminescence and CL spectra of experimental  
 (Ponahlo)1992/**23**:3–17

yellow (Scarratt)1989/**21**:341–343

film produced with ion beam (Elwell)1977/**15**:377–382

GE (Anderson)1955/**5**:59–64; (Anon)1955/**5**:130;  
 (Webster)1970/**12**:101–148

green (Breeding)2005/**29**:387–394

growth structure and cathodoluminescence to distinguish  
 from natural (Sunagawa)1995/**24**:485–499

high-pressure growth (Elwell)1977/**15**:377–382

HPHT—  
 colourless type IIa, identification of (Scarani)2014/**34**:2  
 octahedral crystal rough (Laurs)2015/**34**:559

history of (Lundblad)1986/**20**:134–135;  
 (Nassau)1985/**19**:660–663; letter on  
 (Chisholm)1986/**20**:133; letter on  
 (Butler)1997/**25**:562–563; letter on  
 (Butler)2001/**27**:360

at ICCG (Elwell)1968/**11**:115–118

industrial grit (Scarratt)1986/**20**:153

magnetism and Barkhausen effect to separate from  
 natural (Minster)1987/**20**:458–459; note on  
 (Nassau)1988/**21**:103

melee in parcel with natural—  
 CVD (Hainschwang)2014/**34**:300–302  
 HPHT (Delaunay)2014/**34**:16–18

from Russia, early rumour of (Field)1952/**3**:226–229

shock waves used in growth (Elwell)1977/**15**:377–382

Sumitomo yellow (Scarratt)1987/**20**:406–409;  
 (Scarratt)1989/**21**:341–343

from Sweden and Netherlands (Anon)1955/**5**:130

yellow (Kennedy)2002/**28**:78–79; from Russia  
 (Sosso)1995/**24**:363–368

**Diamond treatment**  
 annealing of synthetic pink (Kitawaki)2010/**32**:23–30  
 coating, accidental (Abramson)1986/**20**:34



detection and methods (Webster)1958/7:79–100;  
 (Collins)2001/27:341–359; pages 341–359  
 (Err)2001/27:443; spectroscopic, for artificial colours  
 (Woods)1986/20:75–82

forms of treatment (Schiffmann)1969/11:233–255

glass filling (Nelson)1993/23:461–472; pages 465, 466, 467,  
 468, 470 (Err)1994/24:64; (Nelson)1994/24:94–103;  
 letters on (Nelson)1994/24:281–283;  
 (Nassau)1994/24:283–285; (Hanneman)1995/24:369

historic, letter on (Lundblad)1986/20:134–135;  
 (Butler)2001/27:360

HPHT—  
 GE POL, use of type IIa and identification of  
 (Chalain)2000/27:73–78  
 identification of colourless type IIa (Scarani)2014/34:2  
 from NovaDiamond (De Weerd)2000/27:201–208  
 review (Schmetzer)2010/32:52–65  
 of type I brown (Hainschwang)2005/29:261–273  
 of type II (Sunagawa)2001/27:417–425

identification of (Schiffmann)1969/11:233–255;  
 (Read)1979/16:370–371; (Woods)1986/20:75–82

irradiation, absorption and type (Anderson)1963/9:44–54

irradiation and annealing—  
 colour centres and spectral features of  
 (Collins)1982/18:37–75  
 removal of GR1 feature (Raal)1969/11:211–215

irradiation with radium (Scarratt)1985/19:653–654;  
 (Scarratt)1986/20:147, 149–150; radioactive  
 (Webster)1965/9:352–353

laser—  
 drilling (Lenzen)1974/14:69–72;  
 (Scarratt)1986/20:215; (Scarratt)1992/23:138–139;  
 (Horikawa)2001/27:259–263  
 ‘KM treatment’ (Horikawa)2001/27:259–263

lecture—  
 artificial coloration (Custers)1954/4:305–308  
 Robert Webster on ‘some newer gem problems’,  
 including synthetics and irradiation  
 (Webster)1955/5:179–184  
 review and history of (Webster)1958/7:79–100  
 temporary masking of body colour (Laurs)2015/34:469  
 see also Heat treatment; Irradiation

**DiamondCheck**, see Instruments

**DiamondDock**, see Instruments

**DiamondLite**, see Instruments

**DiamondView imaging**

of diamond—  
 CVD synthetic, with ‘tree ring’ growth pattern (Yan  
 Lan)2015/34:702–710  
 De Beers synthetic (Campbell)2000/27:32–44;  
 HPHT-treated from NovaDiamond (De  
 Weerd)2000/27:201–208  
 natural with synthetic-like pattern  
 (Delaunay)2014/34:107–108  
 reddish brown (Lu)31:73–76  
 synthetic CVD—  
 (Song)2012/33:45–48  
 yellow type Ib (Kitawaki)2015/34:594–604  
 synthetic yellow-brown melee  
 (Delaunay)2014/34:16–18  
 of sapphire, green lead-glass-filled  
 (Leelawatanasuk)2015/34:420–427

**Diaspore**

faceted (Scarratt)1980/17:145–148; (Duroc-  
 Danner)1987/20:371–375  
 inclusions in, see ‘Inclusions’  
 from Russia (Spiridonov)2006/30:91–102; pages 91, 93, 94  
 (Err)2006/30:254  
 from South Africa (Andrews)1965/9:354–355

**Dickinsonite**

faceted (Andrews)1965/9:354–355

**Dickite**

from Thailand (Saminpanya)2009/31:211–225

**Differential thermal analysis (DTA)**, see Thermal analysis

**Diffraction**

and asterism in spinel (Schmetzer)1988/21:69–72  
 cause of iridescence of abalone shell  
 (Liu)2002/28:1–5; (Tan)2005/29:395–399;  
 letter on (Hoover)2006/30:103–104; response  
 (Tan)2006/30:104–105  
 in fossil ammonite shell (Wight)1981/17:406–415  
 and interference/iridescence in opal/hyalite  
 (Sinkankas)1966/10:100–105;  
 (Gübelin)1986/20:139–144; (Hänni)1989/21:488–495  
 and opal (Leechman)1954/4:200–210, 288–291;  
 (Mitchell)1966/10:46–48; (Sinkankas)1966/10:100–105;  
 (Darragh)1975/14:215–223; (Mitchell)1982/18:339–341;  
 (Gübelin)1986/20:139–144; (Einfalt)2007/30:383–398  
 and schiller effect (Ostwald)1965/9:309–324  
 see also Spectroscope; X-ray diffraction analysis

**Diffusion treatment**

of corundum—  
 (Kennedy)2001/27:272–274; letter on  
 (Schmetzer)2001/27:360–361; (Pisutha-  
 Armond)2006/30:131–143  
 with beryllium (Pisutha-Armond)2004/29:77–103;  
 (Emori)2014/34:130–137  
 with chromium (Smith)2015/34:486–488  
 and internal diffusion of colour  
 (Koivula)1987/20:474–477  
 patents of (Schmetzer)2001/27:360–361; for topaz  
 (Schmetzer)2006/30:83–90; (Schmetzer)2008/31:7–13  
 of ruby in Thailand and Sri Lanka  
 (Gunawardene)1984/19:298–310  
 of sapphire to induce blue colour and asterism (Tay Thye  
 Sun)2015/34:576–578  
 of spinel with cobalt (Laurs)2015/34:468  
 see also Treatment

**Digital imaging**

Sarine system (Brosh)2014/34:91  
 see also Computer software; Loupe

**Diopside**

from Canada, colourless (Krzemnicki)2014/34:291–292  
 cat’s-eye (Ito)1987/20:292–293  
 chrome—  
 from Finland (Vuorelainen)1963/9:42–43  
 from USSR (Schrader)1984/19:213–217  
 crystallography of (Mitchell)1950/2:237–274  
 deposits in former USSR (Spiridonov)1998/26:111–125  
 inclusion in diamond (Harris)1969/11:256–262  
 inclusions in, see ‘Inclusions’  
 from Italy (Jackson)1985/19:486–489; violane  
 (Axon)1964/9:263–267  
 from Kenya, colourless (Krzemnicki)2014/34:291–292  
 star—  
 black (Eppler)1967/10:185–188; (Martin)1967/10:235–241  
 magnetism of (Farn)1976/15:12

**Diopbase**

deposits in former USSR (Spiridonov)1998/26:111–125  
 intense green colour (Axon)1964/9:263–267

**Dispersion**

and birefringence ratio in visual optics  
 (Hodgkinson)2014/34:281–283  
 in diamond—  
 glass-filled (Nelson)1993/23:461–472; pages 465, 466,  
 467, 468, 470 (Err)1994/24:64  
 optical attributes of (Nelson)1989/21:434–447; page  
 440 (Err)1989/21:520

- round brilliant cut (Cowing)2007/**30**:320–330  
and simulants (Anderson)1968/**11**:42–45  
estimating with grazing incidence  
(Hoover)2007/**30**:287–297  
and Hanneman refractometer, review  
(Hoover)2003/**28**:353–361  
Hodgkinson method of determining  
(Nelson)1986/**20**:49–51  
mathematics of (Schell)1993/**23**:422–426  
with refractometer (Hanneman)1992/**23**:95–96
- Display**  
effective (Kennedy)1951/**3**:48–58  
of gem collection (Trumper)1950/**2**:329–335;  
(Kent)1971/**12**:156; (Axon)1972/**13**:9–11  
record-keeping for (Trumper)1952/**3**:282–284  
television, closed circuit, for viewing inclusions  
(Minster)1979/**16**:555–556  
see also Lighting
- Distant vision method**, see Refractometer
- DNA analysis**  
of horse teeth (Kakoi)2006/**30**:193–199
- Dolomite**  
cathodoluminescence and CL spectra of inclusions in  
(Ponahlo)2002/**28**:85–100  
crystals suitable for faceting (Axon)1964/**9**:263–267  
inclusions in, see 'Inclusions'  
infrared spectrum of (Hainschwang)2008/**31**:23–29  
see also Marble; Rocks
- Domeykite**  
'golden' copper arsenite cabochons (Axon)1964/**9**:263–267
- Dominican Republic**  
amber from (Fraquet)1982/**18**:321–333  
pectolite from Santo Domingo, sold as 'larimar'  
(Dunn)1978/**16**:90–93
- Doublets**, see Assembled gem materials
- Dravite**, see Tourmaline
- Dresden Green**, see Diamond, coloured
- Dumortierite**  
blue (Ostwald)1964/**9**:182–184  
from Brazil, as inclusions in quartz (Laurs)2015/**34**:391–392  
from Peru (Hyršl)2001/**27**:328–334
- Durability**, see Care of gem materials; Colour stability; Dyeing; Stability; specific gem materials
- Dyeing**  
of agate—  
with false dendrites (Zwaan)1965/**9**:283–285  
history of (O'Donoghue)1974/**14**:114  
of chalcedony to imitate amazonite  
(Williams)2014/**34**:303–304  
of coral, fossil, blue (Webster)1963/**9**:138  
of corundum—  
from Kenya, pink, to simulate ruby  
(Barot)1994/**24**:165–172  
with natural star to simulate ruby  
(Schmetzer)1994/**24**:253–255  
of grossular (hessonite) to simulate ruby  
(Panjekar)2014/**34**:204–205  
of labradorite (Henn)2014/**34**:113  
of opal, 'black' (Gübelin)1964/**9**:197–198  
of pearls, cultured, with silver nitrate  
(Webster)1949/**2**:51–54; (Segura)2014/**34**:203–204  
of quartzite—  
to imitate amazonite (Williams)2014/**34**:303–304  
to imitate bicoloured tourmaline (Hyršl)2015/**34**:402  
see also Colour stability; Treatment; specific gem materials
- E**
- East Africa**  
asterism and chatoyancy in gems from  
(Barot)1995/**24**:569–580  
pyrope-almandine, purple, from (Williams)2015/**34**:656–658  
ruby from (Rankin)2003/**28**:473–482; pages 479–481  
(Err)2004/**29**:60  
sapphire with golden sheen from (Laurs)2015/**34**:393–394;  
(Bui)2015/**34**:678–691  
tourmaline from—  
colour-change with chromium (Bank)1988/**21**:102–103  
dravite (Dunn)1978/**16**:90–93  
vanadium-bearing (Schmetzer)1979/**16**:310–311  
yellow (Simonet)2000/**27**:11–29  
see also Kenya; Malawi; Mozambique; Tanzania; Zambia
- Editorials and other musings**  
'(A)musing on pearls people and poetry'  
(Farn)1982/**18**:109–111  
'A fond farewell to Dr Roger Harding' (editorial:  
Riley)2013/**33**:285  
'A word of thanks...and a word of welcome!' (editorial:  
Harding)2011/**32**:252  
'Alan Jobbins Editor 1986–93' (editorial)1994/**24**:74  
'Ave atque vale' (editorial: Chisholm)1985/**19**:649–650  
'The Buckingham Award' (editorial)1988/**21**:210  
'The case of the disappearing gemstones'  
(editorial)1990/**22**:130  
'Editorial' (editorial: Chisholm)1981/**17**:513–514  
'Editorial' (editorial)1987/**20**:402  
'Editorial' (editorial: Howie)1994/**24**:138, 234  
'Exceptio Confirmat Regulum' (Farn)1985/**19**:703–706  
'Exciting changes ahead for *The Journal*' (editorial:  
Laurs)2013/**33**:185  
'Exciting Changes for *The Journal*' (editorial:  
Laurs)2014/**34**:1  
'The Fiftieth Parallel' (Farn)1981/**17**:542–544  
'Gem-testing' (Farn)1966/**10**:18–23  
'Good News for *The Journal*' (editorial: Laurs)2015/**34**:647  
'The great divide' (Farn)1965/**9**:286–287  
'If there's a doubt have it tested' (Farn)1965/**9**:345–352  
'Insight' (Farn)1969/**11**:263–264  
'Jewellery and gemmology' (Roach)1961/**8**:64–65  
'John Chisholm, Editor 1973–85' (editorial)1986/**20**:2  
'In this issue...' (editorial: Howie)1995/**24**:314, 394, 466,  
538; 1996/**25**:2, 96, 174  
'The Merger' (editorial)1990/**22**:194  
'Notes from the Laboratory: Enjoying Gemmology'  
(Farn)1979/**16**:365–369  
'Notes from the Laboratory: The Enjoyment of Gemmology'  
(Farn)1981/**17**:390–394  
'The Scientific Gemmologist' (Axon)1964/**9**:207–211; letter  
on (Burbage)1964/**9**:250–251  
'Sixty Years of Gemmology in Great Britain'  
(editorial)1968/**11**:69–80  
'Statistics and Gemmology; A Survey and Trial Enquiry'  
(Burbage)1951/**3**:34–40  
'Testing Times' (Farn)1970/**12**:12–14  
'Thank You, Guest Reviewers' (Laurs)2014/**34**:283;  
(Laurs)2015/**34**:711  
'Twenty-Five Years' (editorial: Anderson)1975/**14**:257–272  
(untitled) on heavy liquids for specific gravity  
determination (editorial: Anderson)1947/**1**(3):1–3  
(untitled) introducing *The Journal of Gemmology*,  
with photo of G.F. Herbert Smith (editorial:  
Smith)1947/**1**(1):frontispiece–1  
(untitled) on spelling of 'gemmology' (editorial:  
Smith)1947/**1**(2):1–2
- Education, gemmological**  
Abbott, W. J. Lewis, in (Stores)1960/**7**:296–299; letter on  
publications by (Banister)1961/**8**:46  
Bachelor of Science with Honours degree in gemmology  
and jewellery studies (Anon)2015/**34**:540  
in Canada, quality of (Field)1952/**3**:285–288  
at Chelsea Polytechnic (Anon)1947/**1**(2):38–39  
coloured stone app released (Laurs)2015/**34**:383

- compared with mineralogical (Pearl)1950/**2**:199–202;  
 letters on (Thorold)1950/**2**:278–279; response  
 (Pearl)1950/**2**:279; (Field)1950/**2**:326–327  
 on crystalline and organic materials (Farn)1988/**21**:104  
 displays at Haslemere Educational Museum  
 (Burbage)1971/**12**:343–345  
 and Fellowship degree (Bones)1947/**1**(2):24–26  
 field studies in Sri Lanka (Wathanakul)2014/**34**:256–261  
 Gem-A diploma equivalency agreement with  
 Gemmological Association of Australia (Anon)  
 2014/**34**:359  
 and Gemmological Exhibition, Goldsmiths' Hall 1947  
 (Bevis-Smith)1947/**1**(2):13–14  
 growth of (Ruff)1948/**1**(6):23–25  
 in Hong Kong and China (Nelson)1990/**22**:224–232; and  
 Anne Paul (Clayton)1989/**21**:302–304  
 and Hodgkinson method (Nelson)1986/**20**:49–51  
 humour in (Anderson)1970/**12**:61–64;  
 (Anderson)1977/**15**:345–356; (Kent)1990/**22**:19  
 inclusions, importance of (Gübelin)1974/**14**:149–155  
 post-Diploma classes in London (Kent)1988/**21**:26–27  
 and science (Harper)1947/**1**(1):8–11  
 slides of interference figures (Field)1952/**3**:327–329  
 spectroscope display (Muir)1956/**5**:423  
 of spinel twin shape, letter on (Peace)1982/**18**:359–360  
 visual aids (Eadie)1990/**22**:207–209  
 in Spain (Nelson)1991/**22**:337–343  
 at universities (Burbage)1948/**1**(8):19–20;  
 (Anon)1949/**2**:20–21  
 use of spectroscope (Mitchell)1950/**2**:195–199
- EDXRF [energy-dispersive X-ray fluorescence]**, see  
 Spectroscopy, energy-dispersive X-ray
- Egypt**  
 emerald from—  
 history of (Webster)1955/**5**:185–221  
 Djebel Zabarah (Grubessi)1990/**22**:164–177; pages  
 174, 175, 176 (Err)1990/**22**:249  
 garnet from Sinai Peninsula  
 (Kammerling)1993/**23**:412–414
- Ekanite**  
 glass with needle-like inclusions resembling (Duroc-  
 Danner)2003/**28**:280–282  
 history of (Anderson)1974/**14**:97–113  
 new mineral from Sri Lanka (Mitchell)1961/**8**:96–98  
 radioactive (Farn)1974/**14**:169
- Ekati diamond mine, Northwest Territories**, see Canada
- Elbaite**, see Tourmaline
- Electrical conductivity**  
 of diamond, black, type IIb (Scandella)1989/**21**:411  
 method to distinguish natural blue diamond from treated  
 (Custers)1960/**7**:291–293
- Electron microprobe analysis [method of]**  
 to separate natural from synthetic emerald  
 (Hänni)1982/**18**:138–144  
 at SSEF, used to analyse maw-sit-sit  
 (Gübelin)1965/**9**:372–379  
 use in gemmology (Dunn)1977/**15**:248–258; to identify  
 mineral inclusions (Gübelin)1969/**11**:149–192  
 see also Chemical composition
- Elemental mapping**, see Backscattered electron imaging
- Emerald**  
 from Afghanistan (Natkaniec-Nowak)2008/**31**:31–39  
 from Africa (Campbell)1978/**16**:93–108  
 from Australia (Brown)1984/**19**:320–335  
 age of, using rubidium-strontium analysis  
 (Vidal)1992/**23**:198–200; letter on (Nassau)1993/**23**:441  
 asterism in (Schmetzer)2004/**29**:65–71  
 from Brazil—  
 (Schwarz)1990/**22**:147–163; page 163 (Err)1990/**22**:249  
 Carnaíba (Schwarz)1989/**21**:474–486  
 Ceará (Schwarz)1988/**21**:168–178  
 Chelsea filter reaction atypical (Farn)1965/**9**:290  
 growth structure and inclusions in  
 (Eppler)1960/**7**:221–225  
 Minas Gerais (Hänni)1987/**20**:446–456  
 Socotó (Schwarz)1990/**22**:147–163; page 163  
 (Err)1990/**22**:249  
 cathodoluminescence of (Ponahlo)1988/**21**:182–193  
 coated with amorphous carbon  
 (Choudhary)2014/**34**:242–246  
 from Colombia—  
 Burbar (Eppler)1963/**9**:123–126  
 chemical properties of (Schwarz)1992/**23**:225–233  
 Chivor (Johnson)1961/**8**:126–152  
 deposits, formation and history  
 of (Webster)1955/**5**:185–221;  
 (Bosshart)1991/**22**:355–361  
 growth structure and inclusions in  
 (Poirot)1971/**12**:271–274  
 irradiated (Schrader)1988/**21**:237–251; letter on  
 (Schmetzer)1989/**21**:521–522  
 new source, unknown (Anderson)1972/**13**:1–2  
 origin determination (Schwarz)1992/**23**:225–233;  
 (Cronin)2012/**33**:1–13  
 Peñas Blancas (Ringsrud)2013/**33**:187–199  
 properties of (Bosshart)1991/**22**:409–425  
 trapiche, from Peñas Blancas  
 (Ringsrud)2013/**33**:187–199  
 treatment of (Bosshart)1991/**22**:500–503  
 colour altered by radiation (Schrader)1988/**21**:237–251;  
 (Schmetzer)1993/**23**:288–293; letter on  
 (Schmetzer)1989/**21**:521–522  
 deposits in former USSR (Spiridonov)1998/**26**:111–125  
 distinction from synthetic using chemical analysis  
 (Hänni)1982/**18**:138–144; (Schrader)1983/**18**:530–543  
 from Egypt (Grubessi)1990/**22**:164–177; pages 174, 175,  
 176 (Err)1990/**22**:249  
 electron spin resonance of (Troup)1983/**18**:421–431  
 filled and filling of—  
 identification (Hänni)1992/**23**:201–205; pages 202,  
 204, 205 (Err)1993/**23**:313  
 oiling, history of (Nassau)1991/**22**:399–403;  
 (Nassau)1994/**24**:109–110  
 substances (Kiefert)1999/**26**:501–520  
 with resin (Bubshait)1996/**25**:21–23  
 geographical origin of—  
 by chemical fingerprinting (Cronin)2012/**33**:1–13  
 from Colombia (Schwarz)1992/**23**:225–233  
 by photoluminescence spectroscopy  
 (Thompson)2014/**34**:334–343; letter  
 (Schmetzer)2015/**34**:441–443; response  
 (Thompson)2015/**34**:443  
 by rubidium-strontium analysis  
 (Vidal)1992/**23**:198–200; letter on  
 (Nassau)1993/**23**:441  
 growth structure (Eppler)1961/**8**:72–77; vs.  
 flux- and hydrothermally-grown synthetic  
 (Kiefert)1991/**22**:427–438  
 in historic sword from India (Harding)1988/**21**:3–7  
 history—  
 in ancient Egypt (Grubessi)1990/**22**:164–177; pages  
 174, 175, 176 (Err)1990/**22**:249  
 and lore (Webster)1955/**5**:185–221  
 inclusions in, see 'Inclusions'  
 from India (Alexander)1951/**3**:14  
 infrared spectroscopy of (Duroc-Danner)2006/**30**:75–82  
 luminescence, laser-induced, of (Moroz)1999/**26**:316–320  
 from Madagascar (Schwarz)1992/**23**:140–149

- from Mozambique, 1,250 ct crystal (Minster)1984/**19**:147–149
- need for testing (Farn)1964/**9**:223–234
- from Nigeria (Lind)1986/**20**:48; (Schwarz)1996/**25**:117–141
- nomenclature (Anderson)1966/**10**:41–45; (Campbell)1974/**14**:177–180; (Farn)1975/**14**:322–323; (Taylor)1977/**15**:372–376
- from Pakistan (Hussain)1993/**23**:402–408; and green beryl (Rafiq)1985/**19**:404–411
- polishing with silica powder in Cambay, India (Karanth)1989/**21**:497–499
- properties and localities (Webster)1955/**5**:185–221
- from South Africa (Anon)1956/**5**:306; (Yu)1974/**14**:120–131; (Schrader)1985/**19**:484–485
- from Spain (Marcos-Pascual)1997/**25**:340–357
- from Tanzania (Thurm)1972/**13**:98–99
- thermal conductance of (Read)1990/**22**:233–234; letter on (Read)1991/**22**:322
- in Townshend Collection of Precious Stones in Victoria and Albert Museum (O'Donoghue)1970/**12**:1–5
- trapiche (O'Donoghue)1971/**12**:329–332; from Peñas Blancas, Colombia (Ringsrud)2013/**33**:187–199
- unknown origin, mistaken for synthetic (Schiffman)1968/**11**:105–114
- from USA (O'Donoghue)1975/**14**:339–340
- X-ray topography of (Schubnel)1971/**12**:300–304
- from Zambia (Campbell)1973/**13**:169–179; (Bank)1974/**14**:8–15; page 14 (Err)1974/**14**:96; electron paramagnetic resonance spectra of (Viticoli)1984/**19**:160–163; pleochroism in (Schmetzer)1981/**17**:443–446
- from Zimbabwe— (Kanis)1991/**22**:264–272; (Zwaan)1998/**26**:174–187
- Rhodesia (Gübelin)1958/**6**:340–354; (Webster)1966/**10**:84–95; (Anderson)1976/**15**:80–82; (Metson)1977/**15**:422–434; (Anderson)1978/**16**:177–185
- see also Beryl
- Emerald simulants**
- assembled 'crystal' of mica and glass (Scarratt)1984/**19**:100–101
- doublets from Germany (Henn)2015/**34**:479–482
- fuchsite (Juchem)2006/**30**:207–214
- glass— (Kennedy)2001/**27**:483–484
- lead (Williams)2015/**34**:398–399
- radioactive (Duroc-Danner)1992/**23**:80–83
- rough, coated quartz (Smith)1988/**21**:28–29
- spinel, synthetic, doublet sold as 'soudé sur spinelle' to simulate emerald (Webster)1952/**3**:199–201
- triplet—
- simulating Colombian emerald in jewellery (Laurs)2014/**34**:109; (Err)2014/**34**:207
  - 'Smaryl' (Webster)1966/**10**:120–122
- types (Webster)1947/**1**(1):20–23; (Webster)1955/**5**:185–221; (Farn)1964/**9**:223–234
- YAG (Kennedy)2002/**28**:77–77
- Emerald, synthetic**
- Biron from Australia (Scarratt)1987/**20**:289–291; page 289 (Err)1987/**20**:392
- cathodoluminescence of (Ponahlo)1988/**21**:182–193
- Chatham— (Eppler)1958/**6**:360–369; (Duyk)1963/**9**:130–131; (Schmetzer)1999/**26**:487–500
- nomenclature (Wheeler)1960/**7**:181–182; and Federal Trade Commission order (Anon)1960/**7**:283–284
- coating on natural beryl sold as Linde synthetic (Probus)1968/**8**:204
- colour altered by radiation (Schmetzer)1993/**23**:288–293
- 'Crescent Vert' from Japan (Mitchell)1981/**17**:290–291; letter on (Mayers)1981/**17**:646
- crystals, surface features of (Duyk)1971/**12**:253–255
- developments (Webster)1970/**12**:101–148
- distinction from natural using chemical analysis (Hänni)1982/**18**:138–144; (Schrader)1983/**18**:530–543; (Schrader)1986/**20**:108–113
- electron spin resonance of (Troup)1983/**18**:421–431
- fracture-filled (Choudhary)2015/**34**:483–484
- from Germany (Schlossmacher)1959/**7**:119
- Gilson—
- 'French' compared (Webster)1964/**9**:191–196
  - growth of (Duyk)1965/**9**:369–371
  - N-type (Kennedy)2002/**28**:76–78
  - yellowish green (Schmetzer)1989/**21**:305–307
- growth structure vs. natural (Kiefert)1991/**22**:427–438
- Herbert Smith Memorial Lecture on (Eppler)1961/**8**:88–95
- hydrothermal—
- channel constituents in (Mashkovtsev)2004/**29**:215–227
  - identification of (Bubshait)1995/**24**:403–404
  - Lechleitner overgrowth (Gübelin)1961/**8**:49–63; (Anon)1964/**9**:267; (Eppler)1968/**11**:120–124; (Schmetzer)1990/**22**:20–32
  - Linde hydrothermal (Pough)1965/**9**:426–433; (Anon)1966/**10**:134; (Anderson)1972/**13**:3
  - new (Anderson)1969/**11**:303–306
  - from Russia (Scarratt)1987/**20**:412–420; (Schmetzer)1988/**21**:145–164; (Sosso)1995/**24**:501–507; (Schmetzer)1997/**25**:389–390; (Schmetzer)2006/**30**:59–74
- history and types (Webster)1955/**5**:185–221
- Kyocera (Scarratt)1988/**21**:136–139
- Igmerald flux (Eppler)1958/**6**:360–369; (Schmetzer)1998/**26**:145–155
- inclusions in, see 'Inclusions'
- infrared spectroscopy of (Duroc-Danner)2006/**30**:75–82
- laboratory reports, false (Kennedy)2000/**27**:84
- large crystals of (Anon)1953/**4**:192
- Lechleitner overgrowth (Gübelin)1961/**8**:49–63; (Anon)1964/**9**:267; (Eppler)1968/**11**:120–124; (Schmetzer)1990/**22**:20–32
- Lennix (Farn)1980/**17**:73–80; (Scarratt)1988/**21**:131–133; (Hodgkinson)1988/**21**:179–181; page 181 (Err)1988/**21**:267
- Linde hydrothermal (Pough)1965/**9**:426–433; (Anon)1966/**10**:134; (Anderson)1972/**13**:3
- Nacken (Eppler)1958/**6**:360–369; (Nassau)1978/**16**:36–49; (Schmetzer)1999/**26**:487–500
- origin of—
- using rubidium-strontium analysis (Vidal)1992/**23**:198–200; letter on (Nassau)1993/**23**:441
  - using photoluminescence spectroscopy (Thompson)2014/**34**:334–343; letter on (Schmetzer)2015/**34**:441–443; response (Thompson)2015/**34**:443
- 'Pool' (Scarratt)1989/**21**:297–299
- 'Regency' (O'Donoghue)1979/**16**:462–464
- Seiko (Kennedy)1986/**20**:14–17
- thermal conductance of (Read)1990/**22**:233–234; letter on (Read)1991/**22**:322
- vanadium-bearing (Taylor)1967/**10**:211–217
- variation in properties of (Eppler)1964/**9**:190
- X-ray topography of (Schubnel)1971/**12**:300–304
- EMPA**, see Electron microprobe analysis
- Energy-dispersive X-ray spectroscopy [EDX]**, see Spectroscopy, energy-dispersive X-ray



## England

- chalcedony from Surrey (Burbage)1972/**13**:139–142  
gem minerals of (Kennedy)1953/**4**:82–95  
jet from (Kennedy)1953/**4**:82–95  
nodules and geodes from Somerset  
(Harding)1978/**16**:77–85  
pearls from Norfolk (Scarratt)1987/**20**:409, 411–412

## Engraved gems, see Lapidary arts

## Enhancement, see Bleaching; Clarity enhancement; Coating; Diamond treatment; Diffusion treatment; Dyeing; Filling, fracture or cavity; Heat treatment; Impregnation; Irradiation; Treatment; specific gem materials

## Enstatite

- brown, reportedly from India (Webster)1954/**4**:210–211  
crystallography of (Mitchell)1950/**2**:237–274  
inclusions in, see 'Inclusions'  
from Kenya (Schmetzer)1982/**18**:118–120  
from Mexico (Dunn)1978/**16**:236–238  
from Sri Lanka—  
(Zoysa)1985/**19**:419–425  
grey (Mitchell)1952/**3**:305–308  
letter on (Mitchell)1985/**19**:647  
near-colourless (Harding)1982/**18**:213–216  
star (Eppler)1967/**10**:185–188  
from Tanzania (Koivula)1988/**21**:92–94

## Environmental issues

- and mining in Sri Lanka (Dharmaratne)2002/**28**:153–161

## Eosphorite

- as gemstone (O'Donoghue)1980/**17**:7–9

## Epidote

- colour change of (Halvorsen)2006/**30**:1–21

## Eppler, Wilhelm F.

- obituary (Anderson)1983/**18**:446

## EPMA, see Electron microprobe analysis

## EPR, see Spectroscopy, electron paramagnetic resonance

## Errata

- to 1975/**14**:183, line 19—correct 'The Natural Collection of Gems' to read 'The National Collection of Gems' 1975/**14**:401  
to 1975/**14**:186, lines 4–5—correct 'rich in copper but not in zinc' to read 'rich in zinc but not in copper' 1975/**14**:312  
to 1975/**14**:186, lines 6—correct 'an yttrium copper' to read 'an yttrium copper analogue of prosopite' 1975/**14**:312  
to 1975/**14**:235, lines 2–3—correct 'the Mountains' to read 'the Cascade Mountains' 1975/**14**:312  
to 1975/**14**:295, lines 6 and 7 from bottom—correct 'Antique fashioning of gemstones' to read 'Antique gemstone vessels' 1976/**15**:52  
to 1975/**14**:341, lines 11–13 from bottom—correct 'Cerro Rico de Posito' to read 'Cerro Rico do Potosi' 1975/**14**:401  
to 1975/**14**:396, line 15 from bottom—correct 'the art of writing on them' to read 'the powers ascribed to them' 1976/**15**:52  
to 1976/**15**:146, Takenouchi abstract—correct '1975, 2, 4, 165' to read '1975, 2, 1, 165' 1979/**16**:498  
to 1976/**15**:157—H. B. Crawford was wrongly described as FGA 1976/**15**:224  
to 1977/**15**:260, line 12 from bottom—correct 'YA 10<sub>3</sub>' to read 'Y Al O<sub>3</sub>' and correct 'garnet (YAG)' to read 'oxide' 1976/**15**:344  
to 1977/**15**:260, line 16 from bottom—correct '10-15' to read '10-15' 1976/**15**:344  
to 1977/**15**:260, line 21 from bottom—correct 'R.I. 1.81' to read 'R.I. > 1.81' 1976/**15**:344  
to 1977/**15**:260, line 7 from bottom—correct 'Ditchburn' to read 'Ditchburn' 1976/**15**:344  
to 1978/**16**:213, line 6—correct 'Gaal (Robert A. P.)' to read

- 'Gaal (Robert A. P.)' 1978/**16**:283  
to 1979/**16**:217, line 17—correct '45th Annual General Meeting' to read '48th Annual General Meeting' 1979/**16**:556  
to 1979/**16**:349, column 2, line 9—correct '(Verduyn) Walter, Laetitia' to read 'Verduyn-Walter, Laetitia' 1979/**16**:431  
to 1979/**16**:410, line 7—correct 'show' to read 'shown' 1979/**16**:498  
to 1979/**16**:417, line 20—correct 'four of five' to read 'four or five' 1979/**16**:498  
to 1979/**16**:465, footer—Coded Bibliographic Strip should read 'ISSN:0022-1252 XVI(7) 465 (1979)' 1979/**16**:556  
to 1979/**16**:473, line 4 (in reference for abstracted paper by Francesconi et al.)—correct 'Gemologia, 22, 43, 53-63, 1 fig, 1978.' to read 'Gemologia, 22, 43/44, 53-63, 1 fig., 1976.' 1980/**17**:209  
to 1979/**16**:486, line 1—correct 'fin' to read 'fine' 1979/**16**:556  
to 1980/**17**:119 (in reference for abstracted paper by Ball et al.)—correct '13, 10, 363-6, 1979.' to read '13, 11, 363-6, 1979.' 1980/**17**:209  
to 1980/**17**:181, line 15—correct 'Hylda Bracewall' to read 'Hylda Bracewell' 1980/**17**:282  
to 1980/**17**:201, line 18—correct 'Hartshorn' to read 'Hartshorne' 1981/**17**:509  
to 1980/**17**:209, line 17—correct 'Geoffrey Toombs' to read 'Geoffrey Tombs' 1981/**17**:369  
to 1980/**17**:259, line 18—correct 'anisotrophy' to read 'anisotropy' 1981/**17**:369  
to 1980/**17**:263, line 6—correct 'emenate' to read 'emanate' 1981/**17**:369  
to 1980/**17**:267, line 28—correct '179-83' to read '179-82' 1981/**17**:369  
to 1980/**17**:272, line 5—correct 'or' to read 'of' 1981/**17**:369  
to 1981/**17**:339, line 5 from bottom—correct 'aparatus' to read 'apparatus' 1981/**17**:434  
to 1981/**17**:340, line 24—correct 'crysoberyl' to read 'chrysoberyl' 1981/**17**:434  
to 1981/**17**:343, line 6—correct 'ant' to read 'and' 1981/**17**:434  
to 1981/**17**:358—delete 'Ifthikar, Ifthikar U.M., Kandy, Sri Lanka.', and on page 361 insert 'Uwais, Mohamad I., Kandy, Sri Lanka.' 1983/**18**:674  
to 1981/**17**:358, line 7—correct 'Huges' to read 'Hughes' 1981/**17**:434  
to 1981/**17**:365, line 1 of footnote—correct 'aproved' to read 'approved' 1981/**17**:434  
to 1981/**17**:366, column 2 (following 'Tinted White' in first column)—correct 'J' to read 'L' 1981/**17**:434  
to 1981/**17**:400, Table 2—for 'SiO<sub>2</sub> 44.87 wt%' read 'SiO<sub>2</sub> 48.87 wt%' 1981/**17**:647  
to 1981/**17**:417, line 5—correct 'lichtbrechung-sindizes' to read 'lichtbrechungsindiz' 1981/**17**:509  
to 1981/**17**:428, line 7—correct 'in October' to read 'on 5th August' 1981/**17**:509  
to 1981/**17**:430, line 6 from bottom—correct 'them' to read 'the two firms' 1981/**17**:509  
to 1981/**17**:433, bottom line, and 434, lines 18 and 26—for 'Jeejeebhoy' read 'Jeejeebhoy' 1981/**17**:647  
to 1981/**17**:433, lines 11 and 10 from bottom—for '53 ¼ carats' read '53 ½ ¼ carats' (= 53 ¾ ct. For this method of recording weights, see page 516 above, lines 10–33, and page 621 above, lines 1–17.) 1981/**17**:647  
to 1983/**18**:461—for 'Ickowicz, Stephen' read 'Ickowicz, Steven' and delete 'Ifthikar, Mohamad U. M., Kandy, Sri Lanka.' 1983/**18**:674  
to 1983/**18**:463—insert 'Uwais, Mohamad I., Kandy, Sri Lanka.' 1983/**18**:674

- to 1983/18:654—between lines 23 and 24 insert 'Spinel and sapphire examined in New York Lab were found to be coloured by' 1984/19:208
- to 1983/18:656—for 'trip' read 'strip' 1984/19:208
- to 1983/18:765—in line 19, for '5920A' read '5920Å' 1984/19:289
- to 1983/18:772—line 10, for 'vesuvianite' read 'vesuvianite' 1984/19:208
- to 1983/18:772—line 9, for 'wollasonite' read 'wollastonite' 1984/19:208
- to 1983/18:773—line 4, for 'East' read 'Earth' 1984/19:208
- to 1983/18:782–816 (even numbered pages)—for 'XVII' read 'XVIII' 1985/19:467
- to 1984/19:21—under third figure add 'Fig. 9.' and for 'Fig. 9.' read 'Figs 7, 8 and 9.' 1984/19:289
- to 1984/19:67—in line 17, for 'Gems, 5' read 'Gems, 15' 1984/19:289
- to 1984/19:93—line 6, between 'Australia' and 'Brazil' add 'Austria' 1984/19:208
- to 1985/19:269—in line 3, for 'Revista' read 'Rivista' 1985/19:467
- to 1985/19:272—in line 21, for 'such clean' read 'such inclusions in clean' 1985/19:467
- to 1985/19:275—in line 6, for 'taaféite' read 'taaffeite' and, in lines 7 and 8, for 'taffeite' read 'taaffeite' 1985/19:467
- to 1985/19:279—in line 24, for 'is was' read 'this was (or is)' 1985/19:467
- to 1985/19:282—in line 32, for 'deviethods' read 'devising methods' 1985/19:467
- to 1985/19:287—in line 8, for 'until the War' read 'until 1937, when he married,' 1985/19:467
- to 1985/19:288—in line 3 from bottom, for 'Rudoe' read 'Ruhoe' 1985/19:467
- to 1985/19:439—in line 16, for 'darvite' read 'dravite' 1985/19:553
- to 1985/19:445—in line 22, for 'studing' read 'studying' 1985/19:553
- to 1985/19:456, 460—delete 'Hilton, Barbara W., Riverside, Ca, U.S.A.' 1985/19:553
- to 1985/19:458—before line 1 of second column, and on page 464 above, after 'Wright, Lee P., Birmingham.' in second column, insert 'Wright-Hilton, Barbara A., Riverside, Ca, U.S.A.' 1985/19:553
- to 1985/19:467—in line 3 of Corrigenda, for '7/and 8,|' read '7 and 8;' and delete whole of line 9 of Corrigenda 1985/19:553
- to 1985/19:529—in line 13, for '1948/2' read '1984/2' 1985/19:647
- to 1985/19:532—in second line from foot, for 'iiis' read 'is' 1985/19:647
- to 1985/19:537—in 12th line from foot, for 'First-sized' read 'Fist-sized' 1985/19:647
- to 1985/19:546—in first line of third Book Review, after 'New York' add ', 1983' 1985/19:647
- to 1985/19:553—in line 20, for 'produced' read 'produce' 1985/19:647
- to 1985/19:633, line 1—correct 'Austrian' to read 'Australian' 1985/19:742
- to 1985/19:647, line 23—correct 'stonges' to read 'stones' 1985/19:742
- to 1986/20:196, column 1, line 12 from foot—correct 'cenetary' to read 'cenetery' 1986/20:259
- to 1986/20:199, column 1, last heading—correct 'America' to read 'Africa' 1986/20:259
- to 1987/20:202, footnote—correct 'Odes, ode ci, 1.10' to read 'CI, 10' 1987/20:328
- to 1987/20:309, column 1, line 27—correct '1983–1985' to read '1983–1984' 1987/20:392s
- to 1987/20:380, column 2, line 4—correct 'Brazil' to read 'Mexico' 1987/20:506
- to 1988/21:43, column 2, line 2—correct 'cross-filter method of' to read 'cross-filter method to' 1988/21:267
- to 1988/21:49, column 1—correct 'Brillo, Douglas' to read 'Brill, Douglas' 1988/21:120
- to 1988/21:52, column 2, Diploma section—add 'Katsuyuki Nakamori, Saitama-Ken, Japan' to list of those who qualified 1988/21:120
- to 1989/21:450, column 1, line 26—correct 'Dahu' to read 'Oahu' 1989/21:520
- to 1989/21:inside front cover—'Members elected to Council' should include E. Stern, FGA 1989/21:520
- to 1990/22:52, column 2—add 'Stig E. Sundin, Hylkje, Norway' to list of those qualified in the 1989 Preliminary Examination 1990/22:119
- to 1990/22(1):inside front cover—'Members elected to Council' should include C.R. Burch, B.Sc., FGS, R.J. Peace, B.Sc., C.Chem, FRSC, FGA, and E. Stern, FGA, and exclude E.M. Bruton, FGA, and G.A. Massie, FGA 1990/22:119
- to 1990/22(3):146, 190—price should read '£90.00 (plus postage and VAT)' 1990/22:249
- to 1990/22(3):182, column 1, line 25—'f1565' should read 'f750' 1990/22:249
- to 1990/22(3):183, column 2, line 18—'Wnedell' should read 'Wendell' 1990/22:249
- to 1990/22(3):183, column 2, line 30—'megnificent' should read 'magnificent' 1990/22:249
- to 1990/22(3):185, column 1, line 35—'Presidium Duotester' should read 'Gem test instruments' 1990/22:249
- to 1990/22(3):inside cover—correct '071-404 3344' to read '071-404 3334' 1990/22:249
- to 1991/22:382—correct 'Minerals of Larousse' to read 'Larousse of minerals' 1991/22:450
- to 1992/23:197, under 'Congratulations to the Deutsche...60th Anniversary', column 2, line 1—correct 'DDG' to read 'DGG' 1993/23:313
- to 1995/24:524, column 1, last line of Gifts—correct 'serpentine' to read 'nephrite from Taiwan' 1995/24:619
- to 1996 calendar, October page—caption should read 'Carved rubellite lip perch brooch by Stephen Webster. Photograph by Robert J. Maurer, FGA, DGA' 1996/25:249
- to 1997/25:318—name corrected to 'Moore, Rowan Duggan' 1997/25:511
- to 1997/25:510—sub-heading omitted from column 2; 'Transfers from Ordinary Membership to Fellowship (FGA)' should appear immediately above the listing for Battiscombe 1997/25:576
- to 1997/25(6):Contents—authors should read 'H.A. Hänni, L. Kiefert, J.-P. Chalain and I.C. Wilcock' 1997/25:576
- to 1998/26:48, column 1, line 2—'Single-chan silicates' corrected to 'Double-chain silicates' 1998/26:141
- to 1998/26:back cover—typo in fifth item of Contents corrected to 'Colour in topazes...' 1998/26:141
- to 1999/26:409—'Bastos, Ana Pestana, Lisbon, Portugal' omitted from examination results 1999/26:476
- to 1999/26:476
- to 1999/26:550—name of Ruzwan Kamil corrected in examination results 2000/27:61
- to 2001/27:506—name of Susanna Gandusio corrected in examination results 2002/28:59
- to 2003/28:310—name of Sally Hudson corrected in Proceedings election results for South East Branch 2003/28:379

- to 2006/**30**:100—correct formula for uvarovite in ‘Gem minerals from the Saranovskoye chromite deposit, western Urals’ should read  $\text{Ca}_3\text{Cr}_2(\text{Si}_3\text{O}_{12})$  2006/**30**:254
- to 2006/**30**:109—typographical error in abstract of ‘The pegmatic (sic) gem deposits of Molo...’ 2006/**30**:254
- to 2006/**30**:236—author name in abstract of ‘Gemmologische Kurzinformationen...’ should be ‘U. Henn’ 2007/**30**:355
- to 2006/**30**:252—name ‘Ong Chin Sing’ should read ‘Ong Chin Siang’ in list of elected Fellows 2007/**30**:355
- to 2013/**33**:241—should have referred to only the laser inscription method as being destructive 2014/**34**:89
- to 2014/**34**:109—should have noted that some of the Emerald Essence triplets were assembled using petalite (not phenakite) for the crown 2014/**34**:207
- to 2014/**34**:157—should have read that US\$10 billion in Burmese jadeite had been traded since 2006 (not annually) 2014/**34**:207
- to 2014/**34**:279—should have read that the Historical Facet Designs’ website was launched in June 2013 (not 2014) 2014/**34**:383
- to 2014/**34**:374—omit book listing of *Jadeite: Identification & Price Guide*, 4th edn., ‘as it deals with glassware and not jadeite gem material’ 2015/**34**:461
- to 2015/**34**:556—the publication year for two of the articles from *Superhard Material Engineering* should have been given as 2014 2015/**34**:632
- see also specific articles
- ESR**, see Spectroscopy, electron spin
- Ethics**, see Legal issues
- Ethiopia**
- aquamarine from (Laurs)2014/**34**:8–9
- opal from Wollo mounted with hologram (Mazzer)2014/**34**:205–206
- Euclase**
- from Brazil (Bastos)1969/**11**:312–314
- from Colombia (Duroc-Danner)1996/**25**:175–176
- inclusions in, see ‘Inclusions’
- ‘straw-colour’, large (Axon)1964/**9**:263–267
- from Zimbabwe—
- blue (Stocklmayer)1998/**26**:209–218
- Rhodesia and worldwide (Anderson)1980/**17**:18–29
- Eudialyte**
- deposits in former USSR (Spiridonov)1998/**26**:111–125
- ornamental rocks from Greenland (Dragsted)1971/**12**:312–315
- F**
- Fabullite**, see Strontium titanate
- Faceting**, see Cuts and cutting; Diamond, cuts and cutting of; Lapidary arts
- Fading**, see Colour stability
- Fakes**
- paint with polished banding as humorous mineral specimen (Webster)1965/**9**:290–291
- see also Glass; ‘fake’, ‘imitation’ or ‘simulant’ under specific gem materials
- Farn, Alexander E.**
- obituary 2004/**29**:60; (Scarratt)2004/**29**:117–119
- Feldspar**
- adularescence, schiller and other phenomena in (Ostwald)1965/**9**:309–324
- albite/oligoclase from Kenya (Anon)1948/**1**(5):31–32
- amazonite—
- from Australia (Axon)1964/**9**:263–267
- cathodoluminescence of (Ponahlo)1988/**21**:182–193
- imitation, dyed quartzite and chalcedony (Williams)2014/**34**:303–304
- andesine—
- reportedly from Congo (Krzemnicki)2004/**29**:15–23
- reportedly from Tibet (Abduriyim)2009/**31**:283–298
- anorthite, with ruby and pargasite (Schmetzer)2003/**28**:385–391
- from Canada (Boyd)1983/**18**:544–562
- crystallography of (Mitchell)1950/**2**:237–274
- inclusions in, see ‘Inclusions’
- labradorite—
- adularescence in (Ostwald)1965/**9**:309–324
- from Australia (Chalmers)1971/**12**:267–271
- deposits in former USSR (Spiridonov)1998/**26**:111–125
- dyed (Henn)2014/**34**:113
- reportedly from Congo (Krzemnicki)2004/**29**:15–23
- from USA (Pough)1983/**18**:503–514; (Krzemnicki)2004/**29**:15–23
- zoned opaque to transparent colourless (Axon)1964/**9**:263–267
- microcline (Kennedy)1954/**4**:244–249
- moonstone—
- from Austria (Chaipaksa)2014/**34**:190
- cat’s-eye and star, from Sri Lanka (Hyršl)2001/**27**:456–460
- mining in Sri Lanka (Harder)1992/**23**:27–35
- prices (Field)1952/**3**:327–329
- rainbow, from Malawi (Williams)2014/**34**:200–201; simulant (Henn)2014/**34**:113
- smoky, from Sri Lanka (Harder)1994/**24**:179–182
- synthetic spinel simulant (Breebaart)1958/**6**:213–214; page 214 photo captions (Err)1958/**6**:291
- oligoclase, aventurescent, from USA (Henn)2004/**29**:72–74
- ornamental (Webster)1958/**6**:297–333
- orthoclase—
- healing fissures in (Eppler)1959/**7**:40–66
- from Kenya (Anon)1948/**1**(5):31–32
- peristerite (Walton)1955/**5**:86–87
- plagioclase—
- calcic, with anomalous characteristics (Clewlow)1977/**15**:308–315
- cathodoluminescence and CL spectra of inclusions in (Ponahlo)2002/**28**:85–100
- iridescence in (Howie)1998/**26**:13–16
- sunstone, cat’s-eye, from Russia (Hyršl)2001/**27**:456–460
- see also Rocks
- Ferguson, William Fleming**
- obituary 2007/**30**:479; 2008/**31**:71
- Ferro-axinite**, see Axinite
- Fibre-optic illuminator**, see Lighting
- Fibrolite**, see Sillimanite
- Field, Dean Stirling Mark**
- obituary 2000/**27**:182
- Fiji**
- pearls, black, from (Leechman)1956/**5**:423
- Filling, fracture or cavity**
- of coral cavities with wax (Bubshait)1993/**23**:400
- of corundum with coloured lead glass (Henn)2014/**34**:111–112
- of diamond with glass (Nelson)1993/**23**:461–472; pages 465, 466, 467, 468, 470 (Err)1994/**24**:64; (Nelson)1994/**24**:94–103; letters on (Nelson)1994/**24**:281–283; (Nassau)1994/**24**:283–285; (Hanneman)1995/**24**:369
- of emerald—
- fillers used in (Kiefert)1999/**26**:501–520
- oiling, history of (Nassau)1994/**24**:109–110
- with resin (Bubshait)1996/**25**:21–23
- synthetic (Choudhary)2015/**34**:483–484
- of fuchsite imitating emerald (Juchem)2006/**30**:207–214
- identification of (Hänni)1992/**23**:201–205; pages 202, 204, 205 (Err)1993/**23**:313; (Kiefert)1999/**26**:501–520

oils used for (Juchem)2006/**30**:207–214  
of opal with oil (Mitchell)1982/**18**:339–341  
Raman spectroscopy of (Hänni)1997/**25**:394–406; page 402  
(Err)1997/**25**:511  
of ruby—  
with barium glass (Hainschwang)2015/**34**:574–576  
with coloured lead glass (Henn)2014/**34**:111–112  
with glass (Scarratt)1984/**19**:293–297;  
(Hughes)1988/**21**:8–10;  
(Scarratt)1988/**21**:133–134; (Bubshait)1994/**24**:42;  
(Milisenda)2006/**30**:37–42  
identification of (Hänni)1992/**23**:201–205; pages 202,  
204, 205 (Err)1993/**23**:313  
method of (Milisenda)2006/**30**:37–42  
and natural inclusions resembling  
(Bubshait)1994/**24**:42–43  
with oils or resins, tested in Thailand  
(Laurs)2015/**34**:383  
surface repair of (Hughes)1984/**19**:384–386;  
(Bubshait)1993/**23**:399  
synthetic (Scarratt)1987/**20**:421  
of sapphire—  
with glass—  
aluminosilicate (Scarratt)1986/**20**:203–207  
lead (Leelawatanasuk)2015/**34**:420–427;  
(Panjikar)2015/**34**:488–489  
with oils or resins, tested in Thailand  
(Laurs)2015/**34**:383  
of spinel and tourmaline with oils or resins, tested in  
Thailand (Laurs)2015/**34**:383  
see also Diamond treatment; Inclusions

## Filters

for bead buyers and parcel pickers  
(Mitchell)1990/**22**:212–214  
calcite behaviour with polarizing filters and red glass  
(Kibe)1953/**4**:70  
Chelsea—  
with new casing (Anon)1949/**2**:62  
and selective reflection (Lewis)1947/**1**(4):10–14  
tanzanite reaction to (Anderson)1971/**12**:208  
testing fallacies (Mitchell)1981/**17**:446–450  
use of (Anon)1947/**1**(2):10; (Anon)1949/**2**:20–21;  
(Anderson)1966/**10**:69–83  
and colorimetry (Nelson)1985/**19**:597–624; page 620  
(Err)1986/**20**:259  
colour (Trumper)1951/**3**:149–163; (Trumper)1953/**4**:27–32;  
(Trumper)1953/**4**:139–146; (Trumper)1954/**4**:360–365;  
(Trumper)1957/**6**:78–80  
conoscope (Nelson)1985/**19**:500–520  
dichroscope—  
and coloured minerals (Kennedy)1955/**5**:100–107  
filters for microscope (Miles)1965/**9**:288–289; letter on  
(Thurm)1965/**9**:365; (Read)1979/**16**:386–407  
home-made (Grist)1987/**20**:485;  
(Eadie)1987/**20**:482–485  
in measuring dichroism (Burbage)1957/**6**:166–171  
testing fallacies (Mitchell)1981/**17**:446–450  
used with microscope (Leak)1949/**2**:60–62;  
(Miles)1965/**9**:288–289; letter on  
(Thurm)1965/**9**:365  
glass, crossed, types and use of (Hoover)2005/**29**:473–481  
polariscope—  
home-made (Mitchell)1949/**2**:164–166;  
(Eadie)1987/**20**:482–485; (Lewton-  
Brain)1989/**21**:500–505  
pocket model (Anon)1952/**3**:235  
portable (Stitt)1977/**15**:321–322  
use of (Anderson)1966/**10**:69–83;  
(Nelson)1985/**19**:500–520

polarizing—  
‘crossed’ method (Anderson)1966/**10**:69–83  
use with refractometer  
(Read)1979/**16**:386–407;  
(Sturman)2005/**29**:341–349; letter  
on (Cartier)2005/**29**:482; response  
(Sturman)2005/**29**:483; (Sturman)2007/**30**:434–442;  
(Sturman)2010/**32**:90–100;  
(Sturman)2010/**32**:101–105

**Fingerprinting**, see Legal issues

## Finland

diopside, chrome, from Carelia/Karelia  
(Vuorelainen)1963/**9**:42–43  
garnet from Lapland (Hornytzkyj)1980/**17**:153–164; page  
160 (Err)1980/**17**:282  
nephrite from (Nichol)2004/**29**:105–108

**Fire**, see Dispersion

## Fitzgerald, Leslie

obituary (Anon)2006/**30**:127

## Flame structure

in pearl, non-nacreous, from *Crassostrea virginica* mollusc  
from USA (Scarratt)2006/**30**:43–50  
in shell, *Strombus gigas* simulating coral  
(Disner)2015/**34**:572–574

## Flash effect

in diamond, glass-filled (Nelson)1993/**23**:461–472; pages  
465, 466, 467, 468, 470 (Err)1994/**24**:64  
in emerald—  
with resin filler (Hänni)1992/**23**:201–205; pages 202,  
204, 205 (Err)1993/**23**:313  
with various fillers (Kiefert)1999/**26**:501–520  
in ruby, lead-glass-filled (Milisenda)2006/**30**:37–42  
in sapphire, lead-glass-filled  
(Leelawatanasuk)2015/**34**:420–427;  
(Panjikar)2015/**34**:488–489  
see also Filling, fracture or cavity

## Fluorescence, ultraviolet [UV]

of benitoite (Mitchell)1980/**17**:149  
of beryl (Webster)1962/**8**:175–192  
cabinet and ‘Transpex’ lens for viewing (Field)1951/**3**:13  
of calcite (Anon)1964/**9**:275  
of chrysoberyl (Webster)1962/**8**:175–192  
crossed filters technique (Hoover)2005/**29**:473–481  
of diamond—  
blue type IIb, with red phosphorescence  
(Anderson)1964/**9**:215–221  
blue-fluorescent (Cowing)2010/**32**:38–51  
and classification (Anderson)1963/**9**:44–54  
to high-power broadband source  
(Hainschwang)2014/**34**:306–315  
for identification (Cotty)1956/**5**:339–341  
pink (Anderson)1960/**7**:216–220  
reddish brown (Lu)2008/**31**:73–76  
spectra (Anderson)1962/**8**:193–202  
and transparency of irradiated  
(Schiffmann)1969/**11**:233–255  
type Ia with high hydrogen content  
(Fritsch)1993/**23**:451–460  
variation in (Webster)1962/**8**:175–192  
of diamond, synthetic CVD—  
colourless to pale grey (Song)2012/**33**:45–48  
colourless melee mixed with natural  
(Hainschwang)2015/**34**:518–522  
colourless to near-colourless, identification of  
(Scarani)2014/**34**:2  
pink (Kitawaki)2010/**32**:23–30  
yellow, De Beers (Scarratt)1989/**21**:341–343  
of diopside, colourless, from Canada and Kenya  
(Krzemnicki)2014/**34**:291–292  
for fingerprinting of gems for re-identification  
(Webster)1954/**4**:231–243



- in gem testing (Webster)1962/**8**:175–192  
of ivory, hornbill (Jie Liang)2014/**34**:42–49  
light box—  
    home-made (Bevis-Smith)1950/**2**:348–352;  
    (Chisholm)1988/**21**:105  
‘Transpex’ lens for use in, letter on (Field)1951/**3**:13  
method of examination (Zook)1976/**15**:83–85  
of nephrite (Farn)1977/**15**:360–361  
of opal—  
    hyalite, daylight fluorescent (Fritsch)2014/**34**:294–296;  
    (Fritsch)2015/**34**:490–508  
    natural and synthetic black (Hodgkinson)2015/**34**:470–471  
of pearl—  
    imitation (Tan)2005/**29**:316–324; page 318  
    (Err)2005/**29**:500  
‘tagging’ with holographic image  
    (Segura)2015/**34**:478–479  
‘phosphoroscope’ for observing (Yu)1980/**17**:250–258  
of resin imitating hornbill ivory (Jie Liang)2014/**34**:42–49  
of ruby and sapphire (Webster)1962/**8**:175–192;  
    (Farn)1962/**8**:224–227; letter on (Tisdall)1962/**8**:278;  
    letter on (Axon)1962/**8**:314  
of ruby with barium glass filling  
    (Hainschwang)2015/**34**:574–576  
of scapolite (Runciman)1973/**13**:225–226  
of spinel (Webster)1962/**8**:175–192  
transparency to short-wave (Day)1953/**4**:183–189;  
    (Trumper)1953/**4**:189–192  
of topaz, blue, for cutting of rough (Leiper)1955/**5**:135–140  
ultraviolet sources for testing (Thurm)1958/**6**:388;  
    (Webster)1962/**8**:175–192;  
    (Pearson)2011/**32**:211–222  
of volcanic rock marketed as Saguaro Stone  
    (Krzemnicki)2015/**34**:567–569  
of zircon (Webster)1962/**8**:175–192  
see also DiamondView imaging; Luminescence;  
    Phosphorescence; specific gem materials
- Fluorescence, X-ray**, see Luminescence; Spectroscopy, energy-  
dispersive X-ray fluorescence [EDXRF]
- Fluorite**  
from Bolivia (Hyršl)1998/**26**:41–47  
colourless, in jewellery (Anderson)1971/**12**:155  
faceted and mounted (Farn)1976/**15**:16  
green—  
    from Pakistan (Zwaan)2014/**34**:192–194  
    from Vietnam (Chaipaksa)2014/**34**:194–195  
inclusions in, see ‘Inclusions’  
as inclusions in topaz from Nigeria  
    (Hornytzkjy)1982/**18**:131–137  
from Myanmar, colour-zoned (Hlaing)2015/**34**:563–564  
ornamental (Webster)1958/**6**:297–333  
pink, light-sensitive (Axon)1964/**9**:263–267  
from Slovakian archaeological sites  
    (Kadlečíková)2015/**34**:510–517  
synthesis of (Webster)1970/**12**:101–148;  
    (Duyk)1971/**12**:209–211
- Fossils**  
ammonite, from Canada (Wight)1981/**17**:406–415  
    (Schiffmann)1977/**15**:445–453  
coral, dyed blue (Webster)1963/**9**:138  
see also Amber
- Fourier-transform infrared spectrometer [FTIR]**, see  
Spectroscopy, infrared
- Fracture filling**, see Filling, fracture or cavity
- Franks, John Wilson**  
obituary (Knight)2001/**27**:374, 437
- French, Anthony**  
obituary (O’Donoghue)2004/**29**:188
- Friedelite**  
from New Jersey (Axon)1964/**9**:263–267
- Fuchsite**  
imitating emerald (Juchem)2006/**30**:207–214
- Fulgurite**, see Glass
- G**
- Gadolinium gallium garnet [GGG]**  
new synthetic (O’Donoghue)1973/**13**:314;  
    (Webster)1974/**14**:115–117  
optical constants of (Nassau)1980/**17**:148
- Garnet**  
‘amphigene’ as misnomer for white garnet  
    (Kennedy)1954/**4**:244–249  
antiquities in J. Paul Getty Museum  
    (Thoresen)2013/**33**:201–222  
asterism in (Kumaratilake)1998/**26**:24–28  
from Bolivia (Hyršl)1998/**26**:41–47  
from Brazil (Eeckhout)2004/**29**:205–214  
from Canada (Boyd)1983/**18**:544–562  
cathodoluminescence and CL spectra of inclusions in  
    (Ponahlo)2002/**28**:85–100  
cat’s-eye, from Madagascar (Schmetzer)2002/**28**:13–23  
chemical composition of (Adamo)2007/**30**:307–319  
classification (Anderson)1959/**7**:1–7;  
    (Hanneman)1997/**25**:471–473;  
    (Hoover)2008/**31**:91–103  
colour-change—  
    (Halvorsen)2006/**30**:1–21  
    from East Africa (Jobbins)1975/**14**:201–208  
    from Madagascar (Schmetzer)2009/**31**:235–282  
    from Norway (Hysingjord)1971/**12**:296–299  
    from Tanzania (Jobbins)1978/**16**:161–171  
crystallography of (Mitchell)1950/**2**:237–274  
demantoid, see Andradite  
in diamond, see ‘Diamond, inclusions in’  
doublet with glass (Farn)1977/**15**:236–237  
from Egypt (Kammerling)1993/**23**:412–414  
from Finland (Hornytzkjy)1980/**17**:153–164; page 160  
    (Err)1980/**17**:282  
in gravel imported to England possibly from Pakistan  
    (Smith)1966/**10**:57–58  
green (Axon)1974/**14**:118–119  
inclusions in, see ‘Inclusions’  
infrared spectroscopy of (Adamo)2007/**30**:307–319;  
    (Hainschwang)2008/**31**:23–29  
irradiation of, effects on colour (Burbage)1957/**6**:74–77  
magnetic susceptibility of (Hoover)2008/**31**:91–103  
nomenclature of—  
    ‘Malaya’ (Schmetzer)1981/**17**:522–527;  
    (Gübelin)1982/**18**:178–179  
    ‘pyralmandite’ (Fermor)1948/**1**(8):3  
    ‘pyrandine’ (Anderson)1947/**1**(2):15–16  
pink (Farn)1974/**14**:167–168  
pyrope-almandine, purple, from East Africa  
    (Williams)2015/**34**:656–658  
pyrope-spessartine-grossular, from Tanzania  
    (Schmetzer)1981/**17**:522–527;  
    (Schmetzer)1982/**18**:194–200  
refraction of light in (Teerstra)2008/**31**:105–110  
rhodolite—  
    from Rhodesia/Zimbabwe (Campbell)1972/**13**:53–64  
    from Tanzania, star (Kammerling)1990/**22**:16–18  
    from USA (Martin)1970/**12**:29–36  
from Russia (Spiridonov)2006/**30**:91–102; pages 91, 93, 94  
    (Err)2006/**30**:254  
from Slovakian archaeological sites  
    (Kadlečíková)2015/**34**:510–517  
from Somaliland (Kinnaird)2000/**27**:139–154

- species and group (Trumper)1962/**8**:300–305;  
(Howie)1963/**9**:127–129
- spessartine-grossular from Madagascar  
(Schmetzer)2002/**28**:235–239
- star—  
fake (Schmetzer)2002/**28**:41–42; letter on  
(Schmetzer)2002/**28**:109–110  
from Madagascar (Schmetzer)2002/**28**:13–23  
rhodolite from Tanzania (Kammerling)1990/**22**:16–18  
in Townshend Collection of Precious Stones in Victoria and  
Albert Museum (O'Donoghue)1970/**12**:1–5  
treatment of (Eeckhout)2004/**29**:205–214  
see also Almandine; Almandine-spessartine; Andradite;  
Assembled gem materials; Diamond, inclusions in;  
Grossular; Pyrope; Spessartine, Uvarovite
- Garnet, synthetic**  
developments (Webster)1967/**10**:263–265;  
(Webster)1970/**12**:101–148  
see also Yttrium aluminium garnet [YAG]
- Gem carving**, see Lapidary arts
- Gem collections**, see Display; Museums and gem collections
- Gem localities**, see Country of origin; specific countries;  
specific gem materials
- Gem and Jewelry Institute of Thailand (GIT)**  
conference, 2014 (Laurs)2015/**34**:446–447  
field studies in Sri Lanka (Wathanakul)2014/**34**:256–261  
laboratory updates (Laurs)2014/**34**:3–4; (Laurs)2015/**34**:382
- Gem Testing Laboratory (Jaipur, India)**  
newsletter online (Laurs)2014/**34**:3; (Laurs)2014/**34**:92;  
(Laurs)2015/**34**:381; (Laurs)2015/**34**:558
- The Gem Testing Laboratory of Great Britain (and its predecessors)**  
25th anniversary of Diamond, Pearl and Precious Stone  
Trade Section of the London Chamber of Commerce  
(Anon)1947/**1**(2):40–41  
changes in name and status of (Farn)1977/**15**:358;  
(Scarratt)1986/**20**:145  
history of Precious Stone Laboratory  
(Anderson)1973/**13**:249–262;  
(Anderson)1974/**14**:97–113;  
(Anderson)1975/**14**:257–272  
Jubilee Year (Anderson)1981/**17**:515–521  
laboratory associations (Farn)1975/**14**:213–214  
relocation (Farn)1974/**14**:16–19; (Farn)1983/**18**:598–606  
see also Gem-A; Proceedings...and Notices
- Gem-A**  
Bachelor of Science with Honours Degree in  
conjunction with Birmingham City University  
announced (Anon)2015/**34**:540  
diploma equivalency agreement with Gemmological  
Association of Australia (Anon) 2014/**34**:359  
*The Journal of Gemmology*—  
coverage in Thomson Reuters database  
(Laurs)2015/**34**:647  
cumulative index (Laurs)2015/**34**:650  
merger of Gemmological Association with Gem Testing  
Laboratory of Great Britain (Anon)1990/**22**:194  
new marketing name for *The Gemmological Association of  
Great Britain* (Anon)2001/**27**:438  
see also The Gem Testing Laboratory of Great Britain;  
Proceedings...and Notices
- Gem-A Notices**  
Gem-A awards, conferences, events, meetings, reports and  
other announcements; donations, gifts, sponsorships  
and other support to Gem-A—  
2014/**34**:78, 162, 262, 357, 360; 2015/**34**:448,  
540–541, 629, 721–722, 723–733  
Membership and transfers—  
2014/**34**:78–79, 167–168, 262, 359; 2015/**34**:449–450,  
542–545, 629–630, 722  
see Proceedings...and Notices before 2014  
see also Conference reports; Errata; Obituaries;  
Photography
- Gemological Institute of America (GIA)**  
*Gems & Gemology* cumulative index PDF  
(Laurs)2015/**34**:558  
new headquarters (Anon)1977/**15**:288  
news of (Anon)1947/**1**(4):24–25  
scanning of rare books (Laurs)2015/**34**:650  
X-ray diffraction, non-destructive method developed at  
(Anon)1947/**1**(1):38
- General Electric Company (GE)**, see Diamond, synthetic
- Geochronology**  
U-Pb age determination of inclusions in sapphire  
(Link)2015/**34**:692–700
- Geographical origin**, see Country of origin; specific countries;  
specific gem materials
- Germany**  
buchite natural glass from Eifel Mountains  
(Henn)2015/**34**:562–563  
gem industry in Idar-Oberstein (Anon)1949/**2**:55–56;  
(Blakemore)1967/**10**:253–257  
pearl from Bavaria, freshwater river (Hahn)1996/**25**:45–50  
synthetic sapphire and spinel production in  
(Barnes)1947/**1**(1):39–49
- Getty Museum, J. Paul**  
garnets in antiquities collection (Thoresen)2013/**33**:201–222
- Geuda**, see Corundum; Sapphire; Sri Lanka
- GGG**, see Gadolinium gallium garnet
- GGTL (Gemlab GemTechLab) Laboratories**  
newsletters (Laurs)2014/**34**:3; (Laurs)2015/**34**:382
- Gahnite**  
from Nigeria (Jackson)1982/**18**:265–276  
see also Spinel
- Galileo Galilei**  
history of scientific gem testing in Europe  
(Mottana)2014/**34**:24–31
- GIA**, see Gemological Institute of America
- Gilson**, see Coral simulants; Emerald, synthetic; Lapis lazuli  
simulants; Opal, synthetic; Ruby, synthetic; Turquoise  
simulants
- Glass**  
bead, 13th century (Farn)1976/**15**:11–12  
blue—  
devitrified, imitating lapis lazuli  
(Scarratt)1987/**20**:285–286  
with needle-like inclusions (Duroc-  
Danner)2003/**28**:280–282  
coated, to imitate pearl (Kennedy)1988/**21**:211–214  
as diamond simulant (Anon)1955/**5**:76;  
(Webster)1958/**7**:79–100  
doublet with dendritic agate (Kammerling)1991/**22**:459–462  
in ewer with quartz (Scarratt)1992/**23**:139  
fibre-optic, bead (Bubshait)1995/**24**:404  
'goldstone' (Mitchell)1982/**18**:200–202  
green, with apatite needles (Mitchell)1982/**18**:203–205  
with hologram, mounted with opal from Ethiopia  
(Mazzero)2014/**34**:205–206  
imitation—  
of chalcedony, blue (Hänni)2001/**27**:275–285  
of emerald—  
lead (Williams)2015/**34**:398–399  
rough (Kennedy)2001/**27**:483–484  
of iolite (Dunn)1976/**15**:113–118  
of jadeite (Farn)1972/**13**:123–124;  
(Scarratt)1986/**20**:145, 147  
of lapis lazuli (Scarratt)1987/**20**:285–286  
of malachite (Hyršl)2014/**34**:302–303  
of pearl, freshwater (Scarratt)1986/**20**:38

- of Roman intaglio (Kennedy)2001/**27**:484–485  
of tanzanite (Tay Thye Sun)2014/**34**:109–110  
of tourmaline from Mozambique  
(Laurs)2015/**34**:484–485  
inclusions in, see 'Inclusions'  
natural—  
(Konta)1976/**15**:179–204  
buchite from Germany (Henn)2015/**34**:562–563  
fulgurite (Axon)1971/**12**:171–172  
genesis of, video of lectures (Grabowski)2015/**34**:469  
from Libyan desert (Eppler)1971/**12**:256–262  
obsidian and moldavite (Webster)1949/**2**:159–163  
'paste'—  
diamond simulants in Roman period  
(Ogden)1973/**13**:179–180;  
(Ogden)1973/**13**:315–317  
properties of (Lewis)1949/**2**:141–150;  
(Anderson)1967/**10**:198–199  
'portrait', baroque, with bead-filled cavity  
(Scarratt)1984/**19**:114–116  
prehistoric, from Sri Lanka (Harder)1993/**23**:267–273  
radioactive, imitating emerald (Duroc-  
Danner)1992/**23**:80–83  
Raman spectra of, in reliquary of St Eustace, Basle  
Cathedral (Joyner)2006/**30**:169–182  
red—  
didymium-coloured, simulating ruby  
(Anderson)1971/**12**:154  
used by Fabergé (Harding)1989/**21**:275–287  
star (Webster)1954/**4**:210–211  
see also Assembled gem materials; Diamond treatment;  
Filling, fracture or cavity; Filters; Jade simulants;  
Obsidian; Opal, hyalite; Tektite
- Gobel, Georges**  
obituary 1972/**13**:153
- Goethite**  
inclusions in amethyst (Webster)1966/**10**:84–95
- Gold**  
demand, 2014 (Laurs)2015/**34**:382; 2nd quarter 2015  
(Laurs)2015/**34**:560  
deposits in British Isles (Kennedy)1951/**3**:101–115  
hallmarks—  
app from Birmingham Assay Office (Laurs)2014/**34**:93  
development in India, report from World Gold Council  
(Laurs)2015/**34**:560  
history of—  
in the British Isles (Kennedy)1951/**3**:101–115  
in Wales (White)1962/**8**:207–208  
inclusions in quartz (Laurs)2014/**34**:101–102  
mines as sources of diamond (Raal)1969/**11**:211–215  
mining and production in Wales (White)1962/**8**:207–208  
mining in South Africa, film on (Anon)1949/**2**:18–19  
prospecting for (Taylor)1994/**24**:155–160
- Goodger, William Donald**  
obituary (Dykstra)1997/**25**:439
- Goodletite**, see Rock
- Grading**  
colour of synthetic moissanite (Johnson)2015/**34**:384–385  
see also Diamond, grading; Diamond, cuts and cutting of
- Graining**  
in DeYoung red diamond (Shigley)1993/**23**:259–266
- Grandidierite**  
blue (Ostwald)1964/**9**:182–184  
gem-quality from Madagascar (Mitchell)1977/**15**:354–358
- Granite**  
from Scotland (Nichol)2001/**27**:286–290
- Greenland**  
eudialyte ornamental rock from Julianehåb  
(Dragsted)1971/**12**:312–315  
tugtupite—  
from southern and Kola Peninsula  
(Dragsted)1970/**12**:10–11  
recent production (Rohtert)2015/**34**:395–397
- Greenockite**  
synthetic cadmium sulphide (Webster)1970/**12**:101–148
- Grossular [grossularite]**  
from Brazil, treatment of (Eeckhout)2004/**29**:205–214  
from Canada (Wight)1982/**18**:126–130;  
(Boyd)1983/**18**:544–562  
cathodoluminescence of (Ponahlo)1988/**21**:182–193  
cat's-eye/star from East Africa (Barot)1995/**24**:569–580  
colours and luminescence of (Farn)1976/**15**:8–10  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
green, from Pakistan (Anderson)1966/**10**:113–119  
hessonite—  
from Canada, fracturing in (Koivula)1985/**19**:579–583  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
dyed to simulate ruby (Panjikar)2014/**34**:204–205  
from India (Kanis)1994/**24**:75–83  
from Somalia (Clark)2014/**34**:293  
from Sri Lanka (Mathavan)2000/**27**:65–72  
inclusions in, see 'Inclusions'  
infrared spectrum of (Adamo)2007/**30**:307–319  
from Kenya—  
(Mitchell)1977/**15**:354–358  
bicoloured (Zwaan)2014/**34**:195–197  
Scorpion mine (Bridges)2014/**34**:230–241  
from Russia (Spiridonov)2006/**30**:91–102; pages 91, 93, 94  
(Err)2006/**30**:254  
from Tanzania—  
(Mitchell)1977/**15**:354–358  
colourless (Zook)1975/**14**:225–229  
'Transvaal jade' (Kennedy)1954/**4**:244–249  
tsavorite—  
(Eppler)1971/**12**:256–262  
discovery and mining of (Bridges)2014/**34**:230–241  
from Kenya, growth (Key)1989/**21**:412–422  
from Madagascar (Mercier)1997/**25**:391–393  
from Pakistan (Jackson)1992/**23**:67–70  
see also Garnet
- Grossular-andradite**, see Garnet
- Growth structure/zoning**  
in alexandrite, synthetic—  
flux-grown (Schmetzer)2012/**33**:49–81  
HOC-grown (Schmetzer)2013/**33**:113–129  
titanium-bearing (Schmetzer)2013/**33**:137–148  
in amethyst, natural and synthetic  
(Schmetzer)1986/**20**:20–32; (Kiefert)1991/**22**:471–482  
in aquamarine from Nigeria (Lind)1986/**20**:48  
in chrysoberyl (Schmetzer)2011/**32**:129–144;  
from Tanzania (Schmetzer)2011/**32**:179–209;  
synthetic titanium-bearing (Schmetzer)2013/**33**:137–148;  
from Brazil (Schmetzer)2014/**34**:32–40  
in diamond (Bulanova)2005/**29**:377–386; natural and  
synthetic (Sunagawa)1995/**24**:485–499;  
in emerald—  
hydrothermal synthetic, from Russia  
(Schmetzer)1988/**21**:145–164  
in natural vs. flux- and hydrothermally-grown  
synthetic (Kiefert)1991/**22**:427–438  
and inclusions (Eppler)1961/**8**:72–77; from Colombia  
(Poirot)1971/**12**:271–274  
from Nigeria (Lind)1986/**20**:48; and green beryl  
(Schwarz)1996/**25**:117–141  
surface etch features on crystals  
(Koivula)1988/**21**:142–143  
microscopic determination of, in uniaxial gems  
(Kiefert)1991/**22**:344–354; (Kiefert)1991/**22**:427–438;

- (Kiefert)1991/**22**:471–482  
in ruby—  
natural and synthetic (Schmetzer)1986/**20**:20–32;  
(Kiefert)1991/**22**:471–482  
synthetic, doublet with natural-appearing sheen  
(Choudhary)2014/**34**:110–111  
in sapphire from Nigeria (Kiefert)1987/**20**:427–442  
sample holder for determination of  
(Schmetzer)1986/**20**:20–32; (Kiefert)1991/**22**:344–354  
in tourmaline, trapiche (Schmetzer)2011/**32**:151–173  
see also Crystallography; DiamondView imaging; Zoning
- Guatemala**  
jade from, history of (Ruff)1959/**7**:18–31; (Ruff)1959/**7**:141–160; (Ruff)1960/**7**:236–246
- Gübelin, Edward Joseph**  
in honour of (Koivula)2005/**29**:259  
obituary 2005/**29**:372; (Jobbins)2005/**29**:257–259
- Gutta-percha**, see Rubber
- Guyana**  
agate from Rupununi (Gosling)1990/**22**:76–79  
‘black pearls’ from Aranka (Gosling)1976/**15**:209–211;  
letter on (Schiffmann)1977/**15**:463–464; letter on  
(Jobbins)1977/**15**:464–465  
diamond production (Lee)1981/**17**:465–479  
jasper from Orinduik Falls (Gosling)1986/**20**:91–92
- H**
- Hackmanite [sodalite]**  
from Canada (Wight)1996/**25**:24–44
- Halite**  
blue, from USA (Laurs)2014/**34**:102–103  
inclusions in, see ‘Inclusions’
- Hambergite**  
from USA (Anon)1958/**6**:244
- Hammid, Tino**  
obituary (Cowing)2015/**34**:631–632
- Harding, Roger**  
retiring as editor of *The Journal of Gemmology*  
2008/**31**:151; (Harding)2011/**32**:252;  
(Riley)2013/**33**:285
- Hardness testing**  
methods of (Lewis)1950/**2**:221–226;  
(Eppler)1956/**5**:243–256  
water-drop test to estimate (Tjwan)1969/**11**:205–210
- Harper, Norman A.**  
obituary (Mitchell)1982/**18**:354  
retirement of, letter on (Farn)1978/**16**:218
- Haüyne**  
faceted (O’Donoghue)1983/**18**:596–597  
transparent (Scarratt)1986/**20**:36, 38–39
- Heat treatment**  
of aquamarine from China (Ruzeng)2007/**30**:297–301  
of corundum and effects on zircon inclusions  
(Rankin)2003/**28**:257–264  
and internal diffusion of colour (Koivula)1987/**20**:474–477  
of quartz (Henn)2012/**33**:29–43  
of ruby—  
from Madagascar (Schwarz)2001/**27**:409–416  
from Mozambique, low-temperature  
(Laurs)2015/**34**:469  
in Thailand and Sri Lanka  
(Gunawardene)1984/**19**:298–310  
of sapphire—  
from China, with oxidation (Wang  
Chuanfu)1992/**23**:195–197; letter on  
(Nassau)1993/**23**:441; response (Wang  
Chuanfu)1993/**23**:441  
with diffusion (Crowningshield)1981/**17**:528–541  
from Malawi (Jobbins)1971/**12**:342–343  
milky/geuda—  
anomalous behaviour of (Perera)1991/**22**:405–407  
and colouring elements in  
(Gunaratne)1981/**17**:292–300  
from Myanmar (Kyi)1999/**26**:313–315  
spectra of (Ediriweera)1989/**21**:403–404; page 404  
(Err)1990/**22**:55  
in Sri Lanka (Gunaratne)1981/**17**:292–300  
from Sri Lanka (Schmetzer)1990/**22**:80–82  
yellow (Hughes)1988/**21**:23–25  
of tanzanite from Tanzania—  
and bluish green zoisite  
(Schmetzer)1979/**16**:512–513  
impact on fluid inclusions (Taylor)2013/**33**:149–159,  
161–169  
of topaz, Imperial, from Brazil (de Costa)2000/**27**:133–138;  
(Sabioni)2003/**28**:283–290  
of zircon—  
cat’s-eye, from Sri Lanka  
(Gunawardene)1988/**21**:88–91  
colour (Rupasinghe)1986/**20**:168–170; letter on  
(Nassau)1987/**20**:328  
in South East Asia (Buckingham)1950/**2**:178–187  
see also Diffusion treatment; Treatment; specific gem  
materials
- Heatlie, James**  
obituary (Jackson)2013/**33**:276
- Heavy liquids**, see Specific gravity
- Heliolite**, see Feldspar
- Hematite**  
inclusions in amethyst from Korea (Kim)1990/**22**:204–206  
infrared spectrum of (Hainschwang)2008/**31**:23–29  
magnetic simulant (Scarratt)1985/**19**:657–659  
rock (Schmetzer)1984/**19**:343–347  
specimen in Museum of Ouro Preto, Minas Gerais, Brazil  
(Bastos)1992/**23**:89–92  
see also Rocks
- Herbert Smith Memorial Lectures**  
established (Anon)1955/**5**:56, 110  
1955: ‘The refractometer and other refractive index  
methods’ (Anderson)1955/**5**:166–178  
1956: Untitled on synthetic gems (Pough)1956/**5**:385–387  
1957: ‘The atomic structure of gem-stones and other  
minerals’ (Bragg)1957/**6**:147–149  
1958: ‘Studies on the surfaces of diamonds’  
(Tolansky)1958/**6**:334–336  
1959: [not transcribed] see abstract on ‘Glass and  
Gemmology’ by Hill (Webster)1960/**7**:195–196  
1960: [not transcribed] ‘Polarization’  
(Hallimond)1960/**5**:207  
1961: Untitled on synthetic emerald ‘Igemerald’  
(Eppler)1961/**8**:88–95  
1963: ‘How perfect are crystals?’ (Lacy)1963/**9**:112–113  
1964: ‘Early problems with minerals and how  
ideas about their structures came into being’  
(Bragg)1964/**9**:251–253  
1965: Untitled on irradiation of diamond  
(Webster)1966/**10**:37–39  
1966: Untitled on gem synthesis  
(Chirnside)1967/**10**:174–175  
1967: ‘Meteorites and tektites’ (Hey)1968/**11**:20, 57–65
- Herderite**  
from Brazil (Dunn)1976/**15**:27–28
- Hessonite**, see Grossular
- Hexagonite**  
as gemstone (O’Donoghue)1980/**17**:7–9
- Hey, Max H.**  
obituary (Emrey)1984/**19**:282



- Hiddenite**, see Spodumene
- High-pressure, high-temperature [HPHT] growth**, see Diamond, synthetic
- High-pressure, high-temperature [HPHT] treatment**, see Diamond treatment
- Hill, Stanley George**  
obituary (Hill)2007/**30**:478
- History**  
of 10× loupe and Dina Level (Farn)1988/**21**:140–141  
of 14th century crown (Gray)1989/**21**:431–432  
of 18th-century gem trading, document in Association library (Anon)1963/**9**:136–137  
of agate staining (Burbage)1967/**10**:195–197  
of amber, and myths associated with (Walters)1989/**21**:289–292  
antiquities in J. Paul Getty Museum (Thoresen)2013/**33**:201–222  
astrophysical significance of gems (Nalliah)1971/**12**:365–366; (Farn)1984/**19**:224–227  
books—  
from 1652 titled ‘A Lapidary of the History of Precious Stones’ (Anon)1947/**1**(3):32–33  
excerpts from Gemmological Association library (Anon)1947/**1**(2):32–33  
*Gem Testing, 10th edn.*, ‘A Book Anniversary’ (Mitchell)1992/**23**:78–79  
Brown, Sir Thomas (Burbage)1947/**1**(2):6–9  
Burgundian Count Goblet (Tillander)1970/**12**:44–50  
of cameo and intaglio carvings (Dick-Larkam)1948/**1**(5):33–36  
of carat weight (Tillander)1981/**17**:619–623  
of Cheapside Hoard, history of discovery (Gosling)1995/**24**:395–400; letter on George Fabian Lawrence (Blackmore)1995/**24**:513; response (Gosling)1995/**24**:513  
of cuts, historical facet designs collection (Laurs)2014/**34**:279; (Err)2015/**34**:383  
of Danish gemmologists Rasmus Bartholin and Nicolaus Steno, 17th century (Dragsted)1954/**4**:250–252; comment on description as ‘gemmologists’ (Chisholm)1954/**4**:292–300  
of diamond—  
‘Colenso’ in British Museum collection (Sweet)1961/**8**:84–85  
cut design (Tillander)1971/**12**:316–321; in Portuguese jewels during 16th–18th centuries (Galopim de Carvalho)2014/**34**:116–128  
Dresden Green (Bosshart)1989/**21**:351–362  
early brilliant cut, flat, from India (Tillander)1968/**11**:125–126  
HPHT treatment (Schmetzer)2010/**32**:52–65  
Koh-i-Noor (Koh-i-Nûr)  
examination by Sir D. Brewster, letter on (Price)1983/**18**:473–474  
recutting of (Israel)1992/**23**:176; letter on (Farn)1992/**23**:120–121  
‘Mr Clayton’s’ and thermoluminescence (Sweet)1955/**5**:125–130  
point-cut (Tillander)1971/**12**:316–321  
replicas of famous diamonds (Willmott)1993/**23**:486–490  
rose-cut (Tillander)1998/**26**:219–221  
Sancy (Tillander)1978/**16**:221–228; letter on (McGlashan)1981/**17**:433–434; (Mitchell)1984/**19**:144–146; (Farn)1986/**20**:166–167  
Saxon (Tillander)1968/**11**:81–83  
synthesis (Nassau)1985/**19**:660–663; letter on (Lundblad)1986/**20**:134–135;  
(Butler)1997/**25**:562–563; (Butler)2001/**27**:360  
term (Cooper)1972/**13**:51–53  
types (Chisholm)1955/**5**:77–85  
of emerald—  
and 19th century French book by Placide Boué (Farn)1964/**9**:261–262  
oiling (Nassau)1994/**24**:109–110  
mines of ancient Egypt (Grubessi)1990/**22**:164–177; pages 174, 175, 176 (Err)1990/**22**:249  
mining at Chivor, Colombia (Johnson)1961/**8**:126–152  
Epiphanius on gemstones (Maxwell-Stuart)1977/**15**:435–444  
of garnet, tsavorite (Bridges)2014/**34**:230–241  
of gem laboratories—  
Akira Chikayama Gem Laboratory in Tokyo (Gill)1982/**18**:282–284  
Precious Stone Laboratory (Anderson)1973/**13**:249–262; (Anderson)1974/**14**:97–113; (Anderson)1975/**14**:257–272  
of gem testing (Farn)1983/**18**:723–730; (Scarratt)1988/**21**:133, 135; evolution of instruments for identification (Liddicoat)1981/**17**:568–583; methods advertised in 1921 (Jerome)1981/**17**:450–454; pearl and diamond in GAGTL (Farn)1986/**20**:166–167; by Galileo (Mottana)2014/**34**:24–31  
of gemmological education—  
Abbott, W. J. Lewis, in (Stores)1960/**7**:296–299; letter on publications by (Banister)1961/**8**:46  
in London (Mitchell)1982/**18**:1–4  
of gemmology in Great Britain, 60 years of (Anon)1968/**11**:69–80  
gem prices—  
in the 17th century (O’Donoghue)1968/**11**:46–48  
in the mid-19th century (O’Donoghue)1970/**12**:1–5  
of glass used by Fabergé (Harding)1989/**21**:275–287  
of gold—  
in the British Isles (Kennedy)1951/**3**:101–115  
mining in Wales (White)1962/**8**:207–208  
‘Great Table’ diamond of Tavernier actually ruby (Tolansky)1962/**8**:171–174  
of the Hope Pearl (Kennedy)1994/**24**:235–239  
of Idar Oberstein gem-cutting industry (Blakemore)1967/**10**:253–257  
interpretation of ancient texts, ‘diamond softening’ and emerald oiling (Nassau)1991/**22**:399–403  
of jade—  
from the Americas (Ruff)1959/**7**:18–31; (Ruff)1959/**7**:141–160; (Ruff)1960/**7**:236–246  
European (Ruff)1954/**4**:336–347; (Ruff)1955/**5**:6–16; (Ruff)1955/**5**:141–152; (Ruff)1956/**5**:274–291; photo credits (Err)1956/**5**:330; (Ruff)1956/**5**:402–421; (Ruff)1958/**6**:225–244  
in Mexican Art exhibition at Tate Gallery (Ruff)1953/**4**:120–125  
of jet carving and mining in Siberia (Glushnev)1995/**24**:349–353  
of jewellery, first half of 19th century (Lewis)1955/**5**:17–28  
of lapidary traditions in Sri Lanka (Mahroof)1989/**21**:405–410  
lecture by Robert Webster on ‘some newer gem problems’, including synthetics and irradiation (Webster)1955/**5**:179–184  
of legal cases associated with gems (Webster)1972/**13**:45–51  
letter from ‘Professor Church’ on discovery of spectra of almandine and zircon (Farn)1951/**3**:142–144  
of Level, Dina, French gemmologist (Farn)1992/**23**:84–85  
of liquid inclusions, letter from Sir David Brewster in 1835 reproduced (Brewster)1953/**4**:56–63; notes on (Chisholm)1955/**5**:77–85

- of a Maharajah's sword, and gems in (Harding)1988/**21**:3–7
- of marcasite and pyrite use (Bartlett)1997/**25**:517–531
- McLintock, Dr W.F.P., as gemmologist for 40 years, lecture to members (McLintock)1947/**1**(2):2931
- of medical substances for gemmology (Burbage)1948/**1**(8):19–20
- of meteorites and tektites (Hey)1968/**11**:57–65
- of Myanmar gems (Kammerling)1994/**24**:3–40; pages 25, 28 (Err)1994/**24**:130
- newspaper cuttings 1920–1933 (Jerome)1981/**17**:450–454
- of 'ocular therapy of stones' (Emmott)1960/**7**:274–277
- of opal—
- misconceptions (Cooper)1979/**16**:458–461; (Cook)1982/**18**:342–344
  - studies of structure (Field)1947/**1**(3):10–12
- of optic character (Anderson)1949/**2**:73–83
- Ouro Preto, Brazil (Bastos)1992/**23**:89–92
- of pawnbroking in Chelsea (Farn)1984/**19**:317–319
- of pearl—
- culturing in England (Vaughan)1958/**6**:249–250
  - freshwater, from Russia (Strack)2015/**34**:580–592
  - Irish (Robb)1972/**13**:12
  - large nacreous (Zwaan)2009/**31**:196–201
  - making, cleaning and polishing, according to Salmanas (Maxwell-Stuart)1974/**14**:20–26
  - origins from India and Persian Gulf (Bannister)1955/**5**:112; (Chisholm)1955/**5**:165
  - and pearling in Sri Lanka (Mahroof)1995/**24**:337–348
  - and Pocahontas in the Americas (Farn)1991/**22**:331–333
- of peridot (Cooper)1976/**15**:24–26
- of pleochroism (Ostwald)1964/**9**:242–248
- of Portuguese jewels during 16th–18th centuries (Galopim de Carvalho)2014/**34**:116–128
- of quartz
- hydrothermal growth of (Trossarelli)1984/**19**:240–260
  - name of mineral (Cooper)1980/**17**:150–152
- of reliquary of St Eustace, Basle Cathedral (Joyner)2006/**30**:169–182
- and replication of famous diamonds (Willmott)1993/**23**:486–490
- of ruby—
- classification and identification (Anderson)1949/**2**:73–83
  - and sapphire from China (Galibert)1995/**24**:467–473
  - and spinel from Afghanistan (Hughes)1994/**24**:256–267
  - from Sri Lanka (Mahroof)1992/**23**:20–24
- of 'ruddigore' (Cooper)1983/**18**:731–733
- of St Michael goblet, gems in (Tillander)1970/**12**:65–70
- of spinel—
- and ruby from Afghanistan (Hughes)1994/**24**:256–267
  - sources (Cooper)1974/**14**:76–78; letter on (Hughes)1994/**24**:185–186
- of Sri Lankan gem deposits (Francis)2002/**28**:25–31
- of Stuart Jewel at National Museums of Scotland (Jackson)1997/**25**:428–429
- of synthetic gems (Nassau)1997/**25**:483–490; pages 485, 486 (Err)1997/**25**:576; letter on (Butler)1997/**25**:562–563; letter on (Butler)2001/**27**:360
- of teeth used in gemmology (Cross)1970/**12**:6–9
- Thunberg, Carl Peter, and gems of Sri Lanka (Sinkankas)1991/**22**:463–470
- trade difficulties in Brazil, Myanmar and Sri Lanka (Anon)1963/**9**:108–109
- of treasure of Moghul emperors of India (Viswanath)1970/**12**:73–76
- of variscite use (Willing)2008/**31**:111–124
- of zircon description errors in older books (Anderson)1962/**8**:222–223
- see also Jewellery and *objets d'art*
- Hodgkinsonite**
- faceted (O'Donoghue)1983/**18**:596–597
- Holography**
- image for 'tagging' of pearls (Segura)2015/**34**:478–479
- in glass of Mirasety Ring, with Ethiopian opal (Mazzero)2014/**34**:205–206
- Honduras**
- jade from, history of (Ruff)1959/**7**:18–31; (Ruff)1959/**7**:141–160; (Ruff)1960/**7**:236–246
- Hong Kong**
- gem trade in (Fitzgerald)1987/**20**:270–271
- gemmological education in 1989/**21**:302–304; (Nelson)1990/**22**:224–232
- Horn**
- resin imitation of, cast polyester (Scarratt)1992/**23**:218–222
- Hornbill ivory**, see Ivory
- Hornblende**
- pargasitic, from Northwest Territories, Canada (Wight)1986/**20**:100–107; page 103 (Err)1986/**20**:199
- Howie, Robert Andrew**
- introduced as new president of GAGTL 1996/**25**:262
- obituary (Walsh)2012/**33**:110–111
- Howlite**
- dyed, as turquoise simulant (Webster)1962/**8**:286–288
- HPHT [high pressure, high temperature]**, see Diamond, synthetic; Diamond treatment
- 'Hte long sein'**, see Jadeite, chrome
- Huang Fengming**
- obituary (Li Liping)2005/**29**:372
- Hyalite**, see Opal
- Hydrogrossular**, see Garnet
- I**
- Ideal Cut**, see Diamond, cuts and cutting of
- Idocrase [vesuvianite]**
- from Canada—
- (Boyd)1983/**18**:544–562; (Wight)1983/**18**:738–745;
  - 'golden' brown (Axon)1964/**9**:263–267
- compared with grossular (Anderson)1966/**10**:113–119
- crystallography of (Mitchell)1950/**2**:237–274
- green (Scarratt)1986/**20**:35–37; page 35 (Err)1986/**20**:199
- inclusions in, see 'Inclusions'
- from Italy (Novaga)1994/**24**:173–177
- Igmerald**, see Emerald, synthetic
- Illumination techniques**
- grazing, for bright line refractometer technique (Hoover)2007/**30**:287–297
- light emitting diodes for portable instruments (Lamarre)2002/**28**:169–174
- pen torch used with Hanneman Mini-cube II for immersion examination (Read)1993/**23**:360–361
- see also Instruments; Lighting
- Imitations**
- plastic, tests for (Webster)1949/**2**:87–102
- see also Cubic zirconia; Fakes; Glass; specific gem materials imitated or simulated
- Immersion**, see Microscopic techniques
- Impregnation**
- of fuchsite to imitate emerald (Juchem)2006/**30**:207–214
- of quartz to imitate jade (Tan)2003/**28**:392–398
- of jade with polystyrene (Quek)1998/**26**:168–173
- of jadeite—
- bleached, with wax and polymer (Tan)1995/**24**:475–483
  - polymer-treated (Hodgkinson)1993/**23**:415–417;
- see also Filling, fracture or cavity; specific gem materials

## Inamori

- synthetic alexandrite (Schmetzer)2013/**33**:137–148
- synthetic ruby, gallium content to distinguish from natural (Schrader)1986/**20**:108–113

## Inclusions

- in agate, types of minerals (Gübelin)1969/**11**:149–192
  - in alexandrite—
    - alkali feldspar, as proof of natural origin (Bank)1988/**21**:215–217
    - from Brazil (Cassedanne)1993/**23**:333–354
    - cat's-eye/star from East Africa (Barot)1995/**24**:569–580
    - from Spain (Marcos-Pascual)1997/**25**:340–357
    - unusual (Eppler)1970/**12**:37–41
    - see also 'in chrysoberyl'
  - in alexandrite, synthetic—
    - cat's-eye (Koivula)1988/**21**:232–236
    - drusy, from Russia (Hyršl)1999/**26**:447–449
    - flux-grown (Schmetzer)2012/**33**:49–81
    - HOC-grown (Schmetzer)2013/**33**:113–129
    - Kyocera (Scarratt)1988/**21**:136–139
    - titanium-bearing (Schmetzer)2013/**33**:137–148
    - see also 'in chrysoberyl, synthetic'
  - in almandine—
    - amphibole needles (Gübelin)1948/**1**(7):7–39; (Gübelin)1950/**2**:281–303
    - apatite (Dunn)1975/**14**:273–280
    - cat's-eye/star from East Africa (Barot)1995/**24**:569–580
    - fibrous (Gübelin)1949/**2**:5
    - healing fissures (Eppler)1959/**7**:40–66
    - rutile needles (Burch)1982/**18**:28–36
    - types of minerals (Gübelin)1969/**11**:149–192
    - from USA (Dunn)1975/**14**:273–280; pyrrhotite (Dunn)1975/**14**:273–280
    - zircon, radioactive (Gübelin)1948/**1**(7):7–39
  - in amber—
    - fly (Webster)1966/**10**:84–95
    - from Myanmar (Tay Thye Sun)2015/**34**:606–615
    - stress figures (Webster)1951/**3**:72–76
    - bees in plastic simulatant (Kennedy)2002/**28**:76
  - in amblygonite (Eppler)1971/**12**:256–262
  - in amethyst—
    - feathers (Day)1952/**3**:322–326; letter on (Chisholm)1953/**4**:23
    - fluid, from Brazil (Williams)2014/**34**:288–289
    - formation of (Gübelin)1957/**6**:1–47
    - goethite (Webster)1966/**10**:84–95
    - healing fissures (Eppler)1959/**7**:40–66
    - hematite, from Korea (Kim)1990/**22**:204–206
    - mono- and multiphase in (Gübelin)1976/**15**:165–171; (Gübelin)1977/**15**:289–294
    - synthetic, from Japan (Lind)1987/**20**:274–277
    - from Tanzania (Rutland)1963/**9**:132–135
    - types of minerals (Gübelin)1969/**11**:149–192
  - in ammonite, fossil, from Canada (Wight)1981/**17**:406–415
  - in andalusite—
    - chiastolite (Eppler)1971/**12**:256–262
    - healing fissures (Eppler)1959/**7**:40–66
    - striations (Gübelin)1950/**2**:281–303
  - in andradite—
    - asbestos fibres (Webster)1966/**10**:84–95
    - byssolite fibres (Gübelin)1948/**1**(7):7–39; (Gübelin)1950/**2**:281–303
    - chrysotile, from Italy (Hoskin)2003/**28**:333–336
    - demantoid (Webster)1966/**10**:84–95; from Pakistan (Adamo)2015/**34**:428–433
  - in apatite—
    - (Rutland)1954/**4**:283–287; (Webster)1966/**10**:84–95
    - actinolite/tremolite-like needles (Farn)1977/**15**:363–364
    - blue (Farn)1977/**15**:235
    - cat's-eye—
      - from East Africa (Barot)1995/**24**:569–580
      - from Tanzania (Gübelin)1983/**18**:592–595
      - from Kenya (Zwaan)2014/**34**:289–290
      - from Mozambique (Chaipaksa)2015/**34**:654
      - unidentified crystal (Webster)1966/**10**:84–95
  - in aquamarine—
    - (Eppler)1970/**12**:37–41; (de Goutière)1993/**23**:286–287
    - from Australia (Brown)1985/**19**:707–722
    - from Brazil (Bank)2001/**27**:257–258
    - cat's-eye/star from East Africa (Barot)1995/**24**:569–580
    - from China (Ruzeng)2007/**30**:297–301
    - formation of (Gübelin)1957/**6**:1–47
    - healing fissures (Eppler)1959/**7**:40–66
    - hematite (Webster)1966/**10**:84–95
    - from India (Phukan)1966/**10**:1–7
    - minerals, types of (Gübelin)1969/**11**:149–192
    - multiphase (Gübelin)1948/**1**(7):7–39; (Eppler)1962/**8**:245–250
    - from Nigeria (Lind)1986/**20**:48
    - quartz (Eppler)1963/**9**:9–16
    - typical (Gübelin)1950/**2**:281–303
    - unusual thin-film (de Goutière)1993/**23**:286–287
  - in assembled gem materials—
    - (Webster)1964/**9**:160–176
    - doublet—
      - beryl, simulating ruby (Scarratt)1987/**20**:361
      - with garnet top and glass pavilion (Gübelin)1948/**1**(7):7–39
      - of glass and dendritic agate (Kammerling)1991/**22**:459–462
      - with quartz top and beryl pavilion (Farn)1960/**7**:270–273
    - of peridot fragments in polymer matrix (Choudhary)2015/**34**:401–402
    - soudé and garnet-topped, simulating emerald (Webster)1955/**5**:185–221
  - triplet—
    - beryl, 'Smaryl', simulating emerald (Webster)1966/**10**:120–122
- autogenic, formation of (Gübelin)1957/**6**:1–47
- in axinite, ferro-, from Sri Lanka (Hänni)1982/**18**:20–27
- in beryl—
  - bicoloured, from India (Aliprandi)1987/**20**:352–355
  - cat's-eye/star from East Africa (Barot)1995/**24**:569–580
  - from China (Ruzeng)2007/**30**:297–301
  - doublet—
    - with quartz top (Farn)1960/**7**:270–273
    - ruby simulatant (Scarratt)1987/**20**:361
  - formation of (Gübelin)1957/**6**:1–47
  - iron oxide (Webster)1966/**10**:84–95
  - mineral (Gübelin)1981/**17**:545–554
  - multiphase (Webster)1966/**10**:84–95
  - negative crystals, cause of (Eppler)1966/**10**:49–56
  - from Nigeria (Schwarz)1996/**25**:11–141
  - from pegmatites (Sunagawa)1999/**26**:521–533
  - star (Eppler)1960/**7**:183–191; (Schmetzer)2004/**29**:65–71
  - synthetic, red hydrothermal, from Russia (Henn)1999/**26**:481–486
- triplet, 'Smaryl', simulating emerald (Webster)1966/**10**:120–122
- yellow—
  - from Madagascar (Gübelin)1957/**6**:151–165; (Webster)1966/**10**:84–95
  - multiphase (Webster)1966/**10**:84–95
- in beryllonite from USA (Dunn)1975/**14**:208–212
- in book by F. G. Smith, *Historical Development of Inclusion Thermometry* (Chisholm)1955/**5**:77–85
- in brazilianite (Trumper)1951/**3**:1–13

- in calcite, cathodoluminescence and CL spectra of (Ponahlo)2002/**28**:85–100
- in cat's-eye gems from East Africa (Barot)1995/**24**:569–580
- in chondrodite—  
from Sri Lanka (Zwaan)2002/**28**:162–168  
from Tanzania (Clark)2015/**34**:655
- in chrysoberyl—  
from Brazil (Cassedanne)1993/**23**:333–354;  
(Schmetzer)2014/**34**:32–40  
cat's-eye (Eppler)1958/**6**:251–263;  
(Soman)1985/**19**:412–415; page 412  
(Err)1985/**19**:553  
nail-head spicules, from Myanmar  
(Schmetzer)2015/**34**:434–438  
from Tanzania (Schmetzer)2011/**32**:179–209  
vanadium-bearing (Schmetzer)2013/**33**:223–238  
see also 'in alexandrite'
- in chrysoberyl, synthetic—  
colourless (Schmetzer)1985/**19**:682–691  
titanium-bearing (Schmetzer)2013/**33**:137–148  
vanadium-bearing (Schmetzer)2013/**33**:223–238  
see also 'in alexandrite, synthetic'
- in clinohumite—  
(Choudhary)2007/**30**:303–306  
orange, reportedly from USSR (Scarratt)1984/**19**:115,  
117–119  
from Siberia (Henn)2001/**27**:335–340;  
(Addendum)2001/**27**:443
- and 'coffee-and-cream' effect in cat's-eye cabochons  
(Killingback)2015/**34**:524–530
- in copal from New Zealand (Currie)1997/**25**:408–416
- in corundum—  
diffusion-treated (Kennedy)2001/**27**:272–274;  
letter on (Schmetzer)2001/**27**:360–361;  
(Emori)2014/**34**:130–137; (Smith)2015/**34**:486–488  
glass-filled, see Filling, fracture or cavity  
from Kenya, pink (Barot)1994/**24**:165–172  
from Malawi—  
silk (Mitchell)1983/**18**:520–522  
untreated and heat-treated (Rankin)2002/**28**:65–75  
natural vs. synthetic distinction (Bidny)2010/**32**:7–13  
needles other than rutile (Eppler)1972/**13**:41–44  
solid, identified by X-ray powder diffraction  
(Zwaan)1967/**10**:224–234  
from Sri Lanka, hematite (Gübelin)1948/**1**(7):7–39  
star (Tait)1955/**5**:65–72  
from Tanzania (Rutland)1963/**9**:132–135;  
(Hänni)1987/**20**:278–284  
thorite (Carbonin)1998/**26**:262–264  
from Vietnam (Long)2004/**29**:129–147  
yellow, with temperature-sensitive vapour bubble  
(Grubessi)1986/**20**:163–165  
zircon and effects of heat treatment  
(Rankin)2003/**28**:257–264  
see also 'in ruby' and 'in sapphire'
- and country of origin determination  
(Hänni)1994/**24**:139–148
- damage vs. inherent (Crowningshield)1958/**6**:355–359
- in demantoid, see 'in andradite'
- diagnostic importance of (Gübelin)1948/**1**(7):7–39;  
(Gübelin)1950/**2**:281–303
- in diamond, see 'Diamond, inclusions in'
- in diaspore (Scarratt)1980/**17**:145–148; (Duroc-  
Danner)1987/**20**:371–375
- in diopside—  
from Italy (Jackson)1985/**19**:486–489  
chrome, from USSR (Schrader)1984/**19**:213–217  
star, black (Eppler)1967/**10**:185–188;  
(Martin)1967/**10**:235–241
- in dolomite, cathodoluminescence and CL spectra of  
(Ponahlo)2002/**28**:85–100
- in emerald—  
from Africa, unknown locality  
(Campbell)1978/**16**:93–108  
causing asterism (Schmetzer)2004/**29**:65–71  
from Australia (Webster)1955/**5**:185–221;  
(Brown)1984/**19**:320–335  
from Austria (Webster)1955/**5**:185–221;  
(Gübelin)1956/**5**:342–361  
from Brazil (Webster)1955/**5**:185–221;  
(Miyata)1987/**20**:377–379;  
(Hänni)1987/**20**:446–456;  
(Schwarz)1988/**21**:168–178; growth structure  
and inclusions (Eppler)1960/**7**:221–225;  
(Miyata)1987/**20**:377–379;  
(Schwarz)1990/**22**:147–163; page 163  
(Err)1990/**22**:249  
coated with amorphous carbon  
(Choudhary)2014/**34**:242–246  
from Colombia—  
(Webster)1955/**5**:185–221;  
(Eppler)1963/**9**:123–126;  
(Anderson)1972/**13**:1–2;  
(Bosshart)1991/**22**:409–425;  
(Ringsrud)2013/**33**:187–199  
from Chivor (Johnson)1961/**8**:126–152; pyrite  
(Gübelin)1948/**1**(7):7–39  
growth structure and inclusions  
(Poirot)1971/**12**:271–274  
multiphase (Gübelin)1948/**1**(7):7–39  
from Muzo, calcite (Gübelin)1948/**1**(7):7–39;  
(Gübelin)1957/**6**:151–165  
crystal, unidentified (Hinton)1960/**7**:178  
diagnostic (Gübelin)1950/**2**:281–303  
doublets, soudé and garnet-topped  
(Webster)1955/**5**:185–221  
formation of (Gübelin)1957/**6**:1–47  
growth structure and inclusions (Eppler)1961/**8**:72–77;  
(Yu)1974/**14**:120–131  
from India (Webster)1955/**5**:185–221;  
(Burch)1982/**18**:28–36; three-phase  
(Alexander)1951/**3**:14  
minerals (Gübelin)1969/**11**:149–192;  
(Moroz)1999/**26**:357–363  
from Nigeria (Lind)1986/**20**:48;  
(Schwarz)1996/**25**:11–141  
from Norway (Webster)1955/**5**:185–221  
pyrite (Webster)1966/**10**:84–95  
from Russia (Gübelin)1948/**1**(7):7–39;  
(Webster)1955/**5**:185–221  
from South Africa—  
growth features and inclusions  
(Yu)1974/**14**:120–131  
mica (Webster)1955/**5**:185–221  
three-phase (Schrader)1985/**19**:484–485  
from Spain (Marcos-Pascual)1997/**25**:340–357  
from Tanzania (Thurm)1972/**13**:98–99  
three-phase (Eppler)1962/**8**:245–250;  
(Schrader)1985/**19**:484–485  
treated (Bosshart)1991/**22**:500–503; structural damage  
due to radiation (Koivula)1988/**21**:165–166  
triplet, beryl, 'Smaryl' (Webster)1966/**10**:120–122  
unusual, photo of (Anon)1947/**1**(2):5;  
(Eppler)1970/**12**:37–41  
unknown origin, with trapiche-like inclusions  
(Schiffman)1968/**11**:105–114  
from Zambia (Campbell)1973/**13**:169–179  
from Zimbabwe—  
(Kanis)1991/**22**:264–272;



- (Zwaan)1998/**26**:174–187  
Rhodesia (Gübelin)1958/**6**:340–354; descriptions  
of (Anderson)1978/**16**:177–185  
in emerald, synthetic—  
(Webster)1970/**12**:101–148;  
(Schmetzer)1997/**25**:389–390  
Biron from Australia (Scarratt)1987/**20**:289–291; page  
289 (Err)1987/**20**:392  
Chatham (Webster)1955/**5**:185–221;  
(Eppler)1958/**6**:360–369; (Duyk)1963/**9**:130–  
131; (Webster)1970/**12**:101–148;  
(Schmetzer)1999/**26**:487–500  
copper (Schmetzer)2006/**30**:59–74  
feathers (Webster)1966/**10**:84–95  
filled fractures (Choudhary)2015/**34**:483–484  
in flux grown (Anderson)1969/**11**:303–306  
from Germany (Webster)1955/**5**:185–221  
Gilson (Webster)1964/**9**:191–196; (Duyk)1965/**9**:369–  
371; (Webster)1970/**12**:101–148; yellowish green  
(Schmetzer)1989/**21**:305–307  
growth structure (Kiefert)1991/**22**:427–438  
healing fissures (Eppler)1959/**7**:40–66  
at Herbert Smith Memorial Lecture  
(Eppler)1961/**8**:88–95  
hydrothermal (Schmetzer)1997/**25**:389–390  
Igemerald flux (Eppler)1958/**6**:360–369;  
(Schmetzer)1998/**26**:145–155  
Kyocera (Scarratt)1988/**21**:136–139  
Lechleitner (Gübelin)1961/**8**:49–63;  
(Eppler)1968/**11**:120–124;  
(Webster)1970/**12**:101–148;  
(Schmetzer)1990/**22**:20–32  
Lennix (Farn)1980/**17**:73–80;  
(Hodgkinson)1988/**21**:179–181; page 181  
(Err)1988/**21**:267; (Scarratt)1988/**21**:131–133  
Linde hydrothermal (Pough)1965/**9**:426–433;  
(Webster)1970/**12**:101–148; (Anderson)1972/**13**:3  
liquid, wisp-like (Gübelin)1974/**14**:149–155  
Nacken (Webster)1955/**5**:185–221;  
(Eppler)1958/**6**:360–369; (Nassau)1978/**16**:36–49;  
(Schmetzer)1999/**26**:487–500  
quartz, synthetic (Choudhary)2015/**34**:483–484  
from Russia (Scarratt)1987/**20**:412–420;  
(Schmetzer)1988/**21**:145–164;  
(Sosso)1995/**24**:501–507;  
(Schmetzer)1997/**25**:389–390  
Seiko (Kennedy)1986/**20**:14–17  
vanadium-bearing (Taylor)1967/**10**:211–217  
Zerfass (Webster)1970/**12**:101–148  
in enstatite—  
(Eppler)1971/**12**:256–262  
needles (Eppler)1971/**12**:256–262  
from Sri Lanka (Zoysa)1985/**19**:419–425  
star (Eppler)1967/**10**:185–188  
from Tanzania (Koivula)1988/**21**:92–94  
in euclase—  
from Colombia, three-phase (Duroc-  
Danner)1996/**25**:175–176  
from Zimbabwe (Stocklmayer)1998/**26**:209–218  
in feldspar—  
andesine, reportedly from Tibet  
(Abduriyim)2009/**31**:283–298  
aventurescent oligoclase from USA (Henn)2004/**29**:72–74  
labradorite (Ostwald)1965/**9**:309–324  
moonstone (Gübelin)1950/**2**:281–303;  
(Webster)1952/**3**:275–278  
orthoclase—  
from Austria (Chaipaksa)2014/**34**:190  
healing fissures (Eppler)1959/**7**:40–66  
plagioclase—  
bubble-like forms reminiscent of synthetics  
(Anderson)1952/**3**:190–192  
cathodoluminescence and CL spectra of  
(Ponahlo)2002/**28**:85–100  
for fingerprinting of gems for re-identification  
(Webster)1954/**4**:231–243  
in fluorite—  
(Gübelin)1974/**14**:149–155  
cubic (Gübelin)1950/**2**:281–303  
formation of (Gübelin)1957/**6**:1–47  
green, from Vietnam (Chaipaksa)2014/**34**:194–195  
healing fissures (Eppler)1959/**7**:40–66  
minerals (Gübelin)1969/**11**:149–192  
synthetic (Duyk)1971/**12**:209–211  
formation of (Gübelin)1957/**6**:1–47  
in garnet—  
antiquities in J. Paul Getty Museum  
(Thoresen)2013/**33**:201–222  
cathodoluminescence and CL spectra of  
(Ponahlo)2002/**28**:85–100  
colour-change, from East Africa  
(Jobbins)1975/**14**:201–208  
diamond possible? (Chisholm)1955/**5**:77–85  
from Egypt (Kammerling)1993/**23**:412–414  
from Finland (Hornytzkyj)1980/**17**:153–164; page 160  
(Err)1980/**17**:282  
monazite, colour-change (Hornytzkyj)1981/**17**:373–380  
rhodolite—  
cat's-eye/star from East Africa  
(Barot)1995/**24**:569–580  
from Rhodesia/Zimbabwe  
(Campbell)1972/**13**:53–64  
from USA (Martin)1970/**12**:29–36  
solid, identified by X-ray powder diffraction  
(Zwaan)1967/**10**:224–234  
star—  
rhodolite from Tanzania  
(Kammerling)1990/**22**:16–18  
from Madagascar (Schmetzer)2002/**28**:13–23  
see also 'in andradite'; 'in grossular'; 'in spessartine'  
in glass—  
apatite needles (Mitchell)1982/**18**:203–205  
buchite (natural) from Germany (Henn)2015/**34**:562–  
563  
chalcedony simulant, blue (Hänni)2001/**27**:275–285  
copper in 'goldstone' (Mitchell)1982/**18**:200–202  
lead, simulating emerald (Williams)2015/**34**:398–399  
from Libyan desert (Eppler)1971/**12**:256–262  
moldavite (Gübelin)1948/**1**(7):7–39  
needle-like, resembling ekanite (Duroc-  
Danner)2003/**28**:280–282  
obsidian and moldavite (Webster)1949/**2**:159–163  
radioactive, imitating emerald (Duroc-  
Danner)1992/**23**:80–83  
red, used by Fabergé (Harding)1989/**21**:275–287  
see also 'in obsidian' and 'in tektite'  
in grossular—  
bicoloured, from Tanzania (Zwaan)2014/**34**:195–197  
cat's-eye/star from East Africa (Barot)1995/**24**:569–580  
colourless, from Tanzania (Zook)1975/**14**:225–229  
green (Eppler)1971/**12**:256–262  
hessonite—  
from Canada, fracturing  
(Koivula)1985/**19**:579–583  
diopside and zircon crystals  
(Gübelin)1948/**1**(7):7–39;  
(Gübelin)1950/**2**:281–303  
died to simulate ruby (Panjekar)2014/**34**:204–205  
formation of (Gübelin)1957/**6**:1–47

- from India (Kanis)1994/**24**:75–83  
 tsavorite (Eppler)1971/**12**:256–262;  
 (Jackson)1992/**23**:67–70  
 in halite (Gübelin)1974/**14**:149–155  
 healing fissures, origin of (Eppler)1959/**7**:40–66  
 in idocrase from Italy (Novaga)1994/**24**:173–177  
 in iolite—  
   brookite (Gübelin)1948/**1**(7):7–39  
   cat's-eye (Kammerling)1991/**22**:395–398  
   minerals (Gübelin)1969/**11**:149–192  
   pinitisation (Gübelin)1948/**1**(7):7–39  
   from Sri Lanka (Gübelin)1957/**6**:151–165  
 in ivory, hornbill (Brown)1982/**18**:8–19  
 in jadeite—  
   appearance for distinguishing A- and B- (Li  
   Jianjun)2008/**31**:125–131  
   chrome (Ou Yang)2001/**27**:321–325  
 in jeremejevite (Smith)2014/**34**:138–142  
 in johachidolite (Harding)1999/**26**:324–329  
 in kornerupine—  
   cathodoluminescence and CL spectra of  
   (Ponahlo)2002/**28**:85–100  
   cat's-eye—  
     from East Africa (Barot)1995/**24**:569–580  
     from Sri Lanka (Korevaar)1977/**15**:225–230  
   minerals (Gübelin)1969/**11**:149–192  
 in kyanite—  
   (Gübelin)1950/**2**:281–303; (Gübelin)1969/**11**:149–192;  
   (Ghera)1988/**21**:83–87; pages 83, 84  
   (Err)1988/**21**:201  
   cathodoluminescence and CL spectra of  
   (Ponahlo)2002/**28**:85–100  
   cat's-eye/star from East Africa (Barot)1995/**24**:569–580  
   grey (Ghera)1988/**21**:83–87; pages 83, 84  
   (Err)1988/**21**:201  
   from Tanzania (Zwaan)2014/**34**:198–200  
 liquid—  
   formation of (Gübelin)1957/**6**:1–47  
   letter from Sir David Brewster in 1835 reproduced  
   (Brewster)1953/**4**:56–63; notes on  
   (Chisholm)1955/**5**:77–85  
 in mica, of insects (Rutland)1960/**7**:299–300  
 of minerals in gems (Gübelin)1969/**11**:149–192  
 in moissanite, synthetic (Nassau)1999/**26**:425–438;  
 (Taijin Lu)2002/**28**:129–135; from Russia  
 (Kiefert)2001/**27**:471–481  
 inmorganite from Afghanistan and Madagascar  
 (Hänni)2003/**28**:417–429  
 in mosandrite from Russia (Henn)2015/**34**:565–566  
 in musgravite—  
   from Africa (Schmetzer)2007/**30**:367–382  
   faceted (Demartin)1993/**23**:482–485  
   from Sri Lanka (Schmetzer)2005/**29**:281–289  
 negative crystals, cause of (Eppler)1966/**10**:49–56  
 new, presented at 1993 GAGTL conference  
 (Burland)1994/**24**:45–49  
 in obsidian (Zook)1973/**13**:220–225; from Chile  
 (Hyršl)1999/**26**:321–323  
 in opal—  
   (Gübelin)1986/**20**:139–144; (Scarratt)1987/**20**:411–412  
   hyalite from Mexico—  
     daylight fluorescent (Fritsch)2015/**34**:490–508  
     iridescent (Hänni)1989/**21**:488–495; letter on  
     (Sadler)1990/**22**:56  
   in opal simulatant—  
     Gilson fire (Gunawardene)1984/**19**:43–53  
     Slocum stone (Burch)1985/**19**:586–596; pages  
     591, 192, 595 (Err)1985/**19**:742  
 optic figures of, method of obtaining  
 (Koivula)1993/**23**:323–325  
 in painite, of phlogopite (Hornytzkyj)1983/**18**:500–503  
 in pearl (Rutland)1971/**12**:219–225  
 in peridot—  
   (Webster)1966/**10**:84–95; (Zook)1973/**13**:133–138  
   biotite (Gübelin)1948/**1**(7):7–39  
   chalcopyrite (Koivula)1987/**20**:272–273  
   characteristic and unusual (Zook)1973/**13**:133–138  
   chrysolite from Zebirget (Zabargad) Island, Red Sea  
   (Gübelin)1948/**1**(7):7–39  
   extraterrestrial (Henn)1992/**23**:86–88  
   formation of (Gübelin)1957/**6**:1–47  
   healing fissures (Eppler)1960/**7**:301–302  
   minerals (Gübelin)1969/**11**:149–192  
   of negative crystals, cause of (Eppler)1966/**10**:49–56  
   from Nevada (Führbach)1998/**26**:86–102; page 93  
   (Err)1998/**26**:203  
   spinel, from Mexico (Dunn)1978/**16**:236–238  
   from Sri Lanka (Gunawardene)1985/**19**:692–702  
   star (Borg)1980/**17**:1–4; page 2, Figure 1a  
   (Err)1980/**17**:144  
   unidentified (Webster)1966/**10**:84–95  
   from Vietnam (Kammerling)1995/**24**:355–361  
 in phenakite—  
   from Brazil (Dunn)1976/**15**:113–118;  
   (Gübelin)1979/**16**:357–362  
   perettiite-(Y), new mineral (Laurs)2015/**34**:559  
   from Spain (Marcos-Pascual)1997/**25**:340–357  
   synthetic, drusy, from Russia (Hyršl)1999/**26**:447–449  
 in plastic simulating amber, of bees (Kennedy)2002/**28**:76  
 in quartz—  
   actinolite (Gübelin)1948/**1**(7):7–39  
   carbonate mineral, well-formed  
   (Laurs)2015/**34**:392–393  
   cat's-eye (Eppler)1958/**6**:251–263  
   citrine—  
     feathers (Day)1952/**3**:322–326  
     natural, synthetic and treated  
     (Schmetzer)1989/**21**:368–391  
   cracks (Joshi)1976/**15**:129–135; letter on  
   (Gübelin)1977/**15**:343–344  
   crocidolite (Eppler)1971/**12**:256–262  
   doublet with beryl back (Farn)1960/**7**:270–273  
   dumortierite, from Brazil (Laurs)2015/**34**:391–392  
   fibres, radiating (Krzemnicki)2014/**34**:296–298  
   fluorescent oil (de Goutière)1994/**24**:84–85  
   formation of (Gübelin)1957/**6**:1–47  
   gold (Laurs)2014/**34**:101–102  
   grunerite (Gübelin)1976/**15**:111–113  
   healing fissures (Eppler)1959/**7**:40–66  
   helvite (Dunn)1975/**14**:335–338;  
   (Gübelin)1976/**15**:111–113  
   lizardite (Rossman)2014/**34**:98–99  
   minerals (Gübelin)1969/**11**:149–192  
   prasiolite, natural, synthetic and treated  
   (Schmetzer)1989/**21**:368–391  
   quartz (Eppler)1963/**9**:9–16  
   rose—  
     (Webster)1966/**10**:84–95  
     from Brazil (Cassedanne)1991/**22**:273–286  
     dendritic manganese oxide  
     (Gübelin)1957/**6**:151–165;  
     (Webster)1966/**10**:84–95  
   rutile (Webster)1966/**10**:84–95; whiskers  
   (Sunagawa)2004/**29**:1–7  
   smoky—  
     showing colour concentration  
     (Koivula)1986/**20**:208–209

- two-phase (Gübelin)1948/**1**(7):7–39
- tourmaline (Dunn)1975/**14**:335–338;  
(Gübelin)1976/**15**:111–113
- treated by 'Aqua Aura' method  
(Kammerling)1989/**21**:364–367
- in rhodochrosite from Brazil (Zwaan)2015/**34**:473–475
- in ruby—
- calcite (Schubnel)1967/**10**:189–193
- cat's-eye/star from East Africa (Barot)1995/**24**:569–580
- filled (Scarratt)1985/**19**:293–297;  
(Scarratt)1988/**21**:133–134
- formation of (Gübelin)1957/**6**:1–47
- glass filling of, see Filling, fracture or cavity
- heat and diffusion treated  
(Gunawardene)1984/**19**:298–310
- from Kenya (Key)1991/**22**:484–496
- from Madagascar (Schwarz)2001/**27**:409–416
- from Malawi (Henn)1990/**22**:83–89;  
(Kiefert)1991/**22**:471–482
- minerals (Gübelin)1969/**11**:149–192
- from Myanmar—
- (Alexander)1949/**2**:45–47; (Eppler)1976/**15**:1–5;  
(Kammerling)1994/**24**:3–40; pages 25, 28  
(Err)1994/**24**:130; (Peretti)1996/**25**:3–19
- almandine (Peretti)1996/**25**:3–19
- diagnostic (Gübelin)1950/**2**:281–303
- negative crystals, cause of (Eppler)1966/**10**:49–56
- rutile (Gübelin)1948/**1**(7):7–39;  
(Gübelin)1950/**2**:281–303; with zoning  
(Gübelin)1948/**1**(7):7–39
- tourmaline, dravite (Peretti)1996/**25**:3–19
- tremolite (Peretti)1996/**25**:3–19
- untreated and heat-treated  
(Smith)1995/**24**:321–335
- unusual, photo of (Anon)1947/**1**(2):5
- from Nepal (Harding)1986/**20**:3–10;  
(Bank)1988/**21**:222–226
- oiling of, see Filling, fracture or cavity
- rutile (Webster)1966/**10**:84–95
- from Rwanda (Krzemnicki)1996/**25**:90–106
- 'silk' hollow tubes (Gübelin)1948/**1**(7):7–39
- spinel (Schubnel)1967/**10**:189–193
- from Sri Lanka, lamellae (Gübelin)1948/**1**(7):7–39
- from Tajikistan (Smith)1998/**26**:103–109
- from Thailand—
- (Gübelin)1948/**1**(7):7–39;  
(Gübelin)1950/**2**:281–303;  
(Gübelin)1971/**12**:242–252;  
(Koivula)1987/**20**:369–370;  
sapphirine (Koivula)1987/**20**:369–370
- twinned (Gübelin)1948/**1**(7):7–39;  
(Schmetzer)1987/**20**:294–305
- untreated, compared with flux synthetic (Duroc-Danner)2002/**28**:137–142
- in ruby, synthetic—
- bubbles (Webster)1966/**10**:84–95; elongated, photo of  
(Anon)1947/**1**(2):5
- characteristic (Webster)1970/**12**:101–148;  
(Farn)1977/**15**:366–370
- Chatham (Scarratt)1977/**15**:347–353;  
(Gübelin)1983/**18**:477–499; metallic  
(Burch)1987/**20**:267–269; pink  
(Kammerling)1994/**24**:149–154
- curved lines (Webster)1966/**10**:84–95
- flux—
- compared with untreated natural (Duroc-Danner)2002/**28**:137–142
- Lechleitner synthetic, with synthetic overgrowth  
(Schmetzer)1988/**21**:95–101
- pink Chatham (Kammerling)1994/**24**:149–154
- from Russia (Henn)1993/**23**:393–396; letter on  
(Peretti)1994/**24**:61–63
- hydrothermal—
- (Gübelin)1961/**8**:49–63;  
(Webster)1970/**12**:101–148;  
(Peretti)1997/**25**:540–561
- over natural ruby seed (Anon)1966/**10**:96–98
- Lechleitner, with synthetic overgrowth  
(Schmetzer)1988/**21**:95–101
- Kashan (Gübelin)1983/**18**:477–499;  
(Burch)1984/**19**:54–61; (Henn)1985/**19**:469–478;  
(Schmetzer)2007/**30**:331–356
- Knischka (Gunawardene)1983/**18**:365–378; page 375  
(Err)1983/**18**:778; (Scarratt)1983/**18**:527–529;  
(Gübelin)1983/**18**:477–499
- Kyocera, cat's-eye (Scarratt)1988/**21**:136–139
- negative crystals, cause of (Eppler)1966/**10**:49–56
- new type (Schiffmann)1976/**15**:105–111
- Ramaura, from USA (Gunawardene)1984/**19**:125–138;  
twinned (Schmetzer)1994/**24**:87–93; page 91  
(Err)1994/**24**:226
- star (Breebaart)1957/**6**:72–74
- twinned (Schmetzer)1987/**20**:294–305
- veil-like 'fingerprints' (Duroc-Danner)2003/**28**:483–488
- Verneuil—
- with bubbles resembling natural feathers  
(Anderson)1952/**3**:190–192
- with polysynthetic twin lamellae and induced  
fingerprints (Duroc-Danner)1992/**23**:80–83
- in sapphire—
- blue, for geographical origin  
(Abduriyim)2006/**30**:23–36
- from Brazil (Eppler)1964/**9**:199–204
- cat's-eye—
- from Myanmar (Schmetzer)1987/**20**:346–349
- from East Africa (Barot)1995/**24**:569–580
- chlorapatite (Schubnel)1967/**10**:189–193
- cracks (Eppler)1970/**12**:37–41
- feathers (Webster)1966/**10**:84–95
- filled with green lead glass  
(Leelawatanasuk)2015/**34**:420–427
- formation of (Gübelin)1957/**6**:1–47
- golden sheen, reportedly from Kenya  
(Bui)2015/**34**:678–691
- growth zones and angles (Gübelin)1974/**14**:149–155
- from Kashmir (Phukan)1966/**10**:1–7;  
(Hänni)1990/**22**:67–75
- from Kenya (Mayerson)2015/**34**:662–663
- from Madagascar (Kiefert)1996/**25**:209;  
(Milisenda)1996/**25**:177–184;  
(Gübelin)1997/**25**:453–470; page 468  
(Err)1997/**25**:576; (Milisenda)2001/**27**:385–394
- from Malawi—
- pale blue, with silk (Mitchell)1983/**18**:520–522
- padparadscha (Henn)1990/**22**:83–89
- yellow, with temperature-sensitive inclusion  
(Grubessi)1986/**20**:163–165
- minerals (Gübelin)1969/**11**:149–192
- from Myanmar (Gübelin)1957/**6**:151–165;  
(Kammerling)1994/**24**:3–40; pages 25, 28  
(Err)1994/**24**:130
- orange (Scarratt)1984/**19**:102–105, 107
- pyrrhotite (Schubnel)1967/**10**:189–193
- from Rwanda (Krzemnicki)1996/**25**:90–106
- star—
- from East Africa (Barot)1995/**24**:569–580
- from Kenya (Barot)1989/**21**:467–473
- from Nigeria (Kiefert)1987/**20**:427–442

- from Sri Lanka—  
 calcite (Gübelin)1948/**1**(7):7–39  
 corundum (Gübelin)1948/**1**(7):7–39  
 garnet (Gübelin)1948/**1**(7):7–39  
 liquid feathers (Gübelin)1948/**1**(7):7–39;  
 (Gübelin)1950/**2**:281–303  
 multiphase (Gübelin)1948/**1**(7):7–39;  
 (Hoagland)1952/**3**:330–336  
 phlogopite (Gübelin)1948/**1**(7):7–39  
 'silk' (Gübelin)1950/**2**:281–303  
 zircon—  
 crystal, photo of (Anon)1947/**1**(2):5  
 metamict (Gübelin)1950/**2**:281–303
- from Tajikistan (Smith)1998/**26**:103–109
- from Tanzania—  
 reddish brown (Gunawardene)1984/**19**:139–144  
 spessartine (Clark)2014/**34**:105–106
- from Thailand (Gübelin)1948/**1**(7):7–39;  
 (Gunawardene)1984/**19**:228–239
- treated—  
 diffusion (Scarratt)1981/**17**:609–614;  
 (Schmetzer)2005/**29**:407–449; (Tay Thy  
 Sun)2015/**34**:576–578  
 glass filled, with bubbles (Scarratt)1986/**20**:203–207;  
 (Panjikar)2015/**34**:488–489  
 heat (Scarratt)1988/**21**:133–134; blue, with colour  
 concentrations (Scarratt)1985/**19**:656–657  
 heat and diffusion  
 (Crowningshield)1981/**17**:528–541;  
 (Koivula)1987/**20**:474–477  
 orange (Scarratt)1984/**19**:102–105, 107  
 vs. untreated (Schmetzer)2005/**29**:407–449  
 yellow and orange-brown, natural and treated colour  
 (Schmetzer)1983/**18**:607–622
- zircon—  
 (Rankin)2003/**28**:257–264;  
 (Cartier)2009/**31**:171–179  
 age determination of (Link)2015/**34**:692–700  
 from Sri Lanka—  
 crystal, photo of (Anon)1947/**1**(2):5  
 metamict (Gübelin)1950/**2**:281–303
- in sapphire, synthetic—  
 Chatham (Scarratt)1977/**15**:347–353;  
 (Gübelin)1983/**18**:677–705; pages 678,  
 690, 692, 694, 706 (Err)1984/**19**:208;  
 (Gunawardene)1985/**19**:389–403; page 390  
 (Err)1985/**19**:553; (Burch)1987/**20**:267–269;  
 (Kiefert)1988/**21**:16–22; pink  
 (Kammerling)1994/**24**:149–154  
 characteristic (Webster)1970/**12**:101–148  
 curved striae/colour bands (Gübelin)1948/**1**(7):7–39;  
 (Webster)1966/**10**:84–95  
 gas bubbles (Gübelin)1948/**1**(7):7–39  
 hydrothermal (Peretti)1997/**25**:540–561; from Russia  
 (Schmetzer)2000/**27**:1–7  
 Kyocera (Scarratt)1988/**21**:136–139  
 Plato lines (Kennedy)2001/**27**:270–271  
 star (Breebaart)1957/**6**:72–74  
 twin lamellae in Verneuil (Duroc-  
 Danner)1985/**19**:479–483; pages 482, 483  
 (Err)1985/**19**:647
- in scapolite—  
 cat's-eye (Eppler)1958/**6**:251–263; and star from East  
 Africa (Barot)1995/**24**:569–580  
 healing fissures (Eppler)1959/**7**:40–66  
 from Tanzania (Zwaan)1971/**12**:304–309;  
 (Graziani)1981/**17**:395–405;  
 (Graziani)1983/**18**:379–381; mauve  
 (Farn)1977/**15**:231–234  
 violet (Jackson)1980/**17**:235–238  
 yellow rough (Farn)1977/**15**:237–239
- schiller, origin and nature of (Ostwald)1965/**9**:309–324  
 in serpentine (Webster)1967/**10**:152–170;  
 (Dunn)1976/**15**:113–118  
 in shattuckite (Choudhary)2015/**34**:566–567  
 in sillimanite from India (Zwaan)1982/**18**:277–281  
 in sinhalite from Sri Lanka, needle-like  
 (Gunawardene)1986/**20**:98–99  
 solid, method of identification and reporting  
 (Schubnel)1967/**10**:189–193
- in spessartine—  
 liquid (Gübelin)1950/**2**:281–303  
 from Nigeria (Lind)2000/**27**:129–132
- in sphene from Sri Lanka (Zwaan)1981/**17**:624–635; page  
 627 (Err)1982/**18**:107; letter on (Mitchell)1981/**17**:647
- in spinel—  
 cathodoluminescence and CL spectra of  
 (Ponahlo)2002/**28**:85–100  
 crystals, unidentified (Webster)1966/**10**:84–95  
 formation of (Gübelin)1957/**6**:1–47  
 healing fissures (Eppler)1959/**7**:40–66  
 from Madagascar (Schmetzer)2000/**27**:229–232;  
 (Milisenda)2001/**27**:385–394  
 minerals (Gübelin)1969/**11**:149–192  
 from Myanmar—  
 negative octahedra and uraninite  
 (Boehm)2014/**34**:6–7  
 spinel octahedra (Gübelin)1950/**2**:281–303  
 negative crystals, cause of (Eppler)1966/**10**:49–56  
 from Sri Lanka—  
 (Schmetzer)1988/**21**:69–72  
 apatite (Zwaan)1965/**9**:434–440  
 zincian (gahnospinel) (Schmetzer)1986/**20**:157–160  
 star (Eppler)1958/**6**:251–263  
 stress cracks (Webster)1966/**10**:84–95  
 from Tajikistan (Ananyev)2012/**33**:15–18  
 from Tanzania (Schmetzer)1992/**23**:93–94  
 from Vietnam (Malsy)2012/**33**:19–27  
 zincian—  
 gahnite from Nigeria (Jackson)1982/**18**:265–276  
 gahnospinel from Sri Lanka  
 (Schmetzer)1986/**20**:157–160
- in spinel, synthetic—  
 (Kennedy)2001/**27**:271  
 anomalous extinction (Gübelin)1948/**1**(7):7–39  
 crystal from USSR (Koivula)1991/**22**:300–304  
 red (Eppler)1956/**5**:389–393  
 simulating moonstone (Breebaart)1958/**6**:213–214;  
 page 214 photo captions (Err)1958/**6**:291  
 two-phase (Brinck)1955/**5**:131–134  
 in star gems from East Africa (Barot)1995/**24**:569–580  
 in strontium titanate (Tillander)1960/**7**:211–215;  
 (Webster)1970/**12**:101–148
- in taaffeite—  
 from Africa (Schmetzer)2007/**30**:367–382  
 from Myanmar (Leelawatanasuk)2014/**34**:144–148  
 from Sri Lanka (McDowell)1984/**19**:9–13;  
 (Schmetzer)2005/**29**:290–298
- in tanzanite—  
 cat's-eye (Kammerling)1991/**22**:395–398  
 fluid (Taylor)2013/**33**:149–159, 161–169; with H<sub>2</sub>S  
 (Rankin)2014/**34**:11–12  
 graphite (Dunn)1975/**14**:335–338  
 in tektite, moldavite (Zook)1974/**14**:60–68;  
 (Konta)1976/**15**:179–204; (de Goutière)1995/**24**:415–419  
 in thaumasite from South Africa (Henn)1991/**22**:334–336



- in thortveitite (Chapman)2008/**31**:1–6
- in topaz—
- cathodoluminescence and CL spectra of (Ponahlo)2002/**28**:85–100
  - dislocations and etch patterns (Joshi)1972/**13**:13–20
  - fluorite, from Nigeria (Hornytzkyj)1982/**18**:131–137
  - formation of (Gübelin)1957/**6**:1–47
  - healing fissures (Eppler)1959/**7**:40–66
  - irradiated (Schmetzer)1987/**20**:362–368
  - monazite, colour-change (Hornytzkyj)1981/**17**:373–380
  - multiphase in (Gübelin)1948/**1**(7):7–39; (Eppler)1962/**8**:245–250; (Gübelin)1977/**15**:289–294
  - in natural crystals (Joshi)1971/**12**:346–353
  - from Russia (Virkkunen)1971/**12**:212–213
  - from Rwanda (Henn)2014/**34**:344–349
  - spessartine, from Brazil (Koivula)1991/**22**:366–368
  - typical (Gübelin)1950/**2**:281–303
- in tourmaline—
- from Brazil (Cassedanne)1996/**25**:263–298
  - brown, from Sri Lanka (Henn)1986/**20**:154–156
  - cat's-eye (Eppler)1958/**6**:251–263; (Graziani)1982/**18**:181–193
  - cat's-eye/star from East Africa (Barot)1995/**24**:569–580
  - cathodoluminescence and CL spectra of (Ponahlo)2002/**28**:85–100
  - healing fissures (Eppler)1959/**7**:40–66
  - liquid-filled (Gübelin)1950/**2**:281–303; (Webster)1966/**10**:84–95
  - minerals (Gübelin)1969/**11**:149–192
  - with multiple refractometer readings (Schiffmann)1973/**13**:125–132
  - from Russia (Virkkunen)1971/**12**:212–213
  - from Rwanda (Henn)2014/**34**:344–349
  - spessartine, from Brazil (Koivula)1991/**22**:366–368
  - star (Hyršl)2001/**27**:456–460
  - three-phase (Eppler)1962/**8**:245–250
  - two-phase (Gübelin)1974/**14**:149–155
  - vanadium-bearing (Schmetzer)2007/**30**:413–433
- visible with loupe (Anderson)1966/**10**:69–83
- in williamsite, minerals (Gübelin)1969/**11**:149–192
- xenogenetic, formation of (Gübelin)1957/**6**:1–47
- in YAG (Webster)1970/**12**:101–148
- in zirconite, synthetic (Kammerling)1995/**24**:563–568
- in zircon—
- (Edinburgh Gemmological Group)1993/**23**:387–392
  - cat's-eye (Eppler)1958/**6**:251–263; untreated and heat-treated, from Sri Lanka (Gunawardene)1988/**21**:88–91
  - formation of (Gübelin)1957/**6**:1–47
  - healing fissures (Eppler)1959/**7**:40–66
  - metamict (Gübelin)1950/**2**:281–303
  - radioactive zircon (Gübelin)1948/**1**(7):7–39
  - rutile needles and stress halo (Gübelin)1974/**14**:149–155
- in zoisite—
- cat's-eye/star from East Africa (Barot)1995/**24**:569–580
  - from Merelani with H<sub>2</sub>S (Rankin)2014/**34**:11–12
- see also Diamond, inclusions in; Diamond, synthetic; Filling, fracture or cavity; Graining; Growth structure/zoning; Photomicrography; specific host gem and inclusion materials
- Index of refraction**, see Refractive index
- India**
- analcime, aventurescent, from Jalampura (Talati)1978/**16**:186–190
  - aquamarine from, inclusions in (Phukan)1966/**10**:1–7
  - beryl from Orissa—
    - bicoloured (Aliprandi)1987/**20**:352–355
    - colourless, with Maxixe-type colour centre (Mathew)1998/**26**:238–251  - chrysoberyl cat's-eye from Trivandrum (Soman)1985/**19**:412–415; page 412 (Err)1985/**19**:553
  - diamond—
    - cutting industry in (Sevdermish)1999/**26**:439–446
    - drill for beads used in Cambay (Karanth)1990/**22**:91–96
    - flat, from (Tillander)1968/**11**:125–126
    - from Panna (Field)1950/**2**:347; (Mathur)1955/**5**:73–76; (Phukan)1971/**12**:157–166
    - production in (Viswanath)1970/**12**:41–43  - emerald from—
    - Ajmer (Alexander)1951/**3**:14
    - history of (Webster)1955/**5**:185–221  - grossular, hessonite, from Orissa (Kanis)1994/**24**:75–83
  - Maharajah's sword from, and gems in (Harding)1988/**21**:3–7
  - sapphire from Kashmir (Phukan)1966/**10**:1–7; (Hänni)1990/**22**:67–75; letter on absorption spectra (Hänni)1990/**22**:250–251
  - silica powder used in Cambay, India (Karanth)1989/**21**:497–499
  - sillimanite from Madras (Zwaan)1982/**18**:277–281
  - treasure of Moghul emperors of (Viswanath)1970/**12**:73–76
- Indonesia**
- chrysocolla from Bacan Archipelago (Einfalt) 2006/**30**:155–168
  - opal from Java (Einfalt)2007/**30**:383–398
- Infrared spectroscopy**, see Spectroscopy, infrared
- Insects**
- bees in plastic, simulating amber (Kennedy)2002/**28**:76
  - fly in amber (Webster)1966/**10**:84–95
  - inclusions in mica (Rutland)1960/**7**:299–300
- Instruments**
- accessories, inexpensive (Crawford)1986/**20**:240–241; (Backler)1987/**20**:391–392; (Eadie)1987/**20**:482–485; (Chisholm)1988/**21**:105; (Lewton-Brain)1989/**21**:500–505
  - Adamas Advantage Gem Identification Kit review (Read)1996/**25**:219–224
  - Alpha Diamond Analyzer, for separating diamonds from imitations (Lauris)2014/**34**:91
  - Automated Melee Screening (AMS) device, for separating diamonds from imitations (Grabowski)2015/**34**:467
  - DiaMension Axiom for measuring diamond proportions (Brosh)2014/**34**:185
  - Diamond Fluorescence Imaging (DFI) Mid-UV Laser diamond screening system (Hainschwang)2015/**34**:467
  - for diamond optics measurement (Nelson)1989/**21**:434–447; page 440 (Err)1989/**21**:520
  - for diamond weight estimation (Wilkins)1974/**14**:79–83
  - DiamondCheck, for separating diamonds and simulants (Lauris)2014/**34**:91
  - DiamondLite and DiamondDock, for colour grading diamond (Cowing)2010/**32**:38–51
  - dichroscope—
    - filters for microscope (Miles)1965/**9**:288–289; letter on (Thurm)1965/**9**:365; (Read)1979/**16**:386–407
    - home-made (Grist)1987/**20**:485; (Eadie)1987/**20**:482–485
    - testing fallacies (Mitchell)1981/**17**:446–450  - evolution of, for gem identification (Liddicoat)1981/**17**:568–583
  - Gem Diamond Pen (Read)1979/**16**:465–469
  - Gemlogis Taupe Diamond Segregator (Panjekar)2015/**34**:648
  - GemmoFtir spectrometer (Scarani)2014/**34**:279
  - Gemprint diamond 'fingerprinter' (Read)1979/**16**:386–407
  - Hanneman Mini-cube II for immersion examination (Read)1993/**23**:360–361

at laboratory in Holland (Anon)1948/**1**(8):18  
laboratory requirements (Harper)1947/**1**(1):8–11;  
(Ullman)1947/**1**(2):3–4; (Field)1950/**2**:336–339  
M-Screen automatic melee screening device  
(Laurs)2015/**34**:648  
'Mastercount' for counting gemstones (Anon)1966/**10**:60  
Pettersson proportion slide for diamond  
(Anon)1968/**11**:127–128  
polariscope—  
home-made (Eadie)1987/**20**:482–485; (Lewton-  
Brain)1989/**21**:500–505  
low-cost (Nelson)1985/**19**:400–420  
rotating stone table for use with  
(Martin)1968/**11**:118–119  
Presidium Gem Indicator (Laurs)2015/**34**:381  
Presidium Synthetic Diamond Screener (Laurs)2015/**34**:648  
Rayner—  
Diamond Gauge (Anon)1953/**4**:138  
instruments sold through GAGB (Anon)1961/**8**:125  
sample holder for growth structure analysis  
(Schmetzer)1986/**20**:20–32; (Kiefert)1991/**22**:344–354  
Soxhlet extraction apparatus for removing stains  
(Parkinson)1952/**3**:243–245  
spectrometer, EDXRF, portable (Herzog)2015/**34**:404–418  
stands for (Field)1952/**3**:188–189  
television, closed-circuit, for viewing inclusions  
(Minster)1979/**16**:555–556  
Topcon diamond proportion hand scope  
(Bruton)1975/**14**:330–332  
tweezers, improved (Martin)1967/**10**:266–268  
useful in prospecting (Taylor)1994/**24**:155–160  
X-ray unit for gemmological use (Folgueras-  
Dominguez)1984/**19**:14–23; page 21 (Err)1984/**19**:289  
see also Backscattered electron imaging; Brewster-angle  
meter; Cathodoluminescence; ColorMaster; Computer  
software; DiamondView imaging; Digital imaging;  
Electron microprobe analysis; Filters, Fluorescence,  
ultraviolet; Illumination techniques; Lighting; Loupe;  
Magnetism; Microscopic techniques; Photography;  
Photomicrography; Reflectance/reflectivity meters;  
Refractometer; Scanning electron microscopy;  
Spectrometry [various]; Spectroscope; Spectroscopy  
[various]; Thermal testing; X-radiography; X-ray  
computed microtomography; X-ray diffraction analysis;  
X-ray mapping; X-ray topography

**Intaglio**, see Lapidary arts

### **Interference**

colours in opal, hyalite, daylight-fluorescent  
(Fritsch)2015/**34**:490–508  
figures determined with—  
conoscope, low-cost Hodgkinson  
(Nelson)1986/**20**:49–51  
microscopy (Kiefert)1991/**22**:344–354

**Internal growth structure**, see Crystallography; Growth  
structure/zoning

### **International Amber Association (IAA)**

newsletter (Laurs)2015/**34**:557

### **International Consortium of Gem-Testing Laboratories (ICGL)**

newsletter (Laurs)2014/**34**:4, 93, 279; (Laurs)2015/**34**:382,  
469, 649–650

### **Iolite [cordierite]**

from Canada (Boyd)1983/**18**:544–562  
chatoyant (Kammerling)1991/**22**:395–398  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
glass simulant (Dunn)1976/**15**:113–118  
inclusions in, see 'Inclusions'  
in jewellery at Sotheby's (Hinks)1962/**8**:279

large rough in 'American museum'  
(Webster)1954/**4**:210–211  
simulating tanzanite (Anderson)1971/**12**:154

### **Iran**

diamonds in Crown Jewels (Waite)1976/**15**:53–61

### **Iridescence**

in abalone shell—  
caused by diffraction (Liu)2002/**28**:1–5  
colours (Tan)2005/**29**:395–399  
in hyalite from Mexico (Sinkankas)1966/**10**:100–105;  
(Gübelin)1986/**20**:139–144; (Hänni)1989/**21**:488–495;  
letter on (Sadler)1990/**22**:56  
in plagioclase (Howie)1998/**26**:13–16; rainbow moonstone  
from Malawi (Williams)2014/**34**:200–201

### **Irradiation**

of beryl—  
colourless, with Maxixe-type colour centre  
(Mathew)1998/**26**:238–251  
structural damage due to (Koivula)1988/**21**:165–166  
of corundum, natural and synthetic (Burbage)1957/**6**:74–77  
of diamond—  
colour centres and spectral features  
(Collins)1982/**18**:37–75  
effects and identification  
(Schiffmann)1969/**11**:233–255  
effects on colour (Burbage)1957/**6**:74–77  
of emerald, natural and synthetic, and effect on colour  
(Schmetzer)1993/**23**:288–293  
of garnet (Burbage)1957/**6**:74–77  
methods and detection of (Jones)1963/**9**:21–31  
physics of, film presentation (Anon)1949/**2**:49–50  
of quartz (Burbage)1957/**6**:74–77; (Henn)2012/**33**:29–43  
of spinel, synthetic (Burbage)1957/**6**:74–77  
of topaz (Burbage)1957/**6**:74–77;  
(Kennedy)2000/**27**:82–83; with high-energy electrons  
(Schmetzer)1987/**20**:362–368  
of zircon (Burbage)1957/**6**:74–77  
see also Diamond treatment; Treatments; Radioactivity

### **Italy**

diopside from Piedmont (Jackson)1985/**19**:486–489  
idocrase from Valle d'Aosta (Novaga)1994/**24**:173–177  
nephrite from—  
Sestri Levante (Nichol)2003/**28**:463–471  
Val Malenco (Nichol)2005/**29**:305–315  
omphacite jade from Po Valley, Piedmont  
(Adamo)2006/**30**:215–226  
tinzenite from (Laurs)2014/**34**:102–103

### **Ivory**

hornbill (Brown)1982/**18**:8–19; natural and imitation (Jie  
Liang)2014/**34**:42–49  
inclusions in, see 'Inclusions'  
regulations proposed in USA (Laurs)2015/**34**:558  
resin imitation of—  
cast polyester (Scarratt)1992/**23**:218–222  
hornbill (Jie Liang)2014/**34**:42–49  
thesis summary on (Webster)1947/**1**(1):5  
walrus, stained (Jobbins)1975/**14**:288–291

## **J**

### **Jade**

carving of (Ruff)1947/**1**(1):6–7  
Chinese, lecture on (Hansford)1951/**3**:69–71, 76  
cosmetics, effects of (Webster)1964/**9**:255–259  
history of—  
from the Americas (Ruff)1959/**7**:18–31;  
(Ruff)1959/**7**:141–160; (Ruff)1960/**7**:236–246  
European (Ruff)1954/**4**:336–347; (Ruff)1955/**5**:6–16;  
(Ruff)1955/**5**:141–152; (Ruff)1956/**5**:274–291;  
photo credits (Err)1956/**5**:330; (Ruff)1956/**5**:402–  
421; (Ruff)1958/**6**:225–244

- in Mexican Art exhibition at Tate Gallery (Ruff)1953/4:120–125
- lecture on (Hansford)1951/3:69–71, 76
- from Myanmar (Franz)2014/34:210–229
- nomenclature (Hardinge)1953/4:112–114; (Anderson)1953/4:114–117; and ‘Tibetan jade’ (Dragsted)1961/8:65–67; (Franz)2014/34:210–229
- specific gravity of carvings (Farn)1965/9:291
- ‘Transvaal’ (Kennedy)1954/4:244–249
- see also Jadeite; Kosmochlor; Nephrite; Omphacite; Rocks
- Jade simulants**
- black rocks (Koivula)1990/22:131–134
- bowenite, specific gravity of carvings (Farn)1965/9:291
- brucite simulating nephrite and Shoushan stone (Li Jianjun)2010/32:67–73
- glass—
- devitrified (Scarratt)1986/20:145, 147
- purpurine (Farn)1972/13:123–124
- in Myanmar (Hlaing)2014/34:197–198
- quartz, impregnated (Tan)2003/28:392–398
- saussurite, albite-zoisite rock (Jobbins)1974/14:1–7; (Farn)1976/15:16; (Scarratt)1987/20:356–358
- ‘Swiss jade’ (Nichol)2005/29:299–304, 467–472
- see also Jadeite
- Jadeite**
- B-type—
- bleached and resin-impregnated (Scarratt)1992/23:217–218
- distinguishing from A type (Li Jianjun)2008/31:125–131
- identification of (Quek)1997/25:417–427; (Gao Yan)1999/26:302–307
- black—
- (Ou Yang)1999/26:417–424
- distinction from rocks (Koivula)1990/22:131–134
- cathodoluminescence of (Ponahlo)1988/21:182–193
- cause of colour in (Harder)1995/24:508–511; page 508, 509, 510 (Err)1995/24:619;
- colour variation in (Cavey)1987/20:376
- deposits in former USSR (Spiridonov)1998/26:111–125
- distinguishing A from B types (Li Jianjun)2008/31:125–131
- ‘hte long sein’ (Ou Yang)2001/27:321–325
- inclusions in, see ‘Inclusions’
- from Mexico (Ostrooumov)2010/32:1–6
- from Myanmar (Kammerling)1994/24:3–40; pages 25, 28 (Err)1994/24:130; (Win Htein)1994/24:269–276; pages 270, 276 (Err)1995/24:286; (Win Htein)1995/24:315–320; (Harder)1995/24:508–511; page 508, 509, 510 (Err)1995/24:619; (Shi)2009/31:185–195; microscopic studies of (Ou Yang)1993/23:278–284; (Franz)2014/34:210–229
- petrified wood sold as (Axon)1964/9:263–267
- treated—
- bleached wax- and polymer-impregnated (Tan)1995/24:475–483
- dyed, polymer-impregnated (Hodgkinson)1993/23:415–417; (Tan)2006/30:227–233
- identification of dyed (Liu)2009/31:181–184
- identification of polystyrene-impregnated (Quek)1998/26:168–173
- see also ‘B-type’
- yellow, with moon-like appearance (Mitchell)1989/21:496
- see also Jade; Maw-sit-sit; Rocks
- Jadeite simulants**, see Jade simulants
- Japan**
- Akira Chikayama Gem Laboratory in Tokyo (Gill)1982/18:282–284
- coral from (Levett)1947/1(2):11–12
- corundum in, Be-diffused (Emori)2014/34:130–137
- emerald, synthetic, ‘Crescent Vert’ from (Mitchell)1981/17:290–291; letter on (Mayers)1981/17:646
- jasper ‘Mihama pebbles’ from (Anon)1966/10:9
- jet from (Levett)1947/1(2):11–12
- pearls, cultured, from—
- industry (Banister)1961/8:21–29
- freshwater (Wehrmeister)2007/30:399–412
- impact of hurricane on (Probus)1960/7:178
- Jasper**
- genesis of, video of lectures (Grabowski)2015/34:469
- from Guyana (Gosling)1986/20:91–92
- ‘Mihama pebbles’ from Japan (Anon)1966/10:9
- from Poland (Heflik)1993/23:356–359
- see also Chalcedony
- Jaspilite**
- from Ukraine (Baranov)2009/31:163–169
- Jeremejevite**
- inclusions in, see ‘Inclusions’
- large faceted (Smith)2014/34:138–142
- Jet**
- composition of (Muller)1980/17:10–18
- deposits in former USSR (Spiridonov)1998/26:111–125
- from England (Kennedy)1953/4:82–95
- imitation of—
- gutta-percha and vulcanite (Brown)1991/22:292–297
- resin, cast polyester (Scarratt)1992/23:218–222
- identification of (Kennedy)2000/27:81–82
- from Japan (Levett)1947/1(2):11–12
- Siberian capropelic coal (Glushnev)1995/24:349–353
- Jewelers Vigilance Committee (JVC)**
- Essential Guides series online (Laurs)2014/34:4
- Jewellery and objets d’art**
- 19th-century Regency table inlaid with minerals (White)1960/7:295–296
- beads and intaglios from Slovakian archaeological sites (Kadlečíková)2015/34:510–517
- consumer preferences, presentation on (Laurs)2015/34:650
- Crown Jewels of Iran, diamonds in (Waite)1976/15:53–61
- design trends in North America (Field)1952/3:327–329
- diamond, rose-cut, mounted with false pavilion (Farn)1965/9:355–356
- diamond cuts in 16th–18th century Portuguese jewellery and sacred objects (Galopim de Carvalho)2014/34:116–128
- ewer with quartz and glass (Scarratt)1992/23:139
- fashion in (Farn)1961/8:67–69
- first half of 19th century (Lewis)1955/5:17–28
- and gemmology (Roach)1961/8:64–65
- hallmarks app from Birmingham Assay Office (Laurs)2014/34:93
- manufacturing technology, Santa Fe Symposium proceedings (Laurs)2014/34:280
- methods of photographing (Foster)1991/22:287–291
- Mirasety Ring, with Ethiopian opal and hologram in glass (Mazzero)2014/34:205–206
- from personal collection of Her Majesty the Queen (O’Donoghue)1969/11:307–311
- Responsible Jewellery Council progress report, 2015 (Laurs)2015/34:650
- silver, buying trends survey (Laurs)2014/34:280
- at Smithsonian, royal, newly acquired (Dunn)1975/14:313–321
- snuff boxes in Queen Mary’s collection (Ruff)1954/4:301–303
- stringing of pearls and beads, threads for (Webster)1971/12:275–283
- Stuart Jewel (Jackson)1997/25:428–429
- treasure of Moghul emperors of India (Viswanath)1970/12:73–76
- Windsor, sale of (Gray)1987/20:423–426
- see also History



## Johachidolite

from Korea (Harding)1999/**26**:324–329

## Jobbins, Alan

Editor 1986–1993 (Anon)1994/**24**:74

## Jones, George Harrison

obituary (Jobbins)2010/**32**:128

*The Journal of Gemmology*, see Gem-A

## K

**Kampuchea**, see Cambodia

**Kashan**, see Ruby, synthetic; Sapphire, synthetic

**Kashmir**, see India

## Kent, David George

obituary 2007/**30**:354; (Jobbins)2007/**30**:477

## Kenya

apatite from (Zwaan)2014/**34**:289–290

diopside, colourless, from (Krzemnicki)2014/**34**:291–292

enstatite from Mairimba Hill (Schmetzer)1982/**18**:118–120

grossular, bicoloured, from Kambanga

(Zwaan)2014/**34**:195–197

kornerupine, bluish green, from Namanga

(Schmetzer)1979/**16**:455–457

ruby from Mangari, growth of (Key)1991/**22**:484–496

sapphire—

from Kina (Mayerson)2015/**34**:662–663

pink, from Kitui (Barot)1994/**24**:165–172

star, from Turkana (Barot)1989/**21**:467–473

tourmaline—

Cr- and V-bearing colour-zoned from

(Williams)2015/**34**:476–477

dravite from Osarara, Narok district

(Dunn)1975/**14**:386–387

yellow from—

Taita-Taveta (Simonet)2000/**27**:11–29

Voi-Taveta (Hänni)1981/**17**:437–442

tsavorite from—

Scorpion mine and history of mining

(Bridges)2014/**34**:230–241

Taita-Taveta, growth of (Key)1989/**21**:412–422

## Kerez effect

in tourmaline, green (Fellows)2015/**34**:652–653

see also Refractive index

**'Keshi' pearl**, see Pearl, cultured

## Kielty-Lambrinides, Nikola

obituary (Krikos)2003/**28**:443, 505; page 505

(Err)2004/**29**:60

**Koh-i-Noor [Koh-i-Nür]**, see Diamond; Diamond, cuts and cutting of

## Korea

amethyst from Eonyang, hematite inclusions in

(Kim)1990/**22**:204–206

nephrite from Chuncheon (Kim)1995/**24**:547–550

serpentine from Booyo (Kim)1998/**26**:156–164

**'Korite'**, see Ammonite

## Kornerupine

cathodoluminescence and CL spectra of inclusions in

(Ponahlo)2002/**28**:85–100

cat's-eye, from Sri Lanka (Korevaar)1977/**15**:225–230

cat's-eye/star from East Africa (Barot)1995/**24**:569–580

colour change of (Halvorsen)2006/**30**:1–21

from East Africa—

(Webster)1974/**14**:73–75;

from Kenya and Tanzania, bluish green

(Schmetzer)1979/**16**:455–457

history of (Anderson)1974/**14**:97–113

identification of (Duroc-Danner)1984/**19**:311–316

inclusions in, see 'Inclusions'

## Kosmochlor

in jades from Myanmar, microscopic studies of (Ou

Yang)1993/**23**:278–284; (Franz)2014/**34**:210–229

see also Maw-sit-sit

## Kyanite

blue, from Tanzania (Zwaan)2014/**34**:198–200;

polycrystalline (Krzemnicki)2014/**34**:293–294

from Canada (Field)1953/**4**:24–26

cathodoluminescence and CL spectra of inclusions in

(Ponahlo)2002/**28**:85–100

cat's-eye (Ito)1986/**20**:161–162; and star, from East Africa

(Barot)1995/**24**:569–580

colour-change, from East Africa (Bosshart)1982/**18**:205–212

crystallography of (Mitchell)1950/**2**:237–274

green (Axon)1964/**9**:263–267

inclusion in diamond (Koivula)1998/**26**:222–225

inclusions in, see 'Inclusions'

rarity of (Kennedy)1954/**4**:244–249

yellowish green, from Madagascar (Laurs)2014/**34**:102–103

**Kyocera**, see specific gem materials

## Kunzite

from Brazil, large crystal (Laurs)2015/**34**:386

cat's-eye (Ito)1987/**20**:292–293

cutting of (Deane)1960/**7**:294–295

from USA (Deane)1959/**7**:121

## L

### Labradorescence

in plagioclase (Howie)1998/**26**:13–16

**Labradorite**, see Feldspar

**LA-ICP-MS**, see Spectrometry, laser ablation–inductively coupled plasma–mass

### Laos

sapphire from Ban Huai Sai (Saminpanya)2003/**28**:399–413

### Lapidary arts

Beach Gem Master cutting machine (Anon)1964/**9**:268–269

carving—

dickite from Thailand (Saminpanya)2009/**31**:211–225

jade in China (Ruff)1947/**1**(1):6–7

jaspilite from Ukraine (Baranov)2009/**31**:163–169

quartzite, photo of, from China (Anon)1951/**3**:22

Cavitron carving and drilling machine (Field)1953/**4**:24–26

cutting of kunzite (Deane)1960/**7**:294–295

demonstration at members' meeting (Anon)1952/**3**:268–271

diamond drill for beads used in Cambay, India

(Karanth)1990/**22**:91–96

history of cameo and intaglio carvings (Dick-

Larkam)1948/**1**(5):33–36

in Idar-Oberstein, Germany (Anon)1949/**2**:55–56

silica powder used in Cambay, India

(Karanth)1989/**21**:497–499

in Sri Lanka (Mahroof)1989/**21**:405–410

and symmetrical polyhedra (Lurie)1992/**23**:207–214; letter

on (Nassau)1993/**23**:441; response (Lurie)1993/**23**:441

see also Cuts and cutting; Diamond, cuts and cutting of

### Lapis lazuli

from Canada (Boyd)1983/**18**:544–562

characteristics compared with sodalite

(Schiffmann)1976/**15**:172–179

crushed and bonded with plastic (Farn)1974/**14**:57–58

ornamental (Webster)1958/**6**:297–333

from Russia, mineralogy of (Ostwald)1963/**9**:84–101

scanning electron microscopy of (Taki)1988/**21**:74–80

stained (Anderson)1972/**13**:97

### Lapis lazuli simulants

beads, unidentified (Scarratt)1987/**20**:411–412

damaged with acid (Scarratt)1983/**18**:527, 529

Gilson (Farn)1976/**15**:126–128; (Mitchell)1982/**18**:114–118;

(Schmetzer)1985/**19**:571–578



- glass, devitrified (Scarratt)1987/**20**:285–286  
 identified with 10× loupe (Farn)1977/**15**:371–372  
 scanning electron microscopy of (Taki)1988/**21**:74–80  
 sodalite compared with natural  
 (Schiffmann)1976/**15**:172–179  
 spinel, sintered synthetic, with cobalt  
 (Anderson)1954/**4**:281–281
- Larimar**, see Pectolite
- Laser drilling**  
 of diamond (Lenzen)1974/**14**:69–72;  
 (Scarratt)1992/**23**:138–139  
 KM treatment of diamond inclusions  
 (Horikawa)2001/**27**:259–263  
 see also Diamond treatment
- Lattice diffusion**, see Diffusion treatment
- Lawson Clarke, F.E.**  
 obituary 1989/**21**:518; (Callaghan)1990/**22**:44
- Lawsonite**  
 blue to colourless (Ostwald)1964/**9**:182–184
- Lazulite**  
 deposits in former USSR (Spiridonov)1998/**26**:111–125  
 infrared spectrum of (Hainschwang)2008/**31**:23–29
- Lechleitner**, see Corundum, synthetic; Emerald, synthetic;  
 Ruby, synthetic
- Lectures [transcripts of]**  
 ‘The Atomic Structure of Diamond’ by Lonsdale  
 (Anderson)1949/**2**:1–4  
 ‘A Talk on Jade’ (Hansford)1951/**3**:69–71, 76  
 ‘Luminescence in the Service of Gemmology’  
 (Webster)1953/**4**:100–104  
 ‘Gem Testing Without Instruments’  
 (Anderson)1953/**4**:104–106  
 ‘Recent Research on Diamonds including Artificial  
 Coloration’ (Custers)1954/**4**:305–308  
 ‘The President Speaks on Gemstones’  
 (Bragg)1958/**6**:292–294  
 ‘Six Centuries of Diamond Design’  
 (Tillander)1965/**9**:380–401  
 ‘Gemmology on a Shoestring’ (Anderson)1966/**10**:69–83  
 ‘A Year of Gemmology in Burma’  
 (Jobbins)1969/**11**:297–299  
 ‘Further Developments in Synthetic Materials’  
 (O’Donoghue)1978/**16**:30–35  
 ‘Mineral Inclusions Contribute Towards Elucidating the  
 Genesis of the Diamond’ (Gübelin)1982/**18**:297–320  
 ‘Siberian Diamonds’ (Huddleston)1984/**19**:348–369  
 see also Conference reports; Herbert Smith Memorial Lectures
- LED [Light-emitting diode]**, see Lighting
- Legal issues**  
 Chatham synthetic emerald (Wheeler)1960/**7**:181–182; and  
 Federal Trade Commission order (Anon)1960/**7**:283–  
 284  
 ‘Export of Natural Heritage Specimens’ (Rolfe)1990/**22**:186  
 fingerprinting of gems for re-identification  
 (Webster)1954/**4**:231–243  
 forensics (Webster)1953/**4**:153–168  
 and frauds—  
 common in USA and Canada (Field)1952/**3**:285–288  
 jeweller’s role in detecting (Webster)1947/**1**(1):20–23  
 and misnomers (Leak)1949/**2**:60–62  
 photographic evidence for (Webster)1966/**10**:84–95  
 and science in gemmology (Harper)1947/**1**(1):8–11  
 Trade Descriptions Act, UK (Anon)1970/**12**:27  
 and X-radiography of jewellery (Vincent)1948/**1**(5):14–15
- Lennix**, see Emerald, synthetic
- Lepidolite**, see Mica
- Letters**  
 ‘The Basil Anderson Spectrophotometer Appeal’  
 (Callaghan)1985/**19**:738–742; (Callaghan)1986/**20**:136
- ‘Export of Natural Heritage Specimens’ (Rolfe)1990/**22**:186  
 on ‘a forthcoming treatise...on Anderson’s research and  
 work with the spectroscope’ (Mitchell)1992/**23**:57;  
 response (Farn)1992/**23**:120–121  
 on correction to caption on page 166 ‘Internal World of  
 Gemstones’ (Gübelin)1977/**15**:287  
 ‘John M. Jerwood MC FGA’ (Farn)1994/**24**:286–287  
 on Toblerone candy optics (Mitchell)1988/**21**:267
- Level, Dina**  
 French gemmologist (Farn)1992/**23**:84–85; and 10× loupe  
 (Farn)1988/**21**:140–141; obituary (Farn)1988/**21**:265
- Lewis, M.D.S.**  
 obituary (Nelson)1986/**20**:257; (Chisholm)1987/**20**:314, 505
- Liddicoat, Richard T.**  
 obituary (Callaghan)2002/**28**:240–241
- Liddicoatite**, see Tourmaline
- Lighting**  
 for colour-change gems (Liu)1999/**26**:371–385  
 for colour description and grading  
 (Ponahlo)1984/**19**:163–173; (Nelson)1986/**20**:217–236  
 for crossed filters technique (Hoover)2005/**29**:473–481  
 for diamond grading (Read)1979/**16**:386–407;  
 (Cowing)2010/**32**:38–51  
 for display of gems (Kennedy)1951/**3**:48–58  
 fibre-optic and ‘coffee-and-cream’ effect  
 (Killingback)2015/**34**:524–530  
 home-made unit (Backler)1987/**20**:391–392;  
 (Eadie)1987/**20**:482–485  
 light emitting diodes (LEDs)—  
 for portable instruments (Lamarre)2002/**28**:169–174  
 Rayner spectroscope with built-in (Read)1985/**19**:625–  
 629  
 for microscope (Anon)1950/**2**:211  
 for refractometer (Read)1980/**17**:82–94; compact sodium-  
 type (Anon)1962/**8**:221–222  
 for spectroscope (Ewing)1949/**2**:151–152;  
 (Robb)1965/**9**:445–447; (Martin)1968/**11**:97–99; built-  
 in (Buzalewicz)1961/**8**:69–70  
 for television, closed circuit, for viewing inclusions  
 (Minster)1979/**16**:555–556  
 ultraviolet sources (Thurm)1958/**6**:388;  
 (Webster)1962/**8**:175–192;  
 (Pearson)2011/**32**:211–222  
 see also Colour grading; Diamond, colour grading;  
 Instruments, Illumination techniques, Microscopic  
 techniques
- Limestone**  
 ‘cave pearl’ (Farn)1981/**17**:287–288; page 287  
 (Err)1981/**17**:434
- Lindley, George**  
 obituary (Buckingham)1996/**25**:71, 160
- Liquid crystal**  
 with temperature-sensitive colour  
 (Webster)1975/**14**:333–335
- Literature of Interest** (section of *The Journal*)  
 2014/**34**:84–89, 182–184, 274–276, 378–380; 2015/**34**:463–  
 466, 555–556 (page 556 erratum 2015/**34**:632),  
 642–646  
 see Abstracts prior to 2014
- Lithium niobate**, see Synthetics
- Lizardite**  
 from South Africa, orange (Rossman)2014/**34**:98–99;  
 (Laurs)2014/**34**:102–103
- Llewellyn, Graham D.**  
 obituary (Callaghan)1997/**25**:375, 439
- Localities**, see Country of origin; specific countries; specific  
 gem materials
- Lodestone**, see Magnetite

## Loupe

Beck Lumag and Luminex (Field)1952/**3**:285–288  
choosing (Field)1950/**2**:228–230  
use of (Anderson)1966/**10**:69–83; (Farn)1977/**15**:362;  
(Farn)1988/**21**:140–141  
see also Digital imaging

## Low-temperature spectroscopy, see Cryogenic cooling

## Luminescence

cabinet and 'Transpex' lens for viewing ultraviolet  
(Field)1951/**3**:13  
of diamond, red, to transmitted visible light  
(Shigley)1993/**23**:259–266  
of emerald, laser-induced (Moroz)1999/**26**:316–320  
fluorescence, X-ray—  
of calcite (Anon)1964/**9**:275  
of diamond—  
blue type IIb, with red phosphorescence  
(Anderson)1964/**9**:215–221  
pink (Anderson)1960/**7**:216–220  
of grossular, green, from Pakistan  
(Anderson)1966/**10**:113–119  
in pearl identification (Hänni)2005/**29**:325–329;  
limitations (Lorenz)1986/**20**:114–123; page 116  
(Err)1986/**20**:199  
gemmological usefulness of, lecture  
(Webster)1953/**4**:100–103  
of opal, hyalite, laser-induced (Fritsch)2014/**34**:294–296;  
(Fritsch)2015/**34**:490–508  
of tourmaline, colour-change (Halvorsen)2006/**30**:1–21  
see also Cathodoluminescence; DiamondView imaging;  
Fluorescence, ultraviolet [UV]; Phosphorescence;  
Photoluminescence; Thermoluminescence

## Lustre

relation to stereoscopic vision (Clarkson)1951/**3**:116–118  
speculations on (Lewis)1948/**1**(8):9–17  
see also Cuts and cutting; Diamond, cuts and cutting of

## M

**Mabe**, see Pearl, cultured

## Madagascar

beryl from Ilakaka area (Milisenda)2001/**27**:385–394  
chrysoberyl from Ilakaka area (Milisenda)2001/**27**:385–394;  
vanadium-bearing (Schmetzer)2013/**33**:223–238  
emerald from Mananjary (Schwarz)1992/**23**:140–149  
garnet from—  
colour-change (Krzemnicki)2001/**27**:395–408; from  
Bekily (Schmetzer)2009/**31**:235–282  
Gogogogo, grossular, tsavorite  
(Mercier)1997/**25**:391–393  
Ilakaka area (Milisenda)2001/**27**:385–394  
kyanite from (Laurs)2014/**34**:102–103  
localities in (Milisenda)2001/**27**:385–394  
rose quartz from (Schmetzer)2006/**30**:183–191  
ruby from—  
Andilamena (Laurs)2015/**34**:559  
Marosely (Cartier)2009/**31**:171–179  
Vatomandry (Schwarz)2001/**27**:409–416  
sapphire from—  
Andranondambo (Milisenda)1996/**25**:177–184;  
(Gübelin)1997/**25**:453–470; page 468  
(Err)1997/**25**:576; (Abduriyim)2006/**30**:23–36  
Marosely (Cartier)2009/**31**:171–179  
Nosy-Bé (Ramdohr)2006/**30**:144–154; page 147  
(Err)2007/**30**:355  
Ilakaka area (Milisenda)2001/**27**:385–394  
spinel from Ilakaka area (Schmetzer)2000/**27**:229–232;  
(Milisenda)2001/**27**:385–394  
tourmaline from—  
Ilakaka area (Milisenda)2001/**27**:385–394

Gogogogo-Bekily, vanadium-bearing  
(Schmetzer)2007/**30**:413–433

## Magnesoaxinite

from Tanzania (Jobbins)1975/**14**:368–375

## Magnesite

infrared spectrum of (Hainschwang)2008/**31**:23–29

## Magnetism

magnetic susceptibility—  
of garnets (Hoover)2008/**31**:91–103  
of tourmaline (Feral)2014/**34**:2  
and pocket magnet for detecting  
(Anderson)1953/**4**:169–175  
of star diopside and labradorite (Kent)1973/**13**:308–311  
of synthetic diamond and Barkhausen effect to separate  
from natural (Minster)1987/**20**:458–459; note on  
(Nassau)1988/**21**:103  
see also Instruments

## Magnetite [Iodestone]

inclusion in diamond (Harris)1969/**11**:256–262  
synthetic (Webster)1970/**12**:101–148

**Maine**, see United States of America

## Malachite

with azurite from Peru (Hyršl)2015/**34**:564  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
glass imitation of (Hyršl)2014/**34**:302–303

**Malaia [malaya]**, see Garnet

## Malawi

corundum from—  
Chimwadzulu Hill—  
(Rutland)1969/**11**:320–323  
silk in (Mitchell)1983/**18**:520–522  
heat-treated (Jobbins)1971/**12**:342–343; and  
untreated (Rankin)2002/**28**:65–75  
ruby (Kiefert)1991/**22**:471–482; and padparadscha  
(Henn)1990/**22**:83–89  
yellow, with temperature-sensitive inclusion  
(Grubessi)1986/**20**:163–165  
feldspar, rainbow moonstone from  
(Williams)2014/**34**:200–201

## Manganotantalite

from Mozambique (Hornytzkyj)1979/**16**:363–364

## Map

world gem deposits (Schubnel)1970/**12**:14–17

## Marble

ornamental (Webster)1958/**6**:297–333  
from Scotland (Nichol)2003/**28**:345–252  
see also Dolomite; Limestone

## Marcasite

history of use (Bartlett)1997/**25**:517–531  
from Sri Lanka (Gunawardene)1983/**18**:635–640

## Marketing and distribution

of coloured stones (Sabbagh)1980/**17**:165–180; page 166  
(Err)1980/**17**:282  
of diamond—  
in USA (Liddicoat)1956/**5**:310–318  
use of 'blue-white' (Probus)1959/**7**:121  
false 'sale' of gems by Burmese government  
(Anon)1965/**9**:356  
laboratory reports, false (Kennedy)2000/**27**:84  
terminology (Cartier)2001/**27**:426–431  
UK trading standards and terminology  
(Kennedy)2000/**27**:83–84

## Mass spectrometry, see Spectrometry, laser ablation–

inductively coupled plasma–mass [LA-ICP-MS];  
Spectrometry, mass; Spectrometry, secondary ion mass  
[SIMS]

## Master stones

CZ for grading diamond colour (Cowing)2008/**31**:77–83

- Maw-sit-sit**  
 from Myanmar (Gübelin)1965/**9**:329–344;  
 (Gübelin)1965/**9**:372–379; (Kammerling)1994/**24**:3–40;  
 pages 25, 28 (Err)1994/**24**:130; (Win  
 Htein)1995/**24**:315–320; (Colombo)2000/**27**:87–92;  
 (Franz)2014/**34**:210–229  
 see also Kosmochlor
- Maxixe beryl**, see Beryl
- McInnes, Catriona Orr**  
 obituary (McInnes)2015/**34**:541–542
- Meionite**, see Scapolite
- Merk, Roger**  
 obituary (PeterSchieck)2015/**34**:733
- Metals**, see Gold
- Meteorite**  
 pallasite from Argentina (Henn)1992/**23**:86–88  
 vs. tektite (Hey)1968/**11**:57–65  
 see also Glass; Tektite
- Mexico**  
 amethyst from Taxco (Mayers)1947/**1**(3):25–28  
 axinite, clinozoisite and danburite from Baja California  
 (Pough)1966/**10**:10–17  
 enstatite from Chihuahua (Dunn)1978/**16**:236–238  
 gems of (Mayers)1947/**1**(3):25–28  
 jade from, history of (Ruff)1959/**7**:18–31; (Ruff)1959/**7**:141–  
 160; (Ruff)1960/**7**:236–246  
 jadeite in rock from Baja California (Ostrooumov)2010/**32**:1–6  
 obsidian, agatized, from Sonora (Broughton)1968/**11**:7–9  
 opal—  
 hyalite—  
 daylight fluorescent, from  
 Zacatecas (Fritsch)2014/**34**:294–296;  
 (Fritsch)2015/**34**:490–508  
 iridescent, from San Luis Potosí  
 (Sinkankas)1966/**10**:100–105;  
 (Gübelin)1986/**20**:139–144;  
 (Hänni)1989/**21**:488–495  
 play-of-colour, from Queretaro  
 (Mayers)1947/**1**(3):25–28  
 peridot from Chihuahua (Dunn)1978/**16**:236–238  
 sphene from Baja California (Pough)1966/**10**:10–17  
 topaz from San Luis Potosí (Dewonck)1998/**26**:29–39
- Mica**  
 chrome-rich, in goodletite ornamental rock from New  
 Zealand (Brown)1996/**25**:211–217  
 crystallography of (Mitchell)1950/**2**:237–274  
 inclusions in, see 'Inclusions'  
 lepidolite—  
 from Brazil (Laurs)2014/**34**:102–103  
 ornamental (Webster)1958/**6**:297–333
- Microprobe**, see Electron microprobe analysis
- Microscopic techniques**  
 accessories, inexpensive (Lewton-Brain)1989/**21**:500–505  
 and Becke line effect (Mitchell)1962/**8**:280–285  
 differential interference contrast (Renfro)2015/**34**:616–620  
 dispersion staining and diamond fillings  
 (Nelson)1993/**23**:461–472; pages 465, 466, 467, 468,  
 470 (Err)1994/**24**:64  
 eye shade (Anon)1950/**2**:230  
 filters—  
 for observing dichroism (Miles)1965/**9**:288–289; letter  
 on (Thurm)1965/**9**:365  
 and optic behaviour of calcite in microscope  
 (Kibe)1953/**4**:70  
 focusing issues for photomicrography (Mackie)1952/**3**:308  
 glass cell for (Alexander)1950/**2**:339–340  
 history of development (Liddicoat)1981/**17**:568–583  
 immersion—  
 covered cell for (Buzalewicz)1962/**8**:205–206  
 for detection of Lechleitner coated synthetic corundum  
 (Gunawardene)1985/**19**:557–570; page 569  
 (Err)1985/**19**:742  
 Hanneman Mini-cube II for (Read)1993/**23**:360–361  
 horizontal-format instrumentation for  
 (Read)1979/**16**:386–407  
 liquids for (Lee)1967/**10**:179–184  
 infrared (Gao Yan)1995/**24**:411–414  
 lighting for—  
 brightfield/darkfield (Burch)1982/**18**:28–36  
 darkfield (Read)1979/**16**:386–407  
 microscopes, old vs. new (Field)1951/**3**:59–68  
 Nomarski-type differential interference  
 (Horikawa)2001/**27**:259–263; of uvite tourmaline  
 (Takahashi)1998/**26**:226–237  
 for observation of fluid inclusions  
 (Taylor)2013/**33**:149–159, 161–169  
 phase contrast (Gübelin)1957/**6**:151–165  
 polariscope/conoscope lens from Krüss  
 (Read)1979/**16**:386–407  
 Rayner monocular gemmological microscope  
 (Rutland)1955/**5**:1–5  
 for refractive index estimation (Oates)1973/**13**:270–274;  
 (Farrimond)1993/**23**:418–421  
 retardation screw for focusing (Field)1953/**4**:24–26  
 stereo zoom instruments available (Read)1979/**16**:386–407  
 stone holders—  
 (Yu)1983/**18**:641–642  
 improved (Martin)1967/**10**:266–268;  
 (Schmetzer)1986/**20**:20–32  
 'live box' [insect holder] for  
 (Chisholm)1952/**3**:279–281; letter on  
 (Maton)1952/**3**:321  
 for uniaxial natural and synthetic gems, characterization of  
 (Kiefert)1991/**22**:344–354; (Kiefert)1991/**22**:471–482  
 useful in prospecting (Taylor)1994/**24**:155–160  
 Zeiss Photomicroscope II (Burch)1982/**18**:28–36  
 see also DiamondView imaging; Growth structure/zoning;  
 Inclusions; Instruments; Photomicrography; Scanning  
 electron microscopy [SEM]
- Microtomography, X-ray computed**, see X-ray computed  
 microtomography
- Mikkola, Toini**  
 obituary (Chisholm)1984/**19**:280
- Milarite**  
 faceted (O'Donoghue)1983/**18**:596–597
- Miles, Eunice**  
 obituary (Callaghan)1997/**25**:505, 568
- Miller indices**, see X-ray diffraction
- Mineralogical Record**  
 online reports of interest to gemmologists, 2014  
 (Laurs)2015/**34**:469
- Mitchell, Ronald Keith**  
 obituary (Cavey)2006/**30**:129–130
- Mogok**, see Myanmar
- Moissanite, synthetic**  
 black, large (Caplan)2015/**34**:399–401  
 colour grading of (Johnson)2015/**34**:384–385  
 description of (Mitchell)1962/**8**:218–220;  
 (Webster)1970/**12**:101–148; (Nassau)1999/**26**:425–438;  
 (Taijin Lu)2002/**28**:129–135  
 inclusions in, see 'Inclusions'  
 from Russia (Kiefert)2001/**27**:471–481
- Moldavite**, see Glass; Tektite
- Monazite**  
 inclusions in topaz and garnet  
 (Hornytzkyj)1981/**17**:373–380  
 infrared spectrum of (Hainschwang)2008/**31**:23–29  
 from Sri Lanka (Jobbins)1977/**15**:295–299

- Montana**, see United States of America
- Moonstone**, see Feldspar
- Morganite**  
 from Afghanistan (Hänni)2003/**28**:417–429; (Natkaniec-Nowak)2008/**31**:31–39  
 inclusions in, see 'Inclusions'  
 from Madagascar (Hänni)2003/**28**:417–429  
 simulated by doublets from Germany (Henn)2015/**34**:479–482  
 see also Beryl
- Mosandrite**  
 inclusions in, see 'Inclusions'  
 from Russia (Henn)2015/**34**:565–566
- Mother-of-pearl**  
 Raman spectra of, in reliquary of St Eustace, Basle Cathedral (Joyner)2006/**30**:169–182
- Mozambique**  
 apatite from (Chaipaksa)2015/**34**:654  
 emerald crystal from, 1,250 ct (Minster)1984/**19**:147–149  
 manganotantalite from Morrua (Hornytzky)1979/**16**:363–364  
 ruby from, low-temperature heat treatment of (Laurs)2015/**34**:469  
 tourmaline—  
 from Moiane (Liu)2006/**30**:201–206  
 purple, from Maraca (Zwaan)2015/**34**:666–668  
 simulated by glass (Laurs)2015/**34**:484–485
- Museums and gem collections**  
 of Basil Anderson donated to GAGTL (Anon)1987/**20**:266  
 Birmingham exhibition (Smith)1955/**5**:153; (Anon)1956/**5**:257–259  
 British Museum—  
 'Colenso' diamond in collection of (Sweet)1961/**8**:84–85  
 Geological Museum, colour plates of gemstones in (Field)1952/**3**:285–288  
 jade in Mexican Art exhibition at Tate Gallery (Ruff)1953/**4**:120–125  
 colourless gemstone collections (Kent)1987/**20**:344–345; (Kent)1996/**25**:87–89  
 Edinburgh Gemmological Exhibition, Heriot-Watt College (Anon)1951/**3**:181–132  
 Gem Museum opens in Singapore (Loke)2015/**34**:560  
 Geological Survey Museum, letter on theft of gems in 1933 (Mitchell)1982/**18**:107  
 Getty, J. Paul, garnets in antiquities collection (Thoresen)2013/**33**:201–222  
 Glasgow Corporation's Art Gallery and Museum, gem exhibitions (Wood)1953/**4**:133–138; (Anon)1972/**13**:22–24  
 Gemmological Exhibition, Goldsmith's Hall 1947 (Carr)1947/**1**(1):12–19; letter on Stalingrad Sword (Mathews)1947/**1**(2):41–42; (Bevis-Smith)1947/**1**(2):13–14; 1948 (Carr)1948/**1**(7):1–6; 1949(Carr)1949/**2**:124–130; 1951 (Carr)1951/**3**:133–140  
 Haslemere Educational Museum (Anon)1956/**5**:331; (Burbage)1971/**12**:343–345  
 Jermyn Street Geological Survey Museum, theft from, 1933 (Jerome)1981/**17**:450–454  
 MIM Mineral Museum, Beirut (Laurs)2014/**34**:4  
 Museum of Fine Arts, Vienna, Austria, St Michael goblet in (Tillander)1970/**12**:65–70  
 Museum of Ouro Preto, Minas Gerais, Brazil (Bastos)1992/**23**:89–92  
 National Museums of Scotland, acquisition of Stuart Jewel (Jackson)1997/**25**:428–429  
 Natural History Museum and Geological Museum—  
 gemstone displays (Anon)1990/**22**:130  
 Mineral Gallery reopening (Anon)1948/**1**(8):1–3  
 painite specimen from 1914 identified (Hart)2014/**34**:10–11  
 rare gem materials (Axon)1970/**12**:71–72  
 Royal Ontario Museum, Canada (Field)1953/**4**:118–119  
 Schatzkammer of the Residence, Munich, 14th century crown in (Gray)1989/**21**:431–432  
 Sir James Walton Memorial Library (Anon)1958/**6**:223–225  
 Smithsonian Institution, Washington, DC (Anon)1958/**6**:394; (Anon)1963/**9**:108–109  
 in South Kensington, changes at (Mitchell)1989/**21**:520–521  
 Topkapi Museum and Treasury, Istanbul, Turkey (Mosey)1971/**12**:214–218  
 Treasure Chamber of Vienna, Burgundian Count Goblet in (Tillander)1970/**12**:44–50  
 USA gem materials, collection of Virginia Hinton (Anon)1949/**2**:84–86  
 Victoria and Albert—  
 snuff boxes in Queen Mary's collection (Ruff)1954/**4**:301–303  
 Townshend Collection of Precious Stones in (O'Donoghue)1970/**12**:1–5
- Musgravite**  
 from Africa (Schmetzer)2007/**30**:367–382  
 faceted (Demartin)1993/**23**:482–485  
 heat-treated, intergrown with spinel (Schmetzer)1999/**26**:353–356  
 identification of (Abduriyim)2008/**31**:43–54; vs. taaffeite (Kiefert)1998/**26**:165–167  
 inclusions in, see 'Inclusions' from Sri Lanka (Schmetzer)2005/**29**:281–289
- Myanmar [Burma]**  
 amber from (Tay Thye Sun)2015/**34**:606–615  
 chrysoberyl—  
 from Mogok, vanadium-bearing (Schmetzer)2013/**33**:223–238  
 nail-head spicules in (Schmetzer)2015/**34**:434–438  
 false 'sale' of gems by government (Anon)1965/**9**:356  
 fluorite, colour-zoned, from (Hlaing)2015/**34**:563–564  
 Gems Emporium, report of 52nd (Hlaing)2015/**34**:578  
 jadeite from (Win Htein)1994/**24**:269–276; pages 270, 276 (Err)1995/**24**:286; (Win Htein)1995/**24**:315–320; (Shi)2009/**31**:185–195; microscopic studies of (Ou Yang)1993/**23**:278–284; (Franz)2014/**34**:210–229  
 jade-like jewelry from (Hlaing)2014/**34**:197–198  
 kosmochlor jade from (Franz)2014/**34**:210–229  
 lecture on 'A Year of Gemmology in Burma' (Jobbins)1969/**11**:297–299  
 maw-sit-sit from (Gübelin)1965/**9**:329–344; (Gübelin)1965/**9**:372–379; (Kammerling)1994/**24**:3–40; pages 25, 28 (Err)1994/**24**:130; (Win Htein)1995/**24**:315–320; (Colombo)2000/**27**:87–92; (Franz)2014/**34**:210–229  
 Mogok mines (U Tin Hlaing)2014/**34**:18–19; (Pezzotta)2014/**34**:55–60; (Fritsch)2014/**34**:61–67; (Laurs)2015/**34**:387–388, 389–390  
 omphacite jade from (Franz)2014/**34**:210–229  
 production and mining in (U Tin Hlaing)2014/**34**:304  
 ruby from—  
 inclusions in (Eppler)1976/**15**:1–5  
 Mogok—  
 marble-hosted mine, visit to (Laurs)2015/**34**:387–388  
 mining and cutting in (Gübelin)1965/**9**:410–425  
 Mong Hsu—  
 colour zoning in (Peretti)1996/**25**:3–19  
 infrared spectra of (Smith)1995/**24**:321–335  
 trapiche (Liu)2015/**34**:660–662



sapphire from—  
Mogok—  
blue (Abduriyim)2006/**30**:23–36  
giant (Hughes)1995/**24**:551–561  
milky (geuda), heat treatment of (Kyi)1999/**26**:313–315  
cat's-eye (Schmetzer)1987/**20**:346–349  
green, 'pastel' (Smith)2014/**34**:104–105  
scapolite from Mogok, colour and composition of (Couper)1991/**22**:259–263  
taaffeite from (Leelawatanasuk)2014/**34**:144–148  
tourmaline slices from (Laurs)2015/**34**:668–669  
trade difficulties in (Anon)1963/**9**:108–109  
update on gems and mining in (Kammerling)1994/**24**:3–40; pages 25, 28 (Err)1994/**24**:130  
zircon from, orange (Mayerson)2015/**34**:397

## N

### Namibia [formerly South-West Africa]

apatite from, cat's-eye (Johnston)2014/**34**:191  
cuprite from Onganja mine (Dunn)1976/**15**:113–118  
spessartine, 'mandarin', from Kunene (Lind)2000/**27**:129–132

### Nassau, Kurt

obituary (Thomas, Matlins, Skalwold)2010/**32**:127

### Natrolite

from Canada (Wight)1996/**25**:24–44  
from Pakistan (Gnos)1999/**26**:308–312  
from USA, California (Andrews)1965/**9**:354–355; (Dunn)1976/**15**:113–118

### Nautilus shell

doublet with mother-of-pearl (Webster)1966/**10**:8–9  
*Nautilus pompilius* mounted in jewellery (Anon)1951/**3**:21

### Nelson, James Bowman

obituary (Green)2015/**34**:450–451

### Nepal

ruby from (Harding)1986/**20**:3–10; (Bank)1988/**21**:222–226

### Nephrite

from Australia (Chalmers)1971/**12**:267–271; (Adams)2009/**31**:153–162; para-type (Nichol)2000/**27**:193–200  
beads, identification of (Farn)1976/**15**:6–7  
and bowenite, specific gravity of carvings (Farn)1965/**9**:291  
from Canada (Boyd)1983/**18**:544–562  
cat's-eye (Flamini)1978/**16**:153–161  
composition, strontium isotopic (Adams)2009/**31**:153–162  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
from Finland (Nichol)2004/**29**:105–108  
fluorescence of (Farn)1977/**15**:360–361  
from Korea (Kim)1995/**24**:547–550  
from Italy (Nichol)2003/**28**:463–471; 2005/**29**:305–315  
from New Caledonia (Adams)2009/**31**:153–162  
from Poland (Nichol)2001/**27**:461–470  
from Switzerland (Nichol)2005/**29**:299–304, 467–472  
from Taiwan, tremolitic (Flamini)1978/**16**:153–161  
types (Nichol)2000/**27**:193–200  
from USA, California (Paradise)1985/**19**:672–681  
see also Jade

**Nephrite simulants**, see Jade simulants

### The Netherlands

natural and cultured pearls from Zeeland (Zwaan)2014/**34**:150–155

### Neutron activation analysis

of minerals from Sri Lankan gem gravels (Rupasinghe)1986/**20**:177–184

**Neutron irradiation**, see Irradiation

**Nevada**, see United States of America

### New Caledonia

nephrite from (Adams)2009/**31**:153–162

## New Zealand

corundum, colour-zoned, from Westland (Grapes)2004/**29**:8–14  
Gemmological Association of, letter on founding (Eason)1983/**18**:473  
goodletite ornamental rock from Westland (Brown)1996/**25**:211–217  
nephrite from South Island (Adams)2009/**31**:153–162  
resins from—  
copal and other resins (Currie)1997/**25**:408–416  
kauri gum (Ruff)1947/**1**(3):28–31  
natural (Currie)1997/**25**:408–416

**Newsletters**, see issuing organizations

## Nigeria

emerald and green beryl from Kaduna and Plateau States (Schwarz)1996/**25**:117–141  
gahnite from Jemaa (Jackson)1982/**18**:265–276  
gem prospects in Central (Kanis)1990/**22**:195–202  
sapphire from Kaduna (Kiefert)1987/**20**:427–442  
topaz from, fluorite inclusions in (Hornytzkyj)1982/**18**:131–137  
tourmaline from, red (Laurs)2015/**34**:569  
zircon from (Kanis)1990/**22**:195–202

## Nomenclature and classification

in advertising vs. identification (Cartier)2001/**27**:426–431  
agate, origin of name (Sarofim)1969/**11**:203–204  
'Asia Green Sapphire' probably synthetic (SP)1966/**10**:124  
of 'coco-nut pearls' (Anon)1948/**1**(5):11  
of colour change and 'alexandritescence' (Chisholm)1954/**4**:292–300  
of colours in gems (Chudoba)1971/**12**:262–266  
of diamond—  
history of term (Cooper)1972/**13**:51–53  
in Scandinavia (Tillander)1971/**12**:167–170  
standards of terminology and disclosure from ISO (Laurs)2015/**34**:650  
use of 'blue-white' (Probus)1959/**7**:121  
of emerald—  
based on chromophores and colour (Anderson)1966/**10**:41–45; (Campbell)1974/**14**:177–180; (Farn)1975/**14**:322–323; (Taylor)1977/**15**:372–376  
using artificial neural networks (Dereppe)2000/**27**:93–104  
of emerald, synthetic—  
Chatham (Wheeler)1960/**7**:181–182  
Federal Trade Commission order (Anon)1960/**7**:283–284  
of garnet (Anderson)1947/**1**(2):15–16; (Fermor)1948/**1**(8):3; (Anderson)1959/**7**:1–7; (Howie)1963/**9**:127–129; (Anon)1963/**9**:129; (Campbell)1972/**13**:53–64; tsavorite (Bridges)2014/**34**:230–241  
gemmological, and Commission of New Minerals and Mineral Names (Anderson)1964/**9**:260–261  
of gems (Dick-Larkam)1948/**1**(6):26–29; (Ruff)1948/**1**(6):23–25  
of 'girasol' (Chisholm)1954/**4**:292–300  
of heavy liquids (Mitchell)1991/**22**:387–388; letter on (Farn)1991/**22**:451  
of jade (Hardinge)1953/**4**:112–114; (Anderson)1953/**4**:114–117; (Dragsted)1961/**8**:65–67; (Franz)2014/**34**:210–229  
of 'keshi' cultured pearls (Hänni)2006/**30**:51–58  
and misnomers, control of (Leak)1949/**2**:60–62  
of National Association of Goldsmiths of Great Britain revised (Anon)1948/**1**(6):1–9  
of phenomena in gems (Ostwald)1965/**9**:309–324  
psychological aspects (Farn)1976/**15**:13–14  
of quartz, citrine, vs. topaz-quartz (Field)1952/**3**:226–229  
of rhodolite (Campbell)1972/**13**:53–64

of ruby, historic (Anderson)1949/**2**:73–83  
of 'ruddigore' (Cooper)1983/**18**:731–733  
of 'semi-precious stones' (Anon)1947/**1**(3):3;  
(Anon)1947/**1**(4):14; letters on (Ruff)1947/**1**(4):28;  
(Eppler)1948/**1**(6):9; (Ruff)1948/**1**(6):23–25; and  
'precious' (Farn)1959/**7**:101–102  
spelling of 'gemmology' (Smith)1947/**1**(2):1–2  
of spessartine (Anon)1963/**9**:129  
'synthetic spinel' commonly sold as 'synthetic zircon'  
(Anon)1949/**2**:20–21  
of 'synthetic' vs. 'artificial' (Farn)1960/**7**:209–211  
terminology (Cartier)2001/**27**:426–431  
of trapiche tourmaline (Schmetzer)2011/**32**:151–173  
UK trading standards and terminology  
(Kennedy)2000/**27**:83–84

**Northwest Territories**, see Canada

## Norway

emerald from Eidsvoll (Webster)1955/**5**:185–221  
garnet, colour-change, from Otterøy  
(Hysingjord)1971/**12**:296–299

**Nova Scotia**, see Canada

**Nuclear magnetic resonance**, see Spectroscopy, nuclear  
magnetic resonance [NMR]

## O

### Obituaries

Aburrow, Michael B. 2000/**27**:56  
Ahrend, Robert (Mitchell)1990/**22**:184  
Akizuki, Haruo 1983/**18**:665  
Alejo, Deidre Kay 2010/**32**:128  
Anderson, Basil (Chisholm)1984/**19**:97; (Mitchell)  
1984/**19**:188; (Farn)1984/**19**:194, 283; letter on  
(Mitchell)1984/**19**:384  
Andrews, Gordon F. 1979/**16**:356  
Ansel, William H. 1965/**9**:408  
Armstrong, A.H.G. 2005/**29**:372  
Asano, Yoshio 1994/**24**:216  
Austen, R.L. 1992/**23**:116  
Austin, Leslie F. 1981/**17**:428  
Axell, Anita 2006/**30**:127  
Azzopardi, Joseph 1960/**7**:204  
Azzopardi, Joseph 1998/**26**:49  
Baird, Donald D. 1994/**24**:125  
Baker, Nancy J. 2012/**33**:109  
Balfour, Ian (Roux)2013/**33**:184  
Banks, Kenneth A. 1982/**18**:173  
Barnett, S. 1949/**2**:16  
Barron, Elbert M. 1969/**11**:331  
Belcher, Stanley S. 1973/**13**:335  
Bennett, N.P. Jameson 1994/**24**:216  
Bennett, R.K. 1999/**26**:405  
Benson, Jr., Lester B. 1961/**8**:163  
Beraet, Charles J. 2000/**27**:243  
Betts, Geoffrey Nichols 1987/**20**:503  
Bevis Smith, T.H. 1996/**25**:71  
Biggs, Joseph M.P. 1960/**7**:204  
Biggs, Margaret J. (Callaghan)2001/**27**:374, 436–437  
Black, Vete G. 1968/**11**:137  
Blackmore, Howard 2000/**27**:118  
Bohe, E.R. 1985/**19**:443  
Bolli, Bruno 2009/**31**:327  
Bonanno, Antonio C. (Dale)1996/**25**:247  
Bond, Cecil A. 1989/**21**:392  
Bones, Stanley F. 1953/**4**:151  
Bosshart, George (Harding)2011/**32**:250–251  
Boxall, Leslie Thomas 1984/**19**:73  
Boxall, William J. 1995/**24**:611  
Bragg, Lawrence 1971/**12**:322  
Bridges, Reginald 2006/**30**:127  
Bridgewood, A. 1999/**26**:340  
Brill, Douglas 2015/**34**:733  
Brohier, Kenneth N. (Brohier)1995/**24**:451  
Brook, Trevor M. 2002/**28**:241  
Brown, Arthur B. 1968/**11**:66  
Brown, Grahame (Mercer)2008/**31**:71  
Brown, Judith A. 2001/**27**:374  
Bruton, Eric Moore (Callaghan)2001/**27**:307, 372  
Buckingham, William Charles (Baker)2007/**30**:478  
Buhl, Robert A. 1995/**24**:451  
Burbage, E.J. 1988/**21**:117  
Burslem, W.A. 1990/**22**:246  
Butterfield, Maurice L. 1987/**20**:503  
Cairncross, Alistair D. 1988/**21**:199  
Cairncross, J.K. (Callaghan)2003/**28**:310, 372  
Campbell, Ian (Rothon)2015/**34**:630–631  
Campbell-Smith, Walter (Mitchell)1989/**21**:517  
Cartwright, Donald R. 2000/**27**:243  
Cassidy, R.F. 1981/**17**:344  
Caudell, Peter 1966/**10**:138  
Cavenago Bignami Moneta, Speranza 1990/**22**:184  
Chikayama, Akira 2007/**30**:479  
Chisholm, J.R.H. 1988/**21**:2, 46  
Chisholm, Marie-Louise 1981/**17**:344  
Chudoba, Karl F. (Anderson)1977/**15**:223, 269  
Claringbull, Frank (Jobbins)1991/**22**:311, 330  
Clarke, Norman V. 2001/**27**:308  
Clarke, Victor W. 194/**1**:43  
Clifford, Edwin W. 1980/**17**:279  
Cloke, Deborah 2006/**30**:127  
Clough, Michael B. 2001/**27**:374  
Cobden, Felix Sydney 2014/**34**:262, 366  
Colclough, Albert C. 1991/**22**:311  
Cole, K.C. 1990/**22**:45  
Cole, Leslie F. (Farn)1988/**21**:46, 117  
Collyer, Rodney F. 2006/**30**:254  
Coop, N.M.N. (Mitchell)1981/**17**:344  
Cooper, S.B. Nikon 2005/**29**:372  
Cox, Harold 1996/**25**:71  
Crawford, Hugh B. 2000/**27**:182  
Crombie, Walter 2005/**29**:372  
Cross, William G. 2000/**27**:182  
D'Arcy, Michael S. 2002/**28**:54  
Dambrink, Darel W.J. 1992/**23**:50  
de Berry Noakes, Norman 1978/**16**:149  
de Klerk, A.F.C. 1985/**19**:736  
De Rosa, Roy 2004/**29**:60  
Deane, Neville 1987/**20**:503; (Morgan)1988/**21**:265  
Diss, H. Cecil 1975/**14**:399  
Dodd, Ernest A. 1956/**5**:338  
Dunn, Brian R. 2011/**32**:249  
Duran, Rodolfo Moller 2003/**28**:443  
Dyer, Wilbur E. 1983/**18**:776  
Eaton, Anne 1990/**22**:116  
Edwards, John 1993/**23**:307  
Eldridge, W.R. 1985/**19**:736  
Ellis, Thomas L. 2001/**27**:374  
Eppler, Wilhelm F. (Anderson)1983/**18**:446  
Evans, Elma H. 1992/**23**:242  
Ewing, Douglas J. 1979/**16**:423  
Farn, Alexander E. 2004/**29**:60; (Scarratt)2004/**29**:117–119  
Faulds, Matthew C.M. 2006/**30**:127  
Ferguson, William Fleming 2007/**30**:479; 2008/**31**:71  
Field, Dean Stirling Mark 2000/**27**:182  
Findlay, Kenneth W. 2004/**29**:124  
Fitzgerald, Leslie 2006/**30**:127; page 127 (Err)2006/**30**:254  
Franks, John Wilson (Knight)2001/**27**:374, 437  
French, Anthony (O'Donoghue)2004/**29**:188  
Furuya, Masashi 2007/**30**:479

- Gemmell, James 2011/**32**:249  
 Glen, Jillian 1996/**25**:248  
 Glennie, Elsie R. 1965/**9**:327  
 Gobel, Georges 1972/**13**:153  
 Goodger, William Donald (Dykstra)1997/**25**:439  
 Gordon, W.T. 1951/**3**:42, 84  
 Green, Leslie 1985/**19**:443  
 Gubelin, Edward Joseph (Jobbins)2005/**29**:257–259;  
 (Koivula)2005/**29**:259; 2005/**29**:372  
 Haile, Neville Seymour 2005/**29**:372  
 Hammes, Johannes 1962/**8**:313  
 Hammid, Tino (Cowing)2015/**34**:631–632  
 Hanna, Jr., Joe D. 1982/**18**:254  
 Hanslip, Malcolm (Mac) James (Garrod)1995/**24**:378  
 Harding, Norman H. 2010/**32**:128  
 Harper, John S. 1972/**13**:155  
 Harper, Norman A. (Mitchell)1982/**18**:354  
 Heatlie, James (Jackson)2013/**33**:276  
 Hennessy, Linda 1990/**22**:116  
 Hermans, Johannes S. 1991/**22**:504  
 Hewitt, Frederick E.J. 1996/**25**:248  
 Hey, Max H. (Emrey)1984/**19**:282  
 Hill, Stanley George (Hill)2007/**30**:478  
 Hodges, John Francis 1997/**25**:312  
 Holmes, Kenneth 1992/**23**:242  
 Hopkins, P.J. 1966/**10**:65  
 Houchin, C. 1974/**14**:40  
 Houseago, James A. 2012/**33**:109  
 Howell, Edward H. 1960/**7**:204  
 Howie, Robert Andrew (Walsh)2012/**33**:110–111  
 Huang Fengming (Li Liping)2005/**29**:372  
 Hudspith, James W. 1992/**23**:242  
 Hull, Joan M. 2007/**30**:354  
 Hyde, Sylvia Gwendoline 2010/**32**:128  
 Imai, Taichiro 1982/**18**:355  
 Inches Carr, Deidre M.H. 1996/**25**:161  
 Inkersole, Denis (O'Donoghue)1992/**23**:241  
 Irwin, Margaret 2006/**30**:254  
 Jamieson, Lorraine A. 1983/**18**:776  
 Jeffreys, R.E.H. 1984/**19**:196  
 Jensen, Bjarne 1991/**22**:504  
 Jerwood, John M. 1994/**24**:286  
 Johne, Thor A. 2012/**33**:109  
 Jones, Claude B. 1995/**24**:523  
 Jones, David Lewis 1984/**19**:73  
 Jones, George Harrison (Jobbins)2010/**32**:128  
 Jones, Gwilym M. 2012/**33**:109  
 Jones, Thorold G. 1967/**10**:277  
 Jones, V.G. 1983/**18**:576  
 Kemp, A.T. 1977/**15**:408  
 Kennedy, Nigel W. 1970/**12**:93  
 Kent, David George 2007/**30**:354; (Jobbins)2007/**30**:477  
 Kermeth, Arthur 1987/**20**:503  
 Keuskamp, D.H.G. 1992/**23**:116  
 KIELTY-Lambrinides, Nikola (Krikos)2003/**28**:443, 505; page  
 505 (Err)2004/**29**:60  
 King, Doublas N. 1992/**23**:50  
 Kirk, Vernon G. 1974/**14**:148  
 Knowles-Brown, Frank H. 1966/**10**:31  
 Korevaar, H.J. 1986/**20**:257  
 Krakowiak, Czeslaw 1983/**18**:665  
 Kraus, Edward H. 1973/**13**:286  
 Ku-Wei, Hsieh Juan 2007/**30**:354  
 La Due, Martha J. 1975/**14**:399  
 Laurie, John J.W. 1996/**25**:71  
 Lawson Clarke, F.E. 1989/**21**:518; (Callaghan)1990/**22**:44  
 Lee, Harold 1969/**11**:331  
 Lee, Raymond George 2010/**32**:128  
 Leechman, George F. 1963/**9**:73  
 Leiper, Hugh N. 1971/**12**:368  
 Lennie, David G. 1980/**17**:279  
 Level, Dina (Farn)1988/**21**:265  
 Levett, Eric R. (Mitchell)1992/**23**:50  
 Levy, Aaron N. 1996/**25**:71  
 Lewis, M.D.S. (Nelson)1986/**20**:257;  
 (Chisholm)1987/**20**:314, 505  
 Leybourn-Needham, Gerald 1991/**22**:504  
 Liddicoat, Jr., Richard T. (Callaghan)2002/**28**:240  
 Light, Donald A. 1981/**17**:428  
 Lindley, George (Buckingham)1996/**25**:71, 160  
 Llewellyn, Graham D. (Callaghan)1997/**25**:375, 439  
 Loupekine, Igor S. 1994/**24**:297  
 Lucas, Roy 1990/**22**:185  
 Luder, John G. 1990/**22**:116  
 Lumsden, Jean G. 1991/**22**:311  
 Lynch, David K. 1965/**9**:365  
 MacDonald, Edgar W. 1981/**17**:501  
 MacLeod, Hector M. 1994/**24**:125  
 Mahajan, Bapusaheb Shamrao 1983/**18**:576  
 Marriott, Janet A. 1992/**23**:242  
 Martin, Bernard F. 1985/**19**:736  
 Martin, Jeanne G.M. 1974/**14**:200  
 Massey, George A. 1989/**21**:518  
 Masters, Christopher R. 2003/**28**:507  
 McChlery, George M.A. 2007/**30**:355  
 McDonald, Thea 2010/**32**:128  
 McInnes, Catriona Orr (McInnes)2015/**34**:541–542  
 McKay, Robin Ian 2008/**31**:71  
 McNair, George A. 2006/**30**:127  
 McNeilly, Henry 1991/**22**:504  
 McWilliam, J.M.B. 1975/**14**:303  
 Meakin, Peter G. 1994/**24**:125  
 Meek, David L. 1953/**4**:194  
 Meisl, Rose R. 1953/**4**:194  
 Merk, Roger (PeterSchieck)2015/**34**:733  
 Mikkola, Toini (Chisholm)1984/**19**:280  
 Miles, Eunice (Callaghan)1997/**25**:505, 568  
 Miles, J.S. 1966/**10**:65  
 Miller, Charles R. 1980/**17**:138  
 Miller, Jeanne S. 2001/**27**:374  
 Mills, Edwin T. 1992/**23**:116  
 Milton, Mark S. 2000/**27**:56  
 Mitchell, Ronald Keith (Cavey)2006/**30**:129–130  
 Muller, Helen 2011/**32**:249  
 Murray, Arthur S. 1983/**18**:665  
 Murray, Jacqueline 2001/**27**:374  
 Nassau, Kurt (Thomas, Matlins, Skaltwold)2010/**32**:127  
 Nathan, Leonard 1961/**8**:78  
 Neale, F.H. 1964/**9**:189  
 Nelson, James Bowman (Green)2015/**34**:450–451  
 Ngan, Michael 2013/**33**:183  
 Nowak, John W. 2007/**30**:355  
 Nurminen, Tuija 1998/**26**:197  
 O'Rourke, John W. 1992/**23**:242  
 Olsen, Sigurd G. 2001/**27**:308  
 Osmond, Catherine 2001/**27**:374  
 Page, John R. 1969/**11**:228  
 Pain A.C.D. 1971/**12**:368  
 Parcel, Jr, Rodney F. 1991/**22**:449  
 Paredes Quevedo, Juan C. 1996/**25**:161  
 Parikka, Pekka J. 2007/**30**:355  
 Parker, Claire E. (Castro)1994/**24**:216  
 Parkinson, Kenneth 1982/**18**:254  
 Parsons, Charles J. 1973/**13**:335  
 Parsons, Freda M.M. 2003/**28**:310  
 Parsons, Geoffrey H. 1982/**18**:173  
 Payne, Cecil J. (Anderson)1980/**17**:200, 274  
 Payne, Leslie 1975/**14**:303

- Peace, Reginald Jewitt 1997/**25**:375
- Pearl, Richard M. 1981/**17**:501
- Peplow, William A. 1984/**19**:196
- Pitkanen, Marja L.A. 1995/**24**:23
- Platts, Jean Isobel 1986/**20**:196
- Podhorodecki, Josef 1974/**14**:94
- Potter, Matthew S. 1999/**26**:405
- Primavesi, Thomas 2006/**30**:127
- Pudner, Robert A. 1999/**26**:405
- Punchihewa, Leslie 2009/**31**:327
- Pyke, John L. (Pyke)2007/**30**:478–479
- Rae, John George 1987/**20**:315
- Raimo A.U. Marno 1965/**9**:365
- Ramsay, Alexander M. 1965/**9**:408
- Ratcliffe, Tom 1985/**19**:642
- Read, Doreen 1983/**18**:776
- Read, Peter George (Deeks)2009/**31**:327
- Redknap, Samuel F. 1999/**26**:405
- Renfrey, Eric 1987/**20**:503
- Reynolds, John W. 1960/**7**:204
- Riddell, Eileen R. 1980/**17**:201
- Riley, Philip 2007/**30**:355
- Robson, A.H. 1970/**12**:56
- Robson, Edward R. 1979/**16**:423
- Rogers, John 1987/**20**:503
- Rosas, Manuel Maria Ramos Pinto 2013/**33**:183
- Rossiter, Donald F. 1990/**22**:185
- Roulet, Bernard 1960/**7**:248
- Round, Anthony William 2010/**32**:128
- Rowlands, Alan 2000/**27**:243
- Ruppenthal, Paul 1993/**23**:308
- Rutland, E.H. (Anderson)1975/**14**:301, 401
- Saller, Xaver (Strack)988/**21**:117
- Sanders, Christina J. 1988/**21**:199
- Sanitt, Leonard 2009/**31**:327
- Saxton, Carol Anne Lesley 2010/**32**:128
- Schlossmacher, Karl (Anderson)1981/**17**:426
- Schnieden, Harold 1998/**26**:276
- Selvon, Dennis R. 1980/**17**:138
- Shaw, Jack R. 1982/**18**:254
- Shaw, John R. 1995/**24**:523
- Shenton, J.G. 1986/**20**:132
- Shindler, Albert 1981/**17**:428
- Shipster, Thomas R. 1995/**24**:451
- Short, Elsie A. 1990/**22**:45
- Siedle, Louise C. 1974/**14**:148
- Sierstorpff, Monika Grafina Von Francken 2014/**34**:366
- Sim, Evelyn 2008/**31**:71
- Sinkankas, John (O'Donoghue)2002/**28**:184
- Smith, G. F. Herbert (Anderson)1953/**4**:148–149
- Smith, Hubert E. 1981/**17**:428
- Smith, Reginald A. 2003/**28**:443
- Snow, John Joseph (Brown)1990/**22**:116
- Sopp, John 1988/**21**:199
- Soukup, Edward J. 2004/**29**:60
- Spencer, L.J. (Anderson)1959/**7**:115
- Sprague, Henry N. 1964/**9**:214
- Stanley, John H. 1960/**7**:285
- Statham, Patricia M. 1986/**20**:257
- Stenson, Ann P. Sabina 2015/**34**:733
- Stern, Theo 1983/**18**:576
- Stevens, Ronald C. 1989/**21**:392
- Stewart, Alix 1977/**15**:462
- Sunagawa, Ichiro (Miyata)2012/**33**:112
- Syder, Michael 1984/**19**:196
- Syed Jafer Ali 2000/**27**:118
- Syed Vagar Ahmad, 1989/**21**:392
- Tamotsu, Ishiwatari 2000/**27**:243
- Taylor, Clive J. 1979/**16**:423
- Taylor, Daniel 2009/**31**:327; 2010/**32**:128
- Taylor, John B. 1998/**26**:135
- Tenhagen, Joseph W. 2013/**33**:183
- Thomas-Ferrand, Joyce M. 1980/**17**:138
- Thomson, Edward (Ted) Arthur (Klein)1996/**25**:71, 158
- Thurlow, A.M.N. 1990/**22**:246
- Tindall, Edward H. 1991/**22**:384
- Tisdall, Francis Sidney Hope (Morgan)1986/**20**:132, 195
- Tolansky, Samuel 1973/**13**:242
- Toole, John Lewis 2001/**27**:308
- Tremayne, Arthur 1954/**4**:272
- Trillwood, E. 1990/**22**:185
- Trumper, Leonard C. 1964/**9**:278
- Turton, John P. 1964/**9**:249
- Twemlow-Krzempek, Evelyn 2001/**27**:437
- Tye, Leslie H. 1980/**17**:279
- Ullmann, Fred E. 1975/**14**:399
- Valta, Akseli 1991/**22**:504
- van Acker, Alain A.M. 2009/**31**:327
- Van Deijl, Wilhelm J.E. 2009/**31**:327; 2010/**32**:128
- van Loo, J. 2005/**29**:372
- Vineall, Eric C. 1974/**14**:40
- Vuillet á Giles, Pierre (Gravier)2014/**34**:366
- Wade, J.D.S. 1976/**15**:157
- Wain, Edward H. 2011/**32**:249
- Waites, I.P. 1966/**10**:65
- Walker, Patricia J. 2009/**31**:327; 2010/**32**:128
- Waller, Fred J. 1960/**7**:248
- Wallis, Keith 2012/**33**:109
- Walton, James (Anderson)1955/**5**:235
- Walton, Queene A. 1981/**17**:641
- Waters, Peter A. 2007/**30**:355
- Webb, Edward E. 1981/**17**:428
- Webster, Robert (Anderson)1976/**15**:97, 153
- Welch, Lizanne 2010/**32**:128
- Westgard, Helge R. 2000/**27**:118
- Weston, Robert 1982/**18**:173
- Wetherill, John 2006/**30**:127
- Wheeler, Douglas 1988/**21**:130, 199
- Wheeler, Harry James Blackburn 1986/**20**:196, 202, 256
- Whitehead, Gordon W. 1987/**20**:315
- Whitehead, Henry J. 1980/**17**:201; (Mitchell)1981/**17**:344
- Whitehead, Maurice M. 2002/**28**:185
- Wild, Georg O. (Anderson)1976/**15**:96
- Wilkins, David 1994/**24**:297; (Norman)1995/**24**:451
- Will, Richard A.F. 2009/**31**:327
- Willis, 'Lena' 1999/**26**:404
- Willmott, Keith Richard (Thorn)1995/**24**:378
- Wilson, Douglas N. 1995/**24**:523
- Winnert, George 1967/**10**:277
- Wirth, Arthur 1969/**11**:331
- Wong, Christine 1990/**22**:246
- Wyer, Philip G. 1998/**26**:135
- Yeo, R.W. (Ron)1992/**23**:116, 241
- Zhonghui, Chen 2007/**30**:479; (Mercer)2008/**31**:70
- Zwaan, Pieter C. 2003/**28**:376
- Objets d'art**, see Jewellery
- Obsidian**
- agatized, from Mexico (Broughton)1968/**11**:7–9
- from Chile (Hyršl)1999/**26**:321–323
- inclusions in, see 'Inclusions'
- localities, age and origin (Weiner)1983/**18**:745–760; pages 748, 757 (Err)1984/**19**:289
- Raman spectra of, in reliquary of St Eustace, Basle Cathedral (Joyner)2006/**30**:169–182
- see also Glass
- Odontolite**
- (Axon)1971/**12**:171–172
- infrared spectrum of (Arnould)1975/**14**:375–377



- as simulant for turquoise (Kennedy)1954/4:244–249
- Oiling**, see Filling, fracture or cavity
- Ojime**, see Bead
- Oligoclase**, see Feldspar
- Olivine**, see Peridot
- Omphacite**  
jade—  
‘inky’ black (Ou Yang)2003/28:337–344  
from Myanmar (Franz)2014/34:210–229  
from Italy (Adamo)2006/30:215–226  
in jadeite-bearing rock from Mexico  
(Ostrooumov)2010/32:1–6  
see also Jade
- Onyx**, see Chalcedony
- Opal**  
from Australia—  
(Norwood)1968/11:31–41; origin of  
(Leechman)1956/5:362–370  
Andamooka, in personal collection of Her Majesty the  
Queen (O’Donoghue)1969/11:307–311  
bibliography (Leechman)1955/5:44–46  
black—  
from Australia, compared to synthetic  
(Hodgkinson)2015/34:470–471  
not doublet (Farn)1976/15:8  
dyed (Gübelin)1964/9:197–198  
resembling black chalcedony (Axon)1964/9:263–267  
treated with smoke (Liddicoat)1971/12:309–311  
treated with sugar (Anderson)1966/10:123–124  
cause of colour in (Anon)1949/2:20–21; letter on  
(Leechman)1949/2:102; (Leechman)1954/4:288–291;  
(Chisholm)1954/4:292–300; (Mitchell)1966/10:46–48  
colourless (Farn)1981/17:288–290  
crystallinity of (Field)1947/1(3):10–12  
dendritic, from Zambia (Milisenda)1994/24:277–280  
deposits in former USSR (Spiridonov)1998/26:111–125  
doublet (Anderson)1971/12:205–206; (Farn)1972/13:122–123  
dyed and plastic impregnated (Scarratt)1992/23:134–135  
from Ethiopia mounted with hologram  
(Mazzer)2014/34:205–206  
fire, damaged (Scarratt)1992/23:131  
formation of (Anon)1949/2:20–21  
‘girasol’ (Kennedy)1954/4:244–249  
history and misconceptions (Cooper)1979/16:458–461;  
(Cook)1982/18:342–344  
hyalite—  
daylight fluorescent, from Mexico  
(Fritsch)2014/34:294–296; (Fritsch)2015/34:490–508  
iridescent, from Mexico (Sinkankas)1966/10:100–105;  
(Gübelin)1986/20:139–144; (Hänni)1989/21:488–495;  
letter on (Sadler)1990/22:56  
uncommon opal variety (Kennedy)1954/4:244–249  
from USA (Broughton)1972/13:100–104  
inclusions in, see ‘Inclusions’  
from Indonesia, Java (Einfalt)2007/30:383–398  
‘Mexican’, with patterning (Mitchell)1985/19:584–585  
from Mexico (Mayers)1947/1(3):25–28  
oiled (Mitchell)1982/18:339–341  
from Peru (Hyršl)2001/27:328–334  
pink—  
common (Farn)1977/15:359  
with play of colour from USA (Laurs)2015/34:390–391  
pink-to-orange change of colour, common  
(Scarratt)1986/20:215–216  
prase, green, from Tanzania (Zwaan)2015/34:658–660  
Sinkankas Symposium on (Laurs)2015/34:532–533  
from Somaliland (Kinnaid)2000/27:139–154;  
(Kinnaid)2002/28:81–84  
in Townshend Collection of Precious Stones in Victoria and  
Albert Museum (O’Donoghue)1970/12:1–5  
yellow intaglio (Farn)1976/15:7–8  
see also Assembled gem materials
- Opal simulants and synthetics**  
assembled (Anderson)1971/12:205–206;  
(Farn)1972/13:122–123  
black, compared to natural (Hodgkinson)2015/34:470–471  
faded (Farn)1977/15:364–365  
Gilson (Scarratt)1976/15:62–65; (Jobbins)1976/15:66–75;  
(O’Donoghue)1978/16:257–258; (O’Donoghue)  
1979/16:462–464; (Scarratt)1981/17:606–610; (Scarratt)  
1983/18:524–526, 528; (Schmetzer)1984/19:27–42; fire  
(Gunawardene)1984/19:43–53; synthetic  
(Darragh)1975/14:215–223  
inclusions in, see ‘Inclusions’  
latex (O’Donoghue)1980/17:80–81  
Opalite (Scarratt)1993/23:473–480; letter on name  
(Lapworth)1994/24:64  
plastic (Gunawardene)1983/18:707–714; page 709  
(Err)1984/19:289  
Slocum stone (Farn)1979/16:295–300;  
(Burch)1985/19:586–596; pages 591, 192, 595  
(Err)1985/19:742  
synthetic (Hodgkinson)1988/21:73; in old  
mounting (Scarratt)1986/20:93–95; Gilson  
(Darragh)1975/14:215–223  
triplet of opal and quartz (Gübelin)1959/7:119
- Optic character**  
of calcite, observed with filters in microscope  
(Kibe)1953/4:70  
of chrysoberyl from Tanzania (Schmetzer)2011/32:179–209  
and ‘determination diagram’ for identification  
(Arps)1969/11:221–226  
and double refraction divergence  
(Cartier)2002/28:223–226; letter on  
(Cartier)2003/28:301; (Cartier)2003/28:489–493  
and doubling of images (Sturman)2002/28:210–222  
history of determining (Anderson)1949/2:73–83  
of inclusions, method of obtaining optic figures  
(Koivula)1993/23:323–325  
of kornerupine (Duroc-Danner)1984/19:311–316  
and light, polarized, reflection and absorption in  
gemstones (Ostwald)1962/8:262–275  
mathematics of (Schell)1993/23:422–426  
method of determining (Nelson)1985/19:400–420;  
Hodgkinson (Nelson)1986/20:49–51  
optic axis definition (Cartier)2004/29:228–234  
and refraction of light (Walton)1947/1(2):19–23  
of sapphire, synthetic blue Chatham  
(Gübelin)1983/18:677–705; pages 678, 690, 692, 694,  
706 (Err)1984/19:208  
of spinel, Verneuil synthetic (Rinaudo)1997/25:331–339  
testing without instruments (Anderson)1966/10:69–83  
of uniaxial gems (Burbage)1950/2:304–309; determined  
by microscopy (Kiefert)1991/22:344–354;  
(Kiefert)1991/22:471–482  
using refractometer (Sturman)2005/29:341–349; letter on  
(Cartier)2005/29:482; response (Sturman)2005/29:483;  
(Sturman)2007/30:434–442; (Sturman)2010/32:74–89;  
(Sturman)2010/32:90–100; (Sturman)2010/32:101–105  
see also Birefringence; Crystallography; ‘Visual optics’
- Opticon**, see Filling, fracture or cavity
- Oregon**, see United States of America
- Origin**, see Country of origin
- Orthoclase**, see Feldspar
- Other Book Titles** (sub-section of *The Journal*)  
2014/34:82–83, 179–180, 271–272, 374–376; 2015/34:459–  
461, 554, 639–640, 740–741

## P

**Padparadscha**, see Sapphire

### Painite

- history of (Anderson)1974/**14**:97–113
- inclusions in, see 'Inclusions'
- specimen from 1914 identified at Natural History Museum (Hart)2014/**34**:10–11

### Pakistan

- demitoid from Balochistan (Adamo)2015/**34**:428–433
- emerald—
  - and green beryl from Bucha, Mohmand Agency (Rafiq)1985/**19**:404–411
  - mineralization of Barang (Hussain)1993/**23**:402–408
- fluorite, green, from Stak Nala (Zwaan)2014/**34**:192–194
- gem dealers in Landi Kotal, letter on (Brocklehurst)1981/**17**:508–509
- grossular from—
  - green, compared with idocrase (Anderson)1966/**10**:113–119
  - tsavorite (Jackson)1992/**23**:67–70
- natrolite from Bela (Gnos)1999/**26**:308–312
- scheelite from (Zwaan)2014/**34**:298–299
- spinel from Hunza Valley, blue (Harding)1987/**20**:403–405;
  - letter on spectra of (Shigley)1988/**21**:120–121
- topaz from Katlang, pink (Spengler)1985/**19**:664–671; letter on (Chisholm)1986/**20**:133

**Pallasite**, see Peridot

### Pargasite

- and ruby in anorthite (Schmetzer)2003/**28**:385–391

### Parisite

- infrared spectrum of (Hainschwang)2008/**31**:23–29

**Paste**, see Glass

### Patents

- alexandrite, synthetic, history of (Schmetzer)2013/**33**:137–148
- diamond treatment, HPHT (Schmetzer)2010/**32**:52–65
- diffusion/coating treatment (Schmetzer)2001/**27**:360–361;
  - of topaz (Schmetzer)2006/**30**:83–90;
  - (Schmetzer)2008/**31**:7–13

### Payne, Cecil J.

- obituary (Anderson)1980/**17**:200, 274

### Peace, Reginald Jewitt

- obituary 1997/**25**:375

### Pearl

- abalone, X-radiograph of (Anon)1959/**7**:103
- assembled and mounted (Farn)1978/**16**:234–235
- baroque—
  - with bead-filled cavity (Scarratt)1984/**19**:113–114
  - historic 'Sleeping Lion' (Zwaan)2014/**34**:248–253
- from Bavaria and Bohemia, freshwater (Hahn)1996/**25**:45–50
- black, from Fiji (Leechman)1956/**5**:423
- blister, caused by crab (Anon)1973/**13**:132
- 'Bombay bunches' of (Scarratt)1984/**19**:106–107
- from the British Isles (Scarratt)1987/**20**:409–412
- broken (Scarratt)1986/**20**:96–97
- 'coco-nut pearls' from *Tridacna* (Anon)1948/**1**(5):11
- constituents of (Rutland)1971/**12**:219–225
- cosmetics, effects of (Webster)1964/**9**:255–259
- crystalline and organic materials in (Farn)1988/**21**:104
- diffraction enhanced imaging of (Schlüter)2005/**29**:401–406
- fishing in—
  - Australia (Anon)1953/**4**:192; (Anon)1954/**4**:309–310
  - Bahrain and Qatar (Scarratt)1986/**20**:147–148
- formation of (Gübelin)1995/**24**:539–545; pages 543, 544 (Err)1996/**25**:168
- freshwater, from Russia (Strack)2015/**34**:580–592
- history of—
  - making, cleaning and polishing, according to Salmanas (Maxwell-Stuart)1974/**14**:20–26

- one of largest (Zwaan)2009/**31**:196–201
- origins from India and Persian Gulf (Bannister)1955/**5**:112; response (Chisholm)1955/**5**:165
- 'Sleeping Lion' baroque (Zwaan)2014/**34**:248–253
- testing (Anderson)1973/**13**:249–262

hollow—

- filled (Scarratt)1984/**19**:113–114; (Scarratt)1986/**20**:95
- identification of (Duroc-Danner)1986/**20**:11–13

'The Hope Pearl', history and examination of (Kennedy)1994/**24**:235–239

- identification of (Alexander)1947/**1**(1):2–5; (Farn)1975/**14**:382–385; (Farn)1976/**15**:10–11;
- laboratory experiments in (Schiffmann)1971/**12**:284–296

imitation—

- 'Angelo' with shell core (Scarratt)1984/**19**:121–123
- coatings (Kennedy)1988/**21**:211–214
- composite (Scarratt)1992/**23**:133; page 133 (Err)1992/**23**:252
- identification of (Tan)2005/**29**:316–324; page 318 (Err)2005/**29**:500
- survey of (Webster)1973/**13**:209–219

inclusions in, see 'Inclusions'

irradiation, methods and detection of (Jones)1963/**9**:21–31

mabe simulant (Farn)1976/**15**:124–125

mauve (Scarratt)1984/**19**:119–121

mixed in strands with non-beaded cultured

(Bubshait)1993/**23**:400

myth of occurrence of naire in edible molluscs

(Field)1952/**3**:226–229

from The Netherlands (Zwaan)2014/**34**:150–155

newsletter, *Margaritologia* (Laurs)2014/**34**:280;

(Laurs)2015/**34**:558–559

and Pocahontas in the Americas (Farn)1991/**22**:331–333

presentations at Inhorgenta Munich jewellery show

(Laurs)2014/**34**:280

quahog, purple, from USA (Laurs)2014/**34**:16

Raman spectra of, in reliquary of St Eustace, Basle

Cathedral (Joyner)2006/**30**:169–182

from Russia (Strack)2015/**34**:580–592

from Scotland (Scarratt)1987/**20**:286–288; pages 287, 288

(Err)1987/**20**:392; (Scarratt)1987/**20**:409–412

'Southern Cross' cluster (Scarratt)1986/**20**:145–146

squid eye lenses represented as (Scarratt)1985/**19**:651–652

from Sri Lanka, history of (Mahroof)1995/**24**:337–348

stringing, threads for (Webster)1971/**12**:275–283

structure of (Bubshait)1995/**24**:401; unusual

(Webster)1954/**4**:325–334, reprinted 2014/**34**:69–72

'tagging' with holographic image (Segura)2015/**34**:478–479

unusual shapes, photos of (Anon)1954/**4**:2443

X-radiography of—

(Schiffmann)1971/**12**:284–296;

(Brown)1979/**16**:501–511; (Farn)1980/**17**:223–

229; (Duroc-Danner)1983/**18**:715–722; page 721

(Err)1984/**19**:289; (Zwaan)2014/**34**:248–253

limitations (Lorenz)1986/**20**:114–123; page 116

(Err)1986/**20**:199

X-ray diffraction of—

Laue method (Schiffmann)1971/**12**:284–296;

(Hänni)1983/**18**:386–400

single-pattern testing (Angus)1962/**8**:251–252

X-ray luminescence of (Hänni)2005/**29**:325–329

### Pearl, cultured

from Bangladesh, reportedly (Kennedy)2001/**27**:486–487

bead material in (Hänni)2010/**32**:31–37

blister—

from Australia (Anon)1959/**7**:74

from China (Fengming)2004/**29**:37–47

brown, stained (Scarratt)1984/**19**:107–108

- from China, Yangxin production (Jobbins)1990/**22**:3–15  
 coated (Kennedy)2002/**28**:79–80  
 colour-treated (Li Liping)2001/**27**:449–455; grey/black  
 (Kennedy)2001/**27**:269–270  
 cosmetics, effects of (Webster)1964/**9**:255–259  
 ‘demi-like’ half-nacreous (Bubshait)1994/**24**:43–44  
 diffraction enhanced imaging of (Schlüter)2005/**29**:401–406  
 discoloration and colour of (Lee)1954/**4**:273–280  
 double-nucleated (Scarratt)1989/**21**:294; letter on  
 (Voll)1989/**21**:394; response (Scarratt)1989/**21**:394  
 drill holes in, unusual mixed in strands with natural  
 (Bubshait)1993/**23**:400–401  
 dyed—  
   with silver nitrate—  
     aging of (Segura)2014/**34**:203–204  
     X-radiography of (Webster)1949/**2**:51–54  
 electron spin resonance of (Schiffmann)1971/**12**:284–296  
 farming—  
   in China (Fengming)2003/**28**:449–462  
   in England, history of (Vaughan)1958/**6**:249–250  
   in Hong Kong (Anon)1964/**9**:262  
   in Myanmar (Kammerling)1994/**24**:3–40; pages 25, 28  
   (Err)1994/**24**:130  
   in South East Asia (Hänni)2007/**30**:357–365  
   in Vietnam (Bosshart)1993/**23**:326–332  
 freshwater—  
   from China (Wehrmeister)2007/**30**:399–412;  
   (Liping)2013/**33**:131–136; non-beaded  
   (Kennedy)2001/**27**:265–267  
   internal structure of (Wehrmeister)2008/**31**:15–21  
   from Japan (Wehrmeister)2007/**30**:399–412  
   marketing and nomenclature of (Kennedy)2001/**27**:487  
 identification—  
   and history of (Farn)1975/**14**:382–385  
   laboratory experiments in  
   (Schiffmann)1971/**12**:284–296  
   of origin (Hänni)2013/**33**:239–245; page 241  
   (Err)2014/**34**:89  
   with cross-section photos (Alexander)1947/**1**(1):2–5  
 imitation—  
   glass, of freshwater (Scarratt)1986/**20**:38  
   plastic over mother-of-pearl (Farn)1978/**16**:232–234  
 inlaid with gem materials (Laurs)2015/**34**:677  
 irradiation, methods and detection of (Jones)1963/**9**:21–31  
 from Iran (Safar)1998/**26**:22  
 from Ireland, ancient (Robb)1972/**13**:12  
 from Japan, industry of (Banister)1961/**8**:21–29; impact  
 of hurricane on (Probus)1960/**7**:178; non-beaded  
 (Safar)1998/**26**:22  
 ‘keshi’, terminology (Hänni)2006/**30**:51–58  
 large (Kennedy)2001/**27**:267–268  
 mabe, coloured with nail varnish (Scarratt)1992/**23**:137  
 with multiple nuclei (Scarratt)1986/**20**:35; page 35  
 (Err)1986/**20**:199  
 from The Netherlands (Zwaan)2014/**34**:150–155  
 newsletter, *Margaritologia* (Laurs)2014/**34**:280;  
 (Laurs)2015/**34**:558–559  
 non-beaded—  
   (Webster)1959/**7**:121–123; (Kennedy)2001/**27**:265–269  
   identification of (Duroc-Danner)1986/**20**:11–13  
   mixed in strands with natural (Bubshait)1993/**23**:400  
*Pinctada maxima* for pearl farming in South-east Asia  
 (Hänni)2007/**30**:357–365  
 poor quality (Scarratt)1986/**20**:216  
 presentations at Inhorgenta Munich jewellery show  
 (Laurs)2014/**34**:280  
 Raman spectra of colour-treated (Li  
 Liping)2001/**27**:449–455  
 repaired and filled (Scarratt)1989/**21**:294–296  
 shapes, chart of (Anon)1977/**15**:405–407  
 South Sea (Safar)1998/**26**:22–23  
 stringing, threads for (Webster)1971/**12**:275–283  
 structures, unusual (Webster)1954/**4**:325–334  
 ‘tagging’ with holographic image (Segura)2015/**34**:478–479  
 Tahitian  
   ‘keshi’ cultured pearls (Hänni)2006/**30**:51–58  
   pearls, cultured (Wehrmeister)2008/**31**:15–21;  
   (Hänni)2010/**32**:31–37  
 vaterite in (Wehrmeister)2007/**30**:399–412;  
 (Wehrmeister)2008/**31**:15–21  
 X-radiography of—  
   (Brown)1979/**16**:501–511; (Farn)1980/**17**:223–229;  
   (Duroc-Danner)1983/**18**:715–722; page 721  
   (Err)1984/**19**:289  
   limitations (Lorenz)1986/**20**:114–123; page 116  
   (Err)1986/**20**:199  
   saltwater with thick nacre (Segura)2014/**34**:13–14  
 X-ray diffraction of—  
   Laue method (Hänni)1983/**18**:386–400  
   single-pattern testing (Angus)1962/**8**:251–252  
 X-ray luminescence of (Hänni)2005/**29**:325–329  
 see also Assembled gem materials; Shell; X-radiography
- Pearl, non-nacreous**  
 brown, with nacreous white portion (Safar)1998/**26**:20–21  
 from common whelk *Baccinum undatum*  
 (Anderson)1968/**11**:1–6  
 conch ‘flame structure’ (Farn)1977/**15**:361–362  
 from edible oyster, *Crassostrea virginica*, from USA  
 (Scarratt)2006/**30**:43–50  
 from giant clam, *Tridacna gigas*  
 (Anderson)1971/**12**:206–208  
 from Greece (Webster)1961/**8**:32  
 from lion’s paw scallop (Scarratt)2004/**29**:193–203  
 from marine snail, *Magilus antiquus*  
 (Hainschwang)2010/**32**:15–22  
 orange, possibly from *Strombus gigas*  
 (Scarratt)1992/**23**:137–138  
 see also X-radiography
- Pectolite**  
 from Santo Domingo, sold as ‘larimar’ (Dunn)1978/**16**:90–93
- Pegmatites**  
 of Argentina, Velasco district (Sardi)2008/**31**:85–89  
 beryl from, crystal morphology and growth  
 (Sunagawa)1999/**26**:521–533  
 of East Africa (Simonet)2000/**27**:11–29  
 in former USSR (Spiridonov)1998/**26**:111–125
- Perettiite-(Y)**  
 new mineral as inclusion in phenakite (Laurs)2015/**34**:559
- Periclaire**  
 synthetic (Webster)1970/**12**:101–148
- Peridot**  
 from Antarctica (Taylor)1971/**12**:333  
 crystallography of (Mitchell)1950/**2**:237–274  
 historic reports of (Cooper)1976/**15**:24–26  
 inclusions in, see ‘Inclusions’  
 infrared spectrum of (Hainschwang)2008/**31**:23–29  
 from Mexico (Dunn)1978/**16**:236–238  
 from Myanmar (Kammerling)1994/**24**:3–40; pages 25, 28  
 (Err)1994/**24**:130  
 from Nevada (Führbach)1998/**26**:86–102; page 93  
 (Err)1998/**26**:203  
 pieces in polymer matrix (Choudhary)2015/**34**:401–402  
 simulated by doublets from Germany (Henn)2015/**34**:479–  
 482  
 at Sinkankas Symposium, 12th (Laurs)2014/**34**:156–157;  
 erratum 2014/**34**:207  
 from Sri Lanka (Gunawardene)1985/**19**:692–702  
 star (Borg)1980/**17**:1–4; page 2, Figure 1a (Err)1980/**17**:144



- in Townshend Collection of Precious Stones in Victoria and Albert Museum (O'Donoghue)1970/**12**:1–5  
from Vietnam (Kammerling)1995/**24**:355–361
- Peristerescence**, see Iridescence
- Peristerite**, see Feldspar
- Peru**  
chrysocolla chalcedony from (Clark)2014/**34**:9–10  
gems from (Hyršl)2001/**27**:328–334  
malachite-azurite from (Hyršl)2015/**34**:564
- Petalite**  
from Brazil (Anderson)1972/**13**:95–96  
cat's-eye (Ito)1986/**20**:161–162  
faceted 'fish-eye' (Axon)1964/**9**:263–267
- Pezzottaite**  
new gem mineral (Hänni)2004/**29**:75–76
- Phenakite**  
from Brazil (Gübelin)1979/**16**:357–362  
colours of (Kennedy)2000/**27**:84–85  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
inclusions in, see 'Inclusions'  
infrared spectrum of (Hainschwang)2008/**31**:23–29  
from Spain (Marcos-Pascual)1997/**25**:340–357  
synthetic (Webster)1970/**12**:101–148; drusy, from Russia (Hyršl)1999/**26**:447–449
- Phosgenite**  
from Greece (Andrews)1965/**9**:354–355
- Phosphophyllite**  
from Bolivia (Dunn)1978/**16**:90–93; (Hyršl)1998/**26**:41–47
- Phosphorescence**  
of diamond, pink, to UV and X-rays (Anderson)1960/**7**:216–220  
of 'Fluorolith' fashion stones (Scarratt)1988/**21**:135  
see also DiamondView imaging; Fluorescence, ultraviolet [UV]; Luminescence
- Photochromism**, see Colour change
- Photography**  
Gem-A/GAGTL competition results—1994/**24**:front cover, 216–217; 1995/**24**:front cover, 523; 1996/**25**:front cover, 246–247; 1997/**25**:front cover, 504; 1998/**26**:front cover, 196; 1999/**26**:front cover, 470; 2000/**27**:front cover, 181; 2001/**27**:front cover, 435; 2002/**28**:183–184; 2003/**28**:440–441; page 441 (Err)2003/**28**:507; 2004/**29**:185; 2005/**29**:490; 2012/**33**:95–96; 2013/**33**:268–269; 2014/**34**:358  
methods of—  
accessory clips (Laurs)2015/**34**:381  
DiaCam360 portable electronic scanning device (Grabowski)2015/**34**:468  
DiaPix high-definition system (Laurs)2015/**34**:557  
focusing issues (Mackie)1952/**3**:308  
for gem testing (Webster)1966/**10**:84–95  
immersion contact for RI estimation (Anderson)1952/**3**:219–225; (Anderson)1953/**4**:107–111; (Anderson)1956/**5**:297–306; (Anderson)1966/**10**:69–83  
for jewellery (Foster)1991/**22**:287–291  
photometer for (Burbage)1961/**8**:86–87  
for inclusions, absorption spectra and interference figures (Vincent)1947/**1**(3):13–24  
see also Photomicrography
- Photoluminescence spectroscopy**, see Spectroscopy, photoluminescence
- Photomicrography, methods of**  
(Trumper)1952/**3**:236–242; for inclusions (Day)1951/**3**:87–100; for jewellery (Foster)1991/**22**:287–291  
equipment for (Levet)1964/**9**:151–157; (Ericksen)1964/**9**:222  
experimental (Vincent)1947/**1**(3):13–24
- for 'fingerprinting' diamond (Alexander)1949/**2**:16–17  
focusing issues, letter on (Mackie)1952/**3**:308  
simplified methods (Chisholm)1954/**4**:217–223; (Cooper)1971/**12**:226–229  
smartphone camera (Boehm)2014/**34**:6–7  
'stacking' software for depth of field (Prince)2014/**34**:188–189  
Zeiss Photomicroscope II with brightfield/darkfield illuminator for (Burch)1982/**18**:28–36  
see also Inclusions
- Pinctada maxima**, see Pearl; Shell
- Plagioclase**, see Feldspar; Rocks
- Plastic**  
amber simulant, with bees (Kennedy)2002/**28**:76  
as a binder for crushed lapis lazuli (Farn)1974/**14**:57–58  
coating—  
of coral bead with (Scarratt)1984/**19**:108–109  
of Opalite opal imitation (Scarratt)1993/**23**:473–480  
over mother-of-pearl (Farn)1978/**16**:232–234  
imitations, tests for, and types (Webster)1949/**2**:87–102  
impregnation of dyed opal (Scarratt)1992/**23**:134–135  
see also Assembled gem materials; individual gem simulants
- Play-of-colour**  
in opal—  
from Indonesia (Einfalt)2007/**30**:383–398  
from Somaliland (Kinnaird)2002/**28**:81–84  
in opal imitation, Opalite (Scarratt)1993/**23**:473–480  
see also Opal
- Pleochroism**  
in alexandrite—  
(Schmetzer)2011/**32**:129–144  
flux-grown synthetic (Schmetzer)2012/**33**:49–81  
HOC-grown synthetic (Schmetzer)2013/**33**:113–129  
in chrysoberyl—  
from Brazil (Schmetzer)2014/**34**:32–40  
from Tanzania (Schmetzer)2011/**32**:179–209  
dichroscope—  
and coloured minerals (Kennedy)1955/**5**:100–107  
home-made (Grist)1987/**20**:485; (Eadie)1987/**20**:482–485  
in measuring dichroism (Burbage)1957/**6**:166–171  
for use with microscope (Miles)1965/**9**:288–289; letter on (Thurm)1965/**9**:365  
history and determination of (Ostwald)1964/**9**:242–248  
of Kashan synthetic ruby and pink sapphire (Schmetzer)2007/**30**:331–356  
measuring (Burbage)1957/**6**:166–171  
of moissanite, synthetic, from Russia (Kiefert)2001/**27**:471–481  
in thortveitite (Chapman)2008/**31**:1–6  
see also Colour change; Filters
- Poland**  
jasper from Swierki (Heflik)1993/**23**:356–359  
nephrite from Jordanów Slaski (Nichol)2001/**27**:461–470
- Polarizing filters**, see Filters; Instruments, polariscope
- Polishing**, see Faceting
- Portugal**  
jewellery and sacred objects from 16th–18th centuries (Galopim de Carvalho)2014/**34**:116–128
- Powellite**  
-scheelite, from Tanzania (Kennedy)2000/**27**:85  
synthetic (Anderson)1972/**13**:7
- Prehnite**  
from Scotland (Andrews)1965/**9**:354–355  
simulated by doublets from Germany (Henn)2015/**34**:479–482
- Proceedings...and Notices** [called 'Official Notices' in 1947 and 'Association Notices' from 1948 through 1985]



Gem-A awards, conferences, events, meetings, reports and other announcements; donations, gifts, sponsorships and other support to Gem-A—

- 1947/**1**:(1)59–64, (2)43, (3)34–36, (4)26–27;  
1948/**1**:(5)36–37, (6)29–30, (7)40, (8)35–36;  
1949/**2**:27–28, 63–66, 113–114, 167–168;  
1950/**2**:212–214, 275–278, 324–325, 357–358;  
1951/**3**:40–42, 83–86, 128–132, 169–171;  
1952/**3**:215–218, 272–274, 312–314, 351–354;  
1953/**4**:45–50, 96–106, 148–151, 193–196;  
1954/**4**:224–231, 269–272, 323–324, 368–370;  
1955/**5**:55–58, 108–124, 162–164, 235–241;  
1956/**5**:294–296, 328–338, 383–387, 422–423;  
1957/**6**:48–52, 99–100, 147–149, 191–193;  
1958/**6**:245–247, 290–296, 334–339, 389–394;  
1959/**7**:32–35, 75–78, 113–117, 161–165  
1960/**7**:203–208, 247–248, 285–289, 314–317; 1961/**8**:43–48, 78–79, 122–123, 162–166; 1962/**8**:209–213, 241–243, 276–278, 309–314; 1963/**9**:33–37, 72–74, 110–115, 145–149; 1964/**9**:185–189, 212–214, 249–254, 276–282; 1965/**9**:325–328, 364–367, 407–410, 448–452; 1966/**10**:31–40, 65–67, 109–111, 138–144; 1967/**10**:174–178, 208–210, 246–251, 271–279; 1968/**11**:20–29, 66–67, 100–104, 136–147; 1969/**11**:193–195, 227–228, 297–301, 327–342  
1970/**12**:22–27, 56–59, 93–98, 149–150; 1971/**12**:185–203, 238–239, 322–325, 367–368; 1972/**13**:30–40, 82–84, 114–118, 153–155; 1973/**13**:194–204, 241–248, 286–290, 335–337; 1974/**14**:39–55, 94–96, 144–148, 198–200; 1975/**14**:239–250, 301–312, 352–356, 399–401; 1976/**15**:36–52, 96–104, 153–164, 220–224; 1977/**15**:269–282, 339–344, 402–408, 461–465; 1978/**16**:58–76, 144–151, 216–220, 282–283; 1979/**16**:338–356, 422–431, 493–498, 552–556  
1980/**17**:49–67, 138–144, 200–209, 274–282;  
1981/**17**:344–369, 416–434, 500–509, 641–647;  
1982/**18**:86–107, 172–179, 254–263, 354–361;  
1983/**18**:446–474, 576–579, 665–674, 776–778;  
1984/**19**:73–94, 188–208, 280–289, 381–386;  
1985/**19**:443–467, 548–553, 642–647, 736–742;  
1986/**20**:59–72, 132–136, 195–199, 256–259;  
1987/**20**:314–326, 388–392, 503–506; 1988/**21**:46–56, 115–120, 199–201, 265–267; 1989/**21**:316–328, 392–393, 459–460, 517–520  
1990/**22**:44–55, 116–119, 184–186, 246–249;  
1991/**22**:311–321, 384, 386, 449–450, 504–513;  
1992/**23**:50, 53–57, 116–118, 120, 182, 185, 241–242, 244–252; 1993/**23**:307–208, 310–314, 376–379, 436–440, 496, 498–500, 502–506; 1994/**24**:55–60, 125–130, 216–221, 223–226, 297–306; 1995/**24**:378–386, 451–458, 523–530, 610–619; 1996/**25**:71–79, 158–167, 246–255, 312–320; 1997/**25**:375–384, 439–447, 504–511, 568–576; 1998/**26**:49–58, 135–141, 196–203, 276–284; 1999/**26**:340–347, 404–411, 470–476, 548–556  
2000/**27**:56–61, 118–123, 181–189, 243–250;  
2001/**27**:307–315, 372–380, 435–443, 502–509;  
2002/**28**:54–59, 119–124, 183–187, 240–251;  
2003/**28**:309–315, 372–379, 440–443, 495–507;  
2004/**29**:54–60, 120–124, 185–188, 241–252;  
2005/**29**:360–372, 490–500; 2006/**30**:116–127, 244–254; 2007/**30**:347–355, 465–475; 2008/**31**:62–69, 139–151; 2009/**31**:312–326  
2010/**32**:114–126; 2011/**32**:236–252; 2012/**33**:94–109; 2013/**33**:176–183

Membership and transfers—

- 1947/**1**:(4)27, 1948/**1**:(5)36–37, (8)37–39; 1949/**2**:27–28, 114, 168–170; 1950/**2**:212–213, 359–361; 1951/**3**:42, 85–86, 171–174; 1952/**3**:217–218,

- 273–274, 312, 351–353; 1953/**4**:46–47, 96–97, 193, 195–196; 1954/**4**:224, 269–270, 323, 368–369; 1955/**5**:56–57, 110, 237–239; 1956/**5**:294–295, 328, 384–385, 424–426; 1957/**6**:50–52, 100, 149; 1958/**6**:290, 337–338; 1959/**7**:33–34, 75, 117  
1960/**7**:205–207, 285, 314; 1961/**8**:47–48, 78, 163–164; 1962/**8**:212, 276, 309; 1963/**9**:35–37, 72, 113–114; 1964/**9**:186–188, 276–277; 1965/**9**:327–328, 366–367, 409; 1966/**10**:32–35, 110; 1967/**10**:176–178, 208–210, 249–250, 277–278; 1968/**11**:25–29, 67, 103–104, 139–140; 1969/**11**:228–232, 333–334  
1970/**12**:24–27, 57–59, 95–96; 1971/**12**:201–203, 238, 325–326, 368–370; 1972/**13**:84–88, 117–118; 1973/**13**:204–208, 246–248, 290–291, 337; 1974/**14**:50–55, 95–96; 1975/**14**:250–256, 310–312, 354–356; 1976/**15**:47–52, 99–102, 222–223; 1977/**15**:282–287, 403–405, 462–463; 1978/**16**:59–63, 146–148; 1979/**16**:339–346, 428–429  
1980/**17**:50–56, 201–204, 281; 1981/**17**:346–351, 503–507, 643–644; 1982/**18**:100–103, 256–261, 357; 1983/**18**:452–457, 668–673; 1984/**19**:75–79, 204–208, 286; 1985/**19**:448–452, 549–551, 644; 1986/**20**:60–63, 132–133, 197–198; 1987/**20**:317–319, 389–390, 504; 1988/**21**:48–49, 118–119, 200–201, 267; 1989/**21**:325–327, 393, 459, 518–519  
1990/**22**:53–54, 117, 185, 247–248; 1991/**22**:320–321, 384, 386, 449–450, 512–513; 1992/**23**:53–55, 116–118, 120, 182, 185, 249–252; 1993/**23**:312–313, 376–379, 440, 496, 499; 1994/**24**:56–59, 128, 130, 225–226, 305–306; 1995/**24**:384–385, 454, 456, 527–528, 618–619; 1996/**25**:76–77, 79, 165–167, 254–255, 319–320; 1997/**25**:380, 382, 384, 446–447, 510–511, 575–576; 1998/**26**:56–58, 140–141, 201–202, 282–284; 1999/**26**:345, 347, 409–411, 475–476, 554–556  
2000/**27**:59, 61, 122, 188–189, 249–250; 2001/**27**:313–315, 378, 380, 442–443, 507–509; 2002/**28**:58–59, 123–124, 187, 249–251; 2003/**28**:314–315, 378–379, 443, 503–505; 2004/**29**:58–60, 124, 187–188, 251–252; 2005/**29**:369–371, 498–500; 2006/**30**:122–126, 251–254; 2007/**30**:352–354, 473–475; 2008/**31**:66–69, 149–151; 2009/**31**:322, 324–326  
2010/**32**:123–125; 2011/**32**:246–249; 2012/**33**:107–109; 2013/**33**:181, 183

see Gem-A Notices after 2013

see also Conference reports; Errata; Obituaries; Photography

### Prosopite

as turquoise simulant (Dunn)1976/**15**:205–208

### Prospecting

use of gemmological techniques (Taylor)1994/**24**:155–160  
in Sri Lanka, geochemistry for  
(Dissanayake)1992/**23**:165–175

### Proustite

as gemstone (O'Donoghue)1980/**17**:7–9  
see also Synthetics

### Pseudocrocidolite, see Tiger's-eye

### Pyke, John L.

obituary (Pyke)2007/**30**:478–479

### Pyralspite, see Garnet

### Pyrrargyrite

from Bolivia (Hyršl)1998/**26**:41–47

### Pyrite

history of use (Bartlett)1997/**25**:517–531  
from Sri Lanka (Gunawardene)1983/**18**:635–640

### Pyrope

from Brazil, treatment of (Eeckhout)2004/**29**:205–214  
chemical composition of (Adamo)2007/**30**:307–319  
pink (Duroc-Danner)1984/**19**:311–316  
see also Garnet

**Pyrope-almandine**, see Garnet  
**Pyrope-spessartine**, see Garnet  
**Pyroxene group**  
in jadeite-bearing rock from Mexico (Ostrooumov)2010/**32**:1–6  
star, black (Ponahlo)1968/**11**:12–15  
see also Diopside; Enstatite; Jadeite; Kosmochlor; Omphacite; Spodumene  
**Pyroxmangite**  
as gemstone (O'Donoghue)1980/**17**:7–9  
from Japan (Andrews)1965/**9**:354–355  
**Pyrrhotite**  
inclusions in almandine from USA (Dunn)1975/**14**:273–280

## Q

### Qatar

pearl fishing in (Scarratt)1986/**20**:147–148

### Quartz

from Argentina (Sardi)2008/**31**:85–89  
asterism in—  
(Schmetzer)2006/**30**:183–191  
aventurine (Webster)1954/**4**:210–211  
from Sri Lanka (Schmetzer)2003/**28**:321–332  
aventurine—  
colours of (Kennedy)1954/**4**:244–249  
mineralogy of (Monroe)1986/**20**:83–86  
star (Webster)1954/**4**:210–211  
blue—  
with crocidolite inclusions (Eppler)1971/**12**:256–262  
two varieties of? (Kennedy)1954/**4**:244–249; note on (Chisholm)1954/**4**:292–300  
from Bolivia (Hyršl)1998/**26**:41–47  
from Brazil with dumortierite inclusions (Laurs)2015/**34**:391–392  
from Canada (Boyd)1983/**18**:544–562  
cat's-eye, with tourmaline, from Brazil (Hyršl)2001/**27**:456–460  
cause of colour in (Henn)2012/**33**:29–43; (Koivula)1986/**20**:208–209  
citrine—  
distinction from synthetic and heat-treated (Schmetzer)1989/**21**:368–391  
nomenclature vs. 'topaz-quartz' in USA (Field)1952/**3**:226–229  
smoky, from California (Laurs)2014/**34**:201–202  
chrysoprase deposits in former USSR (Spiridonov)1998/**26**:111–125  
coated—  
to simulate emerald rough (Smith)1988/**21**:28–29  
to simulate star sapphire (Mayerson)2015/**34**:485–486; letter on (Stern)2015/**34**:604  
coloured, defects in (Hutton)1974/**14**:156–166  
cracks in (Joshi)1976/**15**:129–135; letter on (Gübelin)1977/**15**:343–344  
crystal structure of (Walton)1952/**3**:204–214  
crystallography of (Mitchell)1950/**2**:237–274  
growth structure in amethyst and citrine, vs. synthetic (Kiefert)1991/**22**:471–482  
history of name (Cooper)1980/**17**:150–152  
inclusions in, see 'Inclusions'  
as inclusions in aquamarine (Eppler)1963/**9**:9–16  
optic axis of (Cartier)2004/**29**:228–234  
prasiolite, distinction from synthetic, irradiated and heat-treated (Schmetzer)1989/**21**:368–391  
Raman spectra of, in reliquary of St Eustace, Basle Cathedral (Joyner)2006/**30**:169–182  
red, rarity of (Kennedy)1954/**4**:244–249  
rock crystal—  
in ewer with glass (Scarratt)1992/**23**:139

from Sri Lanka (Francis)2001/**27**:291–294  
rose—  
from Argentina (Sardi)2008/**31**:85–89  
from Brazil (Cassedanne)1991/**22**:273–286  
inclusions in, see 'Inclusions'  
from Madagascar (Schmetzer)2006/**30**:183–191  
from Scotland (Kennedy)1954/**4**:244–249  
star (Eppler)1958/**6**:195–212; light spots on spheres (Killingback)2008/**31**:40–42  
from Scotland (Kennedy)1953/**4**:82–95  
simulated by doublets from Germany (Henn)2015/**34**:479–482  
simulating diamond crystals (Scarratt)1986/**20**:211  
sphere, with well-formed inclusion (Laurs)2015/**34**:392–393  
smoky—  
citrine from California (Laurs)2014/**34**:201–202  
cause of colour (Koivula)1986/**20**:208–209  
irradiated (Webster)1974/**14**:175–176  
in Townshend Collection of Precious Stones in Victoria and Albert Museum (O'Donoghue)1970/**12**:1–5  
'trapiche', sold as (Krzemnicki)2014/**34**:296–298  
treatment of—  
'Aqua Aura' method (Kammerling)1989/**21**:364–367; (Kammerling)1992/**23**:72–77  
colour causes in (Henn)2012/**33**:29–43  
with heat—  
and distinction from natural and synthetic (Schmetzer)1989/**21**:368–391  
red-orange-brown, at Geological Survey Museum of South Kensington (Kennedy)1954/**4**:244–249  
impregnated, imitating jade (Tan)2003/**28**:392–398  
with radiation (Burbage)1957/**6**:74–77; (Webster)1974/**14**:175–176  
from USA, large faceted (Laurs)2014/**34**:99–101  
see also Amethyst; Assembled gem materials; Rocks

**Quartz, cryptocrystalline**, see Agate; Chalcedony

### Quartz, synthetic

blue (Anderson)1969/**11**:303–306  
citrine (Anderson)1972/**13**:5–6; distinction from natural and heat-treated (Schmetzer)1989/**21**:368–391  
crystals from Bell Laboratories (Anderson)1951/**3**:31–32  
developments in (Field)1950/**2**:226–227; (Webster)1970/**12**:101–148  
growth structure in amethyst and citrine, vs. natural (Kiefert)1991/**22**:471–482  
hydrothermal growth of, and Giorgio Spezia (Trossarelli)1984/**19**:240–260  
from USA (O'Donoghue)1973/**13**:263–264; letter on (Campbell)1978/**16**:218–220

### Quartzite

black, resembling onyx (Kennedy)2001/**27**:485  
dyed—  
to imitate amazonite (Williams)2014/**34**:303–304  
to imitate bicoloured tourmaline (Hyršl)2015/**34**:402  
ornamental (Webster)1958/**6**:297–333  
pink manganese-bearing (Anderson)1972/**13**:94–95  
'sarkstone' from Sark, Channel Islands (Rutland)1960/**7**:226–227  
see also Fuchsite

## R

### Radio frequency identification tagging (RFID)

of cultured pearls (Hänni)2013/**33**:239–245; page 241 (Err)2014/**34**:89

### Radioactivity

of diamond—  
autoradiography (Webster)1966/**10**:84–95  
radium-treated (Webster)1965/**9**:352–353; (Scarratt)1986/**20**:147, 149–150

- of glass imitating emerald (Duroc-Danner)1992/**23**:80–83  
of minerals in Sri Lankan gem gravels  
(Rupasinghe)1986/**20**:177–184  
of topaz, irradiated (Kennedy)2000/**27**:82–83  
see also Irradiation; Zircon
- Raman spectroscopy**, see Spectroscopy, Raman
- Ramaura ruby**, see Ruby, synthetic
- Read, Peter George**  
obituary (Deeks)2009/**31**:327
- Reflectance infrared spectroscopy**, see Spectroscopy, infrared
- Reflectance/reflectivity meters**  
Diamond Eye (Jobbins)1978/**16**:239–243;  
(Read)1979/**16**:386–407  
Diamond Tester (Read)1979/**16**:386–407  
fibre-optic (Read)1981/**17**:454–458  
Gemeter (Webster)1975/**14**:281–288;  
(Webster)1975/**14**:378–381; (Read)1979/**16**:386–407  
infrared reflectometer, to detect diamond doublet  
(Mitchell)1983/**18**:385  
Jemeter Digital 90 (Read)1992/**23**:25–26  
Jeweler's Eye (Webster)1976/**15**:19–24;  
(Read)1979/**16**:386–407  
Lustermeter (Jobbins)1978/**16**:239–243  
Martin MGA-1 Gem Analyser (Read)1978/**16**:50–54;  
(Read)1979/**16**:386–407  
Presidium Duotester (Read)1988/**21**:251–253  
Rayner Diamondscan (Read)1985/**19**:521–527  
role in gemmology (Hanneman)1978/**16**:109–121  
and reflectivity concepts (Read)1990/**22**:97–102; letter on  
(Nelson)1991/**22**:321–322; response (Read)1991/**22**:322  
review of instruments (Read)1979/**16**:386–407  
Trumper reflectometer (Trumper)1959/**7**:129–128
- Refractive index**  
absolute vs. relative (Hessling)1953/**4**:11–13  
of andesine (Abduriyim)2009/**31**:283–298  
Becke line effect (Mitchell)1962/**8**:280–285  
of biaxial gems (Sturman)2007/**30**:434–442, 443–452  
of colourless gems (Kent)1987/**20**:344–345;  
(Kent)1996/**25**:87–89  
critical, deviation and Brewster angles  
(Cartier)2000/**27**:233–236  
bright line technique (Hoover)2007/**30**:287–297; letter on  
(Hodgkinson)2007/**30**:454–455  
and 'determination diagram' for identification  
(Arps)1969/**11**:221–226  
direct measurement of (Tisdall)1972/**13**:78–81  
distant vision (spot) method and double refraction  
(Anderson)1950/**2**:341  
and double refraction divergence (Cartier)2003/**28**:301;  
(Cartier)2003/**28**:489–493  
false double shadow edge due to facet planes  
(Hodgkinson)2014/**34**:94–95  
of garnets (Hoover)2008/**31**:91–103;  
(Teerstra)2008/**31**:105–110  
of glass, prehistoric, from Sri Lanka  
(Harder)1993/**23**:267–273  
estimation of—  
using microscopy (Oates)1973/**13**:270–274;  
(Farrimond)1993/**23**:418–421  
using immersion contact photography  
(Anderson)1952/**3**:219–225;  
(Anderson)1953/**4**:107–111;  
(Anderson)1956/**5**:297–306;  
(Anderson)1966/**10**:69–83  
mounted gems using immersion  
(Anderson)1962/**8**:215–217  
Herbert Smith Memorial Lecture on methods of  
determining (Anderson)1955/**5**:166–178
- Kerez effect (Fellows)2015/**34**:652–653  
mathematics of (Schell)1993/**23**:422–426  
of peridot (Sturman)2007/**30**:434–442  
and refraction of light (Walton)1947/**1**(2):19–23  
and reflectivity (Trumper)1959/**7**:129–128;  
(Hanneman)1978/**16**:109–121  
relationship with composition and structure  
(Teerstra)2008/**31**:105–110  
and selective reflection (Lewis)1947/**1**(4):10–14  
shadow method (Sprague)1947/**1**(1):56–59  
of sinhalite (Sturman)2007/**30**:434–442  
of tourmaline, multiple refractometer readings—  
(Mitchell)1967/**10**:194; (Schiffmann)1973/**13**:125–132;  
(Schiffmann)1975/**14**:324–329  
Kerez effect (Fellows)2015/**34**:652–653  
variation in doubly refractive gems (Song)2005/**29**:331–340  
visual optics method of estimating  
(Cartier)2000/**27**:233–236  
see also Crystallography; Optic character; Refractometer;  
specific gem materials
- Refractometer**  
accessories—  
inexpensive (Lewton-Brain)1989/**21**:500–505  
stone holder (Moliné)1985/**19**:426–430  
air-boundary (Yu)1979/**16**:521–536; (Yu)1981/**17**:334–336  
bright line technique (Hoover)2007/**30**:287–297; letter on  
(Hodgkinson)2007/**30**:454–455  
Brewster-angle meter (Read)1979/**16**:537–541;  
(Read)1988/**21**:36–39; (Harding)1999/**26**:539–542;  
(Cartier)2000/**27**:233–236  
declinometer for (Moliné i Sala)1995/**24**:405–409;  
(Addendum)1995/**24**:530  
developments in USA (Anderson)1949/**2**:121–123  
device for measuring birefringence with  
(Farrimond)1994/**24**:105–108; letter on  
(Hurlbut)1994/**24**:184–185; response  
(Farrimond)1994/**24**:185; letter on  
(Hughes)1994/**24**:185–186  
and dispersion measurement (Read)1979/**16**:386–407;  
(Hanneman)1992/**23**:95–96  
distant vision (spot) method (Anderson)1949/**2**:121–123;  
(Hodgkinson)1988/**21**:32–35; pinhole imaging  
of (Mitchell)1988/**21**:67–68; letter on accuracy of  
(Walker)1988/**21**:202  
false reading due to facet planes  
(Hodgkinson)2014/**34**:94–95  
from GIA (Anon)1949/**2**:54; Duplex (Anon)1967/**10**:202–203  
Hanneman—  
description of (Hanneman)2000/**27**:155–160; page 158  
(Err)2000/**27**:250  
review of (Hoover)2003/**28**:353–361  
Herbert Smith Memorial Lecture on  
(Anderson)1955/**5**:166–178  
history of development (Anderson)1973/**13**:249–262;  
(Liddicoat)1981/**17**:568–583  
interference filters for measuring dispersion  
(Read)1979/**16**:386–407  
liquids, names of (Mitchell)1991/**22**:387–388; letter on  
(Farn)1991/**22**:451  
lighting for (Read)1980/**17**:82–94  
optic character determination (Sturman)2007/**30**:443–452;  
page 450 (Err)2008/**31**:69; (Sturman)2010/**32**:90–100  
Pfund high-index instrument (Ostwald)1963/**9**:67–71  
and polarizing filters with (Sturman)2005/**29**:341–349;  
letter on (Cartier)2005/**29**:482; response (Sturman)  
2005/**29**:483; (Sturman)2007/**30**:434–442; (Sturman)  
2010/**32**:90–100; (Sturman)2010/**32**:101–105  
positioning of multiple samples on (Mitchell)1988/**21**:57

- Rayner—  
 with built-in LED illumination (Read)1985/**19**:625–629  
 Dialdex, new (Webster)1972/**13**:89–93  
 with diamond 'glass' (Read)1979/**16**:386–407  
 improvements to (Yu)1984/**19**:62–64  
 new (Anderson)1947/**1**(2):17–18
- Riplus ER602, review of (Read)1981/**17**:321–324  
 shadow edges improved with polarizing filter  
 (Sturman)2010/**32**:101–105
- spinel vs. glass (Farn)1959/**7**:37–38  
 stone holder for (Moliné)1985/**19**:426–430; homemade  
 (Crawford)1986/**20**:240–241  
 teaching and use (Sturman)2010/**32**:74–89
- Religious artefacts**  
 reliquary of St Eustace, Basle Cathedral  
 (Joyner)2006/**30**:169–182
- Remondite-(Ce)**  
 from Canada (Wight)1996/**25**:24–44
- Resin**  
 cast polyester, imitating tortoise shell, horn, ivory, bone  
 and jet (Scarratt)1992/**23**:218–222  
 imitation of hornbill ivory (Jie Liang)2014/**34**:42–49  
 from New Zealand—  
 copal and other resins (Currie)1997/**25**:408–416  
 kauri gum from (Ruff)1947/**1**(3):28–31  
 natural (Currie)1997/**25**:408–416  
 see also Filling, fracture or cavity; Plastic
- Responsible Jewellery Council**  
 reports and presentations, 2014 (Laurs)2014/**34**:93  
 Annual Progress Report (Laurs)2015/**34**:650
- Rhodesia**, see Zimbabwe
- Rhodochrosite**  
 from Brazil (Zwaan)2015/**34**:473–475  
 from Canada (Wight)1996/**25**:24–44  
 cat's-eye and star (Hyršl)2001/**27**:456–460  
 faceted, 5.50 ct (Axon)1964/**9**:263–267  
 inclusions in, see 'Inclusions'  
 ornamental (Webster)1958/**6**:297–333  
 from Peru (Hyršl)2001/**27**:328–334
- Rhodolite**, see Garnet
- Rhodonite**  
 from Canada (Boyd)1983/**18**:544–562  
 from Tanzania (Thurm)1973/**13**:264–265  
 from USA (Dunn)1976/**15**:76–80
- Rock crystal**, see Quartz
- Rocks**  
 albite-tremolite 'Wyoming jade' from USA  
 (Webster)1966/**10**:59–60  
 aznac from Peru (Farn)1977/**15**:359  
 black, simulating jadeite (Koivula)1990/**22**:131–134  
 'black pearls' from Guyana (Gosling)1976/**15**:209–211;  
 letter on (Schiffmann)1977/**15**:463–464; letter on  
 (Jobbins)1977/**15**:464–465  
 eudialyte-bearing (kakortokite and other) from Greenland  
 (Dragsted)1971/**12**:312–315  
 'fossil black pearls' from Switzerland  
 (Schiffmann)1977/**15**:445–453  
 goodletite from New Zealand (Brown)1996/**25**:211–217  
 'haggis' from Scotland (Nichol)1999/**26**:534–538  
 hematite with magnetite, martite and gangue minerals  
 (Schmetzer)1984/**19**:343–347  
 jadeite-bearing—  
 from Mexico (Ostrooumov)2010/**32**:1–6  
 from Myanmar, microscopic studies of (Ou  
 Yang)1993/**23**:278–284  
 ornamental marble, limestone and others  
 (Webster)1958/**6**:297–333  
 saussurite (Jobbins)1974/**14**:1–7; (Farn)1976/**15**:16;  
 (Scarratt)1987/**20**:356–358
- verdite—  
 ornamental (Webster)1953/**4**:51–55;  
 (Webster)1958/**6**:297–333  
 and ruby-verdite from South Africa  
 (Harding)1984/**19**:150–159  
 volcanic glass with calcite, marketed as Saguaro Stone  
 (Krzemnicki)2015/**34**:567–569  
 see also Brucite; Charoite; Dickite; Jade; Jadeite; Limestone;  
 Marble; Maw-sit-sit; Omphacite; Quartzite; Serpentine;  
 Swiss jade; Variscite
- Rose quartz**, see Quartz
- Rubellite**, see Tourmaline
- Rubber**  
 gutta-percha and vulcanite imitating jet  
 (Brown)1991/**22**:292–297
- Rubidium-strontium analysis**  
 of emerald to determine age and origin  
 of (Vidal)1992/**23**:198–200; letter on  
 (Nassau)1993/**23**:441
- Ruby**  
 from Afghanistan, history of (Hughes)1994/**24**:256–267  
 with anorthite and pargasite (Schmetzer)2003/**28**:385–391  
 Balas, see Spinel  
 from Cambodia (Jobbins)1981/**17**:555–567;  
 (Sutherland)1998/**26**:65–85  
 from Canada (Boyd)1983/**18**:544–562;  
 (Mossman)2007/**30**:279–286  
 cathodoluminescence of (Ponahlo)1988/**21**:182–193;  
 (Solomonov)1996/**25**:299–305  
 cat's-eye/star from East Africa (Barot)1995/**24**:569–580  
 from China, history of (Galibert)1995/**24**:467–473  
 crystal specimen in matrix investigated with X-ray  
 computed tomography (Bouts)2014/**34**:50–54  
 deposits in former USSR (Spiridonov)1998/**26**:111–125  
 fracture filled—  
 with barium glass (Hainschwang)2015/**34**:574–576  
 with coloured lead glass (Henn)2014/**34**:111–112  
 with glass (Scarratt)1984/**19**:293–297;  
 (Hughes)1988/**21**:8–10;  
 (Scarratt)1988/**21**:133–134; (Bubshait)1994/**24**:42  
 identification of (Hänni)1992/**23**:201–205; pages 202,  
 204, 205 (Err)1993/**23**:313  
 method of (Milisenda)2006/**30**:37–42  
 and natural inclusions resembling  
 (Bubshait)1994/**24**:42–43  
 surface repair of (Hughes)1984/**19**:384–386;  
 (Bubshait)1993/**23**:399  
 in goodletite ornamental rock from New Zealand  
 (Brown)1996/**25**:211–217  
 'Great Table' diamond of Tavernier actually ruby  
 (Tolansky)1962/**8**:171–174  
 growth structure analysis (Schmetzer)1986/**20**:20–32; vs.  
 synthetic (Kiefert)1991/**22**:471–482  
 heat and diffusion treatment of  
 (Gunawardene)1984/**19**:298–310  
 in historic sword from India (Harding)1988/**21**:3–7  
 history, properties and sources (Webster)1957/**6**:101–146  
 history of classification, nomenclature and testing  
 (Anderson)1949/**2**:73–83  
 inclusions in, see 'Inclusions'  
 from Kenya, growth of (Key)1991/**22**:484–496  
 from Madagascar (Schwarz)2001/**27**:409–416;  
 (Cartier)2009/**31**:171–179; (Laurs)2015/**34**:559  
 from Malawi (Rutland)1969/**11**:320–323;  
 (Henn)1990/**22**:83–89; (Kiefert)1991/**22**:471–482;  
 (Rankin)2002/**28**:65–75  
 from Mozambique, low-temperature heat treatment of  
 (Laurs)2015/**34**:469



- from Myanmar—  
 (Alexander)1949/**2**:45–47; (Eppler)1976/**15**:1–5;  
 (Kammerling)1994/**24**:3–40; pages 25, 28  
 (Err)1994/**24**:130; (Peretti)1996/**25**:3–19  
 infrared spectra of (Smith)1995/**24**:321–335  
 mining and cutting in Mogok (Gübelin)1965/**9**:410–425;  
 (Pezzotta)2014/**34**:55–60; (Fritsch)2014/**34**:61–67;  
 (Laurs)2015/**34**:387–388
- from Nepal (Harding)1986/**20**:3–10; with unusual internal  
 features (Bank)1988/**21**:222–226
- from New Zealand (Grapes)2004/**29**:8–14
- nodules and geodes from England (Harding)1978/**16**:77–85
- nomenclature, vs. pink sapphire (Farn)1976/**15**:7
- and pargasite in anorthite (Schmetzer)2003/**28**:385–391
- polishing with silica powder in Cambay, India  
 (Karanth)1989/**21**:497–499
- 'reconstructed' found to be synthetic (Benson)1953/**4**:1–10
- spectra of—  
 (Bosshart)1986/**20**:238–239  
 faceted (Banerjee)1985/**19**:489–493; page 493  
 (Err)1985/**19**:647; letter on (Bosshart)1986/**20**:71;  
 response (Banerjee)1986/**20**:135–136  
 to distinguish from synthetic  
 (Bosshart)1982/**18**:145–160
- spectrophotometric/spectrochemical analysis of  
 (Alexander)1948/**1**(8):4–8
- from Sri Lanka, history of (Mahroof)1992/**23**:20–24  
 in Stuart Jewel at National Museums of Scotland  
 (Jackson)1997/**25**:428–429
- surface features of volcanic origin (Coenraads)1992/**23**:  
 151–160; pages 151, 152, 153–158 (Err) 1992/**23**:252
- from Tajikistan (Smith)1998/**26**:103–109
- testing of (Farn)1963/**9**:75–82
- from Thailand (Gübelin)1971/**12**:242–252
- trapiche—  
 (Schmetzer)1999/**26**:289–301  
 from Myanmar (Liu)2015/**34**:660–662
- twinned (Schmetzer)1987/**20**:294–305
- untreated natural compared with flux synthetic (Duroc-  
 Danner)2002/**28**:137–142
- from Vietnam (Long)2004/**29**:129–147
- zoned (Farn)1978/**16**:235
- see also Assembled gem materials; Corundum
- Ruby simulants**
- assembled, with synthetic ruby and glass  
 (Hughes)1988/**21**:8–10
- beryl doublet (Scarratt)1987/**20**:361
- corundum, dyed—  
 from Kenya, pink (Barot)1994/**24**:165–172  
 star (Schmetzer)1994/**24**:253–255
- cubic zirconia (Kennedy)2001/**27**:270
- glass (paste) coloured by didymium  
 (Anderson)1971/**12**:154
- grossular, dyed (Panjikar)2014/**34**:204–205
- synthetic overgrowth on corundum (Laurs)2015/**34**:560
- types as of 1947 (Webster)1947/**1**(1):20–23
- see also Assembled gem materials; Ruby, synthetic
- Ruby, synthetic**
- assembled—  
 doublet with natural-appearing sheen  
 (Choudhary)2014/**34**:110–111  
 with natural green sapphire (Duroc-  
 Danner)1988/**21**:12–14
- cathodoluminescence of (Ponahlo)1988/**21**:182–193
- Chatham—  
 (Andrews)1960/**7**:182; (Scarratt)1977/**15**:347–353;  
 (Gübelin)1983/**18**:477–499  
 gallium content to distinguish from natural  
 (Schrader)1986/**20**:108–113
- crystals, unknown source (Scarratt)1986/**20**:95–96
- developments in (Webster)1970/**12**:101–148
- flux—  
 compared with untreated natural (Duroc-  
 Danner)2002/**28**:137–142  
 Gilson (O'Donoghue)1975/**14**:224–225  
 growth of (Teshima)2005/**29**:450–454  
 identification of (Bidny)2010/**32**:7–13  
 Kashan from Ardon Associates  
 (Webster)1970/**12**:101–148  
 Lechleitner, with synthetic overgrowth  
 (Schmetzer)1988/**21**:95–101  
 from Russia (Henn)1993/**23**:393–396; letter on  
 (Peretti)1994/**24**:61–63  
 twinned (Schmetzer)1987/**20**:294–305
- fracture-filled (Scarratt)1987/**20**:421;  
 (Bubshait)1993/**23**:399; (Bubshait)1994/**24**:43–44;  
 (Bubshait)1995/**24**:402–403
- gallium content to distinguish from natural  
 (Schrader)1986/**20**:108–113
- Gilson (O'Donoghue)1975/**14**:224–225
- growth structure analysis (Schmetzer)1986/**20**:20–32; vs.  
 natural (Kiefert)1991/**22**:471–482
- heat sources used in growth of, at ICCG  
 (Elwell)1968/**11**:115–118
- hydrothermal—  
 development of (Gübelin)1961/**8**:49–63;  
 (Webster)1970/**12**:101–148  
 identification of (Bidny)2010/**32**:7–13  
 over natural ruby seed (Anon)1966/**10**:96–98
- identification of (Farn)1977/**15**:366–370;  
 (Gübelin)1983/**18**:477–499;  
 (Bubshait)1995/**24**:401–402; (Bidny)2010/**32**:7–13
- Inamori, gallium content to distinguish from natural  
 (Schrader)1986/**20**:108–113
- inclusions in, see 'Inclusions'
- irradiation of, effects on colour (Burbage)1957/**6**:74–77
- Kashan—  
 colour variation in (Schmetzer)2007/**30**:331–356  
 gallium content to distinguish from natural  
 (Schrader)1986/**20**:108–113  
 identification of (Webster)1970/**12**:101–148;  
 (Anderson)1972/**13**:96; (Farn)1977/**15**:366–370;  
 (Gübelin)1983/**18**:477–499;  
 (Burch)1984/**19**:54–61; (Henn)1985/**19**:469–478
- Knischka (Gunawardene)1983/**18**:365–378; page 375  
 (Err)1983/**18**:778; (Scarratt)1983/**18**:527–529;  
 (Gübelin)1983/**18**:477–499
- Kyocera (Scarratt)1988/**21**:136–139
- Lechleitner coated (Gunawardene)1985/**19**:557–570; page  
 569 (Err)1985/**19**:742; (Schmetzer)1988/**21**:95–101
- new type (Schiffmann)1976/**15**:105–111
- overgrowth on corundum (Laurs)2015/**34**:560
- Ramaura, from USA (Gunawardene)1984/**19**:125–138
- 'reconstructed' found to be synthetic (Benson)1953/**4**:1–10
- star, from Linde (Anon)1947/**1**(4):24–25;  
 (Breebaart)1957/**6**:72–74
- spectra of, to distinguish from natural  
 (Bosshart)1982/**18**:145–160
- spectrochemical analysis of (Alexander)1948/**1**(8):4–8
- twinning in (Farn)1981/**17**:285–287; Ramaura  
 (Schmetzer)1994/**24**:87–93; page 91 (Err)1994/**24**:226
- Verneuil—  
 filled, crackled (Bubshait)1995/**24**:401–402  
 history and development (Rooksby)1947/**1**(1):24–38;  
 (Webster)1957/**6**:101–146  
 with polysynthetic twin lamellae and induced  
 fingerprints (Duroc-Danner)1992/**23**:80–83

see also Assembled gem materials; Corundum, synthetic; Synthetics

## Russia

beryl from, colourless, with Maxixe-like impurities (Andersson)2011/**32**:145–149  
charoite from Sakha (Jobbins)1978/**16**:1–4  
diamond from—  
Siberia (Huddleston)1984/**19**:348–369  
synthetic yellow (Sosso)1995/**24**:363–368  
emerald from Urals (Webster)1955/**5**:185–221  
emerald, synthetic, from (Schmetzer)1988/**21**:145–164  
gems from Saranovskoye, Ural Mountains (Spiridonov)2006/**30**:91–102; pages 91, 93, 94 (Err)2006/**30**:254  
jet (capropelic coal) from Siberia (Glushnev)1995/**24**:349–353  
lapis lazuli from Lake Baikal (Ostwald)1963/**9**:84–101  
marble cutting in (Anon)1963/**9**:108–109  
mosandrite from (Henn)2015/**34**:565–566  
nephrite from Siberia (Adams)2009/**31**:153–162  
pearls from, freshwater (Strack)2015/**34**:580–592

## Rutile

asterism in (Harding)2002/**28**:231–234  
inclusion in diamond (Harris)1969/**11**:256–262  
marketing in USA and Canada (Field)1952/**3**:327–329  
'niobian' from Sri Lanka (Rupasinghe)1986/**20**:177–184  
synthetic—  
(Moore)1949/**2**:131–140; (Webster)1970/**12**:101–148  
cutting of (Eppler)1949/**2**:35–44; comment on (Waite)1949/**2**:166; letter on (Eppler)1950/**2**:280  
'Diamothyst' marketing name in USA (Field)1952/**3**:226–229  
large faceted (Anon)1952/**3**:192  
'Titania' as diamond simulant (Webster)1958/**7**:79–100  
whisker inclusions in quartz (Sunagawa)2004/**29**:1–7  
see also Inclusions; Synthetics

## Rutland, E.H.

obituary (Anderson)1975/**14**:301, 401

## Rwanda

sapphire from Cyangugu (Krzemnicki)1996/**25**:90–106  
tourmaline from (Henn)2014/**34**:344–349

## S

**Saguaro Stone**, see Rocks

**Sakha [Yakutia]**, see Russia

**Sancy**, see Diamond

## Sapphire

alexandrite-like (Farn)1978/**16**:231–232  
from Australia—  
(Norwood)1968/**11**:31–41; (Broughton)1979/**16**:318–337; pages 318, 319, 320, 324, 331 (Err)1979/**16**:431  
gravels (Broughton)1980/**17**:95–118  
zoning in (Rutland)1963/**9**:83  
blue—  
heat-treated, with colour concentrations (Scarratt)1985/**19**:656–657  
from Nigeria (Kiefert)1987/**20**:427–442  
from Tanzania (Clark)2014/**34**:105–106  
from Bolivia (Hyršl)1998/**26**:41–47  
from Brazil (Eppler)1964/**9**:199–204  
from Cambodia (Jobbins)1981/**17**:555–567; (Sutherland)1998/**26**:65–85  
from Canada (Boyd)1983/**18**:544–562  
cathodoluminescence of (Solomonov)1996/**25**:299–305  
cat's-eye from Myanmar (Schmetzer)1987/**20**:346–349  
cat's-eye/star from East Africa (Barot)1995/**24**:569–580  
causes of colour—  
Be, Mg, Fe and Ti in (Pisutha-Arnond)2006/**30**:131–143

in diffusion-treated (Pisutha-Arnond)2004/**29**:77–103; (Schmetzer)2004/**29**:149–182; (Schmetzer)2005/**29**:407–449; (Ruzeng)2005/**29**:455–460; (Pisutha-Arnond)2006/**30**:131–143  
in heat-treated (Schmetzer)2004/**29**:149–182; internal diffusion (Koivula)1987/**20**:474–477  
in untreated (Schmetzer)2004/**29**:149–182  
from China—  
history of (Galibert)1995/**24**:467–473  
treatment with oxidation (Wang Chuanfu)1992/**23**:195–197; letter on (Nassau)1993/**23**:441; response (Wang Chuanfu)1993/**23**:441  
colour zoning—  
curved (Webster)1966/**10**:84–95  
in heat-treated (Schmetzer)2007/**30**:268–278  
cracks in (Eppler)1970/**12**:37–41  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
as diamond simulant (Webster)1958/**7**:79–100  
diffusion-treated—  
(Crowningshield)1981/**17**:528–541; (Scarratt)1981/**17**:609–614; (Scarratt)1983/**18**:526  
with beryllium (Pisutha-Arnond)2006/**30**:131–143; (Emori)2014/**34**:130–137  
blue (Ruzeng)2005/**29**:455–460  
to induce blue colour and asterism (Tay Thye Sun)2015/**34**:576–578  
topaz-like (Schmetzer)2001/**27**:360–361  
yellow and brown (Pisutha-Arnond)2004/**29**:77–103  
yellow to reddish orange (Schmetzer)2005/**29**:407–449  
electron spin resonance of (Troup)1983/**18**:421–431  
filled—  
with glass—  
(Scarratt)1986/**20**:203–207  
green (Leelawatanasuk)2015/**34**:420–427  
yellow (Panjkar)2015/**34**:488–489; (Laurs)2015/**34**:558  
identification of (Hänni)1992/**23**:201–205; pages 202, 204, 205 (Err)1993/**23**:313  
geographical origin of, blue (Abduriyim)2006/**30**:23–36  
'geuda' (Gunaratne)1981/**17**:292–300  
with golden sheen from East Africa (Laurs)2014/**34**:393–394; (Bui)2015/**34**:678–691  
green—  
as crown in doublet with synthetic ruby (Duroc-Danner)1988/**21**:12–14  
'pastel', from Myanmar (Smith)2014/**34**:104–105  
growth structure, vs. synthetic (Kiefert)1991/**22**:471–482  
heat-treated blue, with colour concentrations (Scarratt)1985/**19**:656–657  
history, properties and sources (Webster)1957/**6**:101–146  
identification, untreated vs. treated (Schmetzer)2005/**29**:407–449  
inclusions in, see 'Inclusions'  
from Kashmir—  
(Phukan)1966/**10**:1–7; (Hänni)1990/**22**:67–75; letter on absorption spectra (Hänni)1990/**22**:250–251  
inclusions in, see 'Inclusions'  
from Kenya—  
with golden sheen, reportedly from (Bui)2015/**34**:678–691  
from Kina (Mayerson)2015/**34**:662–663  
pink (Barot)1994/**24**:165–172  
star (Barot)1989/**21**:467–473  
from Madagascar—  
from Andranondambo (Milisenda)1996/**25**:177–184; (Gübelin)1997/**25**:453–470; page 468 (Err)1997/**25**:576

- blue (Abduriyim)2006/**30**:23–36  
deposits (Ramdohr)2006/**30**:144–154; page 147  
(Err)2007/**30**:355  
from Marosely (Cartier)2009/**31**:171–179  
from Malawi—  
(Rutland)1969/**11**:320–323  
heat-treated (Jobbins)1971/**12**:342–343; and untreated  
(Rankin)2002/**28**:65–75  
padparadscha (Henn)1990/**22**:83–89  
silk in (Mitchell)1983/**18**:520–522  
yellow, with temperature-sensitive inclusion  
(Grubessi)1986/**20**:163–165  
from Myanmar—  
(Kammerling)1994/**24**:3–40; pages 25, 28  
(Err)1994/**24**:130  
blue (Abduriyim)2006/**30**:23–36  
cat's-eye (Schmetzer)1987/**20**:346–349  
giant (Hughes)1995/**24**:551–561  
milky (geuda), heat treatment of (Kyi)1999/**26**:313–  
315  
from New Zealand (Grapes)2004/**29**:8–14  
from Nigeria, blue (Kiefert)1987/**20**:427–442  
orange-brown, natural and treated colour  
(Schmetzer)1983/**18**:607–622  
padparadscha—  
magnetic resonance of natural vs. synthetic  
(Troup)1992/**23**:97–103  
from Malawi (Henn)1990/**22**:83–89  
polishing with silica powder in Cambay, India  
(Karanth)1989/**21**:497–499  
from Rwanda (Krzemnicki)1996/**25**:90–106  
from Scotland (Jackson)1984/**19**:336–342  
simulants—  
agate and doublet (Anderson)1972/**13**:4  
quartz, coated to simulate star  
(Mayerson)2015/**34**:485–486; letter on  
(Stern)2015/**34**:604  
types as of 1947 (Webster)1947/**1**(1):20–23  
spectrophotometric/spectrochemical analysis of  
(Alexander)1948/**1**(8):4–8  
from Sri Lanka—  
blue (Abduriyim)2006/**30**:23–36  
heat treatment of (Schmetzer)1990/**22**:80–82; and  
spectra of geuda (Ediriweera)1989/**21**:403–404;  
page 404 (Err)1990/**22**:55  
star, from Kenya (Barot)1989/**21**:467–473  
surface—  
features of volcanic origin  
(Coenraads)1992/**23**:151–160; pages 151, 152,  
153–158 (Err)1992/**23**:252  
'fire marks' or 'chatter marks' on  
(Eppler)1962/**8**:167–170  
from Tajikistan (Smith)1998/**26**:103–109  
from Tanzania—  
blue (Clark)2014/**34**:105–106  
silk in (Mitchell)1983/**18**:520–522  
testing (Farn)1962/**8**:224–227; letter on (Tisdall)1962/**8**:278;  
letter on (Axon)1962/**8**:314  
from Thailand (Gunawardene)1984/**19**:228–239; mining  
(Pavitt)1973/**13**:302–307  
treated—  
with electrolytic oxidation (Wang  
Chuanfu)1992/**23**:195–197; letter on  
(Nassau)1993/**23**:441; response (Wang  
Chuanfu)1993/**23**:441  
with heat (Scarratt)1983/**18**:526; 'geuda'  
(Gunaratne)1981/**17**:292–300; from Malawi  
(Jobbins)1971/**12**:342–343  
orange (Scarratt)1984/**19**:102–105, 107  
see also 'diffusion-treated'; 'filled'  
in Townshend Collection of Precious Stones in Victoria and  
Albert Museum (O'Donoghue)1970/**12**:1–5  
from USA, Montana, yellow heat-treated  
(Schmetzer)2007/**30**:268–278  
from Vietnam (Long)2004/**29**:129–147  
X-ray irradiated (Schiffmann)1981/**17**:615–618;  
(Scarratt)1984/**19**:102–105, 107  
yellow—  
(Grubessi)1986/**20**:163–165  
(Hughes)1988/**21**:23–25  
electron spin resonance spectra of  
(Troup)1985/**19**:431–436  
natural and treated colour  
(Schmetzer)1983/**18**:607–622  
from Nigeria (Kiefert)1987/**20**:427–442  
unstable colour, from Sri Lanka  
(Schiffmann)1981/**17**:615–618  
yellowish orange, natural colour (Duroc-  
Danner)2011/**32**:174–178  
zoning in (Webster)1966/**10**:84–95  
see also Assembled gem materials; Corundum; Filling,  
fracture or cavity
- Sapphire, synthetic**  
'Asia Green Sapphire' probably synthetic (SP)1966/**10**:124  
Chatham—  
blue—  
characteristics of (Scarratt)1977/**15**:347–353  
morphology and twinning (Kiefert)1988/**21**:16–22  
'new' (Gübelin)1983/**18**:677–705; pages 678, 690,  
692, 694, 706 (Err)1984/**19**:208  
gallium content to distinguish from natural  
(Schrader)1986/**20**:108–113  
orange (O'Donoghue)1983/**18**:736–737;  
(Gunawardene)1985/**19**:389–403;  
page 390 (Err)1985/**19**:553; 'new'  
(Gübelin)1983/**18**:677–705; pages 678, 690, 692,  
694, 706 (Err)1984/**19**:208  
pink (Kammerling)1994/**24**:149–154  
as diamond simulant—  
(Webster)1958/**7**:79–100  
doublet with strontium titanate  
(O'Donoghue)1975/**14**:224–225  
electron spin resonance of (Troup)1983/**18**:421–431;  
(Troup)1985/**19**:431–436  
flux-grown—  
Chatham (Scarratt)1977/**15**:347–353;  
(Gübelin)1983/**18**:677–705; pages 678,  
690, 692, 694, 706 (Err)1984/**19**:208;  
(O'Donoghue)1983/**18**:736–737;  
(Gunawardene)1985/**19**:389–403; page 390  
(Err)1985/**19**:553; (Kiefert)1988/**21**:16–22;  
(Kammerling)1994/**24**:149–154  
developments in (Webster)1970/**12**:101–148  
Kashan pink (Schmetzer)2007/**30**:331–356  
Mn<sup>2+</sup>-bearing, electron spin resonance and optical  
spectra of (Liebach)1988/**21**:227–231  
growth structure, vs. natural (Kiefert)1991/**22**:471–482  
hydrothermal—  
(Peretti)1997/**25**:540–561  
developments in (Webster)1970/**12**:101–148  
from Russia (Schmetzer)2000/**27**:1–7;  
(Bidny)2010/**32**:7–13  
identification of (Bubshait)1995/**24**:401–402  
inclusions in, see 'Inclusions'  
irradiation of, effects on colour (Burbage)1957/**6**:74–77  
Kashan, colour variation in flux pink  
(Schmetzer)2007/**30**:331–356

- Kyocera blue (Scarratt)1988/**21**:136–139  
 Lechleitner coated (Gunawardene)1985/**19**:557–570; page 569 (Err)1985/**19**:742  
 padparadscha-colour, magnetic resonance of natural vs. synthetic (Troup)1992/**23**:97–103  
 spectrophotometric/spectrochemical analysis of (Alexander)1948/**1**(8):4–8  
 star, from Linde (Anon)1947/**1**(5):1–4; (Anon)1947/**1**(4):24–25; (Breebaart)1957/**6**:72–74  
 as tanzanite simulant (Anderson)1972/**13**:7  
 Verneuil—  
 from Germany, production of (Barnes)1947/**1**(1):39–49  
 history and development of (Rooksby)1947/**1**(1):24–38; (Webster)1957/**6**:101–146  
 iron absorption spectrum of (Duroc-Danner)2002/**28**:227–230  
 Plato lines in yellow (Kennedy)2001/**27**:270–271  
 twin lamellae in (Duroc-Danner)1985/**19**:479–483; pages 482, 483 (Err)1985/**19**:647  
 see also Assembled gem materials; Corundum, synthetic; Synthetics
- Sapphirine**  
 blue (Ostwald)1964/**9**:182–184  
 inclusions in ruby from Thailand (Koivula)1987/**20**:369–370  
 simulated by spinel (Hodgkinson)2014/**34**:94–95  
 from Sri Lanka (Scarratt)1987/**20**:409–411; (Harding)1990/**22**:136–140
- Scallop pearl**, see Pearl, non-nacreous
- Scanning electron microscopy [SEM]** (imaging only; for chemical composition determined using SEM, see Spectroscopy, energy-dispersive X-ray)  
 of alexandrite inclusion of alkali feldspar, as proof of natural origin (Bank)1988/**21**:215–217  
 of ceruleite crystals (Schmetzer)1978/**16**:86–90  
 of chrysoberyl cat's-eye, inclusions in (Soman)1985/**19**:412–415; page 412 (Err)1985/**19**:553  
 of coral—  
 natural and treated (Natkaniec-Nowak)2009/**31**:226–234  
 natural surface (Aliprandi)1983/**18**:401–410  
 and simulants (Taki)1988/**21**:74–80  
 of dickite from Thailand (Saminpanya)2009/**31**:211–225  
 of diamond, synthetic yellow, from Russia (Sosso)1995/**24**:363–368  
 of emerald from Brazil (Pulz)1998/**26**:252–261; inclusions in (Miyata)1987/**20**:377–379  
 of glass filling in sapphire (Scarratt)1986/**20**:203–207  
 of jet (Muller)1980/**17**:10–18  
 of lapis lazuli and simulants (Taki)1988/**21**:74–80  
 of nephrite from Taiwan, tremolitic (Flamini)1978/**16**:153–161  
 of omphacite jade from Italy (Adamo)2006/**30**:215–226  
 of opal—  
 and cause of colour in (Mitchell)1966/**10**:46–48  
 from Indonesia (Einfalt)2007/**30**:383–398  
 hyalite from Mexico—  
 daylight fluorescent (Fritsch)2015/**34**:490–508  
 iridescent (Sinkankas)1966/**10**:100–105  
 of opal simulants/synthetics—  
 from Gilson (Darragh)1975/**14**:215–223; (Schmetzer)1984/**19**:27–42  
 plastic (Gunawardene)1983/**18**:707–714; page 709 (Err)1984/**19**:289  
 of pearl—  
 aragonite layers (Hänni)1983/**18**:386–400  
 cultured—  
 bead and aragonite layers (Hänni)1983/**18**:386–400  
 blister from China (Fengming)2004/**29**:37–47  
 imitation (Tan)2005/**29**:316–324; page 318 (Err)2005/**29**:500; coating (Kennedy)1988/**21**:211–214  
 nacreous, from salt- and fresh-water molluscs (Gutmannsbauer)1994/**24**:241–252;  
 non-nacreous—(Hainschwang)2010/**32**:15–22; from lion's paw scallop (Scarratt)2004/**29**:193–203  
 of quartz, aventurine (Monroe)1986/**20**:83–86  
 of sapphire—  
 filled with glass (Scarratt)1986/**20**:203–207  
 golden sheen, reportedly from Kenya (Bui)2015/**34**:678–691  
 from Rwanda (Krzemnicki)1996/**25**:90–106  
 of shell—  
 abalone (Liu)2002/**28**:1–5  
 lion's paw scallop (Scarratt)2004/**29**:193–203  
*Pteria penguin*, from China (Fengming)2004/**29**:37–47  
 salt- and fresh-water pearl-producing molluscs (Gutmannsbauer)1994/**24**:241–252  
 of thortveitite (Chapman)2008/**31**:1–6  
 of turquoise and simulants (Taki)1988/**21**:74–80  
 of zincite, synthetic red (Nowak)2007/**30**:257–267  
 of zircon and inclusions in (Edinburgh Gemmological Group)1993/**23**:387–392
- Scapolite**  
 from Canada (Field)1952/**3**:327–329  
 cat's-eye (Ito)1987/**20**:292–293  
 cat's-eye/star from East Africa (Barot)1995/**24**:569–580  
 composition of (Dunn)1978/**16**:4–10  
 deposits in former USSR (Spiridonov)1998/**26**:111–125  
 fluorescence of (Runciman)1973/**13**:225–226  
 inclusions in, see 'Inclusions'  
 from Myanmar (Anderson)1954/**4**:335; colour and composition of (Couper)1991/**22**:259–263  
 pink, large (Anderson)1971/**12**:155  
 from Tanzania (Zwaan)1971/**12**:304–309; (Graziani)1981/**17**:395–405; (Graziani)1983/**18**:379–381; mauve (Farn)1977/**15**:231–234  
 violet (Zwaan)1979/**16**:448–451; (Jackson)1980/**17**:235–238  
 yellow rough (Farn)1977/**15**:237–239
- Scheelite**  
 from Inner Mongolia, China (Williams)2014/**34**:202–203  
 from Pakistan (Zwaan)2014/**34**:298–299  
 -powellite, from Tanzania (Kennedy)2000/**27**:85  
 prospecting for (Taylor)1994/**24**:155–160  
 synthetic (Webster)1970/**12**:101–148
- Schiller**, see Adularescence
- Schlossmacher, Karl**  
 obituary (Anderson)1981/**17**:426
- Scintillation**  
 in diamond—  
 faceted (Cowing)2005/**29**:274–280  
 optical attributes of 'sparkliness' (Nelson)1989/**21**:434–447; page 440 (Err)1989/**21**:520
- Scotland**  
 agate from Midland Valley (Tait)1977/**15**:382–392  
 gem minerals of (Kennedy)1953/**4**:82–95  
 granite from Ailsa Craig (Nichol)2001/**27**:286–290  
 'haggis rock' from Peebles (Nichol)1999/**26**:534–538  
 marble from Ledmore (Nichol)2003/**28**:345–252  
 pearl from Cromer (Scarratt)1987/**20**:409, 411–412  
 sapphire from Isle of Lewis (Jackson)1984/**19**:336–342  
 tourmaline from Glenbuchat (Jackson)1982/**18**:121–125
- Secondary ion mass spectrometry [SIMS]**, see Spectrometry, secondary ion mass
- Selenite**  
 infrared spectrum of (Hainschwang)2008/**31**:23–29
- SEM**, see Scanning electron microscopy



- Serandite**  
from Canada (Wight)1996/**25**:24–44
- Serendibite**  
blue (Ostwald)1964/**9**:182–184
- Serpentine**  
in ‘Connemara marble’ ophicalcite (Farn)1977/**15**:370–371  
inclusions in, see ‘Inclusions’  
from Korea (Kim)1998/**26**:156–164  
ornamental varieties (Webster)1958/**6**:297–333;  
(Webster)1967/**10**:152–170  
see also Williamsite
- Shadowing**, see Lighting; Microscopic techniques
- Shattuckite**  
briquette (Choudhary)2015/**34**:566–567  
with bisbeeite from Democratic Republic of Congo  
(Zwaan)2015/**34**:663–666  
inclusions in, see ‘Inclusions’
- Shell**  
beads of *Strombus gigas* simulating coral  
(Disner)2015/**34**:572–574  
cameos—  
vs. agate (Farn)1976/**15**:7  
structure of (Mitchell)1982/**18**:334–338  
‘Coque de perle’ and ‘Osmenda pearls’ from nautilus  
(Webster)1966/**10**:8–9  
quahog (*Mercenaria mercenaria*), and pearl, from USA  
(Laurs)2014/**34**:16  
iridescence caused by diffraction (Liu)2002/**28**:1–5;  
(Tan)2005/**29**:395–399; letter on  
(Hoover)2006/**30**:103–104; response  
(Tan)2006/**30**:104–105  
lion’s paw scallop and pearls from  
(Scarratt)2004/**29**:193–203  
and pearls of salt- and fresh-water molluscs  
(Gutmannsbauer)1994/**24**:241–252  
pearly nautilus, *Nautilus pompilius*, mounted in jewellery  
(Anon)1951/**3**:21  
*Pteria penguin* and cultured blister pearls from China  
(Fengming)2004/**29**:37–47  
see also Abalone
- Shortite**  
from Canada (Wight)1996/**25**:24–44
- Shoushan stone**, see Jade simulants
- Shungite**  
carbon mineraloid for jewellery use  
(Panjikar)2015/**34**:675–676
- Siberia**, see Russia
- Siderite**  
from Canada (Wight)1996/**25**:24–44
- Silicon carbide**, see Moissanite, synthetic
- Sillimanite**  
cat’s-eye (Ito)1986/**20**:161–162; (Ito)1987/**20**:292–293; from  
India (Zwaan)1982/**18**:277–281  
with ‘coffee-and-cream’ effect  
(Killingback)2015/**34**:524–530  
inclusions in, see ‘Inclusions’  
spectrum of—  
infrared (Hainschwang)2008/**31**:23–29  
UV-Vis (Scarratt)1986/**20**:151
- Silver Institute**  
silver jewellery buying trends, 2014 (Laurs)2014/**34**:280;  
2015 (Laurs)2015/**34**:559  
World Silver Survey 2015 summary (Laurs)2015/**34**:559
- Simulants**, see specific gem materials simulated
- Sinhalite**  
‘discovery’ of (Anon)1952/**3**:192;  
(Anderson)1952/**3**:315–321  
history of (Anderson)1974/**14**:97–113  
inclusions in, see ‘Inclusions’  
large, seen in lab (Anderson)1971/**12**:154  
from Sri Lanka—  
(Gunawardene)1986/**20**:98–99  
Ratnapura (Webster)1954/**4**:210–211
- Sinkankas, John**  
obituary (O’Donoghue)2002/**28**:184
- Slocum stone**, see Opal simulants
- Slovakia**  
archaeological jewels from (Kadlečíková)2015/**34**:510–517
- Smith, G.F. Herbert**  
photo of (Smith)1947/**1**(1):frontispiece  
obituary (Anderson)1953/**4**:148–149
- Smithsonite**  
infrared spectrum of (Hainschwang)2008/**31**:23–29  
from Tsumeb (Andrews)1965/**9**:354–355
- Sodalite**  
from Bolivia (Hyršl)1998/**26**:41–47  
from Canada (Boyd)1983/**18**:544–562;  
(Wight)1996/**25**:24–44  
cause of blue colour (Paulin)1979/**16**:452–454  
ornamental (Webster)1958/**6**:297–333  
as simulant for lapis lazuli (Schiffmann)1976/**15**:172–179  
see also Hackmanite; Synthetics
- Sodalite group**, see Haüyne; Sodalite
- Sogdianite**  
gem potential of (Dillmann)1979/**16**:514–516
- Software**, see Computer software
- Somalia**  
gem potential of Somaliland (Kinnaird)2000/**27**:139–154  
grossular, hessonite, from (Clark)2014/**34**:293
- South Africa**  
coral from Agulhas Bank (Pienaar)1981/**17**:589–601  
emerald from—  
northern Transvaal, Cobra mine—  
reopened (Anon)1956/**5**:306  
three-phase inclusion in  
(Schrader)1985/**19**:484–485  
growth features and inclusions in (Yu)1974/**14**:120–131  
history and localities (Webster)1955/**5**:185–221  
film on gold mining in (Anon)1949/**2**:18–19  
lizardite from, orange (Rossman)2014/**34**:98–99;  
(Laurs)2014/**34**:102–103  
thaumasite from Black Rock mine, Kuruman region  
(Henn)1991/**22**:334–336  
verdite and ruby-verdite from Transvaal  
(Harding)1984/**19**:150–159
- South Sea cultured pearl**, see Pearl, cultured
- South-West Africa**, see Namibia
- Soviet Union**, see USSR
- Spain**  
alexandrite, emerald and phenakite from Franqueira  
(Marcos-Pascual)1997/**25**:340–357  
chrysocolla chalcedony from (Laurs)2015/**34**:472  
gemmological education in (Nelson)1991/**22**:337–343
- Specific gravity**  
accessories, inexpensive (Lewton-Brain)1989/**21**:500–505  
balance for (Walton)1951/**3**:43–47; portable  
(Knight)1951/**3**:164–168  
of colourless gems (Kent)1987/**20**:344–345;  
(Kent)1996/**25**:87–89  
Galileo and history of (Mottana)2014/**34**:24–31  
of garnets (Hoover)2008/**31**:91–103  
Hawkins density gels for (Anderson)1947/**1**(3):1–3;  
(Anderson)1948/**1**(6):10–12  
heavy liquids—  
Anderson on (Mitchell)1980/**17**:230–235  
bottle holder, homemade (Crawford)1986/**20**:240–241  
bromoform purification (Washington)1982/**18**:6–8  
monobromonaphthalene, toxicity of  
(Field)1952/**3**:285–288

nomenclature (Mitchell)1991/**22**:387–388; letter on (Farn)1991/**22**:451

sodium polytungstate (Hanneman)1991/**22**:364–365

use of (Chisholm)1955/**5**:77–85; letter on (Grodzinski)1955/**5**:241; (Anderson)1966/**10**:69–83

hydrostatic measurement—

- surface tension and air bubbles (Sprague)1947/**1**(3):4; letter on (Leak)1947/**1**(4):27; response (Sprague)1947/**1**(4):28; (Farrimond)1994/**24**:161–163; letters on (Hurlbut)1994/**24**:285; (Farrimond)1994/**24**:285–286; (Farrimond)1996/**25**:225–229; page 226 (Err)1996/**25**:320
- and temperature of water bath (Mitchell)1992/**23**:161–164

immersion technique, photography of (Webster)1966/**10**:84–95

by mensuration and weighing (Anderson)1961/**8**:83

testing without instruments (Anderson)1966/**10**:69–83

titrimetric method (Hammes)1955/**5**:47–54

volumeter (Everett)1953/**4**:64–70

**Spectrochemical analysis**

- of ruby and sapphire, natural and synthetic (Alexander)1948/**1**(8):4–8

**Spectrometry, laser ablation–inductively coupled plasma–mass [LA-ICP-MS] and –atomic emission [LA-ICP-AES]**

- of alexandrite, synthetic titanium-bearing (Schmetzer)2013/**33**:137–148
- of andesine, reportedly from Tibet (Abduriyim)2009/**31**:283–298
- of beryl, including aquamarine and morganite (Natkaniec-Nowak)2008/**31**:31–39
- of demantoid from Pakistan (Adamo)2015/**34**:428–433
- description of (Abduriyim)2006/**30**:23–36
- of emerald from Zimbabwe (Kanis)1991/**22**:264–272;
- of jeremejevite (Smith)2014/**34**:138–142
- of morganite from Afghanistan and Madagascar (Hänni)2003/**28**:417–429
- of opal from Indonesia (Einfalt)2007/**30**:383–398
- of pearl, cultured—
  - from China and Japan (Wehrmeister)2007/**30**:399–412
  - determination of origin (Hänni)2013/**33**:239–245; page 241 (Err)2014/**34**:89
- of ruby—
  - from Australia (Sutherland)2009/**31**:203–210
  - from East Africa (Rankin)2003/**28**:473–482; pages 479–481 (Err)2004/**29**:60
  - from Thailand (Saminpanya)2003/**28**:399–413
- of sapphire—
  - from Australia (Sutherland)2009/**31**:203–210
  - blue (Abduriyim)2006/**30**:23–36
  - diffusion-treated—
    - yellow and brown (Pisutha-Armond)2004/**29**:77–103
    - with beryllium (Pisutha-Armond)2006/**30**:131–143; (Emori)2014/**34**:130–137
    - from Laos (Saminpanya)2003/**28**:399–413
    - from Madagascar (Cartier)2009/**31**:171–179
    - from Thailand (Saminpanya)2003/**28**:399–413
- of sapphirine from Sri Lanka (Harding)1990/**22**:136–140
- of serpentine from Korea (Kim)1998/**26**:156–164
- of shell, lion's paw scallop (Scarratt)2004/**29**:193–203
- of spinel from Vietnam (Malsy)2012/**33**:19–27
- of taaffeite from Myanmar (Leelawatanasuk)2014/**34**:144–148
- of tourmaline, vanadium-bearing (Schmetzer)2007/**30**:413–433
- of zircon—
  - age determination of inclusions in sapphire (Link)2015/**34**:692–700
  - from Nigeria (Kanis)1990/**22**:195–202

## Spectroscope

accessories—

- attachment for small stones (Anon)1950/**2**:230
- inexpensive (Lewton-Brain)1989/**21**:500–505

database (Laurs)2014/**34**:185

diffraction grating vs. prism (Mitchell)1950/**2**:195–198; (Nelson)1985/**19**:500–520

educational use of (Muir)1956/**5**:423

Eickhorst 'Kaltlicht' (O'Donoghue)1976/**15**:136

gemmological, design and construction of (Trumper)1958/**6**:271–289

hand model (Mitchell)1948/**1**(5):12–13

history of (Anderson)1973/**13**:249–262

lighting for (Robb)1965/**9**:445–447; (Martin)1968/**11**:97–99; built-in (Buzalewicz)1961/**8**:69–70

low-cost unit (Nelson)1985/**19**:400–420

photography of absorption spectra (Vincent)1947/**1**(3):13–24

prism, inexpensive (Anderson)1968/**11**:1–6

Spekwin 32 software for rendering spectra (Laurs)2015/**34**:648–649

use of (Mitchell)1950/**2**:195–199

## Spectroscopy, atomic absorption

- of dickite from Thailand (Saminpanya)2009/**31**:211–225
- of emerald from Zimbabwe (Kanis)1991/**22**:264–272
- of glass, prehistoric, from Sri Lanka (Harder)1993/**23**:267–273
- of moonstone, smoky, from Sri Lanka (Harder)1994/**24**:179–182
- of pearls, cultured, colour-treated (Li Liping)2001/**27**:449–455

## Spectroscopy, cathodoluminescence

- of inclusions (Ponahlo)2002/**28**:85–100
- pulsed, of ruby, sapphire and topaz (Solomonov)1996/**25**:299–305

## Spectroscopy, electron paramagnetic resonance [EPR] and electron spin resonance [ESR]

- of alexandrite, blue, from Brazil (Pinheiro)2000/**27**:161–170
- of beryl—
  - colourless, with Maxixe-type colour centre (Mathew)1998/**26**:238–251
  - Maxixe and Maxixe-type (Andersson)1979/**16**:313–317; (Andersson)2011/**32**:145–149
  - red, from USA (Hosaka)1993/**23**:409–411
- of diamond (Read)1979/**16**:386–407
- of emerald from Zambia (Viticoli)1984/**19**:160–163
- method (Axon)1964/**9**:207–211; (Hutton)1979/**16**:372–385; page 385 (Err)1979/**16**:498; (Troup)1983/**18**:421–431
- of pearl, cultured (Schiffmann)1971/**12**:284–296
- of sapphire—
  - natural and synthetic (Gübelin)1983/**18**:677–705; pages 678, 690, 692, 694, 706 (Err)1984/**19**:208; (Troup)1985/**19**:431–436
  - synthetic Mn<sup>2+</sup>-bearing (Liebach)1988/**21**:227–231
- of topaz from Mexico (Dewonck)1998/**26**:29–39
- Varian E109 instrument (Read)1979/**16**:386–407

## Spectroscopy, energy-dispersive X-ray [SEM-EDX and EDXRF]

- of albite inclusion in sapphire from Nigeria (Kiefert)1987/**20**:427–442
- of alexandrite, flux-grown synthetic (Schmetzer)2012/**33**:49–81
- of beryl, red (Harding)1995/**24**:581–583
- of chalcedony, chrome, from Australia (Willing)2003/**28**:265–279
- of chrysoberyl from Brazil (Schmetzer)2014/**34**:32–40
- of corundum—
  - from basalt fields, Australia and Cambodia (Sutherland)1998/**26**:65–85
  - from Tanzania (Hänni)1987/**20**:278–284

- yellow, from Malawi, with temperature-sensitive inclusion (Grubessi)1986/**20**:163–165  
and country of origin determination (Hänni)1994/**24**:139–148  
of diamond, synthetic yellow, from Russia (Sosso)1995/**24**:363–368  
of diopside, colourless, from Canada and Kenya (Krzemnicki)2014/**34**:291–292  
of emerald—  
to determine geographical origin (Cronin)2012/**33**:1–13  
of emerald, synthetic—  
flux (Schmetzer)1998/**26**:145–155  
hydrothermal—  
(Schmetzer)2006/**30**:59–74  
Lechleitner (Schmetzer)1990/**22**:20–32  
from Russia (Schmetzer)1988/**21**:145–164;  
inclusions in (Sosso)1995/**24**:501–507  
Nacken (Nassau)1978/**16**:36–49;  
of filling in ruby (Milisenda)2006/**30**:37–42  
of fuchsite (Juchem)2006/**30**:207–214  
of garnet—  
(Adamo)2007/**30**:307–319  
from Egypt (Kammerling)1993/**23**:412–414  
of glass—  
prehistoric, from Sri Lanka (Harder)1993/**23**:267–273  
red, used by Fabergé (Harding)1989/**21**:275–287  
of grossular—  
bicoloured, from Tanzania (Zwaan)2014/**34**:195–197  
hessonite, from India (Kanis)1994/**24**:75–83  
of jadeite from Myanmar (Win Htein)1994/**24**:269–276;  
pages 270, 276 (Err)1995/**24**:286;  
(Harder)1995/**24**:508–511; page 508, 509, 510  
(Err)1995/**24**:619; (Franz)2014/**34**:210–229  
of jades from Myanmar (Franz)2014/**34**:210–229  
of jasper from Poland (Heflik)1993/**23**:356–359  
of jet (Muller)1980/**17**:10–18  
of idocrase from Italy (Novaga)1994/**24**:173–177  
of inclusions in sapphire—  
fluorite, from Myanmar (Peretti)1996/**25**:3–19  
from Madagascar (Gübelin)1997/**25**:453–470; page 468  
(Err)1997/**25**:576  
from Rwanda (Krzemnicki)1996/**25**:90–106  
of inclusions in zircon (Edinburgh Gemmological Group)1993/**23**:387–392  
instrument, portable, from Niton (Herzog)2015/**34**:404–418  
of jadeite and kosmochlor jades from Myanmar (Franz)2014/**34**:210–229  
of kyanite, colour-change from East Africa (Bosshart)1982/**18**:205–212  
of labradorite, reportedly from Congo (Krzemnicki)2004/**29**:15–23  
of lapis lazuli simulant from Gilson (Schmetzer)1985/**19**:571–578  
of maw-sit-sit from Myanmar (Franz)2014/**34**:210–229  
method of non-destructive analysis (Stern)1982/**18**:285–296  
of monazite inclusions in topaz and garnet (Hornytzky)1981/**17**:373–380  
of moonstone—  
smoky, from Sri Lanka (Harder)1994/**24**:179–182  
from Sri Lanka (Harder)1992/**23**:27–35  
of muscovite in verdite from South Africa (Harding)1984/**19**:150–159  
of musgravite (Abduriyim)2008/**31**:43–54  
of omphacite jade from Myanmar (Franz)2014/**34**:210–229  
of opal—  
dendritic, from Zambia (Milisenda)1994/**24**:277–280  
dyed and plastic impregnated (Scarratt)1992/**23**:134–135  
iridescent hyalite from Mexico (Hänni)1989/**21**:488–495  
of pearl, imitation (Tan)2005/**29**:316–324; page 318  
(Err)2005/**29**:500  
of peridot, extraterrestrial (Henn)1992/**23**:86–88  
of quartz—  
aventurine (Monroe)1986/**20**:83–86  
impregnated to imitate jade (Tan)2003/**28**:392–398  
of ruby and sapphire—  
and barium glass filling (Hainschwang)2015/**34**:574–576  
from Madagascar (Kiefert)1996/**25**:209;  
(Gübelin)1997/**25**:453–470; page 468  
(Err)1997/**25**:576  
from Nepal (Bank)1988/**21**:222–226  
from Tajikistan (Smith)1998/**26**:103–109  
from Vietnam (Long)2004/**29**:129–147  
zircon inclusions in, and effects of heat treatment (Rankin)2003/**28**:257–264  
of ruby, synthetic—  
flux-grown, from Russia, letter on (Peretti)1994/**24**:61–63  
inclusions in hydrothermal, from Taurus (Peretti)1997/**25**:540–561  
Verneuil with ‘fingerprint’ inclusions (Duroc-Danner)2003/**28**:483–488  
of sapphire, synthetic, inclusions in hydrothermal from Taurus (Peretti)1997/**25**:540–561  
of spinel from Sri Lanka, and inclusions in (Schmetzer)1988/**21**:69–72  
of taaffeite (Abduriyim)2008/**31**:43–54  
of tourmaline—  
from Mozambique, purple (Zwaan)2015/**34**:666–668  
from Rwanda (Henn)2014/**34**:344–349  
of variscite from Australia (Willing)2008/**31**:111–124  
see also Electron microprobe analysis; Spectroscopy, X-ray fluorescence; specific gem materials
- Spectroscopy, fluorescence**  
of diamond (Anderson)1962/**8**:193–202  
of Hope Pearl (Kennedy)1994/**24**:235–239  
of opal, daylight-fluorescent hyalite (Fritsch)2015/**34**:490–508  
of ruby with barium glass filling (Hainschwang)2015/**34**:574–576  
of tourmaline, colour-change (Halvorsen)2006/**30**:1–21
- Spectroscopy, infrared**  
of alexandrite, synthetic—  
flux-grown (Schmetzer)2012/**33**:49–81  
HOC-grown (Schmetzer)2013/**33**:113–129  
Kyocera (Scarratt)1992/**23**:134, 136  
of amber (Scarratt)1989/**21**:344–346; from Myanmar (Tay Thy Sun)2015/**34**:606–615  
of amethyst—  
from Brazil (Kitawaki)2002/**28**:101–108;  
(Williams)2014/**34**:288–289  
natural and synthetic (Lind)1983/**18**:411–420  
of apatite from Kenya (Zwaan)2014/**34**:289–290  
of beryl—  
including aquamarine and morganite (Natkaniec-Nowak)2008/**31**:31–39  
red, natural and hydrothermal synthetic Russian (Fumagalli)2003/**28**:291–301  
of brucite (Li Jianjun)2010/**32**:67–73  
of chalcedony, blue (Hänni)2001/**27**:275–285  
of clinohumite (Choudhary)2007/**30**:303–306  
of coral, natural and treated (Natkaniec-Nowak)2009/**31**:226–234  
of corundum, natural and synthetic (Bidny)2010/**32**:7–13  
cryogenic cooling of samples for (Farn)1980/**17**:69–73;  
page 72 (Err)1980/**17**:282



- of diamond—  
 brown, before and after HPHT treatment  
 (Hainschwang)2005/**29**:261–273  
 chameleon (Emms)1993/**23**:274–275  
 clouds, symmetrical (Wang)2002/**28**:143–152  
 and colour centres (Collins)1982/**18**:37–75  
 HPHT-treated from NovaDiamond (De  
 Weerd)2000/**27**:201–208  
 irradiated (Collins)1982/**18**:37–75  
 red, DeYoung (Shigley)1993/**23**:259–266  
 reddish brown (Lu)31:73–76  
 with star-shaped cloud (Hainschwang)2014/**34**:306–315  
 types I and II, for identification (Cotty)1956/**5**:339–341  
 yellow type Ib ‘canary’ (Collins)1980/**17**:213–222
- of diamond, synthetic—  
 green (Breeding)2005/**29**:387–394  
 pink CVD (Kitawaki)2010/**32**:23–30  
 purple (Moses)2002/**28**:7–12  
 type Ia with high hydrogen content  
 (Fritsch)1993/**23**:451–460  
 yellow—  
 (Kennedy)2002/**28**:78–79  
 CVD—  
 with ‘tree ring’ growth pattern (Yan  
 Lan)2015/**34**:702–710  
 type Ib (Kitawaki)2015/**34**:594–604  
 melee (Hainschwang)2014/**34**:300–302  
 natural Ib vs. De Beers synthetic  
 (Scarratt)1989/**21**:341–343  
 from Russia (Sosso)1995/**24**:363–368
- diffuse reflectance method—  
 Alpha Diamond Analyzer (Laurs)2014/**34**:91  
 combined use (Tretyakova)1997/**25**:532–539
- of diopside, reflectance (Gao Yan)1995/**24**:411–414
- of emerald—  
 from Afghanistan (Natkaniec-Nowak)2008/**31**:31–39  
 from Brazil (Pulz)1998/**26**:252–261  
 from Egypt (Grubessi)1990/**22**:164–177; pages 174,  
 175, 176 (Err)1990/**22**:249  
 filled, Opticon (Hänni)1992/**23**:201–205; pages 202,  
 204, 205 (Err)1993/**23**:313  
 natural vs. synthetic (Nassau)1978/**16**:36–49; (Duroc-  
 Danner)2006/**30**:75–82  
 from Spain (Marcos-Pascual)1997/**25**:340–357  
 synthetic—  
 (Mashkovtsev)2004/**29**:215–227;  
 (Schmetzer)2006/**30**:59–74  
 Gilson N-type (Kennedy)2002/**28**:76–78  
 ‘Pool’ (Scarratt)1989/**21**:297–299  
 from Russia (Schmetzer)1988/**21**:145–164  
 vanadium-bearing, compared with chromium  
 (Taylor)1967/**10**:211–217  
 and water for determination of natural vs. synthetic  
 origin (Schmetzer)1990/**22**:215–223
- of fillers used in emerald (Kiefert)1999/**26**:501–520;  
 Opticon (Hänni)1992/**23**:201–205; pages 202, 204, 205  
 (Err)1993/**23**:313
- of fuchsite (Juchem)2006/**30**:207–214
- of garnet—  
 (Adamo)2007/**30**:307–319  
 almandine (Hainschwang)2008/**31**:23–29  
 grossular, bicoloured, from Tanzania  
 (Zwaan)2014/**34**:195–197
- GemmoFtir spectrometer for (Scarani)2014/**34**:279
- of glass—  
 chalcedony simulant, blue (Hänni)2001/**27**:275–285  
 in reliquary of St Eustace, Basle Cathedral  
 (Joyner)2006/**30**:169–182
- of ivory, hornbill, natural and imitation (Jie  
 Liang)2014/**34**:42–49
- of jades from Myanmar (Franz)2014/**34**:210–229
- of jadeite—  
 B-type (Quek)1997/**25**:417–427  
 bleached wax- and polymer-impregnated  
 (Tan)1995/**24**:475–483  
 chrome (Ou Yang)2001/**27**:321–325  
 impregnated (Quek)1998/**26**:168–173  
 from Myanmar (Franz)2014/**34**:210–229  
 natural and treated (Tan)2006/**30**:227–233  
 in rock from Mexico (Ostrooumov)2010/**32**:1–6
- of jasper from Poland (Heflik)1993/**23**:356–359
- of korerupine, reflectance (Gao Yan)1995/**24**:411–414
- of kosmochlor jade (Franz)2014/**34**:210–229
- of kyanite, colour-change from East Africa  
 (Bosshart)1982/**18**:205–212
- of lapis lazuli compared with sodalite  
 (Schiffmann)1976/**15**:172–179
- of maw-sit-sit (Franz)2014/**34**:210–229
- methods—  
 Alpha Diamond Analyzer and diffuse reflectance  
 (Laurs)2014/**34**:91  
 combined use (Tretyakova)1997/**25**:532–539  
 for faceted gems (Lind)1983/**18**:411–420  
 with infrared microscope (Gao Yan)1995/**24**:411–414  
 specular reflectance (Hainschwang)2008/**31**:23–29
- of moissanite, synthetic black (Caplan)2015/**34**:399–401
- of nephrite (Li Jianjun)2010/**32**:67–73
- of oils used for filling (Juchem)2006/**30**:207–214
- of omphacite jade (Ou Yang)2003/**28**:337–344;  
 (Adamo)2006/**30**:215–226; from Myanmar  
 (Franz)2014/**34**:210–229
- of opal, dendritic, from Zambia  
 (Milisenda)1994/**24**:277–280
- of pearl—  
 imitation (Tan)2005/**29**:316–324; page 318  
 (Err)2005/**29**:500  
 non-nacreous—  
 (Hainschwang)3010/**32**:15–22  
 from lion’s paw scallop (Scarratt)2004/**29**:193–203
- of quartz, impregnated to imitate jade (Tan)2003/**28**:392–  
 398
- of resin—  
 cast polyester, imitating tortoise shell, horn, ivory,  
 bone and jet (Scarratt)1992/**23**:218–222  
 imitating hornbill ivory (Jie Liang)2014/**34**:42–49
- of ruby—  
 from Myanmar, untreated and heat-treated  
 (Smith)1995/**24**:321–335  
 synthetic (Duroc-Danner)2003/**28**:483–488  
 synthetic flux-grown, from Russia, letter on  
 (Peretti)1994/**24**:61–63
- of sapphire—  
 filled with green lead glass  
 (Leelawatanasuk)2015/**34**:420–427  
 from Madagascar (Cartier)2009/**31**:171–179  
 yellowish orange, natural colour (Duroc-  
 Danner)2011/**32**:174–178
- of serpentine from Korea (Kim)1998/**26**:156–164
- of shell—  
 abalone (Tan)2005/**29**:395–399  
 lion’s paw scallop (Scarratt)2004/**29**:193–203
- of Shoushan stone (Li Jianjun)2010/**32**:67–73
- of sillimanite, reflectance (Gao Yan)1995/**24**:411–414
- specular reflectance method (Hainschwang)2008/**31**:23–29
- spectrometer obtained by GAGTL  
 (Scarratt)1989/**21**:339–341; letter on curves vs. images  
 from hand spectroscope (Farn)1989/**21**:522



- of taaffeite—  
 from Myanmar (Leelawatanasuk)2014/**34**:144–148  
 from Sri Lanka (Schmetzer)2005/**29**:290–298  
 of tooth 'kakuten' (Sunagawa)2002/**28**:33–40  
 of topaz, Imperial, from Brazil (de Costa)2000/**27**:133–138  
 of tortoise shell (Hainschwang)2008/**31**:23–29  
 of turquoise, natural, synthetic and substitutes  
 (Arnould)1975/**14**:375–377  
 units of measure in spectroscopy  
 (Nassau)1977/**15**:243–247; page 247, Table  
 4 (Err)1976/**15**:465; letter on conversion of  
 (Read)1983/**18**:673–674  
 of zircon (Edinburgh Gemmological Group)1993/**23**:387–392  
 see also Spectroscopy, UV-Vis and UV-Vis-NIR; specific  
 gem materials
- Spectroscopy, Mössbauer**  
 of spinel from Tajikistan (Ananyev)2012/**33**:15–18
- Spectroscopy, nuclear magnetic resonance [NMR]**  
 of sapphire, natural vs. synthetic padparadscha-colour  
 (Troup)1992/**23**:97–103
- Spectroscopy, photoluminescence**  
 of alexandrite—  
 blue, from Brazil (Pinheiro)2000/**27**:161–170  
 natural vs. synthetic (Kennedy)2000/**27**:79–81  
 of corundum—  
 natural and synthetic (Bidny)2010/**32**:7–13  
 with thorite inclusion (Carbonin)1998/**26**:262–264  
 of diamond—  
 brown, before and after HPHT treatment  
 (Hainschwang)2005/**29**:261–273  
 reddish brown (Lu)2011/**31**:73–76  
 with star-shaped cloud (Hainschwang)2014/**34**:306–315  
 with synthetic-like DiamondView pattern  
 (Delaunay)2014/**34**:107–108  
 yellow type Ib 'canary' (Collins)1980/**17**:213–222  
 of diamond, synthetic—  
 CVD —  
 colourless to near-colourless, identification of  
 (Scarani)2014/**34**:2  
 colourless to pale grey (Song)2012/**33**:45–48  
 colourless melee mixed with natural  
 (Hainschwang)2015/**34**:518–522  
 with 'tree ring' growth pattern (Yan  
 Lan)2015/**34**:702–710  
 pink (Kitawaki)2010/**32**:23–30  
 yellow—  
 type Ib (Kitawaki)2015/**34**:594–604  
 melee (Hainschwang)2014/**34**:300–302  
 HPHT—  
 colourless type IIa, identification of  
 (Scarani)2014/**34**:2  
 yellow-brown melee  
 (Delaunay)2014/**34**:16–18  
 of diopside, colourless, from Canada and Kenya  
 (Krzemnicki)2014/**34**:291–292  
 of emerald—  
 laser-induced (Moroz)1999/**26**:316–320  
 for origin determination (Thompson)2014/**34**:334–343;  
 letter on (Schmetzer)2015/**34**:441–443; response  
 (Thompson)2015/**34**:443  
 instruments—  
 Diamond Fluorescence Imaging (DFI) Mid-UV Laser  
 diamond screening system  
 (Hainschwang)2015/**34**:467  
 GL Gem Spectrometer NIR PL405 (Laurs)2015/**34**:381  
 of omphacite jade from Italy (Adamo)2006/**30**:215–226  
 of pearl, non-nacreous (Hainschwang)2010/**32**:15–22  
 of spinel—  
 synthetic (Carbonin)2000/**27**:30–31  
 from Vietnam (Malsy)2012/**33**:19–27  
 of turquoise from China (Qi Lijian)1998/**26**:1–11
- Spectroscopy, Raman**  
 of albite (Hänni)1997/**25**:394–406; page 402  
 (Err)1997/**25**:511  
 of amber from Slovakian archaeological sites  
 (Kadlečíková)2015/**34**:510–517  
 of beryl—  
 red, natural and hydrothermal synthetic Russian  
 (Fumagalli)2003/**28**:291–301  
 of bisbeeite from Democratic Republic of Congo  
 (Zwaan)2015/**34**:663–666  
 of chalcedony—  
 carnelian and jasper from Slovakian archaeological  
 sites (Kadlečíková)2015/**34**:510–517  
 chrome, from Australia (Willing)2003/**28**:265–279  
 of chrysoberyl from Myanmar with nail-head spicules  
 (Schmetzer)2015/**34**:434–438  
 of diamond (Hänni)1997/**25**:394–406; page 402  
 (Err)1997/**25**:511; HPHT treated  
 (Chalain)2000/**27**:73–78  
 of emerald—  
 coated with amorphous carbon  
 (Choudhary)2014/**34**:242–246  
 fillers in (Kiefert)1999/**26**:501–520  
 and inclusions in, from Zimbabwe  
 (Zwaan)1998/**26**:174–187  
 of fillers used in emerald (Kiefert)1999/**26**:501–520  
 of fluid inclusions—  
 in corundum from Vietnam (Long)2004/**29**:129–147  
 in tanzanite (Taylor)2013/**33**:149–159, 161–169  
 of fluorite from Slovakian archaeological sites  
 (Kadlečíková)2015/**34**:510–517  
 of fuchsite (Juchem)2006/**30**:207–214  
 of garnet from Slovakian archaeological sites  
 (Kadlečíková)2015/**34**:510–517  
 of glass chalcedony simulant, blue (Hänni)2001/**27**:275–285  
 of inclusions—  
 in corundum—  
 from Madagascar (Kiefert)1996/**25**:209  
 from Malawi, untreated and heat-treated  
 (Rankin)2002/**28**:65–75  
 zircon (Hänni)1997/**25**:394–406; page 402  
 (Err)1997/**25**:511; effects of heat treatment  
 (Rankin)2003/**28**:257–264  
 in emerald from Sandawana (Zwaan)1998/**26**:174–187  
 in emerald, synthetic, Nacken and Chatham  
 (Schmetzer)1999/**26**:487–500  
 kyanite in diamond (Koivula)1998/**26**:222–225  
 in zoisite, fluid, with H<sub>2</sub>S (Rankin)2014/**34**:11–12  
 instruments—  
 Diamond Fluorescence Imaging (DFI) Mid-UV Laser  
 diamond screening system  
 (Hainschwang)2015/**34**:467  
 GemRam Mini (Laurs)2015/**34**:557  
 of jades from Myanmar (Franz)2014/**34**:210–229  
 of jadeite—  
 (Hänni)1997/**25**:394–406; page 402 (Err)1997/**25**:511  
 B-type (Scarratt)1992/**23**:217–218  
 chrome (Ou Yang)2001/**27**:321–325  
 from Myanmar (Franz)2014/**34**:210–229  
 of jadeite-bearing rock from Mexico  
 (Ostrooumov)2010/**32**:1–6  
 of jeremejevite (Smith)2014/**34**:138–142  
 of johachidolite (Harding)1999/**26**:324–329  
 of kosmochlor and maw-sit-sit from Myanmar  
 (Franz)2014/**34**:210–229  
 method (Nassau)1981/**17**:306–320;  
 (Hänni)1997/**25**:394–406; page 402 (Err)1997/**25**:511;  
 combined use (Tretyakova)1997/**25**:532–539

- of moissanite, synthetic, from Russia (Kiefert)2001/**27**:471–481
- of morganite from Afghanistan and Madagascar (Hänni)2003/**28**:417–429
- of musgravite—  
 from Africa (Schmetzer)2007/**30**:367–382  
 from Antarctica (Kiefert)1998/**26**:165–167  
 from Sri Lanka (Schmetzer)2005/**29**:281–289;  
 (Abduriyim)2008/**31**:43–54
- of omphacite jade from Myanmar (Franz)2014/**34**:210–229
- of opal—  
 green prase, from Tanzania (Zwaan)2015/**34**:658–660  
 hyalite, daylight fluorescent, from Mexico (Fritsch)2015/**34**:490–508
- of pearl, non-nacreous, in oyster (Scarratt)2006/**30**:43–50
- of pearl, cultured—  
 from China (Huang Fengming)2003/**28**:449–462  
 from China and Japan (Wehrmeister)2007/**30**:399–412  
 colour-treated (Li Liping)2001/**27**:449–455  
 intensity mapping of (Wehrmeister)2008/**31**:15–21
- of reliquary of St Eustace, Basle Cathedral (Joyner)2006/**30**:169–182
- of sapphire—  
 with golden sheen, reportedly from Kenya (Bui)2015/**34**:678–691  
 from Madagascar (Kiefert)1996/**25**:209;  
 (Cartier)2009/**31**:171–179  
 from Myanmar (Peretti)1996/**25**:3–19
- of shattuckite from Democratic Republic of Congo (Zwaan)2015/**34**:663–666
- of spinel from Vietnam (Malsy)2012/**33**:19–27
- of taaffeite (Abduriyim)2008/**31**:43–54; from Sri Lanka (Kiefert)1998/**26**:165–167
- of thortveitite (Chapman)2008/**31**:1–6
- of tourmaline, purple, from Mozambique (Zwaan)2015/**34**:666–668
- of tremolite from Tanzania (Zwaan)2015/**34**:569–571
- see also Inclusions; Photoluminescence; Spectroscopy, photoluminescence; specific host gem materials
- Spectroscopy, UV-Vis and UV-Vis-NIR** [includes measurements by both spectrophotometer and spectroscope; absorption/absorbance, unless otherwise noted]
- of alexandrite from Brazil (Pinheiro)2000/**27**:161–170; (Schmetzer)2014/**34**:32–40
- of alexandrite, synthetic—  
 cat's-eye (Koivula)1988/**21**:232–236; Kyocera (Scarratt)1988/**21**:136–139  
 flux-grown (Schmetzer)2012/**33**:49–81  
 HOC-grown (Schmetzer)2013/**33**:113–129  
 Kyocera (Scarratt)1988/**21**:136–139  
 titanium-bearing (Schmetzer)2013/**33**:137–148
- of andalusite, manganese lines in green (Anderson)1967/**10**:199–201
- of andesine, reportedly from Tibet (Abduriyim)2009/**31**:283–298
- of aquamarine—  
 green (Nassau)1996/**25**:108–115  
 from Nigeria (Lind)1986/**20**:48
- of axinite—  
 colour-change, from Tanzania (Williams)2014/**34**:191–192  
 ferro-, from Sri Lanka (Hänni)1982/**18**:20–27
- of beryl—  
 electron-irradiated (Rink)1990/**22**:33–37  
 Maxixe-type—  
 (Nassau)1973/**13**:296–301;  
 (Nassau)1996/**25**:108–115  
 colourless (Mathew)1998/**26**:238–251  
 from Nigeria (Schwarz)1996/**25**:117–141
- red, from USA (Hosaka)1993/**23**:409–411
- synthetic—  
 cobalt, compared with synthetic blue spinel and glass (Taylor)1967/**10**:258–261  
 red, Russian hydrothermal (Henn)1999/**26**:481–486  
 yellow (Nassau)1996/**25**:108–115
- of chalcedony—  
 chrome, from Australia (Willing)2003/**28**:265–279;  
 review (Hyršl)1999/**26**:364–370  
 chrysocolla from Peru (Clark)2014/**34**:9–10
- of chrysoberyl—  
 reddish purple, from Brazil (Schmetzer)2014/**34**:32–40  
 vanadium-bearing natural and synthetic (Schmetzer)2013/**33**:223–238
- of clinohumite from Siberia (Henn)2001/**27**:335–340; (Addendum)2001/**27**:443
- for description and measurement of colour (Day)1961/**8**:111–121
- of corundum—  
 from basalt fields, Australia and Cambodia (Sutherland)1998/**26**:65–85  
 from Madagascar (Milisenda)2001/**27**:385–394  
 from Malawi, untreated and heat-treated (Rankin)2002/**28**:65–75  
 natural, diffusion-treated and synthetic (Pisutha-Arnond)2006/**30**:131–143  
 natural and synthetic (Bidny)2010/**32**:7–13
- and country of origin determination (Hänni)1994/**24**:139–148
- of cubic zirconia—  
 coloured (Read)1981/**17**:602–605  
 transmission spectra (Bosshart)1978/**16**:244–256;  
 addenda (Err)1979/**16**:431
- curves vs. images from hand spectroscope, letter on (Farn)1989/**21**:522
- of diamond—  
 blue—  
 flat-cut, conductive (Scarratt)1986/**20**:210–211  
 non-conductive (Emms)1993/**23**:275–278  
 brown, before and after HPHT treatment (Hainschwang)2005/**29**:261–273  
 chameleon (Scarratt)1984/**19**:98–100  
 clouds, symmetrical (Wang)2002/**28**:143–152  
 for classification (Anderson)1963/**9**:44–54  
 and colour centres (Collins)1982/**18**:37–75  
 coloured (Scarratt)1979/**16**:433–447  
 colourless, at room temperature (Lifante)1990/**22**:142–145  
 Dresden Green (Bosshart)1989/**21**:351–362  
 from gold mines (Raal)1969/**11**:211–215  
 HPHT-treated from NovaDiamond (De Weerd)2000/**27**:201–208
- irradiated—  
 (Anderson)1963/**9**:44–54;  
 (Schiffmann)1969/**11**:233–255;  
 (Collins)1982/**18**:37–75  
 and annealed to remove GR1 feature (Raal)1969/**11**:211–215
- pink, natural, with 637 nm line (Scarratt)1987/**20**:358–361
- purple (Moses)2002/**28**:7–12
- radioactive radium-treated (Scarratt)1985/**19**:653–654; (Scarratt)1986/**20**:147, 149–150
- red, DeYoung (Shigley)1993/**23**:259–266
- reddish brown (Lu)2013/**31**:73–76
- with star-shaped cloud (Hainschwang)2014/**34**:306–315
- treated-colour (Woods)1986/**20**:75–82
- type Ia with high hydrogen content (Fritsch)1993/**23**:451–460

- yellow—  
 treated (Scarratt)1992/**23**:132–133  
 type Ib ‘canary’ (Collins)1980/**17**:213–222  
 yellow-luminescing (Collins)1980/**17**:213–222
- of diamond, synthetic—  
 CVD—  
 pink (Kitawaki)2010/**32**:23–30  
 with ‘tree ring’ growth pattern (Yan Lan)2015/**34**:702–710  
 yellow type Ib (Kitawaki)2015/**34**:594–604  
 De Beers, transmission spectra (Campbell)2000/**27**:32–44  
 green (Breeding)2005/**29**:387–394  
 Sumitomo (Scarratt)1987/**20**:406–409
- of dickite from Thailand (Saminpanya)2009/**31**:211–225
- of emerald—  
 before and after irradiation (Schrader)1988/**21**:237–251; letter on (Schmetzer)1993/**23**:288–293  
 from Colombia (Bosshart)1991/**22**:409–425  
 from Madagascar (Schwarz)1992/**23**:140–149  
 from Nigeria (Lind)1986/**20**:48; (Schwarz)1996/**25**:117–141  
 ordinary and extraordinary rays (Webster)1955/**5**:185–221  
 from Zambia with unusual pleochroism (Schmetzer)1981/**17**:443–446
- of emerald, synthetic—  
 before and after irradiation (Schmetzer)1993/**23**:288–293  
 flux, Igemerald (Schmetzer)1998/**26**:145–155  
 Gilson N-type (Kennedy)2002/**28**:76–78  
 hydrothermal—  
 (Mashkovtsev)2004/**29**:215–227  
 Lechleitner (Schmetzer)1990/**22**:20–32  
 Lennix (Scarratt)1988/**21**:131–133  
 from Russia (Scarratt)1987/**20**:412–420; (Schmetzer)1988/**21**:145–164  
 Seiko (Kennedy)1986/**20**:14–17
- emission—  
 of emerald (Hoover)2005/**29**:473–481; synthetic (Schmetzer)2006/**30**:59–74  
 of jadeite (Hoover)2005/**29**:473–481  
 of musgravite (Abduriyim)2008/**31**:43–54  
 of pearl, non-nacreous, in oyster (Scarratt)2006/**30**:43–50  
 of ruby (Hoover)2005/**29**:473–481  
 of sinhalite (Hoover)2005/**29**:473–481  
 of spinel (Hoover)2005/**29**:473–481  
 of taaffeite (Abduriyim)2008/**31**:43–54  
 of tourmaline, before and after X-ray irradiation (García)1982/**18**:217–221  
 of ultraviolet light sources (Pearson)2011/**32**:211–222
- of epidote, colour-change, transmission spectra (Halvorsen)2006/**30**:1–21
- of euclase from Zimbabwe (Stocklmayer)1998/**26**:209–218
- fibre-optic probe (Gao Yan)1999/**26**:302–307
- of fluorite—  
 green, from Pakistan (Zwaan)2014/**34**:192–194  
 synthetic (Webster)1970/**12**:101–148
- of gahnite from Nigeria (Jackson)1982/**18**:265–276
- of garnet—  
 colour-change—  
 (Krzemnicki)2001/**27**:395–408; (Schmetzer)2009/**31**:235–282  
 from East Africa (Jobbins)1975/**14**:201–208  
 from Norway (Hysingjord)1971/**12**:296–299  
 colour-shift, transmission spectra (Halvorsen)2006/**30**:1–21
- grossular—  
 bicoloured, from Tanzania (Zwaan)2014/**34**:195–197  
 hessonite, from India (Kanis)1994/**24**:75–83  
 pyrope-almandine from East Africa (Williams)2015/**34**:656–658  
 pyrope-spessartine-grossular from Tanzania (Schmetzer)1982/**18**:194–200
- of glass—  
 chalcedony simulant, blue (Hänni)2001/**27**:275–285  
 devitrified, imitating lapis lazuli (Scarratt)1987/**20**:285–286  
 for crossed filters technique (Hoover)2005/**29**:473–481  
 red, used by Fabergé (Harding)1989/**21**:275–287
- of haüyne (Scarratt)1986/**20**:36, 38–39
- history of gemmological instruments (Liddicoat)1981/**17**:568–583
- of idocrase (Scarratt)1986/**20**:35–37; page 35 (Err)1986/**20**:199
- immersion with (Bosshart)1986/**20**:238–239
- instruments—  
 GemmoSphere spectrometer (Scarani)2015/**34**:468  
 GL Gem Spectrometer NIR PL405 (Laurs)2015/**34**:381
- of jadeite, B-type identification of (Gao Yan)1999/**26**:302–307
- of kornerupine, colour-shift, transmission spectra (Halvorsen)2006/**30**:1–21
- of kyanite from Tanzania (Zwaan)2014/**34**:198–200
- of labradorite, reportedly from Congo (Krzemnicki)2004/**29**:15–23
- light-induced autofluorescence—  
 of jadeite, natural and treated (Tan)2006/**30**:227–233
- of lizardite from South Africa (Rossmann)2014/**34**:98–99
- measurement method (Tisdall)1963/**9**:117–122
- of morganite from Afghanistan and Madagascar (Hänni)2003/**28**:417–429
- of moissanite, synthetic, from Russia (Kiefert)2001/**27**:471–481
- of monazite from Sri Lanka (Jobbins)1977/**15**:295–299
- of mosandrite from Russia (Henn)2015/**34**:565–566
- of musgravite—  
 from Africa (Schmetzer)2007/**30**:367–382  
 from Sri Lanka (Schmetzer)2005/**29**:281–289
- of opal, green prase, from Tanzania (Zwaan)2015/**34**:658–660
- of opal simulant, plastic (Gunawardene)1983/**18**:707–714; page 709 (Err)1984/**19**:289
- of pearl—  
 freshwater cultured, from China and Japan (Wehrmeister)2007/**30**:399–412  
 non-nacreous (Hainschwang)2010/**32**:15–22; from lion’s paw scallop (Scarratt)2004/**29**:193–203
- of peridot—  
 extraterrestrial (Henn)1992/**23**:86–88  
 from Nevada (Führbach)1998/**26**:86–102; page 93 (Err)1998/**26**:203  
 from Sri Lanka (Gunawardene)1985/**19**:692–702
- of quartz—  
 citrine, natural, synthetic, irradiated and heat-treated (Schmetzer)1989/**21**:368–391  
 coloured varieties (Henn)2012/**33**:29–43  
 prasiolite, natural, synthetic, irradiated and heat-treated (Schmetzer)1989/**21**:368–391
- reflectance—  
 of the Hope Pearl (Kennedy)1994/**24**:235–239
- of jadeite—  
 dyed (Liu)2009/**31**:181–184  
 omphacite from Italy (Adamo)2006/**30**:215–226  
 method, combined use (Tretyakova)1997/**25**:532–539

- of variscite from Australia (Willing)2008/**31**:111–124  
of rhodochrosite from Brazil (Zwaan)2015/**34**:473–475  
of ruby—  
  faceted (Banerjee)1985/**19**:489–493; page 493  
  (Err)1985/**19**:647; letter on (Bosshart)1986/**20**:71;  
  response (Banerjee)1986/**20**:135–136  
  using immersion (Bosshart)1986/**20**:238–239  
  from Malawi (Henn)1990/**22**:83–89  
  from Madagascar (Cartier)2009/**31**:171–179  
  method to distinguish natural from synthetic  
  (Bosshart)1982/**18**:145–160  
  from Nepal (Harding)1986/**20**:3–10  
  spectrophotometric/spectrochemical analysis  
  (Alexander)1948/**1**(8):4–8  
  synthetic—  
  Kashan (Gübelin)1983/**18**:477–499;  
  (Schmetzer)2007/**30**:331–356  
  Lechleitner, with synthetic overgrowth  
  (Schmetzer)1988/**21**:95–101  
  Ramaura, from USA  
  (Gunawardene)1984/**19**:125–138  
of sapphire—  
  blue—  
  for geographical origin  
  (Abduriyim)2006/**30**:23–36  
  from Nigeria (Kiefert)1987/**20**:427–442  
  from Sri Lanka and other localities,  
  before and after heat treatment  
  (Schmetzer)1990/**22**:80–82  
  diffusion-treated yellow and brown (Pisutha-  
  Armond)2004/**29**:77–103  
  filled, with green lead glass  
  (Leelawatanasuk)2015/**34**:420–427  
  geuda from Sri Lanka (Ediriweera)1989/**21**:403–404;  
  page 404 (Err)1990/**22**:55  
  green, 'pastel', from Myanmar (Smith)2014/**34**:104–105  
  from Kashmir, letter on (Hänni)1990/**22**:250–251  
  from Madagascar (Kiefert)1996/**25**:209;  
  (Milisenda)1996/**25**:177–184;  
  (Milisenda)2001/**27**:385–394;  
  (Ramdohr)2006/**30**:144–154; page 147  
  (Err)2007/**30**:355; (Cartier)2009/**31**:171–179  
  from Malawi, padparadscha (Henn)1990/**22**:83–89  
  padparadscha (Gübelin)1983/**18**:677–705; pages 678,  
  690, 692, 694, 706 (Err)1984/**19**:208  
  reddish brown, from Tanzania  
  (Gunawardene)1984/**19**:139–144  
  from Rwanda (Krzemnicki)1996/**25**:90–106  
  spectrophotometric/spectrochemical analysis  
  (Alexander)1948/**1**(8):4–8  
  from USA, Montana, heat-treated  
  (Schmetzer)2007/**30**:268–278  
  untreated vs. treated (Schmetzer)2005/**29**:407–449;  
  (Schmetzer)2004/**29**:149–182; from  
  China, before and after treatment (Wang  
  Chuanfu)1992/**23**:195–197; letter on  
  (Nassau)1993/**23**:441; response (Wang  
  Chuanfu)1993/**23**:441  
  yellow—  
  from Nigeria (Kiefert)1987/**20**:427–442  
  and orange-brown, natural and treated colour  
  (Schmetzer)1983/**18**:607–622  
  unstable colour, from Sri Lanka  
  (Schiffmann)1981/**17**:615–618  
of sapphire, synthetic—  
  hydrothermal, from Russia (Schmetzer)2000/**27**:1–7  
  Kashan synthetic pink (Schmetzer)2007/**30**:331–356  
  Mn<sup>2+</sup>-bearing (Liebach)1988/**21**:227–231  
  orange Chatham (Gübelin)1983/**18**:677–705; pages  
  678, 690, 692, 694, 706 (Err)1984/**19**:208;  
  (Gunawardene)1985/**19**:389–403; page 390  
  (Err)1985/**19**:553  
  Verneuil synthetic blue (Duroc-  
  Danner)2002/**28**:227–230  
of sapphirine from Sri Lanka (Scarratt)1987/**20**:409–411  
of scheelite, synthetic (Webster)1970/**12**:101–148  
of shell, lion's paw scallop (Scarratt)2004/**29**:193–203  
of sillimanite (Scarratt)1986/**20**:151  
of sinhalite (Anderson)1952/**3**:315–321  
of spessartine from Nigeria (Lind)2000/**27**:129–132  
of sphalerite from Zaire (Henn)1985/**19**:416–418  
of sphene from Russia, transmission spectra  
  (Spiridonov)2006/**30**:91–102; pages 91, 93, 94  
  (Err)2006/**30**:254  
of spinel—  
  beads, using hand spectroscope  
  (Hodgkinson)1989/**21**:300–301  
  blue, from Pakistan (Harding)1987/**20**:403–405; letter  
  on (Shigley)1988/**21**:120–121  
  from Vietnam (Malsy)2012/**33**:19–27  
of taaffeite (Scarratt)1986/**20**:151–153; page  
  152 (Err)1986/**20**:259; from Myanmar  
  (Leelawatanasuk)2014/**34**:144–148  
of thortveitite (Chapman)2008/**31**:1–6  
of topaz, treated, from Brazil (Sabioni)2003/**28**:283–290  
of tourmaline—  
  brown, from Sri Lanka (Henn)1986/**20**:154–156  
  colour-change—  
  from Mozambique (Liu)2006/**30**:201–206  
  from Tanzania, transmission spectra  
  (Halvorsen)1997/**25**:325–330; letter  
  on (Nassau)1997/**25**:491; response  
  (Halvorsen)1997/**25**:491–291  
  from Rwanda (Henn)2014/**34**:344–349  
  thermoluminescence of elbaite (García)1982/**18**:217–221  
  vanadium-bearing (Schmetzer)2007/**30**:413–433  
  yellow, from East Africa (Simonet)2000/**27**:11–29  
of ultraviolet lamps (Webster)1962/**8**:175–192  
units of measure in spectroscopy, letter on conversion of  
  (Read)1983/**18**:673–674  
of variscite from Australia (Willing)2008/**31**:111–124  
'visual optics' method (Mitchell)1983/**18**:382–384  
of wurtzite from Tanzania (Henn)2015/**34**:669–671  
of yttrium aluminate—  
  doubly refractive (Liddicoat)1971/**12**:309–311  
  garnet/YAG (Mitchell)1967/**10**:145–148;  
  (Webster)1970/**12**:101–148  
of zircon—  
  before and after heat treatment  
  (Scarratt)1985/**19**:655–656  
  metamict (Anderson)1963/**9**:1–6; (Farn)1974/**14**:168–169  
  star (Krzemnicki)2015/**34**:671–673  
  see also specific gem materials  
**Spectroscopy, X-ray fluorescence**, see Spectroscopy, energy-  
  dispersive X-ray [SEM-EDX and EDXRF]  
**Spectroscopy, X-ray photoelectron (XPS)**  
  of alexandrite, blue, from Brazil (Pinheiro)2000/**27**:161–170  
  of jadeite—  
  bleached wax- and polymer-impregnated  
  (Tan)1995/**24**:475–483  
  impregnated (Quek)1998/**26**:168–173  
**Spencer, L.J.**  
  obituary (Anderson)1959/**7**:115  
**Spessartine [spessartite]**  
  from Brazil, treatment of (Eeckhout)2004/**29**:205–214  
  chemical composition of (Adamo)2007/**30**:307–319



from Democratic Republic of Congo (Clark)2014/**34**:299–300  
as inclusion in sapphire from Tanzania (Clark)2014/**34**:105–106  
inclusions in, see 'Inclusions'  
from Nigeria (Lind)2000/**27**:129–132  
nomenclature of (Anon)1963/**9**:129  
simulated by doublets from Germany (Henn)2015/**34**:479–482  
from USA (Sinkankas)1966/**10**:125–134; (Johnson)1969/**11**:274–296  
see also Garnet; Almandine-spessartine

### **Sphalerite**

from Canada (Wight)1996/**25**:24–44  
green (Quintens)1984/**19**:8  
from Zaire (Henn)1985/**19**:416–418

### **Sphene [titanite]**

from Canada (Field)1953/**4**:24–26  
chrome, resembling demantoid (Axon)1965/**9**:308  
crystallography of (Mitchell)1950/**2**:237–274  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
as diamond simulant (Webster)1958/**7**:79–100  
faceted, 27.25 ct (Andrews)1965/**9**:354–355  
inclusions in, see 'Inclusions'  
infrared spectrum of (Hainschwang)2008/**31**:23–29  
from Mexico (Pough)1966/**10**:10–17  
from Myanmar (Anderson)1954/**4**:335  
from Russia (Spiridonov)2006/**30**:91–102; pages 91, 93, 94 (Err)2006/**30**:254  
from Sri Lanka (Gunawardene)1981/**17**:381–385; (Zwaan)1981/**17**:624–635; page 627 (Err)1982/**18**:107; letter on (Mitchell)1981/**17**:647

### **Spinel**

from Afghanistan, history of (Hughes)1994/**24**:256–267  
asterism in (Kumaratilake)1998/**26**:24–28  
Balas rubies, famous (Hughes)1994/**24**:256–267; letter on historic sources (Hughes)1994/**24**:185–186  
beads, distinction from ruby (Hodgkinson)1989/**21**:300–301  
blue—  
with cobalt (Mitchell)1977/**15**:354–358  
from Pakistan (Harding)1987/**20**:403–405; letter on spectra of (Shigley)1988/**21**:120–121  
cathodoluminescence and CL spectra of inclusions in (Ponahlo)2002/**28**:85–100  
colourless—  
octahedral crystal with trigon-like markings (Scarratt)1983/**18**:527, 529  
sold under obsolete name 'jargoon' (Field)1952/**3**:226–229  
colours of (Kennedy)1954/**4**:244–249  
crystallography of (Mitchell)1950/**2**:237–274  
as diamond simulant (Webster)1958/**7**:79–100  
diffusion-treated with cobalt (Lauris)2015/**34**:468  
gahnite (Anderson)1972/**13**:8  
gahnite (zincian)—  
'high' type (Anderson)1964/**9**:215–221  
history of (Anderson)1974/**14**:97–113  
from Sri Lanka (Schmetzer)1986/**20**:157–160  
heat-treated, intergrown with taaffeite (Schmetzer)1999/**26**:353–356  
historic sources of (Cooper)1974/**14**:76–78  
inclusions in, see 'Inclusions'  
as inclusion in diamond (Harris)1969/**11**:256–262  
infrared spectrum of (Hainschwang)2008/**31**:23–29  
large (Scarratt)1992/**23**:215–216  
from Madagascar (Schmetzer)2000/**27**:229–232; (Milisenda)2001/**27**:385–394  
from Myanmar (Kammerling)1994/**24**:3–40; pages 25, 28 (Err)1994/**24**:130; letter on historic sources (Hughes)1994/**24**:185–186; star (Anderson)1954/**4**:335

red—

chrome-rich (Anderson)1964/**9**:215–221  
non-fluorescing (Anderson)1962/**8**:215–217  
simulating taaffeite or sapphirine (Hodgkinson)2014/**34**:94–95  
from Sri Lanka (Zwaan)1965/**9**:434–440; (Schmetzer)1988/**21**:69–72  
star, from Myanmar (Anderson)1954/**4**:335  
from Tajikistan (Ananyev)2012/**33**:15–18  
from Tanzania (Schmetzer)1992/**23**:93–94  
twinned crystal shape (Peace)1982/**18**:359–360  
from Vietnam (Malsy)2012/**33**:19–27  
see also Assembled gem materials

### **Spinel, synthetic**

curved colour bands in (Anderson)1951/**3**:141  
developments (Webster)1970/**12**:101–148  
as diamond simulant (Webster)1958/**7**:79–100  
doublet, sold as 'soudé sur spinelle' to simulate emerald (Webster)1952/**3**:199–201  
flux from Taurus (Lauris)2015/**34**:649  
gahnite (Webster)1970/**12**:101–148  
from Germany (Barnes)1947/**1**(1):39–49  
inclusions in, see 'Inclusions'  
irradiation of, effects on colour (Burbage)1957/**6**:74–77  
as moonstone simulant (Breebaart)1958/**6**:213–214; page 214 photo captions (Err)1958/**6**:291  
photoluminescence spectroscopy of (Carbonin)2000/**27**:30–31  
red (Eppler)1956/**5**:389–393  
sintered, with cobalt, as lapis lazuli simulant (Anderson)1954/**4**:281–281  
sold as 'synthetic zircon' (Anon)1949/**2**:20–21  
from USSR, crystal (Koivula)1991/**22**:300–304  
Verneuil (Rinaudo)1997/**25**:331–339  
see also Assembled gem materials; Synthetics

### **Spodumene**

from Afghanistan (Dunn)1974/**14**:170–174  
blue (Anderson)1971/**12**:155–156  
crystallography of (Mitchell)1950/**2**:237–274  
from USA, California (Johnson)1969/**11**:274–296  
see also Synthetics

'Spot' method, see Refractometer

### **Sri Lanka**

axinite, ferro-, from southern (Hänni)1982/**18**:20–27  
chondrodite from Balangoda (Zwaan)2002/**28**:162–168; letter on (Zwaan)2002/**28**:239  
chrysoberyl from—  
cat's-eye (Mitchell)1952/**3**:305–308  
Pattara pegmatites (Zoyza)1987/**20**:486–489  
vanadium-bearing (Schmetzer)2013/**33**:223–238  
corundum—  
deposits in Kolonné (Gunaratne)1976/**15**:29–30  
geuda from—  
heat treatment of (Gunaratne)1981/**17**:292–300  
spectra of heat-treated (Ediriweera)1989/**21**:403–404; page 404 (Err)1990/**22**:55  
deposits—  
education and field studies of (Wathanakul)2014/**34**:256–261  
man-made (Francis)2002/**28**:25–31  
in Okkampitiya gem field (Mathavan)2000/**27**:65–72  
ekinite, new mineral from Eheliyagoda, Ratnapura (Mitchell)1961/**8**:96–98  
enstatite from—  
Embilipitiya, colourless (Zoyza)1985/**19**:419–425; letter on (Mitchell)1985/**19**:647  
grey (Mitchell)1952/**3**:305–308  
near-colourless (Harding)1982/**18**:213–216  
gem trade in (Findlay)1978/**16**:191–197

geochemistry and exploration in  
(Dissanayake)1992/**23**:165–175  
glass, prehistoric, from (Harder)1993/**23**:267–273  
heat and diffusion treatment in  
(Gunawardene)1984/**19**:298–310  
history of gems and Thunberg, Carl Peter  
(Sinkankas)1991/**22**:463–470  
korerupine, cat's-eye, from (Korevaar)1977/**15**:225–230  
lapidary traditions in (Mahroof)1989/**21**:405–410  
marcasite from Meetiyaogoda  
(Gunawardene)1983/**18**:635–640  
minerals in gem gravels (Rupasinghe)1986/**20**:177–184  
mining in (Dharmaratne)2002/**28**:153–161  
monazite from (Jobbins)1977/**15**:295–299  
moonstone mining in (Harder)1992/**23**:27–35  
musgravite from (Schmetzer)2005/**29**:281–289  
neutron activation analysis of minerals in gem gravels  
(Rupasinghe)1986/**20**:177–184  
peridot from Ratnapura (Gunawardene)1985/**19**:692–702  
pyrite from Meetiyaogoda  
(Gunawardene)1983/**18**:635–640  
quartz, rock crystal, from (Francis)2001/**27**:291–294  
ruby from, history of (Mahroof)1992/**23**:20–24  
sapphire from—  
heat treated (Schmetzer)1990/**22**:80–82  
Ratnapura, blue (Abduriyim)2006/**30**:23–36  
yellow, unstable colour (Schiffmann)1981/**17**:615–618  
sapphirine from (Scarratt)1987/**20**:409–411; Kolonne  
(Harding)1990/**22**:136–140  
sinhalite from Elahera, with needle-like inclusion  
(Gunawardene)1986/**20**:98–99  
sphene from (Gunawardene)1981/**17**:381–385;  
(Zwaan)1981/**17**:624–635; page 627 (Err)1982/**18**:107;  
letter on (Mitchell)1981/**17**:647  
spinel from—  
zincian, gahnospinel (Schmetzer)1986/**20**:157–160  
inclusions in, see 'Inclusions'  
taaffeite from (McDowell)1984/**19**:9–13;  
(Schmetzer)2005/**29**:290–298;  
(Schmetzer)2005/**29**:461–466  
tourmaline from, cat's-eye (Mitchell)1952/**3**:305–308  
trade difficulties in (Anon)1963/**9**:108–109  
zircon from—  
cat's-eye (Gunawardene)1988/**21**:88–91  
parti-coloured (Mitchell)1952/**3**:202–203

### Stability

of cubic zirconia (Bosshart)1978/**16**:244–256; addenda  
(Err)1979/**16**:431  
see also Colour stability; Diamond treatments; specific gem  
materials

### Staining, see Dyeing

### Stamps, postage

collection (Eadie)1991/**22**:498–499  
gems on (Cooper)1968/**11**:10–11

### Star, see Asterism; specific gem materials

### Stone holder, see Instruments; Microscopic methods

### Strain

in diamond—  
synthetic—  
pink CVD (Kitawaki)2010/**32**:23–30  
yellow CVD (Hainschwang)2014/**34**:300–302  
type II (Sunagawa)2001/**27**:417–425

### Strontium titanate

developments (Webster)1970/**12**:101–148  
as diamond simulant (Webster)1958/**7**:79–100; doublet  
with synthetic corundum (Anderson)1972/**13**:6;  
(O'Donoghue)1975/**14**:224–225  
early reports before commercial marketing  
(Anon)1955/**5**:76; (Mayers)1955/**5**:98–99

inclusions in, see 'Inclusions'  
new synthetic (Anon)1952/**3**:284  
nomenclature of, as 'artificial' (Farn)1960/**7**:209–211  
see also Assembled gem materials; Diamond simulants

### Sunagawa, Ichiro

obituary (Miyata)2012/**33**:112

### Sunstone, see Feldspar

### Surface coating, see Coating, Diffusion

### Swiss Gemmological Institute SSEF

*Facette* magazine online (Laurs)2014/**34**:4

### 'Swiss jade'

nephrite-calcite rock (Nichol)2005/**29**:299–304, 467–472

### Switzerland

fossil 'black pearls' from Oeschwand (Schiffmann)  
1977/**15**:445–453

nephrite from—

Scortaseo (Nichol)2005/**29**:467–472  
Val Faller (Nichol)2005/**29**:299–304

### Synthetics

barium and calcium titanates (Webster)1970/**12**:101–148  
gallium, use to distinguish from natural  
(Schrader)1986/**20**:108–113  
growth techniques (Wood)1978/**16**:11–29; page 28,  
Figure 10 (Err)1978/**16**:151; hydrothermal, at ICCG  
(Elwell)1968/**11**:115–118  
heat sources used in growth of, at ICCG  
(Elwell)1968/**11**:115–118  
history and developments (Webster)1955/**5**:179–184;  
(Webster)1970/**12**:101–148;  
(O'Donoghue)1976/**15**:119–124;  
(Nassau)1997/**25**:483–490; pages 485, 486  
(Err)1997/**25**:576; letter on (Butler)1997/**25**:562–563;  
(O'Donoghue)1978/**16**:30–35  
lithium (meta)niobate (Anderson)1969/**11**:303–306;  
(Webster)1970/**12**:101–148  
magnetoplumbite (Webster)1970/**12**:101–148  
nomenclature of, vs. 'artificial' (Farn)1960/**7**:209–211  
potassium tantalate, niobium-doped, KTN  
(Webster)1970/**12**:101–148  
yttrium aluminate, doubly refractive  
(Liddicoat)1971/**12**:309–311  
yttrium oxide (Webster)1970/**12**:101–148  
see also Diamond, synthetic; Garnet, synthetic; Strontium  
titanate; Yttrium aluminium garnet; specific gem  
materials

## T

### Taaffeite

from Africa (Schmetzer)2007/**30**:367–382  
from China (Anderson)1967/**10**:148–151  
heat-treated, intergrown with spinel  
(Schmetzer)1999/**26**:353–356  
history of (Anderson)1974/**14**:97–113  
identification of (Scarratt)1986/**20**:151–153; page 152  
(Err)1986/**20**:259; (Abduriyim)2008/**31**:43–54; vs.  
musgravite (Kiefert)1998/**26**:165–167  
inclusions in, see 'Inclusions'  
largest faceted? (Mitchell)1968/**10**:262  
from Myanmar (Leelawatanasuk)2014/**34**:144–148  
new mineral (Payne)1951/**3**:77–80; (Payne)1952/**3**:234–235  
nomenclature, vs. taprobanite (Mitchell)1982/**18**:112–113;  
(Schmetzer)1983/**18**:623–634; page 629  
(Err)1983/**18**:778  
simulated by spinel (Hodgkinson)2014/**34**:94–95  
from Sri Lanka (McDowell)1984/**19**:9–13;  
(Schmetzer)2005/**29**:290–298, 461–466; zincian  
(Schmetzer)1985/**19**:494–497  
see also Musgravite

### Tahiti

'keshi' cultured pearls from (Hänni)2006/**30**:51–58

- pearls, cultured from (Wehrmeister)2008/**31**:15–21;  
(Hänni)2010/**32**:31–37
- Taurus synthetic emerald**, see Emerald, synthetic
- Taiwan**  
gem trade in (Findlay)1978/**16**:191–197  
nephrite from, tremolitic (Flamini)1978/**16**:153–161
- Tajikistan**  
ruby and pink sapphire from Pamirs  
(Smith)1998/**26**:103–109  
spinel from Goron, south-western Pamirs  
(Ananyev)2012/**33**:15–18  
see also Russia, USSR
- Tanzania**  
alexandrite from Lake Manyara (Dunn)1976/**15**:113–118;  
(Schmetzer)2011/**32**:179–209  
amethyst from (Rutland)1963/**9**:132–135  
apatite, cat's-eye, from Umba (Gübelin)1983/**18**:592–595  
axinite, colour-change, from (Williams)2014/**34**:191–192  
chondrodite, reportedly from Tanga (Clark)2015/**34**:655  
chrysoberyl—  
from Lake Manyara (Schmetzer)2011/**32**:179–209  
vanadium-bearing, from Tunduru  
(Schmetzer)2013/**33**:223–238  
corundum from Umba (Rutland)1963/**9**:132–135;  
(Gunawardene)1984/**19**:139–144;  
(Hänni)1987/**20**:278–284  
emerald from Lake Manyara (Thurm)1972/**13**:98–99  
enstatite from (Koivula)1988/**21**:92–94  
garnet from—  
colour-change, from Umba (Jobbins)1978/**16**:161–171  
grossular, colourless (Zook)1975/**14**:225–229  
pyrope-spessartine-grossular from Umba  
(Schmetzer)1981/**17**:522–527;  
(Schmetzer)1982/**18**:194–200  
rhodolite, star, from Kangala (Kammerling)1990/**22**:16–18  
tsavorite, discovery of (Bridges)2014/**34**:230–241  
korerupine from, bluish green  
(Schmetzer)1979/**16**:455–457  
kyanite, blue, from (Zwaan)2014/**34**:198–200;  
polycrystalline (Krzemnicki)2014/**34**:293–294  
magnesiouxinite from (Jobbins)1975/**14**:368–375  
opal, green prase, from Kondoa District  
(Zwaan)2015/**34**:658–660  
rhodonite from Daghaseta (Thurm)1973/**13**:264–265  
sapphire with spessartine inclusion from Songea  
(Clark)2014/**34**:105–106  
scapolite from—  
central (Graziani)1981/**17**:395–405;  
(Graziani)1983/**18**:379–381  
Umba (Zwaan)1971/**12**:304–309  
scheelite-powellite from (Kennedy)2000/**27**:85  
spinel from Morogoro (Schmetzer)1992/**23**:93–94  
taaffeite and musgravite probably from  
(Schmetzer)2007/**30**:367–382  
tourmaline, colour-change, from Umba  
(Halvorsen)1997/**25**:325–330; (Liu)1999/**26**:386–396  
tremolite from (Zwaan)2015/**34**:569–571  
zoisite (including tanzanite) from—  
Merelani (Schmetzer)1979/**16**:512–513 ; with H<sub>2</sub>S fluid  
inclusions (Rankin)2014/**34**:11–12  
Tunduru (Kennedy)2000/**27**:85  
wurtzite from Merelani (Henn)2015/**34**:669–671  
see also Tanzanite; Zoisite
- Tanzanite**  
chatoyant (Kammerling)1991/**22**:395–398  
Chelsea colour filter reaction (Anderson)1971/**12**:208  
inclusions in, see 'Inclusions'  
infrared spectrum of (Hainschwang)2008/**31**:23–29  
iolite simulating (Anderson)1971/**12**:154  
new gem variety of zoisite (Anderson)1968/**11**:1–6  
simulant—  
doublets from Germany (Henn)2015/**34**:479–482  
glass (Tay Thye Sun)2014/**34**:109–110  
synthetic corundum (Anderson)1972/**13**:7  
from Tanzania, Merelani (Rankin)2014/**34**:11–12  
see also Zoisite
- Taprobanite**, see Taaffeite
- Teeth**  
identification by DNA analysis (Kakoi)2006/**30**:193–199  
use in gemmology (Cross)1970/**12**:6–9
- Tektite**  
inclusions in, see 'Inclusions'  
vs. meteorites (Hey)1968/**11**:57–65  
moldavite (Zook)1974/**14**:60–68; (Konta)1976/**15**:179–204;  
(de Goutière)1995/**24**:415–419
- Tenebrescence**, see Colour change; Hackmanite
- Testing without instruments**, see 'Visual optics'
- Thailand**  
dickite from Saraburi (Saminpanya)2009/**31**:211–225  
gem trade in (Findlay)1978/**16**:191–197  
heat and diffusion treatment in  
(Gunawardene)1984/**19**:298–310  
mining and gem trade in 1978 (Findlay)1979/**16**:516–520  
ruby from, inclusions in (Gübelin)1971/**12**:242–252  
sapphire from—  
Kanchanaburi, blue (Gunawardene)1984/**19**:228–239;  
(Abduriyim)2006/**30**:23–36  
mining in Chanthaburi (Pavitt)1973/**13**:302–307
- Thaumasite**  
inclusions in, see 'Inclusions'  
from South Africa (Henn)1991/**22**:334–336
- Thermal analysis [includes differential thermal analysis (DTA) and thermogravimetric analysis (TGA)]**  
of inclusions—  
in ruby from Myanmar (Peretti)1996/**25**:3–19  
in scapolite from Tanzania (Graziani)1983/**18**:379–381  
of jasper from Poland (Heflik)1993/**23**:356–359  
of lapis lazuli simulant from Gilson  
(Schmetzer)1985/**19**:571–578  
of opal simulants from Gilson (Schmetzer)1984/**19**:27–42;  
compared with Mexican fire opal  
(Gunawardene)1984/**19**:43–53  
of serpentine from Korea (Kim)1998/**26**:156–164  
of turquoise from China (Qi Lijian)1998/**26**:1–11
- Thermal enhancement**, see Heat treatment
- Thermal properties [conductivity and inertia]**  
conductance of synthetic emerald (Read)1990/**22**:233–234  
and thermal diamond probes (Hoover)1982/**18**:229–239  
of topaz, Imperial, from Brazil (de Costa)2000/**27**:133–138  
see also Diamond; Instruments
- Thermal testing**  
Alpha-test (Read)1984/**19**:261–265; (Read)1990/**22**:233–234  
diamond probes (Read)1980/**17**:82–94;  
(Hoover)1982/**18**:229–239; letter on Ceres Diamond  
Probe (Read)1982/**18**:360–361  
of emerald, natural vs. synthetic (Read)1990/**22**:233–234;  
letter on (Read)1991/**22**:322  
Gemtek 'Gemmologist' (Read)1983/**18**:643–650  
Gem-trak (Read)1986/**20**:242–243  
Presidium Duotester (Read)1988/**21**:251–253
- Thermochromy**, see Colour change
- Thermogravimetric analysis (TGA)**, see Thermal analysis
- Thermoluminescence**  
of diamond, historic and modern (Sweet)1955/**5**:125–130  
in tourmaline, elbaite (García)1982/**18**:217–221
- Thin films**, see Coating; Treatment
- Thomson, Edward (Ted) Arthur**  
obituary (Klein)1996/**25**:71, 158

- Thortveitite**  
 faceted (Chapman)2008/**31**:1–6  
 inclusions in, see 'Inclusions'
- Thulite**, see Zoisite
- Thunberg, Carl Peter**  
 history and gems of Sri Lanka (Sinkankas)1991/**22**:463–470
- Tibet**, see China
- Tiger's-eye**  
 pseudo-crocidolite and riebeckite (Webster)1968/**11**:84–91
- Tinzenite**  
 from Italy (Laurs)2014/**34**:102–103
- Tisdall, Francis Sidney Hope**  
 obituary (Morgan)1986/**20**:132, 195; letter on (Mitchell)1986/**20**:259
- Titanite**, see Sphene
- Tolansky, Samuel**  
 obituary 1973/**13**:242
- Topaz**  
 blue, fluorescence of (Leiper)1955/**5**:135–140  
 from Brazil, mining of (Ruplinger)1983/**18**:581–591  
 cathodoluminescence of—  
 (Solomonov)1996/**25**:299–305  
 and CL spectra of inclusions in (Ponahlo)2002/**28**:85–100  
 cat's-eye—  
 from Brazil (Hyršl)2001/**27**:456–460  
 varieties of (Graziani)1982/**18**:181–193  
 crystal in museum in Ouro Preto, Minas Gerais, Brazil (Bastos)1992/**23**:89–92  
 crystallography of (Mitchell)1950/**2**:237–274  
 deposits in former USSR (Spiridonov)1998/**26**:111–125  
 green (Kennedy)1954/**4**:244–249  
 inclusions in, see 'Inclusions'  
 pink, from Pakistan (Spengler)1985/**19**:664–671; letter on (Chisholm)1986/**20**:133  
 from Russia (Virkkunen)1971/**12**:212–213  
 simulated by doublets from Germany (Henn)2015/**34**:479–482  
 in Townshend Collection of Precious Stones in Victoria and Albert Museum (O'Donoghue)1970/**12**:1–5  
 treatment of—  
 (Schmetzer)2008/**31**:7–13  
 'Aqua Aura' method (Kammerling)1992/**23**:72–77  
 diffusion treatment/coating  
 (Schmetzer)2001/**27**:360–361;  
 (Schmetzer)2006/**30**:83–90;  
 (Schmetzer)2008/**31**:7–13  
 Imperial, from Brazil (de Costa)2000/**27**:133–138;  
 (Sabioni)2003/**28**:283–290  
 irradiated—  
 blue (Mitchell)1977/**15**:354–358  
 colour and defects in  
 (Schmetzer)1987/**20**:362–368  
 effects on colour (Burbage)1957/**6**:74–77  
 from USA, California (Johnson)1969/**11**:274–296  
 see also Assembled gem materials
- Tortoiseshell**  
 resin imitation of, cast polyester  
 (Scarratt)1992/**23**:218–222
- Tourmaline**  
 from Afghanistan, colourless (Dunn)1974/**14**:170–174  
 blue, rarity of (Kennedy)1954/**4**:244–249  
 from Bolivia (Hyršl)1998/**26**:41–47  
 from Brazil—  
 (Cassedanne)1996/**25**:263–298  
 cat's-eye (Hyršl)2001/**27**:456–460  
 Cruzeiro mine, new production (Laurs)2014/**34**:106–107  
 cathodoluminescence and CL spectra of inclusions in (Ponahlo)2002/**28**:85–100  
 cat's-eye—  
 with quartz, from Brazil (Hyršl)2001/**27**:456–460  
 from East Africa (Barot)1995/**24**:569–580  
 from Sri Lanka (Mitchell)1952/**3**:305–308  
 colour-change—  
 with chromium (Bank)1988/**21**:102–103  
 from East Africa, letter on (Schmetzer)1989/**21**:329  
 green to red (Jones)1980/**17**:4–6  
 from Mozambique (Liu)2006/**30**:201–206  
 from Tanzania (Halvorsen)1997/**25**:325–330;  
 letter on (Nassau)1997/**25**:491; response (Halvorsen)1997/**25**:491–291;  
 (Liu)1999/**26**:386–396  
 colourless—  
 from Afghanistan (Dunn)1974/**14**:170–174  
 rarity of (Kennedy)1954/**4**:244–249  
 crystallography of (Mitchell)1950/**2**:237–274  
 from Democratic Republic of the Congo (Laurs)2015/**34**:475–476  
 deposits in former USSR (Spiridonov)1998/**26**:111–125  
 from East Africa—  
 cat's-eye (Barot)1995/**24**:569–580  
 dravite (Dunn)1978/**16**:90–93  
 star (Barot)1995/**24**:569–580  
 in goodletite ornamental rock from New Zealand (Brown)1996/**25**:211–217  
 imitation bicoloured, of dyed quartzite (Hyršl)2015/**34**:402  
 inclusions in, see 'Inclusions'  
 infrared spectrum of (Hainschwang)2008/**31**:23–29  
 from Kenya—  
 (Simonet)2000/**27**:11–29  
 Cr- and V-bearing colour-zoned  
 (Williams)2015/**34**:476–477  
 dravite (Dunn)1975/**14**:386–387  
 Kerez effect in green (Fellows)2015/**34**:652–653  
 liddicoatite (Dunn)1978/**16**:172–176  
 from Madagascar—  
 (Dunn)1978/**16**:172–176; (Schmetzer)2007/**30**:413–433  
 elbaite (Dunn)1978/**16**:172–176  
 magnetic susceptibility and colour of (Feral)2014/**34**:2  
 from Mozambique—  
 (Liu)2006/**30**:201–206  
 purple, from Maraca (Zwaan)2015/**34**:666–668  
 from Myanmar, slices (Laurs)2015/**34**:668–669  
 from Nigeria, red (Laurs)2015/**34**:569  
 particoloured (Mitchell)1984/**19**:24–26  
 reflection anomalies in (Mitchell)1967/**10**:194  
 refractive index—  
 anomalous (Mitchell)1976/**15**:17–18  
 multiple refractometer readings  
 (Schiffmann)1973/**13**:125–132;  
 (Schiffmann)1975/**14**:324–329  
 from Rwanda (Henn)2014/**34**:344–349  
 from Scotland, elbaite (Jackson)1982/**18**:121–125  
 simulant—  
 doublets from Germany (Henn)2015/**34**:479–482  
 glass (Laurs)2015/**34**:484–485  
 from Sri Lanka—  
 brown (Henn)1986/**20**:154–156  
 cat's-eye (Mitchell)1952/**3**:305–308  
 star—  
 (Hyršl)2001/**27**:456–460  
 from East Africa (Barot)1995/**24**:569–580  
 fake (Schmetzer)2002/**28**:41–42; letter on (Schmetzer)2002/**28**:109–110  
 thermoluminescence in elbaite (García)1982/**18**:217–221  
 in Townshend Collection of Precious Stones in Victoria and Albert Museum (O'Donoghue)1970/**12**:1–5



trapiche, from Zambia (Schmetzer)2011/**32**:151–173  
'tsilaisite' from Zambia (Schmetzer)1984/**19**:218–223  
from USA—  
(Dunn)1975/**14**:357–368; page 364 (Err)1976/**15**:52  
California—  
Pala (O'Donoghue)1979/**16**:290–295; Oceanview  
mine (Laurs)2014/**34**:201–202  
San Diego County (Johnson)1969/**11**:274–296  
Maine, Havey quarry (Laurs)2015/**34**:394–395  
Usambara effect (dichromatism) in  
(Halvorsen)1997/**25**:325–330; letter  
on (Nassau)1997/**25**:491; response  
(Halvorsen)1997/**25**:491–291; (Liu)1999/**26**:386–396;  
(Halvorsen)2006/**30**:1–21; (Williams)2015/**34**:476–477  
uvite—  
crystal growth (Takahashi)1998/**26**:226–237  
new species (Dunn)1977/**15**:300–308  
vanadium-bearing (Schmetzer)2007/**30**:413–433; from East  
Africa (Schmetzer)1979/**16**:310–311  
yellow—  
from East Africa (Simonet)2000/**27**:11–29  
from Kenya, dravite-uvite (Hänni)1981/**17**:437–442  
from Zambia, Mn-rich, 'tsilaisite'  
(Schmetzer)1984/**19**:218–223  
from Zambia—  
colours of (Thomas)1982/**18**:4–6  
trapiche (Schmetzer)2011/**32**:151–173  
yellow Mn-rich, 'tsilaisite'  
(Schmetzer)1984/**19**:218–223

**Transmission luminescence**, see Luminescence

#### **Trapiche**

emerald from Colombia (Ringsrud)2013/**33**:187–199  
ruby, element mapping of (Schmetzer)1999/**26**:289–301  
tourmaline from Zambia (Schmetzer)2011/**32**:151–173  
see also Emerald; Ruby; Tourmaline

#### **Treatment**

'Aqua Aura' method (Kammerling)1992/**23**:72–77; of quartz  
(Kammerling)1989/**21**:364–367  
status of (Petsch)1973/**13**:265–269  
surface (Schmetzer)2008/**31**:7–13  
see also Bleaching; Coating; Diamond treatment; Diffusion  
treatment; Dyeing; Filling, fracture or cavity; Heat  
treatment; Impregnation; Irradiation; Laser drilling;  
specific gem materials

#### **Tremolite**

green translucent (Anderson)1971/**12**:155  
nephrite from Taiwan (Flamini)1978/**16**:153–161  
from Tanzania (Zwaan)2015/**34**:569–571  
see also Rocks

#### **Triphylite**

infrared spectrum of (Hainschwang)2008/**31**:23–29

#### **Triplet**, see Assembled gem materials

#### **Tsavorite**, see Grossular

#### **Tsilaisite**, see Tourmaline

#### **Tucson gem and mineral shows**

rare gem materials at (Laurs)2014/**34**:102–103  
report from and GAGTL booth at AGTA GemFair  
(Emms)1993/**23**:362–363

#### **Tugtupite**

from Greenland—  
and Kola Peninsula (Dragsted)1970/**12**:10–11  
recent production (Rohtert)2015/**34**:395–397

#### **Turquoise**

from China (Qi Lijian)1998/**26**:1–11  
cosmetics, effects of (Webster)1964/**9**:255–259  
deposits in former USSR (Spiridonov)1998/**26**:111–125  
infrared spectra of natural and synthetic  
(Arnould)1975/**14**:375–377  
scanning electron microscopy of (Taki)1988/**21**:74–80

in Townshend Collection of Precious Stones in Victoria and  
Albert Museum (O'Donoghue)1970/**12**:1–5  
treated (Kennedy)2001/**27**:485; history, review and testing  
of (Lee)1960/**7**:249–269

#### **Turquoise simulants**

Bayerite and copper phosphate, from  
Gilson (Schmetzer)1981/**17**:386–389;  
(Scarratt)1983/**18**:523–525  
Gilson synthetic (Anderson)1972/**13**:5;  
(Webster)1973/**13**:157–160; (Tisdall)1973/**13**:312–313  
history, review and testing of (Lee)1960/**7**:249–269  
howlite, dyed (Webster)1962/**8**:286–288  
infrared spectra of (Arnould)1975/**14**:375–377  
prosoquite (Dunn)1976/**15**:205–208  
scanning electron microscopy of (Taki)1988/**21**:74–80  
sold as synthetic in USA (Field)1952/**3**:327–329

#### **Twinning**

in chrysoberyl (Schmetzer)2011/**32**:129–144; from  
Tanzania (Schmetzer)2011/**32**:179–209; from Brazil  
(Schmetzer)2014/**34**:32–40  
in jadeite from Myanmar (Shi)2009/**31**:185–195  
in quartz, natural, synthetic and treated citrine and  
prasiolite (Schmetzer)1989/**21**:368–391  
in ruby—  
natural and synthetic flux (Schmetzer)1987/**20**:294–305  
synthetic (Farn)1981/**17**:285–287; Ramaura  
(Schmetzer)1994/**24**:87–93; page 91  
(Err)1994/**24**:226  
in sapphire—  
from Madagascar (Ramdohr)2006/**30**:144–154; page  
147 (Err)2007/**30**:355  
synthetic—  
blue Chatham (Kiefert)1988/**21**:16–22  
blue Verneuil with polysynthetic lamellae (Duroc-  
Danner)1985/**19**:479–483; pages 482, 483  
(Err)1985/**19**:647  
in spinel, education of shape (Peace)1982/**18**:359–360

## **U**

#### **Ugrandite**, see Garnet

#### **Ukraine**

jaspilite from Krivoy Bog (Baranov)2009/**31**:163–169

#### **Ultraviolet fluorescence**, see Fluorescence, ultraviolet [UV]

#### **Ultraviolet luminescence**, see Fluorescence, ultraviolet [UV]

#### **Ultraviolet-visible spectroscopy**, see Spectroscopy, UV-Vis and UV-Vis-NIR

#### **Ultraviolet-visible-near-infrared spectroscopy**, see Spectroscopy, UV-Vis and UV-Vis-NIR

#### **Ultraviolet sources**, see Lighting

#### **United States of America**

albite-tremolite 'Wyoming jade' from  
(Webster)1966/**10**:59–60  
almandine—  
from Massachusetts, Erving (Williams)2014/**34**:286–287  
from New York and Idaho, inclusions in  
(Dunn)1975/**14**:273–280  
andradite from Arizona (Laurs)2014/**34**:96  
beryl—  
red, from Utah (Hosaka)1993/**23**:409–411  
from San Diego County, California  
(Johnson)1969/**11**:274–296  
beryllonite from Maine (Dunn)1975/**14**:208–212  
brazilianite from New Hampshire (Trumper)1951/**3**:1–13  
diamond from Arkansas (Leiper)1957/**6**:63–71  
emerald from—  
localities (Webster)1955/**5**:185–221  
North Carolina (O'Donoghue)1975/**14**:339–340  
feldspar from Oregon—  
aventurescent oligoclase (Henn)2004/**29**:72–74

- heliolite (sunstone) labradorite  
(Pough)1983/**18**:503–514;  
(Krzemnicki)2004/**29**:15–23
- gems—  
collection of Virginia Hinton (Anon)1949/**2**:84–86  
of San Diego County, California  
(Johnson)1969/**11**:274–296
- halite from New Mexico (Laurs)2014/**34**:102–103
- hambergite from San Diego County, California  
(Anon)1958/**6**:244
- kunzite from Pala Chief mine, San Diego County, California  
(Deane)1959/**7**:121
- natrolite from New Jersey (Dunn)1976/**15**:113–118
- nephrite from California (Paradise)1985/**19**:672–681
- opal from Idaho (Broughton)1972/**13**:100–104; pink with  
play of colour (Laurs)2015/**34**:390–391
- pearl—  
non-nacreous, in *Crassostrea virginica* mollusc  
(Scarratt)2006/**30**:43–50  
quahog from Rhode Island (Laurs)2014/**34**:16
- peridot from Nevada (Führbach)1998/**26**:86–102; page 93  
(Err)1998/**26**:203
- quartz from—  
Arkansas, McEarl mine, large faceted  
(Laurs)2014/**34**:99–101  
California, Pala, Oceanview mine, smoky-citrine  
(Laurs)2014/**34**:201–202
- rhodolite from North Carolina (Martin)1970/**12**:29–36
- rhodonite from Massachusetts (Dunn)1976/**15**:76–80
- Saguaro Stone from Arizona (Krzemnicki)2015/**34**:567–569
- sapphire from Montana (Schmetzer)2007/**30**:268–278
- spessartine—  
from San Diego County, California  
(Johnson)1969/**11**:274–296  
from Virginia (Sinkankas)1966/**10**:125–134
- spodumene from San Diego County, California  
(Johnson)1969/**11**:274–296
- topaz from San Diego County, California  
(Johnson)1969/**11**:274–296
- tourmaline—  
from California (O'Donoghue)1979/**16**:290–295; from  
San Diego County (Johnson)1969/**11**:274–296;  
Pala, Oceanview mine (Laurs)2014/**34**:201–202  
from Maine—  
elbaite (Dunn)1975/**14**:357–368; page 364  
(Err)1976/**15**:52  
Havey quarry (Laurs)2015/**34**:394–395  
zektzerite from Washington (Dunn)1978/**16**:90–93
- Ureyite**, see Kosmochlor
- Usambara effect**, see Colour change
- USSR [Union of Soviet Socialist Republics]**  
diopside, chrome, from (Schrader)1984/**19**:213–217  
gem deposits of (Spiridonov)1998/**26**:111–125  
synthetic spinel crystal from (Koivula)1991/**22**:300–304  
see also specific countries formerly part of the USSR  
(Russia, Tajikistan, Ukraine)
- Utah**, see United States of America
- Uvarovite**  
from Russia (Spiridonov)2006/**30**:91–102; pages 91, 93, 94  
(Err)2006/**30**:254  
see also Garnet
- Uvite**, see Tourmaline
- V**
- Variscite**  
from Australia (Willing)2008/**31**:111–124
- Vaterite**  
in pearls, freshwater cultured, from China and Japan  
(Wehrmeister)2007/**30**:399–412
- Verdite**, see Rocks
- Verneuil**, see Ruby, synthetic
- Vesuvianite**, see Idocrase
- Vietnam**  
corundum deposits in (Long)2004/**29**:129–147  
fluorite, green, from Cao Bang Province  
(Chaipaksa)2014/**34**:194–195  
pearl, freshwater, cultivation in  
(Bosshart)1993/**23**:326–332  
peridot from Lam Dong (Kammerling)1995/**24**:355–361  
spinel from Lang Chap (Malsy)2012/**33**:19–27
- Villiaumite**  
from Canada (Wight)1996/**25**:24–44
- 'Visual optics'**  
and birefringence/dispersion ratio  
(Hodgkinson)2014/**34**:281–283  
distant vision method and double refraction  
(Anderson)1950/**2**:341  
Hodgkinson method of determining gemmological  
properties (Hodgkinson)1979/**16**:301–309;  
(Mitchell)1980/**17**:66–67; (Wong)1981/**17**:324–333;  
page 330 (Err)1981/**17**:509;  
(Hanneman)1982/**18**:221–228;  
(Nelson)1986/**20**:49–51  
lectures on (Anderson)1953/**4**:104–106;  
(Anderson)1966/**10**:69–83  
letter on method (Dave)1955/**5**:111–112  
'plonking' (Farn)1960/**7**:179–181  
testing without instruments (Farn)1962/**8**:203–204;  
(Anderson)1966/**10**:69–83
- Vivianite**  
from Bolivia (Hyršl)1998/**26**:41–47
- Vuillet á Ciles, Pierre**  
obituary (Gravier)2014/**34**:366
- Vulcanite**, see Rubber
- W**
- Wales**  
gold mining and production in (White)1962/**8**:207–208
- Walton, James**  
obituary (Anderson)1955/**5**:235
- Water-drop test**, see Hardness testing
- Webster, Robert**  
obituary (Anderson)1976/**15**:97, 153
- Wheeler, Douglas**  
obituary 1988/**21**:130, 199
- Wheeler, Harry James Blackburn**  
obituary 1986/**20**:196, 202, 256
- Whitehead, Henry J.**  
obituary 1980/**17**:201; (Mitchell)1981/**17**:344
- Wild, Georg O.**  
obituary (Anderson)1976/**15**:96
- Willemite**  
from Canada (Wight)1996/**25**:24–44  
orange, faceted 2¼ ct (Axon)1964/**9**:263–267
- Williamsite**  
inclusions in (Gübelin)1969/**11**:149–192
- Willis, 'Lena'**  
obituary 1999/**26**:404
- Witherite**  
infrared spectrum of (Hainschwang)2008/**31**:23–29
- World Gold Council**  
2014 trends (Laurs)2015/**34**:382  
2015 2nd quarter trends (Laurs)2015/**34**:560  
report on hallmarking in India (Laurs)2015/**34**:560
- World Diamond Mark Foundation**  
*World Diamond Magazine* in conjunction with Turkish  
Jewelry Exporters Association (Almor)2015/**34**:383

## **Wulfenite**

as gemstone (O'Donoghue)1980/**17**:7–9

## **Wurtzite**

from Tanzania (Henn)2015/**34**:669–671

## **X**

### **X-radiography [including Micro-radiography]**

of corundum filled with coloured lead glass

(Henn)2014/**34**:111–112

of diamond—

jewellery (Moule)1981/**17**:300–305

synthetic vs. natural (Anderson)1955/**5**:59–64

of jewellery (Vincent)1948/**1**(5):14–15; diamond

(Moule)1981/**17**:300–305

micro-focus method—

for natural pearls (Strack)2014/**34**:14–15

for pearls with thick nacre (Segura)2014/**34**:13–14

of pearl—

abalone (Anon)1959/**7**:103

with agate-like nucleus (Anderson)1961/**8**:71

baroque—

with bead-filled cavity (Scarratt)1984/**19**:113–114

with multiple nuclei (Webster)1961/**8**:71

blister, from Australia (Anon)1959/**7**:74

diagnostic structure (Brown)1979/**16**:501–511

freshwater, from Russia (Strack)2015/**34**:580–592

at GAGTL (Farn)1980/**17**:223–229

hollow (Duroc-Danner)1986/**20**:11–13

large, nacreous—

historic (Zwaan)2009/**31**:196–201

Hope Pearl (Kennedy)1994/**24**:235–239

and Laue patterns (Schiffmann)1971/**12**:284–296;

(Hänni)1983/**18**:386–400; (Duroc-

Danner)1983/**18**:715–722; page 721

(Err)1984/**19**:289

limitations and problems of (Lorenz)1986/**20**:114–123;

page 116 (Err)1986/**20**:199

by micro-focus method (Strack)2014/**34**:14–15

mixed in strands with cultured

(Bubshait)1993/**23**:400–401

from The Netherlands (Zwaan)2014/**34**:150–155

non-nacreous—

from marine snail (Hainschwang)2010/**32**:15–22

in oyster (Scarratt)2006/**30**:43–50

non-beaded (Webster)1959/**7**:121–123

unusual (Webster)1954/**4**:325–334

of pearl, cultured—

bead material in (Hänni)2010/**32**:31–37

in brooch, photo of (Anon)1948/**1**(8):34

brown, stained (Scarratt)1984/**19**:107–108

'Chinese' drill hole in button-shape

(Bubshait)1993/**23**:400–401

dyed with silver nitrate (Webster)1949/**2**:51–54; aging

of (Segura)2014/**34**:203–204

at GAGTL (Farn)1980/**17**:223–229

imitation, plastic on mother-of-pearl

(Farn)1978/**16**:232–234

and Laue patterns (Schiffmann)1971/**12**:284–296;

(Hänni)1983/**18**:386–400; (Duroc-

Danner)1983/**18**:715–722; page 721

(Err)1984/**19**:289

mixed in strands with natural

(Bubshait)1993/**23**:400–401

non-beaded (Duroc-Danner)1986/**20**:11–13

with thick nacre, using micro-focus method

(Segura)2014/**34**:13–14

unusual (Webster)1954/**4**:325–334

of sapphire, green lead-glass-filled

(Leelawatanasuk)2015/**34**:420–427

single-pattern testing of pearl, natural and cultured

(Angus)1962/**8**:251–252

of synthetics transparent to X-rays

(Webster)1970/**12**:101–148

unit for gemmological use (Folgueras-

Dominguez)1984/**19**:14–23; page 21 (Err)1984/**19**:289

### **X-ray computed microtomography [Micro-CT] and tomography**

of pearl—

historic large nacreous (Zwaan)2009/**31**:196–201;

(Zwaan)2014/**34**:248–253

from The Netherlands (Zwaan)2014/**34**:150–155

of pearl, cultured—

and bead material in (Hänni)2010/**32**:31–37

internal structure (Wehrmeister)2008/**31**:15–21

of ruby in marble matrix (Bouts)2014/**34**:50–54

### **X-ray diffraction analysis**

of analcime, aventurescent, from India

(Talati)1978/**16**:186–190

of andesine, reportedly from Tibet

(Abduriyim)2009/**31**:283–298

of apatite—

including cryptocrystalline 'collophane'

(Poirot)1983/**18**:515–519

inclusions in spinel from Sri Lanka

(Zwaan)1965/**9**:434–440

of axinite—

magnesio- and ferro- (Jobbins)1975/**14**:368–375

magnesioaxinite from Tanzania

(Jobbins)1975/**14**:368–375

camera at GAGTL (Farn)1977/**15**:230–231

of ceruleite (Schmetzer)1978/**16**:86–90

of chalcedony, chrome, from Australia

(Willing)2003/**28**:265–279

of chrysocola from Indonesia (Einfalt)2006/**30**:155–168

of cubic zirconia (Bosshart)1978/**16**:244–256; addenda

(Err)1979/**16**:431

of diamond, CVD synthetic, with 'tree ring' growth pattern

(Yan Lan)2015/**34**:702–710

of dickite from Thailand (Saminpanya)2009/**31**:211–225

diffraction enhanced imaging method

(Schlüter)2005/**29**:401–406

using EDXRF instrument (Abduriyim)2008/**31**:43–54

of emerald from Brazil (Pulz)1998/**26**:252–261

of enstatite, near-colourless, from Sri Lanka

(Harding)1982/**18**:213–216

of garnet, colour-change, from East Africa

(Jobbins)1975/**14**:201–208

of hematite inclusions in amethyst from Korea

(Kim)1990/**22**:204–206

of jadeite from Myanmar (Win Htein)1995/**24**:315–320

of jasper from Poland (Heflik)1993/**23**:356–359

of kornerupine (Duroc-Danner)1984/**19**:311–316

of kyanite, grey (Ghera)1988/**21**:83–87; pages 83, 84

(Err)1988/**21**:201

of magnesioaxinite from Tanzania

(Jobbins)1975/**14**:368–375

of maw-sit-sit from Myanmar (Gübelin)1965/**9**:372–379;

(Win Htein)1995/**24**:315–320;

(Colombo)2000/**27**:87–92

of monazite from Sri Lanka (Jobbins)1977/**15**:295–299

of musgravite (Abduriyim)2008/**31**:43–54

of nephrite from Taiwan, tremolitic

(Flamini)1978/**16**:153–161

non-destructive method of (Anon)1947/**1**(1):38

of omphacite jade from Italy (Adamo)2006/**30**:215–226

of opal—

from Indonesia (Einfalt)2007/**30**:383–398

- iridescent hyalite from Mexico (Hänni)1989/**21**:488–495
- of pearl—  
 glass imitation and coating (Kennedy)1988/**21**:211–214  
 Laue method, limitations (Lorenz)1986/**20**:114–123;  
 page 116 (Err)1986/**20**:199  
 mabe, coloured with nail varnish (Scarratt)1992/**23**:137  
 and shells of salt- and fresh-water molluscs  
 (Gutmannsbauer)1994/**24**:241–252  
 structure (Schlüter)2005/**29**:401–406;  
 (Liping)2013/**33**:131–136
- powder—  
 method for identifying gem materials  
 (Switzer)1947/**1**(2):34–38  
 patterns and reference book from GIA  
 (Farn)1977/**15**:234–235
- of quartz, aventurine (Monroe)1986/**20**:83–86
- of scapolite—  
 from Tanzania, yellow (Zwaan)1971/**12**:304–309  
 violet (Zwaan)1979/**16**:448–451
- of serpentine from Korea (Kim)1998/**26**:156–164
- of sillimanite from India (Zwaan)1982/**18**:277–281
- of sphene from Sri Lanka (Zwaan)1981/**17**:624–635; page  
 627 (Err)1982/**18**:107; letter on (Mitchell)1981/**17**:647
- of taaffeite (Abduriyim)2008/**31**:43–54
- of topaz, treated, from Brazil (Sabioni)2003/**28**:283–290
- of turquoise simulant from Gilson  
 (Schmetzer)1981/**17**:386–389  
 see also specific gem materials
- X-ray fluorescence [luminescence]**, see Luminescence
- X-ray fluorescence spectroscopy**, see Spectroscopy, energy-dispersive X-ray fluorescence [EDXRF]
- X-ray mapping**  
 of ruby, trapiche (Schmetzer)1999/**26**:289–301
- X-ray topography**  
 of beryl crystals from pegmatites  
 (Sunagawa)1999/**26**:521–533
- of diamond—  
 CVD synthetic, with ‘tree ring’ growth pattern (Yan  
 Lan)2015/**34**:702–710  
 for ‘fingerprinting’ (Read)1979/**16**:386–407  
 type II (Sunagawa)2001/**27**:417–425
- of emerald, natural and synthetic  
 (Schubnel)1971/**12**:300–304
- of spinel, Verneuil synthetic (Rinaudo)1997/**25**:331–339
- XRF**, see Spectroscopy, energy-dispersive X-ray fluorescence [EDXRF]
- Y**
- YAG**, see Yttrium aluminium garnet
- Yehuda**, see Diamond, treated; Filling, fracture or cavity
- Yttrium aluminium garnet [YAG]**  
 colourless (Webster)1967/**10**:263–265  
 flux, inclusions and spectra (Webster)1970/**12**:101–148  
 green—  
 new demantoid-like (Mitchell)1967/**10**:145–148  
 simulating emerald (Kennedy)2002/**28**:76–77  
 inclusions in, see ‘Inclusions’  
 octahedron (Farn)1972/**13**:121–122  
 see also Garnet, synthetic
- Z**
- Zabargad [Zebirget or St John’s Island]**, see Egypt
- Zambia**  
 emerald from—  
 determination of geographical origin of  
 (Cronin)2012/**33**:1–13  
 electron paramagnetic resonance spectra of  
 (Viticoli)1984/**19**:160–163
- Miku (Bank)1974/**14**:8–15; page 14 (Err)1974/**14**:96  
 pleochroism in (Schmetzer)1981/**17**:443–446
- opal, dendritic, from south-eastern  
 (Milisenda)1994/**24**:277–280
- tourmaline from—  
 colours of (Thomas)1982/**18**:4–6  
 yellow ‘tsilaite’ (Schmetzer)1984/**19**:218–223
- Zektzerite**  
 new mineral from USA (Dunn)1978/**16**:90–93
- Zeolite**, see Analcime
- Zhonghui, Chen**  
 obituary 2007/**30**:479; (Mercer)2008/**31**:70
- Zimbabwe**  
 emerald from—  
 (Anderson)1976/**15**:80–82; (Metson)1977/**15**:422–434;  
 (Anderson)1978/**16**:177–185  
 Machingwe (Kanis)1991/**22**:264–272;  
 Sandawana (Gübelin)1958/**6**:340–354;  
 (Zwaan)1998/**26**:174–187
- euclase from, blue (Stockmayer)1998/**26**:209–218
- garnet from, rhodolite (Campbell)1972/**13**:53–64
- mining in Penhalonga and Noitgedacht  
 (Yeo)1971/**12**:334–341
- Zincite**  
 faceted red (Axon)1964/**9**:263–267  
 inclusions in, see ‘Inclusions’  
 synthetic—  
 accidental formation of (Kammerling)1995/**24**:563–568  
 developments (Webster)1970/**12**:101–148  
 red (Nowak)2007/**30**:257–267  
 see also Synthetics
- Zircon**  
 age determination of inclusions in sapphire  
 (Link)2015/**34**:692–700  
 cat’s-eye (Ito)1987/**20**:292–293; untreated and heat-treated,  
 from Sri Lanka (Gunawardene)1988/**21**:88–91  
 collection from W.C. Buckingham (Edinburgh  
 Gemmological Group)1993/**23**:387–392; donated to  
 GAGTL (Anon)1988/**21**:210  
 crystallography of (Mitchell)1950/**2**:237–274  
 description errors in older books  
 (Anderson)1962/**8**:222–223  
 as diamond simulant (Webster)1958/**7**:79–100  
 heat treatment—  
 before and after (Scarratt)1985/**19**:655–656  
 effects on inclusions in corundum  
 (Rankin)2003/**28**:257–264  
 inclusions in, see ‘Inclusions’  
 infrared spectrum of (Hainschwang)2008/**31**:23–29  
 irradiation of, effects on colour (Burbage)1957/**6**:74–77  
 letter from ‘Professor Church’ on discovery of spectrum  
 (Farn)1951/**3**:142–144  
 light- and heat-sensitive (Mitchell)1976/**15**:17–18  
 metamict (Anderson)1963/**9**:1–6; (Farn)1974/**14**:168–169  
 mining in South East Asia (Buckingham)1950/**2**:178–187  
 from Myanmar, orange (Mayerson)2015/**34**:397  
 from Nigeria (Kanis)1990/**22**:195–202  
 from Sri Lanka, parti-coloured (Mitchell)1952/**3**:202–203  
 star (Krzemnicki)2015/**34**:671–673  
 synthetic (Webster)1970/**12**:101–148  
 treatment of (Rupasinghe)1986/**20**:168–170; letter  
 on (Nassau)1987/**20**:328; in South East Asia  
 (Buckingham)1950/**2**:178–187  
 see also Synthetics
- Zoisite**  
 cat’s-eye/star from East Africa (Barot)1995/**24**:569–580  
 inclusions in, see ‘Inclusions’  
 from Tanzania (Schmetzer)1979/**16**:512–513  
 thulite, ornamental (Webster)1958/**6**:297–333



see also Clinozoisite; Tanzanite

## Zoning

- in alexandrite, flux-grown synthetic (Schmetzer)2012/**33**:49–81
- in amethyst—  
from Brazil (Kiefert)1991/**22**:471–482;  
(Kitawaki)2002/**28**:101–108  
from Uruguay (Kiefert)1991/**22**:471–482
- in diamond, type Ia with high hydrogen content (Fritsch)1993/**23**:451–460
- in emerald—  
natural vs. flux- and hydrothermally-grown synthetic (Kiefert)1991/**22**:427–438  
synthetic Igemerald flux (Schmetzer)1998/**26**:145–155
- in quartz—  
citrine from Brazil (Kiefert)1991/**22**:471–482  
synthetic, hydrothermal (Kiefert)1991/**22**:471–482
- in ruby—  
eye-visible (Farn)1978/**16**:235  
from Madagascar (Schwarz)2001/**27**:409–416  
from Malawi (Kiefert)1991/**22**:471–482  
from Myanmar (Peretti)1996/**25**:3–19
- in ruby, synthetic—  
Knischka (Kiefert)1991/**22**:471–482  
'reconstructed' found to be synthetic (Benson)1953/**4**:1–10
- in sapphire—  
from Australia (Rutland)1963/**9**:83;  
(Kiefert)1991/**22**:471–482  
from Cambodia (Kiefert)1991/**22**:471–482  
from Madagascar (Ramdohr)2006/**30**:144–154; page 147 (Err)2007/**30**:355; (Cartier)2009/**31**:171–179  
from Myanmar and Sri Lanka (Gübelin)1948/**1**(7):7–39  
from Thailand (Kiefert)1991/**22**:471–482  
typical (Webster)1966/**10**:84–95  
untreated vs. treated (Schmetzer)2005/**29**:407–449  
from USA, Montana (Schmetzer)2007/**30**:268–278
- in sapphire, synthetic—  
Chatham (Kiefert)1991/**22**:471–482  
Verneuil blue (Duroc-Danner)2002/**28**:227–230
- in spinel, synthetic (Webster)1970/**12**:101–148
- in surface-treated gems (Schmetzer)2008/**31**:7–13
- in tourmaline—  
elbaite colour (Dunn)1975/**14**:357–368; page 364 (Err)1976/**15**:52  
uvite crystals (Takahashi)1998/**26**:226–237
- see also Colour zoning; Crystallography; Growth structure/ zoning; specific gem materials

## Zwaan, Pieter C.

obituary 2003/**28**:376

## BOOK AND OTHER MEDIA REVIEWS

- [*Catalogue of an*] *Exhibition held at Somerset House, London, 2 November 2002 – 26 January 2003* by Rosenthal (O'Donoghue)2007/**30**:345
- 100 Famous Diamonds* by De Beers (O'Donoghue)1996/**25**:65
- 100 Jahre Schmuck Design (100 Years of Jewellery Design)* by Lochmüller (O'Donoghue)1976/**15**:35
- An A–Z of Gems and Jewellery* by Robins (O'Donoghue)1982/**18**:252
- An Account of the Mining District of Alston Moor, Weardale and Teesdale* by Sopwith (O'Donoghue)1988/**21**:263
- Achat – Das Tarbige Geheimnis (Agate – The Colourful Secret)* by Münchener Mineralientage (O'Donoghue)1988/**21**:264
- Achat + Jaspis* by Dröschel (O'Donoghue)2005/**29**:357
- Achat: der Edelstein, aus dem Idar-Oberstein* by Laarmann (O'Donoghue)2001/**27**:371
- Achate, Bilder im Stein (Agate, Pictures in Stone)* by Arnoth (O'Donoghue)1988/**21**:45
- Achate. Steinerne Wunder der Natur (Agate, Wonder Stone of Nature)* by Gaertner (O'Donoghue)1974/**14**:92
- Additions to the Uniform Polyhedra: Recent Unpublished Papers* by Taylor (O'Donoghue)1996/**25**:156
- Advances in Obsidian Glass Studies* ed. by Taylor (O'Donoghue)1980/**17**:199
- Ädelsteine i Farver* by Dragsted (O'Donoghue)1973/**13**:281
- Agate Collecting in Britain* by Rodgers (O'Donoghue)1976/**15**:94
- Agate, Microstructure and Possible Origin* by Moxon (O'Donoghue)1997/**25**:372
- Agates* by MacPherson (O'Donoghue)1990/**22**:115
- The Agates of Northern Mexico* by Cross (O'Donoghue)2001/**27**:370
- The Al<sub>2</sub>SiO<sub>3</sub> Polymorphs* by Kerrick (O'Donoghue)1991/**22**:448
- All Gemstones are Precious* by Frank (O'Donoghue)1977/**15**:336
- The Allison Collection of Rare Jewels and Gemstones* by Allison (O'Donoghue)1974/**14**:192
- The Amateur Faceter* by Rigbey (O'Donoghue)1974/**14**:38
- Amateur Gemstone Faceting, Vol. 1 and Vol. 2* by Herbst (Gavrilenko)2015/**34**:457
- The Amateur Lapidary* by Jerrard (O'Donoghue)1973/**13**:190
- Amazing Amber* by Ross (Pedersen)2013/**33**:173
- Amber* by Fraquet (O'Donoghue)1987/**20**:500
- The Amber Book* by Dahlström (O'Donoghue)1999/**26**:335
- The Amber Forest: A Reconstruction of a Vanished World* by Poinar (O'Donoghue)2002/**28**:117
- Amber: The Golden Gem of the Ages* by Rice (O'Donoghue)1996/**25**:68
- The Amber Room. [A Novel]* by Matthew (O'Donoghue)1996/**25**:242
- Amber, Window to the Past* by Grimaldi (O'Donoghue)1996/**25**:240
- American Mineral Treasures* by Staehler (O'Donoghue)2009/**31**:310
- Amethyst — Uncommon Vintage* by Gilg (Skalwold)2012/**33**:91
- Amethyst: Geschichte, Eigenschaften, Fundorte* by Lieber (O'Donoghue)1995/**24**:445
- Ammolite 2. A Guide for Gemmologists, Jewellers and Lapidaries* by Barnson (O'Donoghue)2001/**27**:500
- Ammolite* by Barnson (O'Donoghue)1997/**25**:436
- Analytical Emission Spectroscopy* by Mika (O'Donoghue)1979/**16**:488
- Ancient Chinese Jades (Part 1)* by Zacke (O'Donoghue)2000/**27**:114
- Ancient Egyptian Jewellery* by Wilkinson (O'Donoghue)1975/**14**:351
- And There's Opal Out There* by Waller (O'Donoghue)1973/**13**:239
- Anne Clifford's Jewellery: Antique* by Clifford (O'Donoghue)1986/**20**:57
- Antero Aquamarines: Minerals from the Mount Antero-White Mountain Region, Chaffee County, Colorado* by Jacobson (O'Donoghue)1994/**24**:212
- Antike Gefässe aus Edelsteinen (Antique Fashioning of Gemstones)* by Bühler (O'Donoghue)1975/**14**:395
- Antike Jaden (Archaic Jades)* by Luzzatto-Bilitz (O'Donoghue)1975/**14**:397
- Antiker Schmuck vom Klassizismus bis zur Moderne* by Strack (O'Donoghue)1999/**26**:339
- Antique and Twentieth Century Jewellery* by Becker (O'Donoghue)1981/**17**:341
- Antique Jade* by Luzzatto-Bilitz (O'Donoghue)1988/**21**:115
- Antique Paste Jewellery* by Lewis (SP)1970/**12**:55
- Anlitz Edler Steine (The Faith of Precious Stones)* by Metz (O'Donoghue)1986/**20**:131

- Antwerp Gemmological Update* by HRD (O'Donoghue)1996/**25**:156
- Apatite* by McConnell (O'Donoghue)1973/**13**:282
- Aquamarin & Co.* by Weiss (O'Donoghue)2003/**28**:369
- Archaic Greek Gems* by Boardman (SP)1968/**11**:129
- The Armytage Collection of Maori Jade* by Athol (Anon)1950/**2**:234–235
- The Art and Science of Growing Crystals* by Gilman (O'Donoghue)1975/**14**:237
- Art Nouveau Jewelry* by Becker (O'Donoghue)1986/**20**:57
- The Art of Diamond Cutting* by Watermeyer (O'Donoghue)1995/**24**:449
- The Art of Jewellery* by Hughes (O'Donoghue)1973/**13**:234
- The Art of the Lapidary* by Sperisen (Anderson)1950/**2**:313–316
- Artificial Gemstones* by O'Donoghue (Read)2006/**30**:115
- Artists' Jewellery* by Gere (O'Donoghue)1989/**21**:456
- Artists' Jewellery in Contemporary Europe: A Female Perspective* ed. by Plantzos (O'Donoghue)2001/**27**:371
- The Arts of the Sikh Kingdoms* by Strong (O'Donoghue)1999/**26**:547
- As Pedras Preciosas* by Franco (SP)1966/**10**:108
- Atlas of Crystal Stereograms* by Pearl (O'Donoghue)1978/**16**:215
- Atlas of Igneous Rocks and Their Textures* by MacKenzie (O'Donoghue)1983/**18**:663
- The Audubon Society Field Guide to North American Rocks and Minerals* by Chesterman (O'Donoghue)1981/**17**:425
- Aus der Welt der Edelsteine* by Bank (O'Donoghue)1972/**13**:77
- Ausgesuchte Mineralien* by Harrach (Anon)1967/**10**:270
- Australasian Mining and Metallurgy: The Sir Maurice Mawby Memorial Volume (Second Edition: in Two Volumes)* ed. by Woodcock (Howie)1995/**24**:449
- The Australian Amateur Lapidary* by Buchester (O'Donoghue)1973/**13**:330
- Australian and New Zealand Gemstones* ed. by Myatt (O'Donoghue)1973/**13**:233
- Australian Gems & Crafts Magazine. No. 1. Sept./Nov. 1973* by various (O'Donoghue)1974/**14**:38
- Australian Gemstones* by Bawden (O'Donoghue)1975/**14**:395
- Australian Gemstones in Colour* by Perry (SP)1968/**11**:96
- Australian Opal Safari* by Colahan (O'Donoghue)1975/**14**:396
- Australian Opals in Colour* by Perry (SP)1971/**12**:183
- Australian Precious Opal (Revised edn.)* by Stone (O'Donoghue)1978/**16**:141
- Australian Precious Opal* by Kalokerinos (O'Donoghue)1973/**13**:190
- Australian Precious Opal: A Guide Book for Professionals* by Cody (O'Donoghue)1992/**23**:179
- Australian Rocks, Minerals and Gemstones* by Chalmers (SP)1968/**11**:96
- Barnsten. Guldet fran Ostersjon. Bursztyn. Zloto Baltyku* by Mierzwinska (O'Donoghue)1995/**24**:609
- Baroque Jewellery* by Czarnowski (O'Donoghue)1980/**17**:270
- The Bead Jewellery Book* by Tomalin (O'Donoghue)1998/**26**:134
- Beads* by Tomalin (O'Donoghue)1989/**21**:315
- Beautiful Australian Opals* by Cram (O'Donoghue)1994/**24**:212
- Beautiful Coober Pedy, Home of the Desert Opal* by Cram (O'Donoghue)2002/**28**:116
- Beautiful Opals: Australia's National Gem. Special 2000 Commemorative Edition* by Cram (O'Donoghue)2000/**27**:115
- Beautiful Queensland Gems* by Bracewell (O'Donoghue)1997/**25**:436
- Beautiful Queensland Opal* by Cram (O'Donoghue)1992/**23**:179
- Beginner's Guide to Gemmology* by Read (O'Donoghue)1980/**17**:272
- Begriffe und Bezeichnungen für Edelsteine, Schmucksteine, Perlen, Korallen sowie Synthesen, Dubletten, Imitationen und Phantasieerzeugnisse. RAL 560 A5 (Definitions and Nomenclature of Gemstones, Ornamental Stones, Pearls, Corals, as well as Synthetics, Doublets, Imitations and Fancy Products)* by anonymous (FJ)1965/**9**:305
- Beiträge zur Regionale Geologie der Erde (Contributions on the Regional Geology of the Earth)* by Bender (O'Donoghue)1983/**18**:773
- Benitoite, California State Gemstone* by Louderback (O'Donoghue)1987/**20**:501
- Bergkristall (Rock-crystal) 2nd edn.* by Rykart (O'Donoghue)1978/**16**:139
- Bernstein und Bernstein-Fossilien (Amber and Amber Fossils)* by Schlee (O'Donoghue)1979/**16**:420
- Bernstein-Fenster in de Urzeit* by Kobbert (O'Donoghue)2005/**29**:488
- Bernstein-Raritäten (Amber Rarities)* by Schlee (O'Donoghue)1983/**18**:664
- Bernstein, Tränen der Gotter* by von Herausgegeben (O'Donoghue)1997/**25**:501
- Beryl* by Sinkankas (O'Donoghue)1986/**20**:194
- Beryllium-Treated Rubies and Sapphires* by Themelis (O'Donoghue)2003/**28**:438
- Bestimmungstabellen für Edelsteine, synthetische Steine, Imitationen (Identification Tables for Gemstones, Synthetic Stones and Imitations)* by Günther (O'Donoghue)1982/**18**:83
- Beyond the Glitter* by Wykoff (O'Donoghue)1991/**22**:383
- Bijdrage Tot de Kennis van het Medische, Para-Medische en Occulte Gebru van Edelstenen en Mineralen (A Compendium of Knowledge on the Medical, Alchemical and Magical Use of Gemstones and Minerals)* by Visser (O'Donoghue)1976/**15**:35
- Bijoux et Pierres Précieuses* by Fromanger (O'Donoghue)1973/**13**:189
- Birthday Book of Gems* by Van Pelt (O'Donoghue)1988/**21**:45
- Biryuza (Turquoise)* by Menchinskaya (O'Donoghue)1983/**18**:444
- Black Opal Fossils from Lightning Ridge: Treasures from the Rainbow Billabong* by Smith (O'Donoghue)2000/**27**:117
- Black Opal. A Comprehensive Guide to Cutting and Orientating* by Parady (Morgan)2002/**28**:181
- Black Pearls of Tabiti* by Lintilhac (O'Donoghue)1990/**22**:245
- The Blandford Rock and Mineral Guide* by Tindall (O'Donoghue)1975/**14**:398
- Blood Diamonds* by Campbell (O'Donoghue)2003/**28**:307
- Blood Stones [A Tale]* by Anthony (O'Donoghue)1996/**25**:154
- Blue Mystery: The Story of the Hope Diamond* by Patch (O'Donoghue)1976/**15**:218
- Bone, Antler, Ivory and Horn* by McGregor (O'Donoghue)1985/**19**:734
- The Book of Agates* by Quick (Howie)1964/**9**:181
- The Book of Diamonds* by Dickinson (SP)1966/**10**:63
- The Book of Opals* by Eyles (SP)1965/**9**:363
- Boron: Mineralogy, Petrology and Geochemistry* by Grew (O'Donoghue)2000/**27**:178
- Boucheron* by anonymous (O'Donoghue)1997/**25**:374
- Boucheron* by Néret (O'Donoghue)1989/**21**:457
- Brazil* by CPRM (O'Donoghue)1997/**25**:501
- Brazil, Paradise of Gemstones* by Sauer (O'Donoghue)1983/**18**:774
- Bresil, Terre de Pierres. Mines, Cristaux et Garimpeiros* by Dufour (O'Donoghue)1995/**24**:444
- Brillanten und Perlen (Brilliant and Pearls)* by Maier (WS)1950/**2**:235–236
- A Brilliant History: Jewels at Sothebys* by Sotheby's (O'Donoghue)1998/**26**:133
- The Brilliant Story of Antwerp Diamonds* by Kockelbergh (O'Donoghue)1993/**23**:374
- Bulgari* by Mascetti (O'Donoghue)1997/**25**:371
- Bunte Welt der Schönen Steine (The Colourful World of Beautiful Stones) 3rd edn.* by Lieber (O'Donoghue)1974/**14**:195

- Burma Ruby: A History of Mogok's Rubies from Antiquity to the Present* by Samuels (O'Donoghue)2004/**29**:115–116
- Burning Bright: The Autobiography of Edward Wharton-Tigar* by Wharton-Tigar (O'Donoghue)1988/**21**:264
- Calcit: das Sonnenreichste Mineral der Erde* by Weise (O'Donoghue)1999/**26**:335
- Calcite: The Mineral with the Most Forms* by Balzer (O'Donoghue)2004/**29**:115
- Caleidoscop Minéralogie (Mineral Kaleidoscope)* by Apostolescu (O'Donoghue)1988/**21**:115
- California Gem Trails. 3rd edn.* by Henry (O'Donoghue)1973/**13**:281
- The California Gold Rush* by Axon (O'Donoghue)1977/**15**:400
- Cameos in Context* ed. by Henig (O'Donoghue)1994/**24**:53
- Cameos Old and New* by Miller (O'Donoghue)1996/**25**:156
- Cameos Old and New. 2nd edn.* by Miller (O'Donoghue)2000/**27**:55
- Caratteristiche Interne D'élite Gemme* by Andergassen (O'Donoghue)1997/**25**:370
- Carder, the Legend* by Gautier (O'Donoghue)1986/**20**:253
- Cartier 1900–1939* by Rudoe (O'Donoghue)1998/**26**:48
- Cartier, Jewelers Extraordinary* by Nadelhoffer (O'Donoghue)1985/**19**:734
- Cartier, Splendeurs de la Joaillerie* by anonymous (O'Donoghue)1997/**25**:374
- Catalogue of the Beck Collection of Beads in the Cambridge University Museum of Archaeology and Anthropology. 1 Europe* by Bead Study Trust (O'Donoghue)2000/**27**:114
- Catalogue of the Exhibition of Ch'ing Dynasty Costume Accessories* by National Palace Museum (O'Donoghue)1997/**25**:374
- Catalogue of Mineralientage München 1998* by Rot (O'Donoghue)1999/**26**:468
- A Catalogue of Utah Minerals and Localities with Descriptive Notes for Collectors* by Bixby (O'Donoghue)1980/**17**:132
- Cathodoluminescence of Geological Materials* by Marshall (O'Donoghue)1993/**23**:375
- A Century-Plus of Opal Publications* by de Boer (O'Donoghue)1995/**24**:602
- Chanel Joaillerie* by Baudot (O'Donoghue)1999/**26**:546
- Characterization of Diamonds Color-Enhanced by Suncrest Diamonds USA* by Simic (Collins)2012/**33**:92–93
- Chasseur de Pierres* by Entremont (O'Donoghue)1994/**24**:120
- Chaumet, Master Jewellers Since 1780* by Scarisbrick (O'Donoghue)1996/**25**:243
- Chaumet, Paris: Two Centuries of Fine Jewellery* by Hurel (O'Donoghue)1999/**26**:465
- Cbelsea and Synthetic Emerald Filters Made Easy* by Matlins (Fellows)2014/**34**:268–269
- Chemical Bonding and Spectroscopy in Mineral Chemistry* by Berry (O'Donoghue)1986/**20**:130
- China* by Ottens (O'Donoghue)2005/**29**:358
- China: Mineralien, Fundstellen, Lagerstätten* by Ottens (O'Donoghue)2009/**31**:310
- Chinese Carved Jades* by Hansford (BJ)1968/**11**:95
- Chinese Ivories from the Shang to the Qing* by Watson (O'Donoghue)1984/**19**:380
- Chinese Jade* by Hartman-Goldsmith (O'Donoghue)1988/**21**:115
- Chinese Jade* by Spink (O'Donoghue)1992/**23**:181
- Chinese Jade Carving* by Hansford (Ruff)1950/**2**:311–313
- Chinese Jade from the Neolithic to the Qing* by Rawson (O'Donoghue)1995/**24**:607
- Chinese Jade Throughout the Ages* by Nott (O'Donoghue)1973/**13**:331
- Chinese Jades* ed. by Scott (O'Donoghue)1997/**25**:566
- Chinese Jades in the Royal Ontario Museum* by Dohrenwend (O'Donoghue)1972/**13**:111
- Chinese Jewellery, Accessories and Glass* by Spink (O'Donoghue)1992/**23**:181
- Chinese Snuff Bottles in the Collection of Mary and George Bloch* by Kleiner (O'Donoghue)1995/**24**:605
- Christie's Guide to Jewellery* by Hue-Williams (O'Donoghue)2002/**28**:51
- Christie's Jewellery Review 1995 [Christie's Review of the Season 1995]* by Woods (O'Donoghue)1996/**25**:156
- Classic Mineral Localities of the World: Asia and Australia* by Scalisi (O'Donoghue)1983/**18**:575
- Classical Gems. Ancient and Modern Intaglios and Cameos in the Fitzwilliam Museum, Cambridge* by Henig (O'Donoghue)1995/**24**:605
- Classicism to Neo-Classicism: Essays Dedicated to Gertrud Seidmann* by Henig (O'Donoghue)2000/**27**:116
- Cleaning and Preserving Minerals. 2nd edn.* by Pearl (Webster)1973/**13**:332
- Collectable Beads: A Universal Aesthetic* by Liu (O'Donoghue)1996/**25**:242
- Collecting and Classifying Coloured Diamonds: An Illustrated History of the Aurora Collection* by Hofer (O'Donoghue)1998/**26**:273
- Collecting Australian Gemstones. 4th edn.* by James (O'Donoghue)1972/**13**:76
- Collecting Gems and Ornamental Stones* by Blakemore (SP)1967/**10**:207
- Collecting Victorian Jewellery* by Peter (O'Donoghue)1975/**14**:397
- The Collector's Book of Fluorescent Minerals* by Robbins (O'Donoghue)1985/**19**:547
- The Collector's Encyclopaedia of Rocks and Minerals* ed. by Deeson (O'Donoghue)1974/**14**:91
- A Collector's Guide to Minerals and Gemstones* by Boegel (SP)1972/**13**:28
- A Collector's Guide to Minerals, Rocks and Gemstones in Cornwall and Devon* by Rogers (O'Donoghue)1973/**13**:193
- A Collector's Guide to Rock, Mineral and Fossil Localities of Utah* by Wilson (O'Donoghue)1997/**25**:373
- The Collector/Investor Handbook of Gems* by Ramsey (O'Donoghue)1988/**21**:263
- Color for Science, Art and Technology* by Nassau (O'Donoghue)1999/**26**:338
- Color Under Ground. The Mineral Picture Book* by Boltin (O'Donoghue)1973/**13**:280
- Colorado Gem Trials* by Pearl (Anon)1951/**3**:147
- Colorado Gold* by Voynick (O'Donoghue)1994/**24**:123
- Colored Gem Digest* by various (O'Donoghue)1982/**18**:171
- Colored Gemstones. The Antoinette Matlins Buying Guide* by Matlins (O'Donoghue)2003/**28**:438
- Colorful Mineral Identifier* by Tennissen (O'Donoghue)1975/**14**:300
- Colour and the Optical Properties of Materials* by Tilley (O'Donoghue)2001/**27**:501
- Colour Encyclopedia of Gemstones* by Arem (O'Donoghue)1978/**16**:212
- Colour Encyclopedia of Gemstones. 2nd edn.* by Arem (O'Donoghue)1987/**20**:499
- A Colour Guide to Familiar Minerals and Rocks* by Kourimsky (O'Donoghue)1977/**15**:400
- The Colour Treasury of Gemstones* by Gübelin (O'Donoghue)1976/**15**:93
- The Colours of Opaque Minerals* by Peckett (O'Donoghue)1993/**23**:305; 1994/**24**:53
- Comparative Study of Gem Minerals, Beryl and Corundum, from Various Indian Occurrences* by Panjkar (O'Donoghue)2006/**30**:115
- Compilation of Crystal Growers and Crystal Growth Projects* by Connolly (O'Donoghue)1975/**14**:300



- The Complete Book of Micromounting* by Wight (O'Donoghue)1994/**24**:54
- The Complete Handbook for Gemstone Weight Estimation* by Carmona (O'Donoghue)1999/**26**:463
- The Complete? Polygon* by Taylor (O'Donoghue)1997/**25**:503
- Contemporary American Jewelry Design* by Blauer (O'Donoghue)1992/**23**:178
- The Content Cameos* by Henig (Israel)1994/**24**:53
- Continental Gold and Silver* by Taylor (Anon)1967/**10**:270
- Convection and Inhomogeneities in Crystal Growth from the Melt* by Müller (O'Donoghue)1988/**21**:263
- Cornish Mineral Reference Manual* by Golley (O'Donoghue)1996/**25**:154
- The Coronation Ceremony of the Kings and Queens of England and the Crown Jewels* by Rose (O'Donoghue)1994/**24**:213
- Corundum* by Hughes (O'Donoghue)1991/**22**:310
- Costume Jewellery* by Cera (O'Donoghue)1997/**25**:501
- Costume Jewellery: The Fun of Collecting* by Schiffer (O'Donoghue)1992/**23**:180
- Courtly Jewellery* by Cocks (O'Donoghue)1981/**17**:497
- Creative Casting* by Choate (Anon)1967/**10**:270
- Cristal de Roche* by Raullet (O'Donoghue)2002/**28**:117
- Cristalele Romaniei (Crystals of Romania)* by Miclea (O'Donoghue)1979/**16**:419
- Cristaux Géants (Giant Crystals)* by Muséum National d'Histoire Naturelle (O'Donoghue)1984/**19**:72
- Cristeaux Precieux* by Schubnel (O'Donoghue)1991/**22**:382
- The Crown Jewels* by Mears (O'Donoghue)1995/**24**:446
- The Crown Jewels, Tower of London* by Mears (O'Donoghue)1987/**20**:501
- The Crown Jewels: The History of the Coronation Regalia in the Jewel House of the Tower of London* by Blair (Howie)1999/**26**:402
- Crystal Chemistry and Refractivity* by Jaffe (O'Donoghue)1989/**21**:457
- Crystal Form and Structure* by Schneer (O'Donoghue)1978/**16**:140
- Crystal Growth – A Guide to the Literature* by O'Donoghue (Jobbins)1989/**21**:457
- Crystal Growth 1974. Proceedings of the Fourth International Conference on Crystal Growth, Tokyo, Japan, 24–29 March 1974* ed. by Jackson (O'Donoghue)1975/**14**:398
- Crystal Growth and Characterization. Proceedings of the ISSCG2 Spring School, Japan, 1974* by Ueda (O'Donoghue)1977/**15**:268
- Crystal Growth and Development Interpreted from a Mineral's Present Form* by Kantor (O'Donoghue)2004/**29**:183
- Crystal Growth* by Pamplin (O'Donoghue)1975/**14**:349
- Crystal Growth* by Vere (O'Donoghue)1988/**21**:264
- Crystal Growth from High-Temperature Solutions* by Elwell (O'Donoghue)1976/**15**:218
- Crystal Growth of Electronic Materials* ed. by Kaldis (O'Donoghue)1986/**20**:253
- Crystal Growth Processes* by Brice (O'Donoghue)1986/**20**:193
- Crystal Growth Theory and Techniques. Vol. 1* by Goodman (O'Donoghue)1975/**14**:348
- Crystal Growth: A Tutorial Approach* ed. by Bardsley (O'Donoghue)1980/**17**:196
- Crystal Growth: Theory and Techniques. Vol. 2* ed. by Goodman (O'Donoghue)1979/**16**:417
- Crystal Growth. 2nd edn.* by Pamplin (O'Donoghue)1981/**17**:498
- Crystal Identification with the Polarizing Microscope* by Stoiber (O'Donoghue)1995/**24**:448
- Crystal Mountains* by Starkey (Hodgkinson)2014/**34**:372
- Crystal Pulling from the Melt* by Hurler (O'Donoghue)1994/**24**:121
- Crystal Structure of Minerals* by Bragg (SP)1966/**10**:30
- Crystal Structures: A Working Approach* by Megaw (O'Donoghue)1975/**14**:238
- Crystal Technology* by Bond (O'Donoghue)1976/**15**:217
- Crystallization Processes under Hydrothermal Conditions* ed. by Lobachev (O'Donoghue)1975/**14**:237
- Crystallization. 3rd edn.* by Mullin (O'Donoghue)1999/**26**:338
- Crystals* by Mercer (O'Donoghue)1990/**22**:183
- Crystals and X-rays* by Lonsdale (Anderson)1949/**2**:57–58
- Crystals for Magnetic Applications* ed. by Rooijmans (O'Donoghue)1979/**16**:419
- Crystals, Growth, Morphology and Perfection* by Sunagawa (O'Donoghue)2005/**29**:358–359
- Crystals, Growth, Properties and Applications. Vol. 11* series ed. by Freyhardt (O'Donoghue)1988/**21**:264
- Crystals, the Science, Mysteries* by Bullis (O'Donoghue)1992/**23**:178
- Crystals; Symmetry in the Mineral Kingdom* by De Michelle (O'Donoghue)1972/**13**:150
- Cultured Pearls: The First Hundred Years* by Müller (Campbell-Pedersen)1999/**26**:338
- The Curious Lore of Precious Stones* by Kunz (O'Donoghue)1974/**14**:93
- Current Topics in Materials Science. Vol. 1* ed. by Kaldis (O'Donoghue)1979/**16**:419
- Current Topics in Materials Science. Vol. 4* ed. by Kaldis (O'Donoghue)1980/**17**:271
- Current Topics in Materials Science. Vol. 11* ed. by Kaldis (O'Donoghue)1986/**20**:130
- Current Topics in Materials Science. Vol. 12* ed. by Kaldis (O'Donoghue)1986/**20**:130
- The Cutting and Polishing of Electro-Optic Materials* by Fynn (O'Donoghue)1980/**17**:47
- Dallas Mineral Collecting Symposium 2013* DVD by BlueCap Productions (Mychaluk)2014/**34**:178–179
- Dana's Minerals and How to Study Them (After Edward Salisbury Dana) 4th edn.* by Hurlbut (O'Donoghue)1999/**26**:337
- Dana's New Mineralogy: The System of Mineralogy of J.D. Dana and E.S. Dana [8th edition, entirely rewritten and greatly enlarged]* by Gaines (O'Donoghue)1999/**26**:337
- Das Diamanten-Imperium. Aufstieg und Macht der Dynastie Oppenheimer* by Kanfer (O'Donoghue)1995/**24**:445
- Das Ei. Kostbare Ostereier aus Edelstein* by Frazier (O'Donoghue)1999/**26**:464
- Das Heine Buch der Edelsteine (Little Book on Precious Stones)* by Lang (Strack)1953/**4**:78
- Das kleine Buch der Edelsteine* by Lang (Strack)1953/**4**:78
- Das Reich der Mineralien und Gesteine (The Kingdom of Minerals and Stones)* by Krüger (O'Donoghue)1975/**14**:237
- De Aedle Stene og Deres Mystik* by Dragsted (O'Donoghue)1973/**13**:188
- De Juwelen van het Huis Oranje-Nassau* by Brus (O'Donoghue)1997/**25**:566
- De wondere Wereld van de Edelsteen* by Litjens (O'Donoghue)2000/**27**:179
- The Dealer's Book of Gems and Diamonds* by Sevdermish (O'Donoghue)1997/**25**:373
- The Death of the Diamond* by Epstein (O'Donoghue)1984/**19**:70
- Deep-Seated Inclusions in Kimberlites and the Problem of the Composition of the Upper Mantle* by Sobolev (O'Donoghue)1987/**20**:502
- Departmental Report on the Mining and Production of Diamonds at CDM 1945 to 1983* by Miller (O'Donoghue)1986/**20**:253
- Der Gesteinssammler (The Mineral Collector) 2nd edn.* by Pape (O'Donoghue)1976/**15**:35
- Der Kosmos Edelsteinführer (Kosmos Guide to Gemstones)* by Bauer (O'Donoghue)1982/**18**:353
- Der Kosmos Mineralienführer (Kosmos Guide to Minerals)* by Bauer (O'Donoghue)1974/**14**:193



- Der Micromounter (The Micromounter)* by Kipfer (O'Donoghue)1976/**15**:34
- Der Mineraliensammler (Mineralogy Textbook)* by Lieber (O'Donoghue)1974/**14**:93
- Der Mineraliensammler. 7 Auflage (The Mineral Collector. 7th edn.)* by Lieber (O'Donoghue)1979/**16**:419
- Der Turmalin: Eine Monographie. 2 Durchgesebene und Verbesserte Auflage* by Benesch (O'Donoghue)1992/**23**:177
- Derbyshire Black Marble* by Tomlinson (Howie)1997/**25**:438
- Derbyshire Blue John* by Ford (O'Donoghue)2000/**27**:115
- Des Pierres Précieuses aux Pierres Fines (From Precious Stones to Gemstones)* by Da Cunha (O'Donoghue)1984/**19**:278
- The Design and Creation of Jewelry* by Neumann (SP)1962/**8**:261
- The Desmond Sacco Collection: Focus on Southern Africa* by Cairncross (O'Donoghue)2000/**27**:177
- Descriptions of Gem Materials* by Vargas (O'Donoghue)1973/**13**:284
- Descriptions of Gem Materials. 3rd edn.* by Vargas (O'Donoghue)1987/**20**:502
- Designer Jewellery* by Mazloum (O'Donoghue)1994/**24**:213
- A Destiny in Diamonds* by Joris (O'Donoghue)1987/**20**:500
- Deutsche Steinschneidekunst aus dem Grünen Gewolbe zu Dresden (Sonderausstellung im Deutschen Edelsteinmuseum Idar-Oberstein 1 Oktober bis 6 Dezember 1998)* by Kappel (O'Donoghue)2001/**27**:372
- Diamant, die Harteste Wahrung der Welt (Diamond, the Hardest Currency in the World)* by Forthuber (O'Donoghue)1986/**20**:130
- Diamant, Wonderlijk Kristal (Diamond, Crystal Extraordinary)* by Asscher (O'Donoghue)1975/**14**:395
- Diamant: Gradierung, Gewinnung, Kauf (Diamond: Grading, Recovery, Cost)* by Pschichholz (O'Donoghue)1986/**20**:58
- Diamantbearbeitung (Diamond Fashioning)* by Vrindts (O'Donoghue)1976/**15**:35
- Diamanten (Diamonds) 3rd edn.* by Lange-Mechlen (O'Donoghue)1988/**21**:45
- Diamanten [Diamant. Der Extreme Edelstein, Das Gentile Werkzeug]* by Malzahn (O'Donoghue)2001/**27**:371
- Diamanten und Diamantwerkzeuge zum Abrichten von Schleif Kör Pern (Diamonds and Diamond Working with the Cutting of Rough)* by Götz (O'Donoghue)1976/**15**:34
- Diamanten-Fibel. Diamond Handbook 1968* by Theisen (WS)1969/**11**:271
- Diamantes (Diamonds)* by Bosch Figueroa (O'Donoghue)1979/**16**:487
- Diamond* by Davies (Read)1984/**19**:375
- The Diamond* by Blakey (O'Donoghue)1978/**16**:138
- Diamond Clarity Grading* by Sechos (O'Donoghue)2001/**27**:374
- The Diamond Compendium* by Cunningham (Hing)2011/**32**:233–235
- Diamond Cuts in Historic Jewellery 1381–1910* by Tillander (O'Donoghue)1995/**24**:608
- Diamond Cutting* by Watermeyer (O'Donoghue)1981/**17**:343
- The Diamond Dictionary. 2nd edn.* by Gall (Bruton)1978/**16**:213
- Diamond Digest* by various (O'Donoghue)1980/**17**:137
- Diamond Fever. South African Diamond History 1866–9 from Primary Sources* by Robertson (O'Donoghue)1975/**14**:299
- The Diamond Fields of Southern Africa* by Wagner (O'Donoghue)1975/**14**:398
- The Diamond Formula* by Barnard (O'Donoghue)2000/**27**:176
- Diamond Grading ABC – The Manual* by Pagel-Theisen (O'Donoghue)2002/**28**:52
- Diamond Grading ABC. 11th edn.* by Pagel-Theisen (O'Donoghue)1994/**24**:213
- Diamond Grading ABC. 7th edn.* by Pagel-Thiesen (O'Donoghue)1981/**17**:640
- Diamond Handbook; How to Look at Diamonds and Avoid Rip-Offs* by Newman (O'Donoghue)2005/**29**:358
- The Diamond Magnates* by Roberts (O'Donoghue)1973/**13**:193
- The Diamond Makers* by Hazen (Howie)2000/**27**:54
- Diamond Mine [A Novel]* by Read (O'Donoghue)1992/**23**:180
- Diamond Ring Buying Guide* by Newman (O'Donoghue)2002/**28**:52
- The Diamond Ring Buying Guide* by Newman (O'Donoghue)1994/**24**:122
- The Diamond Ring Buying Guide. 2nd edn.* by Newman (O'Donoghue)1992/**23**:180
- Diamond Ring Buying Guide. 5th edn.* by Newman (O'Donoghue)1996/**25**:243
- The Diamond Ring: Business, Politics and Precious Stones in South Africa* by Newbury (O'Donoghue)1991/**22**:381
- Diamond Technology* by Grodzinski (SP)1953/**4**:132
- The Diamond World* by Koskoff (O'Donoghue)1986/**20**:131
- Diamond, King of Gems* by Ghaswala (O'Donoghue)1989/**21**:313
- Diamond: The Story of a Cold-Blooded Love Affair* by Hart (O'Donoghue)2002/**28**:180
- Diamonds* by Bruton (Anderson)1971/**12**:234
- Diamonds. 2nd edn.* by Bruton (Anderson)1979/**16**:416
- Diamonds* by Chase (O'Donoghue)1972/**13**:151
- Diamonds* by Dundek (O'Donoghue)1999/**26**:546
- Diamonds* by Ward (O'Donoghue)1994/**24**:124
- Diamonds. Revised edn.* by Ward (O'Donoghue)2004/**29**:53
- Diamonds 1988* by Economist Intelligence Unit (O'Donoghue)1988/**21**:198
- Diamonds. The Antoinette Matlins Buying Guide* by Matlins (O'Donoghue)2003/**28**:438
- Diamonds from Birth to Eternity* by Wilson (O'Donoghue)1983/**18**:445
- Diamonds and Coral* by Yogev (Chisholm)1979/**16**:491
- Diamonds in the Desert* by Levinson (O'Donoghue)1984/**19**:377
- Diamonds Eternal* by Argenzio (O'Donoghue)1975/**14**:298
- Diamonds...Famous, Notable and Unique* by Copeland (SP)1966/**10**:137
- Diamonds from India* by Chhitolal (O'Donoghue)1985/**19**:641
- Diamonds, Love and Compatibility (So You Think You've Got a Gem!)* by Spero (O'Donoghue)1979/**16**:420
- Diamonds, Myth, Magic and Reality* by Legrand (O'Donoghue)1980/**17**:271
- Diamonds—Their Genesis and Properties* by Sunagawa (MSJ)1970/**12**:55
- Diamonds. The World's Most Dazzling Exhibition, 8 July 2005—26 February 2006* by Jackman (O'Donoghue)2005/**29**:488
- Dichroscopes Made Easy* by Matlins (Fellows)2014/**34**:268–269
- Dictionary of Gemmology* by Read (O'Donoghue)1983/**18**:445
- Dictionary of Gemmology. 2nd edn.* by Read (O'Donoghue)1995/**24**:446
- Dictionary of Gems and Gemology* by Manutchehr-Danai (O'Donoghue)2001/**27**:373
- Dictionary of Gems and Gemology, 2nd edn.* by Manutchehr-Danai (O'Donoghue)2005/**29**:489
- Dictionary of Gems and Gemology. 4th edn.* by Shipley (Anon)1949/**2**:58
- Dictionary of Gemstones & Jewelry, 1st English Edition* by Chikayama (Skalwold)2013/**33**:172–173
- Dictionary of Rocks* by Mitchell (O'Donoghue)1986/**20**:254
- Dictionnaire Universel des Drogues Simples (Universal Dictionary of Simple Drugs) 3rd edn.* by Lémery (O'Donoghue)1987/**20**:313
- Die Alpenen Klufmineralien der Osterreichischen Ostalpen (The Alpine Cleft-Minerals of the Eastern Alps of Austria)* by Weninger (O'Donoghue)1978/**16**:57
- Die Edelsteine der Insel Ceylon* by Gübelin (SP)1969/**11**:220

- Die Edelsteinindustrie in Idar-Oberstein und ihre Geschichte (The Precious Stone Industry in Idar-Oberstein and its History)* by Wild (WS)1963/**9**:144
- Die Edlen Steine Sachsens* by Quellmalz (O'Donoghue)1992/**23**:48
- Die Entstehung der Agate* by Schlossmacher (Strack)1950/**2**:231
- Die Entdeckung des Isomorphismus (The Discovery of Isomorphism)* by Schütt (O'Donoghue)1986/**20**:255
- Die Indischen Mineralien, ihre Namen und die ihnen zugeschriebenen Kräfte (Indian Minerals; Their Names and the Art of Writing on Them)* by Garbe (O'Donoghue)1975/**14**:396
- Die Minerale Salzburgs* by Strasser (O'Donoghue)1990/**22**:115
- Die Mineralfunde der Schweiz (Finding Minerals in Switzerland)* by Parker (O'Donoghue)1974/**14**:195
- Die Mineralien der Alpen (Minerals of the Alps)* by Gramaccioli (O'Donoghue)1979/**16**:418
- Die Mineralien der Eifelvulkane (The Minerals of the Eifel Volcanic Region)* by Hentschel (O'Donoghue)1984/**19**:278
- Die Mineralien der Gotthardbabntunnels und des Gotthardstrassentunnels N2 (The Minerals of the Gotthard Railway Tunnel and of the Gotthard Road Tunnel No. 2)* by Stalder (O'Donoghue)1981/**17**:499
- Die Mineralien der Schweiz (The Minerals of Switzerland)* by Weibel (O'Donoghue)1974/**14**:196
- Die Mineralien der Schweiz. Fünfte Auflage. (Minerals of Switzerland. 5th edn.)* by Weibel (O'Donoghue)1991/**22**:383
- Die Mineralien des Binntales (Minerals of the Binntal)* by Stalder (O'Donoghue)1979/**16**:420
- Die Mineralien des Herzogthumes Salzburg (The Minerals of the Duchy of Salzburg)* by Fugger (O'Donoghue)1980/**17**:270
- Die Mineralien und Fundstellen von Schweden* by Wilke (O'Donoghue)1998/**26**:134
- Die Namen der Steine (The Names of Stones) 2nd edn.* by Lüschen (O'Donoghue)1981/**17**:342
- Die Namen der Steine* by Lüschen (O'Donoghue)1972/**13**:110
- Die Staatliche Bernstein-Manufaktur Königsberg, 1926–1945* by Erichson (O'Donoghue)1999/**26**:464
- Die Steinschneidekunst und ihre Kuenstler in Spaetrepublikanischer und Augusteische Zeit (The Art of Stone Engraving and Its Artists in the Late Republic and at the Time of the Augustine Empire)* by Vollenweider (Strack)1967/**10**:244
- Die Stereographische Projektion in der Kristallkunde* by Tertsch (AFH)1954/**4**:322
- Diffraction and Imaging Techniques in Material Science. 2nd edn.* by Amelinckx (O'Donoghue)1979/**16**:486
- Discover Opals* by Aracic (O'Donoghue)1998/**26**:132
- Discovering Lapidary Work* by Wainwright (SP)1972/**13**:77
- Discovering Lapidary Work. 2nd edn.* by Wainwright (O'Donoghue)1975/**14**:349
- Dislocations and Disinclinations. Dislocations in Solids* ed. by Nabarro (O'Donoghue)1993/**23**:375
- The Dolaucothi Gold Mines. 2nd edition* by Annels (O'Donoghue)1991/**22**:379
- Documentation sur les Synthèses Cristallines, Belgique, Espagne, France, Italie. (Documentation on Synthetic Crystals, Belgium, Spain, France, Italy)* by Vergnoux (O'Donoghue)1978/**16**:215
- Dow Jones-Irwin Guide to Fine Gems and Jewellery* by Marcum (O'Donoghue)1988/**21**:262
- The Drowning Dream [A Tale]* by Burke (O'Donoghue)2000/**27**:114
- Dureté 10: Le Diamant (Hardness 10: The Diamond)* by Vleeschdrager (O'Donoghue)1984/**19**:187
- Early Diamond Days: The Opening of the Diamond Fields of South Africa* by Doughty (SP)1964/**9**:181
- Earrings from Antiquity to the Present* by Maascetti (O'Donoghue)1991/**22**:381
- The Earth Beneath Us* by Swinnerton (Farn)1959/**7**:123
- Eastern Gem Trails* by Oles (O'Donoghue)1973/**13**:284
- An Easy Guide to Stones in Jewellery* by Sprague (PB)1950/**2**:310–311
- Echt oder Synthetisch? (Genuine or Synthetic?)* by Chudoba (WS)1956/**5**:381
- Eclogue Fades Rocks* ed. by Carswell (O'Donoghue)1992/**23**:178
- Edel Steine aus Holz. Katalog zur Ausstellung im Deutschen Edelsteinmuseum Idar-Oberstein vom 3.9 bis 15.11.1999* by Zang (O'Donoghue)2001/**27**:372
- Edelstein der Tausend Farben (Opal, Gemstone of a Thousand Colours)* by Kalokerinos (O'Donoghue)1982/**18**:171
- Edelstein, Perlen, Jade (Gemstones, Pearls and Jade)* by Desautels (O'Donoghue)1974/**14**:91
- Edelsteine (Gemstones) 2nd edn.* by Vollstädt (O'Donoghue)1984/**19**:70
- Edelsteine (Gemstones)* by Hartmann (O'Donoghue)1975/**14**:396
- Edelsteine (Precious Stones)* by Vollstädt (O'Donoghue)1982/**18**:85
- Edelsteine im Mittelalter (Gemstones in the Middle Ages)* by Friess (O'Donoghue)1981/**17**:425
- Edelsteine in der Bibel* by Zwickel (O'Donoghue)2003/**28**:371
- Edelsteine und ihre Mineraleinschlüsse (Gemstones and Their Mineral Inclusions)* by Weibel (O'Donoghue)1985/**19**:735
- Edelsteine und Mineralien Selbst Schleifen. 2nd edn.* by Hartig (O'Donoghue)1972/**13**:152
- Edelsteine und Perlen* by Schlossmacher (Anderson)1954/**4**:319
- Edelsteine und Perlen (Precious Stones and Pearls)* by Schlossmacher (WS)1970/**12**:21
- Edelsteine und Perlen (Precious Stones and Pearls) 2nd edn.* by Schlossmacher (WS)1960/**7**:202
- Edelsteine und Perlen (Precious Stones and Pearls) 4th edn.* by Schlossmacher (WS)1965/**9**:444
- Edelsteine und Schmucksteine* by Hochleitner (O'Donoghue)1996/**25**:66
- Edelsteine und Schmucksteine (Precious and Ornamental Stones)* by Shumann (O'Donoghue)1977/**15**:337
- Edelsteine: Symbole der Schönheit und der Macht* by Gübelin (O'Donoghue)2000/**27**:54
- Edelsteinen (Gemstones)* by Hammes (Zwaan)1963/**9**:66
- Edelsteinkundliches Fachwörterbuch. Gemmological Dictionary* by Henn (Stern)2001/**27**:371
- Edelsteinkundliches Handbuch (Handbook of Information on Precious Stones)* by Chudoba (O'Donoghue)1975/**14**:236
- Edelsteinkundliches Handbuch* by Chudoba (AG)1967/**10**:173
- Edelsteinschliff und Fassungsformen (Gem Cutting and Setting)* by Falk (O'Donoghue)1976/**15**:34
- Edelstenen* by Terpstra (AG)1950/**2**:232
- Edle Steine* by Metz (O'Donoghue)1973/**13**:192
- Edle Steine* by Schumann (O'Donoghue)1993/**23**:306
- Edle Steine Schleifen (Cutting Gemstones)* by Hartig (O'Donoghue)1975/**14**:396
- Edle Steine vom Dach der Welt* by Draganits (O'Donoghue)2005/**29**:357–358, 488
- The Eduard Josef Gübelin Story: The Art and Science of Gems* by Gübelin Foundation (Hughes)2014/**34**:372–373
- Een Eeuw van Schittering: Diamantjuwelen uit de 17de Eeuw (A Sparkling Age: 17th Century Diamond Jewellery)* by Provinciaal Diamantmuseum (Israel)1994/**24**:124
- The Effective Use of Gemmological Instruments. 2nd edn.* by Linton (O'Donoghue)1992/**23**:180
- Eifel. Die Mineralien der Vulkaneifel. extraLapis No. 34* by Weise (O'Donoghue)2009/**31**:310
- Ein Neues Hobby: Kleinmineralien (A New Hobby: Micromounts)* by Kipfer (O'Donoghue)1975/**14**:397
- Ein Strauss Edler Steine (A Bouquet of Gemstones)* by Steinbach (O'Donoghue)1975/**14**:397
- Einheimische Edelsteine. (Native Gemstones)* by Vollstädt (O'Donoghue)1978/**16**:142



- Einheimische Minerale (Native Minerals) 4th edn.* by Vollstadt (O'Donoghue)1977/**15**:337
- Einkaufsführer* 1999 by various (O'Donoghue)2000/**27**:177
- Einschlüsse in Mineralien (Inclusions in Minerals)* by Leeder (O'Donoghue)1988/**21**:198
- The Ekati Diamond Mine* by BHP Diamonds (O'Donoghue)2000/**27**:53
- El Interes por las Piedras Preciosas (Interest in Precious Stones)* by Sanchez Cabello (O'Donoghue)1986/**20**:131
- El Maravilloso Mundo del la Esmeralda Colombiana (The Remarkable World of the Colombian Emerald)* [in Spanish and English] by Moncada (O'Donoghue)1999/**26**:466
- El Mercadeo Mundial del Diamante* by Maziarek (Webster)1972/**13**:76
- Elba: Die Klassische Urlaub Insel der Mineralogie* by Pezzotta (O'Donoghue)2002/**28**:51
- Electron Diffraction and High-Resolution Electron Microscopy of Mineral Structures* by Drits (O'Donoghue)1988/**21**:198
- Electron Microscopy in Mineralogy* by Wenk (O'Donoghue)1977/**15**:268
- Éléments de Gemmologie (Elements of Gemmology)* by Poirot (Anderson)1976/**15**:150
- Eleventh Annual Sinkankas Symposium—Ruby, rev. edn.* ed. by Thoresen (Laurs)2015/**34**:457–458
- Emerald* [in Chinese] by Chang Wang Shi Yeng (O'Donoghue)1999/**26**:463
- The Emerald* by Mumme (O'Donoghue)1983/**18**:663
- Emerald and Other Beryls* by Sinkankas (Jobbins)1982/**18**:252
- Emerald and Tanzanite Buying Guide* by Newman (O'Donoghue)1995/**24**:606
- Emeralds* by Ward (O'Donoghue)1994/**24**:54
- Emeralds. Revised Edition* by Ward (O'Donoghue)2002/**28**:53
- Emeralds Around the World* by Sauer (O'Donoghue)1999/**26**:403
- Emeralds of Pakistan: Geology, Gemology and Genesis* ed. by Kazmi (Howie)1993/**23**:304
- Emeralds of Pakistan: Geology, Gemology and Genesis* ed. by Kazmi (O'Donoghue)1990/**22**:244
- Emeralds: A Passionate Guide* by Ringsrud (O'Donoghue)2009/**31**:310
- Encyclopaedia of Mineral Names* by Blackburn (O'Donoghue)1998/**26**:133
- Encyclopedia of Minerals* by Roberts (O'Donoghue)1977/**15**:401
- Encyclopedia of Minerals. 2nd edn.* by Roberts (O'Donoghue)1990/**22**:183
- The Encyclopedia of Minerals and Gemstones* ed. by O'Donoghue (Anderson)1977/**15**:458
- At the End of the Rainbow: Gold in Scotland* by Adamson (O'Donoghue)1990/**22**:243
- Engraved Gems* by Boardman (SP)1968/**11**:95
- Engraved Gems of the Greeks and the Etruscans* by Richter (PP)1969/**11**:220
- Engraved Gems of the Romans* by Richter (SP)1972/**13**:29
- Enjoying Gems* by Wyndham (O'Donoghue)1973/**13**:240
- Environmental Geology* by Murck (O'Donoghue)1996/**25**:242
- Esmeraldas: Inclusões em Gemas (Emeralds: Inclusions in Gemstones)* by Schwarz (O'Donoghue)1989/**21**:458
- Europäischer Schmuck* by Falk (O'Donoghue)1994/**24**:120
- Evolution of Chromium Ore Fields* by Stowe (O'Donoghue)1988/**21**:263
- An Exhibition of Fine Jade* by Spink (O'Donoghue)1982/**18**:85
- Exploring Australia's Mining Heritage. A Visitor's Guide* by Shackleton (O'Donoghue)1996/**25**:244
- The F. John Barlow Mineral Collection* by Barlow (O'Donoghue)1998/**26**:132
- Fabergé [Catalogue of an Exhibition Held at The Queen's Gallery, Buckingham Palace, 1995–96]* by various (O'Donoghue)1995/**24**:604
- Fabergé in America* by von Habsburg (O'Donoghue)1996/**25**:245
- Fabergé, Hofjuwelier der Zaren (Fabergé, Jeweller to the Tsars)* by von Habsburg (O'Donoghue)1988/**21**:45
- Fabergé: Imperial Jeweller* by von Habsburg (O'Donoghue)1994/**24**:214
- Fabulous Fakes* by Becker (O'Donoghue)1989/**21**:313
- Faceting for Amateurs* by Vargas (SP)1970/**12**:21
- Faceting for Amateurs. 2nd edn.* by Vargas (O'Donoghue)1978/**16**:141
- Falize: A Dynasty of Jewellers* by Purcell (O'Donoghue)1999/**26**:464, 546
- Famous Diamonds* by Balfour (O'Donoghue)1988/**21**:115
- Famous Diamonds* by Balfour (O'Donoghue)1993/**23**:374
- Famous Diamonds. 3rd edn.* by Balfour (Israel)1998/**26**:273
- Famous Diamonds. 4th edn.* by Balfour (O'Donoghue)2001/**27**:371
- Famous Jewelry Collectors* by Papi (O'Donoghue)2000/**27**:116
- Famous Mineral Localities of Canada* by Grice (O'Donoghue)1991/**22**:380
- Fancy-Color Diamonds* by Harris (Collins)1996/**25**:154
- The Fascination of Diamonds* by Argenzio (SP)1966/**10**:108; (Anon)1967/**10**:270
- Fascination of Gemstones* by Hüllenmeister (O'Donoghue)1996/**25**:67
- Fashion Beads* by Withers (O'Donoghue)1996/**25**:245
- Faszination Edelstein aus den Schatzkammern der Welt. Mythos, Kunst, Wissenschaft* by Ebert-Schifferer (O'Donoghue)1995/**24**:609
- Faszination Turmalin* by Rustemeyer (O'Donoghue)2005/**29**:358
- Faux Gems and Jewels Circa 1700 to 1930. An Exhibition and Sale [Held by and at Sandra Cronan Ltd]* by Becker (O'Donoghue)1996/**25**:64
- Fei Cui Jade—A Stone & a Culture* by Chiu Mei Ou Yang (Larson)2015/**34**:739–740
- Feldspar Minerals. Second Revised and Extended Edition. Vol. 1* by Smith (O'Donoghue)1989/**21**:315
- Feldspat* by Weise (O'Donoghue)2007/**30**:345
- A Field Guide to Australian Opals* by O'Leary (O'Donoghue)1978/**16**:215
- A Field Guide to Australian Opals. 2nd edn.* by O'Leary (O'Donoghue)1984/**19**:379
- A Field Guide in Colour to Minerals, Rocks and Precious Stones* by Bauer (O'Donoghue)1975/**14**:299
- A Field Guide to the Gems and Minerals of Mexico* by Johnson (O'Donoghue)1973/**13**:190
- A Field Guide to Rocks and Minerals* by Pough (Anderson)1954/**4**:361
- A Field Guide to Rocks and Minerals. 5th edn.* by Pough (O'Donoghue)1999/**26**:339
- A Field Guide to Topaz and Associated Minerals of Topaz Mountain, Utah* by Holfert (O'Donoghue)1979/**16**:419
- Fifth International Kimberlite Conference, Araxá, Brazil, 1991* ed. by Meyer (O'Donoghue)1996/**25**:64
- Finding Britain's Gems* by Rogers (O'Donoghue)1973/**13**:235
- Finger Rings from Ancient Egypt to the Present Day* by Taylor (O'Donoghue)1979/**16**:421
- Fire into Ice: Charles Fipke and the Great Diamond Hunt* by Frouck (O'Donoghue)2001/**27**:371
- First Adventures in Geology—The Story of Rock Identification* by GIA (Webster)1954/**4**:366
- First European Conference on Crystal Growth, Zurich, 1976 [1976 Crystal Growth and Materials..]* ed. by Kaldis (O'Donoghue)1978/**16**:215
- Fleischer's Glossary of Mineral Species* by Mandarino (O'Donoghue)2005/**29**:358
- Fleischer's Glossary of Mineral Species (8th edn)* by Mandarino (O'Donoghue)1999/**26**:466
- Fleischer's Glossary of Mineral Species. 9th edn.* by Mandarino (O'Donoghue)2008/**31**:136

- Fluid Inclusions* by Roedder (O'Donoghue)1987/**20**:502
- Fluorescence: Gems and Minerals Under Ultraviolet Light* by Robbins (O'Donoghue)1994/**24**:296
- Fluorit (Fluorite)* by Leeder (O'Donoghue)1981/**17**:425
- Fluorit Mineral des Regenbogens* by Niedermayr (O'Donoghue)1991/**22**:448
- Fluorite der Welt. Afrika, Amerika, Asien, Europa. extraLapis No. 35* by Weise (O'Donoghue)2008/**31**:136
- Fluorspar in Illinois* by Finger (O'Donoghue)1973/**13**:334
- Fluorspar in the North Pennines* ed. by Fairbairn (O'Donoghue)2004/**29**:115
- Flux-Enhanced Rubies and Sapphires* by Themelis (O'Donoghue)2004/**29**:116
- Forever Brilliant. The Aurora Collection of Colored Diamonds* by Bronstein (O'Donoghue)2001/**27**:372
- Forming a Mineral Collection* by Rogers (O'Donoghue)1975/**14**:397
- Fortunes in Australian Opals* by Aracic (O'Donoghue)1983/**18**:444
- A Fossicker's Guide to Gemstones in Australia* by Perry (O'Donoghue)1999/**26**:338
- Fotoatlas der Mineralien und Gesteine (Photoatlas of Minerals and Stones)* by Hochleitner (O'Donoghue)1981/**17**:342
- Four Centuries of European Jewellery* by Bradford (JB)1953/**4**:182
- Franklin and Sterling Hill, New Jersey: The World's Most Magnificent Mineral Deposits* by Dunn (O'Donoghue)1999/**26**:335
- Frédéric Cailliaud* by Chauvet (Cooper)1989/**21**:516
- Frédéric Cailliaud* by Chauvet (Cooper)1990/**22**:115
- Freiberg. Mineralien, Bergbau und Museen* by Adelung (O'Donoghue)2009/**31**:310
- The French Crown Jewels* by Morel (O'Donoghue)1990/**22**:115
- French Jewellery of the Nineteenth Century: A Loan Exhibition* by Wartski (O'Donoghue)2002/**28**:51
- Führer Durch das Deutsche Edelsteinmuseum* by Bank (O'Donoghue)1994/**24**:295
- Führer Durch das Deutsche Edelsteinmuseum* by Bank (O'Donoghue)1999/**26**:334
- Fundamentals of Crystal Growth* by Rosenberger (O'Donoghue)1980/**17**:198
- Fundamentals of Crystals. Second, Enlarged Edition* by Vainshtein (O'Donoghue)1994/**24**:296
- The Fundamentals of Mining for Gemstones and Mineral Specimens* by Clanin (Dryland)2014/**34**:80
- Fundamentals of Optical, Spectroscopic and X-ray Mineralogy* by Mitra (O'Donoghue)1992/**23**:48
- Garnet* by Rouse (O'Donoghue)1986/**20**:254
- Garnet, Gem and Mineral* by Pearl (O'Donoghue)1977/**15**:266
- Garrard: The Crown Jewellers for 150 Years* by Gere (O'Donoghue)1994/**24**:120
- Gediegen Silber: Das Erz der Münzen, das Metall des Schmuckes, das Element mit dem Glanz* by Behmenburg (O'Donoghue)1996/**25**:66
- Gem and Crystal Treasures* by Bancroft (O'Donoghue)1985/**19**:733
- Gem and Decorative Minerals of Bulgaria* by Petrusenko (O'Donoghue)1994/**24**:122
- Gem and Jewelry Pocket Guide* by Newman (O'Donoghue)2001/**27**:373
- Gem and Lithium Bearing Pegmatites of the Pala District, San Diego County, California* by Jahns (Webster)1952/**3**:198
- Gem and Mineral Localities of South Eastern United States* by Willman (O'Donoghue)1973/**13**:239
- Gem and Ornamental Materials of Organic Origin* by Campbell Pederson (Jobbins)2004/**29**:53
- Gem Care* by Ward (O'Donoghue)1995/**24**:448
- Gem Care. Revised edn.* by Ward (O'Donoghue)2002/**28**:118
- The Gem Collection* by Desautels (O'Donoghue)1982/**18**:83
- Gem Cutting* by Sinkankas (SP)1956/**5**:272
- Gem Cutting. 2nd edn.* by Sinkankas (SP)1963/**9**:62
- Gem Cutting. 3rd edn.* by Sinkankas (O'Donoghue)1986/**20**:255
- Gem Identification by the Inclusions* by Chikayama (O'Donoghue)1973/**13**:187
- Gem Identification Made Easy* by Matlins (O'Donoghue)2003/**28**:494
- Gem Identification Made Easy. Second Edition* by Matlins (O'Donoghue)1998/**26**:274
- Gem Identification Simplified* by Pearl (Webster)1968/**11**:94
- Gem Jade [in Chinese]* by Zheng Yong Zhen (O'Donoghue)1999/**26**:469
- Gem Jade Identification and Buying Guide [in Chinese]* by Liao Zong Ting (O'Donoghue)1999/**26**:465
- The Gem Kingdom* by Desautels (O'Donoghue)1972/**13**:74
- The Gem Merchant: How to Be One, How to Deal with One* by Epstein (O'Donoghue)1997/**25**:370
- Gem Minerals of Idaho* by Beckwith (O'Donoghue)1973/**13**:280
- Gem Minerals of Victoria* by Birch (Howie)1999/**26**:334
- Gem Minerals; Proceedings of the XI General Meeting of IMA, Novosibirsk, 4–10 September, 1978* ed. by Bukanov (Howie)1983/**18**:575
- Gem Reference Guide for the GIA Colored Stones, Gem Identification and Colored Stone Grading Courses* by GIA (O'Donoghue)1995/**24**:520
- Gem Stones of the United States* by Schlegel (Mitchell)1958/**6**:387
- Gem Testing. 4th edn.* by Anderson (Clarkson)1947/**1**(4):1–3
- Gem Testing. 7th edn.* by Anderson (Webster)1965/**9**:304
- Gem Testing. 8th edn.* by Anderson (Webster)1971/**12**:361
- Gem Testing. 9th edn.* by Anderson (Mitchell)1980/**17**:193
- Gem Testing. 10th edn.* by Anderson (Mitchell)1990/**22**:243; 'A Book Anniversary' (Mitchell)1992/**23**:78–79
- Gem Testing Laboratory Silver Jubilee 1972–1997* by Gem Testing Laboratory, Jaipur, India (O'Donoghue)1999/**26**:464
- Gem Testing Techniques* by Hodgkinson (Fellows)2015/**34**:637–638
- Gem World* by The Jewellers Association, Jaipur (O'Donoghue)1975/**14**:351
- Gem-Cutting Shop Helps* by Leiper (SP)1965/**9**:303
- Gem-Hunter's Guide. Fourth Edition* by MacFall (O'Donoghue)1973/**13**:234
- Gemas do Brazil (Gems of Brazil)* by da Silva (O'Donoghue)1989/**21**:458
- Gemas—Descripcion Identification* by Anderson (O'Donoghue)1977/**15**:336
- Gemcraft* by Quick (SP)1960/**7**:300
- Gemcutting, a Lapidary Handbook* by Smith (O'Donoghue)1981/**17**:343
- Gemfields* by Gillard (O'Donoghue)1991/**22**:380
- Gembunting Atlas of Australia* by anonymous (O'Donoghue)1974/**14**:197
- Gemme al Microscopio (Gems with the Microscope)* by Anderson (O'Donoghue)1980/**17**:196
- Gemme del Vicentino* by Boscardin (Howie)1999/**26**:335
- Gemme del Vicentino* by Boscardin (O'Donoghue)1997/**25**:501
- Gemme e Diamanti dal Kremlino (Gems and Diamonds from the Kremlin)* by Rodimitseva (O'Donoghue)1995/**24**:609
- Gemme Naturali e Artificiali (Natural and Artificial Gems)* by Leone (O'Donoghue)1986/**20**:253
- Gemme: Dati per l'Identificazione* by De Stefano (O'Donoghue)2000/**27**:177
- Gemmes* by Association Française de Gemmologie (O'Donoghue)1993/**23**:306
- Gemmologia* by Cavenago-Bignami (SP)1965/**9**:302
- Gemmologia, 3rd edn.* by Cavenago-Bignami (O'Donoghue)1972/**13**:112
- Gemmologia (Gemmology) 4th edn.* by Cavenago-Bignami Moneta (O'Donoghue)1980/**17**:196



- Gemmologia—Piètre Preziose e Perle (Gemmology—Precious Stones and Pearls)* by Cavenago-Bignami (PG)1959/**7**:72
- Gemmologia Practica (Practical Gemmology)* by Anderson (O'Donoghue)1986/**20**:252
- Gemmological Instruments* by Read (Anderson)1979/**16**:489
- Gemmological Instruments. 2nd edn.* by Read (O'Donoghue)1984/**19**:70
- Gemmologist's Compendium. 2nd edn.* by Webster (Clarkson)1947/**1**(4):1–3
- The Gemmologists' Compendium* by Webster (SP)1965/**9**:301
- Gemmologists' Compendium. 7th edn.* by Webster (O'Donoghue)1998/**26**:275
- Gemmology* by Read (Mitchell)1992/**23**:49
- Gemmology* by Read (O'Donoghue)2000/**27**:117
- Gemmology. 3rd edn.* by Read (Daly)2005/**29**:489
- Gemmology, Bundu Series* by Sweeney (O'Donoghue)1972/**13**:110
- Gemology* by Hurlbut (O'Donoghue)1980/**17**:133
- Gemology Questions and Answers* by Stevens (O'Donoghue)1985/**19**:442
- Gemology. 2nd Edition* by Hurlbut (O'Donoghue)1991/**22**:448
- Gemology. An Annotated Bibliography* by Sinkankas (O'Donoghue)1993/**23**:434
- Gems & Gemology in Review: Treated Diamonds* ed. by Shigley (Jobbins)2008/**31**:137
- Gems & Gemology: A Retrospective of the '80s* ed. by Liddicoat (O'Donoghue)1994/**24**:121
- Gems & Jewels* by Schubnel (SP)1972/**13**:28, 75
- Gems and Crystals from the American Museum of Natural History* by Sofianides (O'Donoghue)1992/**23**:49
- Gems and Gem Industry in India* by Karanth (Howie)2003/**28**:494
- Gems and Gem Industry of India* by Karanth (O'Donoghue)2000/**27**:178
- Gems, Granites and Gravels: Knowing and Using Rocks and Minerals* by Dietrich (O'Donoghue)1991/**22**:380
- Gems and Jewellery Appraising, Techniques of Professional Practise* by Miller (O'Donoghue)1988/**21**:198
- Gems and Jewellery in Colour* by Dragsted (Anderson)1976/**15**:91
- Gems and Jewellery in Hong Kong: A Buyer's Guide* by Ahrens (O'Donoghue)1984/**19**:278
- Gems in Jewellery* by Webster (Chisholm)1976/**15**:94
- Gems and Jewelry* by Arem (O'Donoghue)1976/**15**:91
- Gems and Jewels* by Austen (O'Donoghue)1980/**17**:196
- Gems and Jewels, a Connoisseur's Guide* by Zucker (O'Donoghue)1985/**19**:735
- Gems Jewels Fact and Fable* by Cavey (Mitchell)1992/**23**:178
- Gems: A Lively Guide for the Casual Collector* by Dennis (O'Donoghue)2000/**27**:177
- Gems Made by Man* by Nassau (O'Donoghue)1981/**17**:343
- Gems and Minerals of America* by Ransom (O'Donoghue)1976/**15**:93
- Gems and Minerals of the Bible* by Wright (O'Donoghue)1973/**13**:285
- Gems and Minerals of Rhodesia* by The Rhodesian Gem and Mineral Society (O'Donoghue)1972/**13**:150
- Gems, Minerals and Rocks of Southern Africa* by McIver (SP)1967/**10**:207
- Gems and Minerals of Washington; a Collector's Reference* by Ream (O'Donoghue)1979/**16**:551
- Gems and Mines of Mogok* by Themelis (O'Donoghue)2009/**31**:310–311
- Gems, Questions and Answers* by Read (O'Donoghue)1982/**18**:84
- Gems in the Smithsonian* by Desautels (O'Donoghue)1973/**13**:188
- Gems of Sri Lanka. 3rd edn.* by Ariyaratna (O'Donoghue)1980/**17**:47
- Gems of Sri Lanka. 5th edn.* by Ariyaratna (O'Donoghue)1993/**23**:494; letter on (Ariyaratna)1994/**24**:130
- Gems of Sri Lanka. 6th edn.* by Zoysa (Daly)2006/**30**:244
- Gems—Their Sources, Descriptions and Identification* by Webster (Chisholm)1962/**8**:306
- Gems—Their Sources, Descriptions and Identification. 2nd edn.* by Webster (MS)1970/**12**:92
- Gems—Their Sources, Descriptions and Identification. 3rd edn.* by Webster (O'Donoghue)1975/**14**:349
- Gems—Their Sources, Descriptions and Identification. 4th edn., revised by B. W. Anderson* by Webster (Chisholm)1984/**19**:70; letter on (Chisholm)1986/**20**:133
- Gems—Their Sources, Descriptions and Identification. 5th edn.* by Webster (O'Donoghue)1995/**24**:521
- Gems—Their Sources, Descriptions and Identification. 6th edn.* by O'Donoghue (Howie)2006/**30**:244
- Gems of the USSR [in Russian]* by Samsonov (O'Donoghue)1986/**20**:254
- Gemstone and Mineral Data Book* by Sinkankas (O'Donoghue)1973/**13**:236
- Gemstone Buying Guide* by Newman (O'Donoghue)1998/**26**:195
- Gemstone Buying Guide. 2nd edn.* by Newman (O'Donoghue)2003/**28**:307
- Gemstone Enhancement* by Nassau (Read)1984/**19**:377
- Gemstone Enhancement: History, Science and State of the Art. Second Edition* by Nassau (O'Donoghue)1994/**24**:295
- Gemstone Fossicking in New South Wales* by New South Wales Department of Tourism (O'Donoghue)1975/**14**:351
- The Gemstone Identifier* by Greenbaum (Mitchell)1985/**19**:546
- Gemstone Inclusions* by Burch (O'Donoghue)1986/**20**:193
- Gemstone Inclusions Identification [in Chinese]* by Lai Tai-An (O'Donoghue)1999/**26**:465
- Gemstone Resources of South Carolina* by McCauley (O'Donoghue)1973/**13**:191
- Gemstones* by Grange Books (O'Donoghue)2000/**27**:115
- Gemstones* by Hall (O'Donoghue)1994/**24**:212
- Gemstones* by O'Donoghue (Mitchell)1989/**21**:314
- Gemstones* by Woodward (O'Donoghue)1987/**20**:502
- Gemstones. 2nd edn.* by McNevin (O'Donoghue)1981/**17**:640
- Gemstones, 2nd edn.* by Oldershaw (O'Donoghue)2001/**27**:371
- Gemstones. 10th edn.* by Smith (Anon)1949/**2**:48; (MDSL)1949/**2**:112
- Gemstones. 13th edn.* by Smith (Anderson)1958/**6**:385
- Gemstones. 14th edn.* by Smith (Anderson)1973/**13**:236; letter on (Mitchell)1973/**13**:336
- Gemstones of Afghanistan* by Bowersox (O'Donoghue)1995/**24**:603
- Gemstones as Amulets, Talismans and Healing Stones* by MacDonald (O'Donoghue)1975/**14**:348
- Gemstones in Australia* by Perry (O'Donoghue)1980/**17**:198
- Gemstones in Australia: A Review of the Industry and the First Australian Assessment of Gemstone Resources* by Olliver (O'Donoghue)1995/**24**:607
- Gemstones of Brazil: Geology and Occurrences* by Delaney (O'Donoghue)1999/**26**:335
- Gemstones of the British Isles* by Firsoff (Webster)1972/**13**:27
- Gemstones of East Africa* by Keller (O'Donoghue)1993/**23**:495
- Gemstones for Everyman* by Anderson (Mitchell)1976/**15**:89
- Gemstones in the Geological Museum. Fourth Edition* by McLintock (O'Donoghue)1983/**18**:774
- Gemstones to Jewellery. 2nd edn.* ed. by James (O'Donoghue)1972/**13**:75
- Gemstones and Minerals* by Villiard (O'Donoghue)1975/**14**:238
- Gemstones of New South Wales* by Campbell (O'Donoghue)1973/**13**:233
- Gemstones of North America* by Sinkankas (SP)1960/**7**:197
- Gemstones of North America in Two Volumes. Vol. 2.* by Sinkankas (O'Donoghue)1977/**15**:267

- Gemstones of North America. Volume III* by Sinkankas (O'Donoghue)1997/**25**:566
- Gemstones of Pakistan: Geology and Gemmology* by Kazmi (O'Donoghue)1993/**23**:433
- Gemstones: Quality and Value. Volume 3 Jewelry* by Suwa (O'Donoghue)2002/**28**:52
- Gemstones: Quality and Value. 2nd edn.* by Suwa (O'Donoghue)1999/**26**:547
- Gemstones of Sri Lanka. Rarely Encountered Gemstones of Sri Lanka* by Ariyaratna (Howie)2007/**30**:345
- Gemstones and Their Origins* by Keller (Jobbins)1990/**22**:182
- Gemstones. Understanding – Identifying – Buying* by Wallis (Read)2006/**30**:245
- Gemstones in Victoria* by Birch (Coenraads)2014/**34**:373–375
- Gemstones of Western Australia* by Fetherston (Coenraads)2014/**34**:174–175
- Gemstones of the World* by Schumann (O'Donoghue)1978/**16**:140
- Gemstones of the World (Revised and Expanded Edition)* by Schumann (O'Donoghue)1999/**26**:468
- Generations of Jewelry from the 15th through the 20th Century* by Egger (O'Donoghue)1992/**23**:179
- A Geologic Excursion to Fluorspar Mines in Hardin and Pope Counties, Illinois* by Baxter (O'Donoghue)1973/**13**:330
- Geological Survey and Mines Bureau of Sri Lanka* by British Geological Survey (O'Donoghue)1999/**26**:337
- Geologie du Diamant. Deuxieme Partie: Gisements de Diamant d'Afrique (Geology of Diamonds. Second Part: Deposits of Diamond in Africa)* by Bardet (O'Donoghue)1986/**20**:130
- Geologie in Stichworten* by Schwegler (O'Donoghue)1972/**13**:111
- Geologische Wanderführer: Eifel (Geological Guide to the Eifel)* by Meyer (O'Donoghue)1983/**18**:774
- A Geologist Speculates* by Saul (Harding)2014/**34**:80–82
- Geology of Coober Pedy Precious Stones Field* by Robertson (O'Donoghue)1991/**22**:382
- Geology of East Africa* by Schlüter (O'Donoghue)1999/**26**:468
- A Geology for Engineers, 7th edn.* by Blyth (O'Donoghue)1985/**19**:546
- Geology of Gem Deposits (Short Course Series Volume 37)* ed. by Groat (Howie)2007/**30**:463
- Geology of Gem Deposits, 2nd edn.* ed. by Groat (Laurs)2015/**34**:458
- Geology of Gems* by Kievlenko (O'Donoghue)2004/**29**:183
- The Geology and Geochemistry of Cenozoic Topaz Rhyolites from the Western United States* by Christiansen (O'Donoghue)1986/**20**:252
- Geology of the Mineral Deposits of Australia and Papua New Guinea* by Hughes (O'Donoghue)1992/**23**:48
- Geology and Mineralogy at Oxford 1860–1986: History and Reminiscence* by Vincent (O'Donoghue)1996/**25**:69
- Geology of the Mwatate Quadrangle and the Vanadium Grossularite Deposits of the Area* by Pohl (O'Donoghue)1984/**19**:379
- Geology of the Northern Pennine Orefield. Vol. 1. Tyne to Stainmore. 2nd Edition* by Dunham (O'Donoghue)1991/**22**:380
- Geology of Pakistan* ed. by Bender (O'Donoghue)1996/**25**:239
- Geology of World Gem Deposits* by Van Landingham (O'Donoghue)1986/**20**:58
- Geomorphologie in Stichworten (Geomorphology in Catch Words)* by Wilhelmy (O'Donoghue)1974/**14**:196
- Geschönte Steine* by Bruder (O'Donoghue)2002/**28**:180
- Gesteinsbestimmungsbuch* by Jubelt (O'Donoghue)1972/**13**:152
- Gill's Index to Journals, Articles and Books Relating to Gems and Jewelry* by Gill (O'Donoghue)1980/**17**:47
- Glans en Gloed uit Donkere Diepten (Lustre and Fire Out of Dark Depths)* by Midderigh-Bokhorst (SP)1956/**5**:273
- The Glass Beads of Anglo-Saxon England, c. AD 400–700* by Guido (O'Donoghue)2000/**27**:116
- Glass in Jewelry* by Jargstorf (O'Donoghue)1992/**23**:180
- Glorious History of the Kob-i-Noor Diamond* by Sen (SP)1971/**12**:237
- A Glossary of Chinese Art and Archaeology* by Hansford (Anderson)1955/**4**:96
- Glossary of Mineral Species 1991* by Fleischer (O'Donoghue)1991/**22**:448
- Glossary of Mineral Species. 5th edn.* by Fleischer (O'Donoghue)1988/**21**:45
- Glossary of Mineral Synonyms* by De Fourestier (O'Donoghue)1997/**25**:437
- Glossary of Obsolete Mineral Names* by Bayles (O'Donoghue)2000/**27**:176
- Glyptic Arts – Ancient Jewelry: An Annotated Bibliography* by Content (O'Donoghue)1986/**20**:130
- Gold in Bayern: Vorkommen am Westrand der Böhmschen Masse* by Lehrberger (O'Donoghue)1999/**26**:464
- Gold: Its Beauty, Power and Allure. 3rd edn.* by Sutherland (SP)1969/**11**:268
- Gold in the Counties of Cornwall and Devon* by Camm (O'Donoghue)2000/**27**:114
- Gold and Diamonds in Indiana* by Blatchey (O'Donoghue)1980/**17**:132
- Gold im Herzen Europa: Gewinnung, Bearbeitung. Verwendung. Aufsätze und Katalog* by Bauer (O'Donoghue)1998/**26**:133
- Gold: History and Genesis of Deposits* by Boyle (O'Donoghue)1988/**21**:45
- The Gold Jewelry Buying Guide* by Newman (O'Donoghue)1996/**25**:243
- Gold Jewelry from Tibet and Nepal* by Singer (O'Donoghue)1997/**25**:438
- Gold, Mineral, Macht und Illusion: 500 Jahre Goldtausch* by Bachmann (O'Donoghue)1993/**23**:306
- Gold and Platinum Jewelry Buying Guide* by Newman (O'Donoghue)2000/**27**:180
- The Gold Rocks of Great Britain and Ireland* by Calvert (O'Donoghue)1990/**22**:244
- Gold in der Schweiz 2 Auflage* by Pfander (O'Donoghue)2000/**27**:180
- A Golden Treasury: Jewellery from the Indian Subcontinent* by Stronge (O'Donoghue)1989/**21**:516
- Goldschmidt's World* ed. by Wilson (O'Donoghue)1990/**22**:183
- Goldschmiede- und Uhrmacher-Jahrbuch 1985 (Yearbook for the Goldsmith and Watchmaker)* by Diebener (O'Donoghue)1986/**20**:58
- Goldsmiths Review 1994/95* by Worshipful Company of Goldsmiths (O'Donoghue)1996/**25**:66
- Granat (Garnet)* by Fuhrmann (O'Donoghue)1984/**19**:186
- Granat. Die Mineralien der Granat-Gruppe: Edelsteine, Schmuck und Laser* by Weise (O'Donoghue)1996/**25**:66
- The Great American Sapphire* by Voynick (O'Donoghue)1986/**20**:255
- Greek and Roman Jewellery. 2nd edn.* by Higgins (O'Donoghue)1982/**18**:83
- The Green Vault* by Menzhausen (O'Donoghue)1986/**20**:254
- Growth of Crystals. Vol. 9 by Sheftal'* (O'Donoghue)1976/**15**:219
- Growth of Crystals from the Vapour* by Faktor (O'Donoghue)1975/**14**:348
- The Growth of Single Crystals* by Laudise (O'Donoghue)1975/**14**:237
- Guida Mineralogica d'Italia (Mineral Guide of Italy)* by De Michele (O'Donoghue)1976/**15**:150
- Guide to Affordable Gemology* by Hanneman (O'Donoghue)1999/**26**:464
- Guide to Australian Gemstones* by Stone (O'Donoghue)1978/**16**:142



- The Guide to Colored Gems* by Kuehn (O'Donoghue)1978/**16**:214
- A Guide to Fossicking in the Northern Territory. 2nd edn.* by Thompson (O'Donoghue)1989/**21**:458
- A Guide to Mineral Collecting at Franklin and Sterling Hill, New Jersey.* by Kushner (O'Donoghue)1975/**14**:348
- A Guide to the Rocks, Minerals and Gemstones of Southern Africa* by Macintosh (O'Donoghue)1977/**15**:266
- A Guide to Understanding Crystallography* by Smith (O'Donoghue)1992/**23**:181
- Guidebook I to Mineral Collecting in the Maine Pegmatite Belt* by Morrison (O'Donoghue)1977/**15**:268
- Guld & Aedlestene. 3rd edition* by Dragsted (O'Donoghue)1973/**13**:281
- Hallmark. A History of the London Assay Office* by Forbes (O'Donoghue)2000/**27**:53
- The Hamlyn Guide to Minerals, Rocks and Fossils* by Hamilton (O'Donoghue)1974/**14**:194
- Hand Lapidary Craft* by Geldart (O'Donoghue)1980/**17**:197
- Handboek voor Edelsteenkunde* by Bolman (SFK)1950/**2**:347
- Handbook of Crystal Growth* by Hurle (O'Donoghue)1995/**24**:444
- Handbook of Diamond Grading. English (4th) edn.* by Pagel-Theisen (O'Donoghue)1974/**14**:143
- Handbook of Fluorescent Gems and Minerals. 1st edn.* by DeMent (Webster)1949/**2**:155
- Handbook of Gem Identification* by Liddicoat (Anderson)1948/**1**(5):16–19
- Handbook of Gem Identification. 6th edn.* by Liddicoat (Anderson)1963/**9**:63
- Handbook of Gem Identification 10th edn.* by Liddicoat (O'Donoghue)1976/**15**:93
- Handbook of Gem Identification, 11th edn.* by Liddicoat (O'Donoghue)1982/**18**:84
- Handbook of Gem Identification. 12th edn.* by Liddicoat (O'Donoghue)1988/**21**:262
- The Handbook of Gemmology* by Dominy (Fellows)2013/**33**:252–253
- The Handbook of Gemmology, 3rd edn.* by Dominy (Fellows)2015/**34**:551–552; online and DVD (Laurs)2015/**34**:382
- Handbook of Industrial Diamonds and Diamond Films* by Prelas (O'Donoghue)1999/**26**:467
- Handbook of Mineralogy. Vol. 1* by Anthony (O'Donoghue)1991/**22**:379
- Handbook of Mineralogy. Vol. 2. Silica, Silicates* by Anthony (O'Donoghue)1995/**24**:602
- Handbook of Mineralogy. Vol. 3. Halides, Hydroxides, Oxides* by Anthony (O'Donoghue)1999/**26**:334
- Handbook of Mineralogy. Vol. 4. Arsenates, Phosphates, Vanadates* by Anthony (O'Donoghue)2001/**27**:371
- Handbook of Mineralogy. Vol. 5. Borates, Carbonates, Sulphates* by Anthony (O'Donoghue)2004/**29**:115
- Handbook of Near-Infrared Analysis* by Buns (O'Donoghue)2002/**28**:180
- A Handbook of Precious Stones* by Iyer (GA)1949/**2**:156
- Handbook of Raman Spectroscopy from the Research Laboratory to the Process Line* by Lewis (O'Donoghue)2002/**28**:52
- Harry Winston, the Ultimate Jeweller. 2nd edn.* by Krashes (O'Donoghue)1988/**21**:262
- The Heat Treatment of Ruby and Sapphire* by Themelis (O'Donoghue)1993/**23**:435
- Hey's Mineral Index* by Clark (O'Donoghue)1993/**23**:433
- História Slovenského Dráhého Opálu z Dubníka (History of the Opal Mines at Dubník)* by Butkovic (SP)1971/**12**:237
- Historical Atlas of Crystallography* ed. by Lima-De-Faria (O'Donoghue)1992/**23**:180
- Historische Diamanten und ihre Geschichte (Historic Diamonds and Their Study)* by Littich (O'Donoghue)1982/**18**:353
- The History of Diamond Production and the Diamond Trade* by Lenzen (Anderson)1970/**12**:90
- A History of Jewellery, 1100–1870* by Evans (AG)1953/**4**:132
- The History of Mineral Collecting, 1530–1799, with Notes on Twelve Hundred Early Mineral Collectors* by Wilson (O'Donoghue)1995/**24**:520
- The History and Use of Diamond* by Tolansky (SP)1963/**9**:20
- A History of White Cliffs Opal 1889–1999* by Cram (O'Donoghue)2002/**28**:116
- Hobe Tauern: Mineral & Erz* by Seeman (O'Donoghue)1995/**24**:521
- The Honours of Scotland: The Story of the Scottish Crown Jewels* by Burnett (O'Donoghue)1995/**24**:603
- Hoseki Chu Ken Kanbi (Gemstone Inclusion)* by Fujisaki (O'Donoghue)1985/**19**:546
- Hoseki: Shouchu o Kagaku Suku. Shuyo Hoseki no Sekai. [Gems: Science in a Microcosm. The World of Principal Gemstones.]* by Shida (O'Donoghue)1997/**25**:438
- How to Invest in Gems* by Zucker (O'Donoghue)1977/**15**:401
- How to Invest in Gems* by Zucker (O'Donoghue)1978/**16**:142
- HPHT-Treated Diamonds* by Dobrinets (Welbourn)2013/**33**:251–252
- Humboldt's Travels in Siberia (1837–1842): The Gemstones. Extracts and Commentaries on Gustav Rose's Reise nach dem Ural, 1837–1842* by Rose (O'Donoghue)1995/**24**:447
- Hunsrück und Nabe* by Kneidl (O'Donoghue)1984/**19**:376
- I Gemmologi del Mondo Raccontano le Gemme dal Mare Gemmologia Europa VI* by various (O'Donoghue)1999/**26**:403
- Identification of Gemstones* by O'Donoghue (Read)2003/**28**:307
- Identification des Pierres Précieuses* by Anderson (Chisholm)1976/**15**:149
- Identifying Gems and Precious Stones* by Hall (O'Donoghue)1998/**26**:273
- Identifying Man-Made Gems* by O'Donoghue (Mitchell)1984/**19**:278
- Il Diamante: Manuale Pratico (The Diamond: A Practical Manual)* by Zancanella (O'Donoghue)1986/**20**:255
- Il Diamante Oggi (The Diamond Today)* by Andergassen (O'Donoghue)1986/**20**:252
- Il Libro Délie Gemme* by Leone (O'Donoghue)1996/**25**:67
- Il Meraviglioso Mondo dei Cristalli (The Wonderful World of Crystals)* by Gramaccioli (O'Donoghue)1988/**21**:198
- An Illustrated Dictionary of Jewellery* by Mason (O'Donoghue)1974/**14**:142
- The Illustrated Encyclopedia of the Mineral Kingdom* ed. by Woolley (O'Donoghue)1978/**16**:281
- Im Edelstein Eingeschlossen (Trapped in a Gemstone)* by Gübelin (O'Donoghue)1979/**16**:418
- Images of the Anakie Sapphire Fields, Queensland* by Scholler (O'Donoghue)1995/**24**:608
- The Immortal Stone: Chinese Jades from the Neolithic Period to the Twentieth Century* by Lin (O'Donoghue)2009/**31**:310
- Imperial Jade of Burma and Mutton-Fat Jade of India* by Samuels (Larson)2014/**34**:175
- In Search of the Scarce Green Hiddenite and the Emeralds of North Carolina* by Harshaw (O'Donoghue)1980/**17**:133
- Inclusions as a Means of Gemstone Identification* by Gübelin (Webster)1953/**4**:78
- Indian Gemmology* by Tank (SP)1973/**13**:239
- Indian Jewelry of the Prehistoric Southwest* by Jacka (O'Donoghue)1984/**19**:376
- Information Ober Kristallzuchtung (Crystal Growth Information)* by Nitsche (O'Donoghue)1978/**16**:215
- The Infrared Spectra of Minerals* ed. by Farmer (O'Donoghue)1976/**15**:218
- Infra-rot Spektren von Mineralien (Infrared Spectra of Minerals)* by Suhner (O'Donoghue)1988/**21**:45
- Initiation a la Gemmologie (Initiation in Gemmology)* by Lagache (O'Donoghue)1980/**17**:136



- Internal World of Gemstones* by Gübelin (Webster)1974/**14**:141; letter on correction to caption on page 166 (Gübelin)1977/**15**:287
- International Conference [on] New Diamond Science and Technology, Washington DC, 1990* ed. by Messier (O'Donoghue)1994/**24**:213
- International Directory of Micromounters. 9th edn.* ed. by Weinberger (O'Donoghue)1979/**16**:492
- International Gemological Symposium, Los Angeles, 1991. Proceedings of the International Gemological Symposium 1991* ed. by Keller (O'Donoghue)1994/**24**:121
- International Opal Journal* ed. by Fant (O'Donoghue)1979/**16**:421
- The International Turquoise Annual, Vol. 2* ed. by Crowell (O'Donoghue)1976/**15**:152
- An Introduction to Crystal Optics* by Gay (O'Donoghue)1983/**18**:575
- Introduction to Crystallography* by Hammond (O'Donoghue)1991/**22**:380
- An Introduction to Gemstones* by Harper (Webster)1956/**5**:270
- An Introduction to the Mineral Kingdom* by Pearl (AG)1966/**10**:64
- Introduction to Mineral Sciences* by Putnis (O'Donoghue)1995/**24**:446
- Introduction to the Physical Chemistry of the Vitreous State* by Balta (O'Donoghue)1977/**15**:400
- An Introduction to the Practical Study of Minerals* by Cox (O'Donoghue)1973/**13**:280
- An Introduction to the World's Gemstones* by Rutland (O'Donoghue)1974/**14**:195
- Inventaire Mineralogique de la France (Mineralogical Inventory of France)* by Pierrot (O'Donoghue)1978/**16**:142
- Investigating Minerals* by Evans (O'Donoghue)1975/**14**:299
- The Iron Crown and Imperial Europe: The Crown, the Kingdom and the Empire. A Thousand Years of History* by Buccellati (O'Donoghue)2001/**27**:370
- Isaac le Gooch, the King's Jeweller and Benefactor* by Wheatley (SP)1965/**9**:302
- Italiani alia Pesca del Corallo ed Egemonie Marittime nel Mediterraneo. 2nd edn.* by Tescione (O'Donoghue)1971/**12**:364
- Itinerari Mineralogici della Lombardia (Mineralogical Journeys in Lombardy)* by Boscardin (O'Donoghue)1980/**17**:196
- Ivoires de Chine (Ivories from China)* by van Lieu (O'Donoghue)1980/**17**:199
- Ivories of China and the East* by Spink (O'Donoghue)1985/**19**:547
- Ivory* by Campbell Pedersen (Rongy)2015/**34**:638
- Ivory Identification, a Photographic Reference Guide* by Mann (Pedersen)2013/**33**:173
- Jade* by C. Lam Shiu Ling (O'Donoghue)2007/**30**:345
- Jade* by Palmer (SP)1967/**10**:245
- Jade* by Sakikawa (SP)1971/**12**:184
- Jade* by Ward (O'Donoghue)1996/**25**:156
- Jade. Revised Edition* by Ward (O'Donoghue)2002/**28**:53
- Jade for Beginners* by May (O'Donoghue)1986/**20**:253
- Jade in Canada* by Leaming (O'Donoghue)1980/**17**:136; 271
- Jade in Chinese Culture* by Palm Springs Desert Museum (O'Donoghue)1995/**24**:609
- Jade Country* by Schoon (O'Donoghue)1975/**14**:238
- Jade of the East* by Wills (O'Donoghue)1974/**14**:37
- Jade, Fact and Fable* by Hardinge (Anderson)1962/**8**:237
- Jade, Juwel des Himmels* by Weise (O'Donoghue)1994/**24**:54
- The Jade Kingdom* by Desautels (O'Donoghue)1987/**20**:499
- Jade of the Maori* by Ruff (Anderson)1950/**2**:344–347
- A Jade Menagerie: Creatures Real and Imaginary from the Worrell Collection* by Ayers (O'Donoghue)1994/**24**:119
- Jade—Stein des Himmels (Jade—Stone of Heaven)* by Chu (O'Donoghue)1982/**18**:353
- Jade—Stone of Heaven* by Gump (Ruff)1963/**9**:141
- The Jade Trader* by Jade Sales (O'Donoghue)1974/**14**:38
- Jade Treasures of the Maori* by Riley (O'Donoghue)1995/**24**:447
- Jade for You. Value Guide to Fine Jewelry* by Ng (O'Donoghue)1985/**19**:641
- Jadeite* by Lee Ying Ho (O'Donoghue)1999/**26**:339
- Jadeite ABC* [in Chinese] by Ou Yang (O'Donoghue)1999/**26**:467
- Jadeite Identification Pictorial Book* [in Chinese] by Zheng Yong Zhen (O'Donoghue)1999/**26**:469
- Jadeite Jade* [in Chinese] by Ou Yang (O'Donoghue)2001/**27**:434
- Jadeite Jade: A Stone and a Culture* by Ou Yang (O'Donoghue)2003/**28**:438
- Jadeite Observation* [in Chinese] by Ou Yang (O'Donoghue)1999/**26**:467
- Jadeite Selection and Buying* [in Chinese] by Ou Yang (O'Donoghue)1999/**26**:467
- Jades from China* by Forsyth (O'Donoghue)1995/**24**:377
- Jades of Mesoamerica* by Ward (O'Donoghue)2002/**28**:53
- Jahrbuch der Edelsteinkunde, 1976 (Gemstone Yearbook, 1976)* by Pschichholz (O'Donoghue)1977/**15**:268
- Jasper* by Semenov (O'Donoghue)1981/**17**:425
- Jean-Pierre Bertrand de Lorn (1799–1878), Prospecteur-Mineralogiste Vellave, et son Oeuvre Gemmologique* by Forester (O'Donoghue)1999/**26**:336
- Jet* by Muller (O'Donoghue)1987/**20**:501
- Jet Jewellery and Ornaments* by Muller (O'Donoghue)1980/**17**:272
- The Jewelers' Dictionary. 2nd edn.* by Pough (Anderson)1950/**2**:316–317
- The Jeweler's Eye* by Levine (O'Donoghue)1990/**22**:115
- The Jeweler's Manual* by Liddicoat (SP)1965/**9**:301
- Jeweler's Pocket Reference Book* by Shipley (AG)1950/**2**:232
- The Jeweller's Art: An Introduction to the Hull Grundy Gift to the British Museum* by Tait (O'Donoghue)1979/**16**:421
- Jewellery* by Armstrong (O'Donoghue)1974/**14**:192
- Jewellery of the Ancient World* by Ogden (O'Donoghue)1983/**18**:774
- The Jewellery Book* by St Maur (O'Donoghue)1982/**18**:171
- Jewellery – English/Chinese, Chinese/English Dictionary* by Chen Zhonghui (O'Donoghue)1999/**26**:403
- Jewellery Gallery Summary Catalogue* by Bury (O'Donoghue)1983/**18**:444
- Jewellery Making in Birmingham, 1750–1995* by Mason (O'Donoghue)1999/**26**:466
- The Jewellery Quarter History and Guide* by Haddleton (O'Donoghue)1988/**21**:115
- Jewellery Reference and Price Guide. 2nd edn.* by Poynder (O'Donoghue)2000/**27**:242
- The Jewellery of Rene Lalique* by Becker (O'Donoghue)1987/**20**:499
- The Jewellery of Roman Britain: Celtic and Classical Traditions* by Johns (O'Donoghue)1998/**26**:274
- Jewellery: Two in One Manual* by Coles (O'Donoghue)2000/**27**:53
- Jewelry in America 1600–1900* by Fales (O'Donoghue)1996/**25**:65
- Jewelry Appraisal Handbook, 8th edn.* by American Society of Appraisers (Carmona)2015/**34**:639
- Jewelry Concepts and Technology* by Untracht (O'Donoghue)1984/**19**:187
- The Jewelry and Enamels of Louis Comfort Tiffany* by Zapata (O'Donoghue)1994/**24**:124
- Jewelry in Europe and America: New Times, New Thinking* by Turner (O'Donoghue)1996/**25**:244
- Jewelry & Gems: The Buying Guide. Revised 3rd edn.* by Matlins (O'Donoghue)1997/**25**:371
- Jewelry and Gems: The Buying Guide. 3rd edn.* by Matlins (O'Donoghue)1994/**24**:121
- Jewelry and Metalwork in the Arts and Crafts Tradition* by Karlin (O'Donoghue)1994/**24**:53

- Jewelry from the Pearl Museum, Vol. 1* by Matsuzuki (O'Donoghue)1999/**26**:466
- Jewels* by Fisher (Anderson)1965/**9**:361
- The Jewels of the Duchess of Windsor* by Culme (O'Donoghue)1988/**21**:262
- Jewels of Fantasy: Costume Jewelry of the 20th Century* ed. by Farneti Cera (O'Donoghue)1992/**23**:179
- Jewels of the Nizams* by Krishnan (O'Donoghue)2002/**28**:180
- The Jewels of Queen Elizabeth II: Her Personal Collection* by Field (O'Donoghue)1993/**23**:495
- The Jewels of Queen Elizabeth II – Her Personal Collection* by Field (Strack)1993/**23**:304
- Journal of the Gemmological Society of Japan. Vol. 1, No. 1, Oct. 1974* ed. by Sunagawa (O'Donoghue)1975/**14**:300
- Journey with Colour* by Cram (O'Donoghue)1991/**22**:379
- A Journey with Colour: A History of Queensland Opal 1869–1979* by Cram (O'Donoghue)1999/**26**:463
- A Journey with Colour: A History of South Australian Opal, 1840–2005* by Cram (O'Donoghue)2007/**30**:344–345
- Kamienie Szlachetne I Ozdobne Slaska (Precious and Ornamental Stones of Silesia)* by Sachanbinski (O'Donoghue)1981/**17**:498
- Khibiny* by Yakovenchuk (O'Donoghue)2006/**30**:245
- Kimberlites, Mineralogy, Geochemistry and Petrology* by Mitchell (O'Donoghue)1987/**20**:387
- Kleine Geologie der Ostalpen (Little Geology of the Eastern Alps)* by Bügel (O'Donoghue)1978/**16**:57
- Kleiner Wegweiser zum Bestimmen von Edelsteinen* by Wild (WS)1951/**3**:27–28
- Klockmann's Lehrbuch der Mineralogie (Klockmann's Mineralogy) 16th edn.* by Ramdohr (O'Donoghue)1979/**16**:551
- The Koh-I-Noor Diamond* by Amine (O'Donoghue)1999/**26**:546
- The Koh-I-Noor Diamond* by Howarth (O'Donoghue)1980/**17**:270
- Kostbare Steine: Die Gemmensammlung des Kurfürsten Johann Wilhelm von der Pfalz* by Weber (O'Donoghue)1994/**24**:54
- Kremlin Gold: 1000 Years of Russian Gems and Jewels* by Bartsch (O'Donoghue)2002/**28**:51
- Kristall Alpin* by Asselborn (O'Donoghue)1994/**24**:119
- Kristalle unter der Lupe (Crystals Under the Lens)* by Lieber (O'Donoghue)1974/**14**:93
- Kristalle aus den Schweizer Alpen* by Offermann (O'Donoghue)1999/**26**:466
- Kristallmuseum Riedenburg im Altmühltal, München* by Siegmair (O'Donoghue)1999/**26**:465
- Kurzgefasste Diamantenkunde (Concise Diamond Information) 2nd edn.* by Lentzen (O'Donoghue)1973/**13**:331
- Kvartz* by O'Donoghue (O'Donoghue)1991/**22**:382
- L'Age du Silicium* by Fröhlich (Jobbins)1994/**24**:120
- L'Arte Del Corallo* by Murano (O'Donoghue)1992/**23**:48
- L'Arte Trapanese del Corallo* by Daneu (O'Donoghue)1971/**12**:364
- L'Emeraude* by Giard (O'Donoghue)1999/**26**:464
- L'Emeraude. The Emerald. Connaissances Actuelles et Prospectives* ed. by Giard (O'Donoghue)2000/**27**:115
- La Connaissance des Gemmes et de Leurs Substituts. Part 1 (The Knowledge of Gems and Their Substitutes)* by Mai (O'Donoghue)1986/**20**:194
- La Esmeralda* by Munsuri (Mitchell)1969/**11**:273
- La Fluorite (Fluorite)* by Chermette (O'Donoghue)1989/**21**:313
- La Gemmologie, Notions, Principes, Concepts. 2e Édition* by Payette (O'Donoghue)1996/**25**:68
- La Microsonde Raman en Gemmologie* by Pinet (Jobbins)1994/**24**:54
- La Microsonde Raman en Gemmologie* by Schübnel (O'Donoghue)1994/**24**:214
- La Mine de Fluorine de Valzergues, Aveyron* by Guillou-Gotkovsky (O'Donoghue)2001/**27**:372
- La Sardegna e i suoi Minerali (Sardinia and its Minerals)* by Pietracaprina (O'Donoghue)1988/**21**:116
- La Vallée des Rubis (The Valley of Rubies)* by Kessel (O'Donoghue)1974/**14**:142
- Laboratory Created Diamonds* by Woodring (O'Donoghue)2005/**29**:489
- Laboratory-Grown Diamonds* by Deljanin (O'Donoghue)2009/**31**:310
- Laer Smykkestenene at Kende* by Brødsgaard (O'Donoghue)1972/**13**:151
- Lamprophyres* by Rock (O'Donoghue)1993/**23**:375
- Lapidari (Lapidary)* by Gili (O'Donoghue)1980/**17**:197
- Lapidary* by Fairfield (O'Donoghue)1974/**14**:194
- Lapidary Carving for Creative Jewelry* by Hunt (O'Donoghue)1981/**17**:497
- Lapidary in a Nutsell* by Scarfe (O'Donoghue)1973/**13**:235
- The Lapidary Manual* by Scarfe (O'Donoghue)1976/**15**:94
- Lapidary Techniques* by Craftool Press (O'Donoghue)1973/**13**:191
- Lapin Korukivet* by Vartiainen (O'Donoghue)2005/**29**:359
- Lapis, Die Aktuelle Monatsschrift für Liebhaber & Sammler von Mineralien & Edelsteinen (Lapis. A Topical Monthly Magazine for Lovers and Collectors of Minerals and Gemstones)* (O'Donoghue)1977/**15**:401
- The Larousse Encyclopedia of Precious Gems* by Bariand (O'Donoghue)1992/**23**:177
- Larousse des Minéraux (The Minerals' Larousse)* by Schübnel (O'Donoghue)1982/**18**:85
- Larousse des Minéraux (Minerals of Larousse) 2nd edn.* by Schubnel (O'Donoghue)1991/**22**:382
- Larousse des Pierres Précieuses, Fines, Ornamentales, Organiques* by Bariand (O'Donoghue)1986/**20**:57
- Las Otras Piedras Preciosas* by Pellicer (O'Donoghue)2002/**28**:117
- Laser Crystals, Their Physics and Properties* by Kaminskii (O'Donoghue)1981/**17**:498
- Lasers and Light. Readings from Scientific American* by Schawlow (O'Donoghue)1975/**14**:300
- Le Diamant dans Tout Son Éclat* by Kostolany (O'Donoghue)1996/**25**:242
- Le Mont Chemin* by Ansermet (O'Donoghue)2003/**28**:369
- Legendary Gems or Gems that Made History* by Bruton (Jobbins)1987/**20**:386
- Lehrbuch der Mineralogie (Textbook of Mineralogy) 2nd edn.* by Rösler (O'Donoghue)1982/**18**:84
- Leitfaden für die Exakte Edelsteinbestimmung* by Schlossmacher (Anderson)1950/**2**:342–344
- Leitfaden zur Gesteinsbestimmung (Guide to Stone Testing)* by Pape (O'Donoghue)1976/**15**:93
- Les Gemmes et Leur Identité (Identification of Gems)* by Moreau (O'Donoghue)1980/**17**:137
- Les Grenats* by Deville (O'Donoghue)1996/**25**:65
- Les Lapidaires Indiens. (Indian Lapidaries)* by Finot (O'Donoghue)1987/**20**:312
- Les Minéraux, Leurs Gisements, Leurs Associations* by Bariand (O'Donoghue)1979/**16**:487
- Les Pierres de Lune Bleues de Meethiyagoda, Sri Lanka. [A Thesis]* by Genot (O'Donoghue)2000/**27**:53
- Les Pierres Précieuses* by Schubnel (SP)1968/**11**:95
- Les Pierres Précieuses (Precious Stones) 5th edn.* by Tardy (O'Donoghue)1981/**17**:499
- Les Types d'Espèces Minérales et les Collections de Synthèses Anciennes du Muséum National d'Histoire Naturelle* by Schubnel (O'Donoghue)2002/**28**:117
- Lesotho Kimberlites* ed. by Nixon (O'Donoghue)1984/**19**:378
- Leuchtende Kristalle (Fluorescent Crystals)* by Lieber (O'Donoghue)1975/**14**:397
- Lexikon der Mineralogie (Dictionary of Mineralogy)* by Strübel (O'Donoghue)1983/**18**:664

- Life in Amber* by Poinar (O'Donoghue)1993/**23**:495
- Limpia la Tierra: Guerra y Poder entre Esmeraldas* by Alarcón (O'Donoghue)1999/**26**:469
- The Literature of Gemstones* by O'Donoghue (Israel)1987/**20**:501
- London's Lost Jewels: The Cheapside Hoard* by Forsyth (Hodgkinson)2014/**34**:269
- Loupes Made Easy* by Matlins (Fellows)2014/**34**:268–269
- Lovozero Massif: History, Pegmatites, Minerals* by Pekov (O'Donoghue)2002/**28**:116
- Lure of the Pearl: Pearl Culture in Australia* by Aquilina (O'Donoghue)2000/**27**:114
- The Macdonald Encyclopedia of Precious Stones* by Cipriani (O'Donoghue)1986/**20**:252
- Madagaskar: Das Paradies der Mineralien und Edelsteine* by Pezzotta (O'Donoghue)2000/**27**:116
- The Magic of Amber* by Hunger (JB)1978/**16**:213
- The Magic of Diamonds* by Monnickendam (SP)1956/**5**:269
- The Magic of Indian Diamonds* by Dewani (O'Donoghue)1985/**19**:641
- The Magic of Minerals* by Medenbach (O'Donoghue)1986/**20**:254
- Magic of Minerals and Rocks* by Wiersma (O'Donoghue)2005/**29**:359
- Magical Jewels of the Middle Ages and the Renaissance* by Evans (O'Donoghue)1978/**16**:138
- Main Trails to Maine Minerals* revised by Accord (O'Donoghue)1976/**15**:217
- Maine Mines and Minerals. 2nd Part* by Morrill (O'Donoghue)1988/**21**:263
- Making Shell Flowers* by Conroy (O'Donoghue)1973/**13**:187
- Man-Made Crystals* by Arem (O'Donoghue)1974/**14**:192
- Man-Made Gemstones* by Elwell (O'Donoghue)1980/**17**:47
- Mana Pounamu. New Zealand Jade* by Beck (O'Donoghue)2005/**29**:357
- Mani-Mâla, a Treatise on Gems* by Tagore (O'Donoghue)1997/**25**:502
- Manual of Mineralogy 21st edition* by Klein (O'Donoghue)1995/**24**:445
- Manual of the Mineralogy of Great Britain and Ireland* by Greg (Jobbins)1978/**16**:138
- Manual of Mineralogy, after James D. Dana. 19th edn.* by Hurlbut (O'Donoghue)1978/**16**:280
- Manual of Mineralogy, after J.D. Dana. 20th edn.* by Klein (O'Donoghue)1985/**19**:734
- A Manual of New Mineral Names, 1892–1978 ed.* by Embrey (O'Donoghue)1981/**17**:342
- Manuale di Gemmologia* by Cavenago-Bignami (O'Donoghue)1977/**15**:266
- Manufacture of Artificial Gemstones* by Boleszny (O'Donoghue)1973/**13**:186
- Marvellous World of Minerals* by Bariant (O'Donoghue)1977/**15**:400
- The Master Jewelers* ed. by Snowman (O'Donoghue)1991/**22**:383
- Masterworks of Chinese Jade in the National Palace Museum* by Fu-tung (O'Donoghue)1973/**13**:333
- Materials Science of the Earth's Interior* by Sunagawa (O'Donoghue)1988/**21**:116
- Mauboussin* by De Cerval (O'Donoghue)1994/**24**:120
- Meine Kleines Diamantenbuch (My Little Diamond Book)* by Bank (O'Donoghue)1981/**17**:497
- Meisterwerke Sächsischer Minerale* by Equit (O'Donoghue)1995/**24**:604
- Memoir of Localities of Minerals of Economic Importance and Metalliferous Mines in Ireland* by Cole (O'Donoghue)2000/**27**:114
- Menschen, Minen, Mineralien (Men, Mines, Minerals)* by Lieber (O'Donoghue)1980/**17**:198
- Metalwork and Enamelling* by Maryon (SP)1955/**4**:43
- Methoden der Dünnschliffmikroskopie (Thin-Section Microscopical Methods)* by Müller (O'Donoghue)1976/**15**:35
- The Micro World of Diamonds* by Koivula (Jobbins)2000/**27**:179
- Microstructures of Diamond Surfaces* by Tolansky (AG)1956/**5**:270
- Miller's Jewellery Antiques Checklist* by Giles (O'Donoghue)2000/**27**:179
- Minerais do Brasil (Minerals of Brazil)* by Franco (O'Donoghue)1973/**13**:330
- Mineral and Gem Localities in Arizona* by Hammons (O'Donoghue)1979/**16**:418
- The Mineral and Rock Resources of Ghana* by Kesse (O'Donoghue)1987/**20**:500
- Mineral Chemistry of Metal Sulfides* by Vaughan (O'Donoghue)1979/**16**:421
- Mineral Collecting Sites in North Carolina* by Wilson (O'Donoghue)1980/**17**:137
- Mineral Collector's Field Guide, Connecticut* by Webster (O'Donoghue)1979/**16**:491
- Mineral Collectors' Handbook. 1st edn.* by Pearl (GA)1949/**2**:157
- Mineral Digest, Vol. 2* by Zara (SP)1972/**13**:28
- Mineral-Fundstellen-Bayern (Mineral Localities—Bavaria)* by Schmeltzer (O'Donoghue)1980/**17**:137
- Mineral-Fundstellen. Vol. 7. Hessen (Mineral Locations—Vol. 3—Hesse)* by Wilke (O'Donoghue)1980/**17**:137
- Mineral Museums of Europe* by Burchard (O'Donoghue)1989/**21**:313
- Mineral Names—What do they Mean?* by Mitchell (O'Donoghue)1980/**17**:136
- Mineral Reference Manual* by Nickel (O'Donoghue)1993/**23**:305
- Mineral Resources of Sri Lanka. 2nd edn.* by Herath (O'Donoghue)1985/**19**:546
- Mineral Wealth of Saudi Arabia* by Spencer (O'Donoghue)1988/**21**:116
- Minerale (Minerals)* by Seim (O'Donoghue)1988/**21**:263
- Minerale Bestimmen (Identifying Minerals)* by Del Caldo (O'Donoghue)1975/**14**:396
- Minerale: Bestimmen nach Äusseren Kennzeichen. 3 Auflage* by von Hochleitner (O'Donoghue)1997/**25**:371
- Minerales de Bolivia* by Kempf (O'Donoghue)2005/**29**:358
- Minerales de las Comunidades Autónomas del País Vasco y Navarra* by Rebollar (O'Donoghue)1996/**25**:239
- Mineralfundorte in Frankreich (Mineral Locations in France)* by Zimmer (O'Donoghue)1977/**15**:337
- Mineralfundorte und ihre Minerale in Deutschland* by Wittern (O'Donoghue)2005/**29**:489
- Mineral Fundstellen (Mineral Sources), Vol. 1* by Fruth, Vol. 3 by Glas, Vol. 4 by Wilke, Vol. 5 by Weninger, Vol. 6 by Schmeltzer, Vol. 8 by Huber (O'Donoghue)1978/**16**:142
- Minerali Ossolani (Minerals of Ossola)* by Mattioli (O'Donoghue)1980/**17**:272
- Mineralien Fundstellen in der Tschechischen und Slowakischen Republik* by Paulis (O'Donoghue)1998/**26**:133
- Mineralien und Gesteine (Minerals and Stones.) 5th edn.* by Schumann (O'Donoghue)1978/**16**:141
- Mineralien Kompass (Mineral Guide)* by Hochleitner (O'Donoghue)1979/**16**:418
- Mineralien Richtig Reinigen* by Sury (O'Donoghue)1994/**24**:54
- Mineralien aus dem Schwarzwald (Minerals of the Black Forest)* by Walenta (O'Donoghue)1980/**17**:199
- Mineralienfreund. Zeitschrift der Urner Mineralienfreunde* by various (O'Donoghue)1977/**15**:338
- Mineralienlexikon der Schweiz* by Stalder (O'Donoghue)1999/**26**:468
- Mineralindex (Mineral Index)* by Kipfer (O'Donoghue)1976/**15**:34



- Mineralogical Applications of Crystal Field Theory* by Burns (O'Donoghue)1975/**14**:299
- Mineralogical Applications of Crystal Field Theory* by Burns (O'Donoghue)1994/**24**:119
- Mineralogical Gemmology. The Precious Minerals Through the Centuries* [in Bulgarian] by Kostov (Howie)1995/**24**:445
- The Mineralogical Record Index, Volumes I–XXV, 1970–1994* by Clopton (O'Donoghue)2001/**27**:500
- Mineralogical Studies of Archaic Jades* ed. by Hsien Ho Tsien (O'Donoghue)1999/**26**:465
- Mineralogical Studies on Luminescence in Diamond, Quartz and Corundum* by Lindblom (O'Donoghue)2006/**30**:244
- Mineralogie (Mineralogy)* by Matthes (O'Donoghue)1988/**21**:115
- Mineralogie. Grundlagen und Methoden (Mineralogy: Foundations and Methods)* by Strübel (O'Donoghue)1978/**16**:141
- Mineralogisch und Mineralchemische Untersuchungen an Beryll aus Alpinen Zerrklüften (Mineralogical and Mineral-Chemical Examination of Beryl from Alpine Clefts)* by Hänni (O'Donoghue)1980/**17**:270
- Mineralogische Tabellen (Mineralogical Tables)* by Strunz (O'Donoghue)1980/**17**:199
- Mineralogische Tabellen (Mineralogical Tables) 8th edn.* by Strunz (O'Donoghue)1983/**18**:445
- Mineralogiya (Mineralogy)* by Godonikov (O'Donoghue)1984/**19**:187
- Mineralogiya i kristalofizika yuvelirnykh raznvidnostii kremnezema (Mineralogy and Crystal Physics of Quartz Made for Jewellery)* by various (O'Donoghue)1980/**17**:199
- Mineralogiya Yashm SSSR (Jasper Minerals in the U.S.S.R.)* by Barsanov (O'Donoghue)1979/**16**:415
- Mineralogy for Amateurs* by Sinkankas (SP)1965/**9**:302
- Mineralogy of Arizona* by Anthony (O'Donoghue)1978/**16**:137
- Mineralogy of Arizona. 2nd edn.* by Anthony (O'Donoghue)1983/**18**:663
- Mineralogy of Arizona. 3rd edn.* by Anthony (O'Donoghue)1997/**25**:370
- Mineralogy of Maine. Volume 1. Descriptive Mineralogy* by King (O'Donoghue)1996/**25**:241
- Mineralogy of Maine. Volume 2. Mining History, Gems and Geology* by King (O'Donoghue)2001/**27**:500
- Minerals* by Clark (O'Donoghue)1980/**17**:197
- Minerals of Britain and Ireland* by Tindle (O'Donoghue)2009/**31**:311
- Minerals of Broken Hill* by Worner (O'Donoghue)1983/**18**:664
- Minerals of Broken Hill* ed. by Birch (O'Donoghue)2000/**27**:176
- Minerals of the Burra Mine, South Australia* by Grguric (O'Donoghue)1997/**25**:371
- Minerals of California* by Pemberton (O'Donoghue)1984/**19**:379
- Minerals of the Carpathians* ed. by Szakall (O'Donoghue)2007/**30**:345
- Minerals of Colorado* by Eckel (O'Donoghue)2000/**27**:115
- The Minerals of Franklin and Sterling Hill, Sussex County, New Jersey* by Palache (O'Donoghue)1980/**17**:198
- The Minerals of Franklin and Sterling Hill. A Check List* by Frondel (O'Donoghue)1974/**14**:36
- Minerals and Gems of Maoriland. 4th edn.* by Campbell (O'Donoghue)1973/**13**:187
- Minerals and Gemstones of Nebraska* by Pabian (O'Donoghue)1973/**13**:192
- Minerals of Georgia; Their Properties and Occurrences* by Cook (O'Donoghue)1980/**17**:197
- Minerals of India. 3rd revised edn.* by Wadia (O'Donoghue)1979/**16**:421
- Minerals and Man* by Hurlbut (Webster)1969/**11**:269
- Minerals of Mexico* by Panczner (O'Donoghue)1987/**20**:502
- Minerals: Nature's Fabulous Jewels* by Court (O'Donoghue)1976/**15**:149
- Minerals of New Mexico (Third Edition, Revised by Florence A. LaBruzza)* by Northrop (O'Donoghue)1997/**25**:372
- Minerals of New York State* by Jensen (O'Donoghue)1987/**20**:500
- Minerals of New Zealand* by Railton (O'Donoghue)1993/**23**:306
- Minerals of Rhode Island* by Miller (O'Donoghue)1980/**17**:136
- Minerals and Rocks* by Simpson (O'Donoghue)1975/**14**:349
- Minerals and Rocks in Colour* by Kirkaldy (O'Donoghue)1973/**13**:191
- Minerals, Rocks and Fossils* by Dietrich (O'Donoghue)1984/**19**:69
- Minerals and Rocks of Wyoming* by Root (O'Donoghue)1980/**17**:136
- Minerals of the St Lawrence Valley* by Robinson (O'Donoghue)1979/**16**:419
- Minerals of Scotland, Past and Present* by Livingstone (O'Donoghue)2003/**28**:369
- Minerals of South Africa* by Cairncross (O'Donoghue)1997/**25**:370
- Minerals and Their Characteristics* by Geological Survey of New South Wales (O'Donoghue)1974/**14**:197
- Minerals, Their Constitution and Origin* by Wenk (O'Donoghue)2005/**29**:359
- Minerals and Their Localities. 2nd edn.* by Bernard (O'Donoghue)2007/**30**:344
- Minerals of Virginia* by Dietrich (O'Donoghue)1980/**17**:132
- Minerals of Washington* by Cannon (O'Donoghue)1979/**16**:551
- Minerals of the World* by Sorrell (O'Donoghue)1974/**14**:196
- Les Minéraux, Leurs Gisements, Leurs Associations* by Bariand (O'Donoghue)1979/**16**:487
- Mines and Minerals of the Great American Rift* by Holmes (O'Donoghue)1984/**19**:376
- The Mines of Alston Moor* by Fairbairn (O'Donoghue)1993/**23**:494
- Mixed Crystals* by Kitaigorodsky (O'Donoghue)1985/**19**:442
- Modern Crystallography IV* by Shuvalov (O'Donoghue)1988/**21**:263
- Modern Jeweler's Consumer Guide to Gemstones* by Federman (O'Donoghue)1990/**22**:244
- Modern Jeweler's Gem Profile: The First Sixty* by Federman (O'Donoghue)1989/**21**:456
- Modern Jeweler's Gem Profile/2: The Second 60* by Federman (O'Donoghue)1993/**23**:494
- Modern Theory of Crystal Growth* ed. by Chernov (O'Donoghue)1983/**18**:773
- Mogok: Eine Reise durch Burma zu den Schönsten Rubinen und Saphiren der Welt* by Schlüssel (O'Donoghue)2003/**28**:370
- Mogok – Valley of Rubies and Sapphires* by Themelis (O'Donoghue)2001/**27**:501
- Monteregian Treasures* by Mandarino (O'Donoghue)1989/**21**:516
- More about Minerals* by Ladurner (O'Donoghue)1973/**13**:281
- More of Britain's Gems* by Rogers (O'Donoghue)1975/**14**:397
- The Moscow Opal Mines, 1890 to 1893* by Brockett (O'Donoghue)1974/**14**:193
- Multiple Diffraction of X-rays in Crystals* by Chang (O'Donoghue)1985/**19**:733
- Musée Cartier* by Nussbaum (O'Donoghue)1988/**21**:264
- Musees Royaux d'Art et d'Histoire [Belgium]. Quand la Pierre se fait Precieuse...* by Van den Audenaerde (O'Donoghue)1999/**26**:466
- Myanma Jade* by Then (O'Donoghue)2003/**28**:308
- Mysteries of Ancient China: New Discoveries from the Early Dynasties* by Rawson (O'Donoghue)1997/**25**:372
- Namibia, Minerals and Localities, 2nd edn.* by Von Bezing (O'Donoghue)2007/**30**:464
- Naming Gem Garnets* by Hanneman (O'Donoghue)2000/**27**:178
- The National Gem Collection, Smithsonian Institution* by Abrams (Howie)2005/**29**:488
- The National Gem Collection, Smithsonian Institution* by Post (O'Donoghue)1999/**26**:338

- Natural Bleach Jadeite Identification* [in Chinese] by Hwang (O'Donoghue)1999/**26**:465
- Natural Glasses* by Bouska (O'Donoghue)1994/**24**:295
- The Nature of Diamonds* ed. by Harlow (Howie)1998/**26**:195
- Natürliche und Synthetische Rubine (Natural and Synthetic Rubies)* by Schmetzer (O'Donoghue)1986/**20**:255
- The Necklace from Antiquity to the Present* by Triossi (O'Donoghue)1998/**26**:134
- The New Alchemists: Breaking Through the Barriers of High Pressure* by Hazek (O'Donoghue)1994/**24**:212
- New Frontiers in Diamonds: The Diamond Revolution* by Duval (O'Donoghue)1996/**25**:240
- New Zealand Gemstones* by Cooper (O'Donoghue)1973/**13**:233
- New Zealand Jade* by Beck (Mitchell)1985/**19**:733
- New Zealand Jade* by Beck (O'Donoghue)1986/**20**:57
- New Zealand Jade: The Story of Greenstone* by Beck (O'Donoghue)1971/**12**:363
- Norsk Steinbok* by Garmo (O'Donoghue)1996/**25**:154
- Nouratan* by Islam (SP)1972/**13**:28
- Nutzbare Mineralien (Useful Minerals)* by Kühnel (O'Donoghue)1976/**15**:34
- The Occult and Curative Powers of Precious Stones* by Fernie (O'Donoghue)1976/**15**:92
- One Hundred Tiaras: An Evolution of Style 1800–1990* by Munn (O'Donoghue)1997/**25**:503
- Opal Adventures* by Downing (O'Donoghue)1990/**22**:244
- The Opal Book* by Leechman (SP)1962/**8**:237
- Opal, das Edelste Feuer des Mineralreichs* by Brunschweiler (O'Donoghue)1996/**25**:310
- Opal: The Gem of the Never Never* by Wollaston (O'Donoghue)1997/**25**:373
- Opal and How to Work It* by Barnett (O'Donoghue)1984/**19**:69
- Opal and How to Work It* by Barnett (O'Donoghue)1984/**19**:375
- Opal Identification and Value* by Downing (O'Donoghue)1993/**23**:304
- Opal Identification and Value* by Downing (O'Donoghue)2003/**28**:438
- Opal Mining at Lightning Ridge* by McCabe (O'Donoghue)1980/**17**:271
- Opal Report from Honduras 'The Fire Still Burns'* by Dabdoub (O'Donoghue)1991/**22**:379
- Opal, the Phenomenal Gemstone* by Frazier (O'Donoghue)2007/**30**:463–464
- Opal, South Australia's Gemstone. 2nd edn.* by Barnes (O'Donoghue)1997/**25**:370
- Opale Australijskie (Australian Opals)* by various (O'Donoghue)1989/**21**:458
- Opals* by Ward (O'Donoghue)1997/**25**:438
- Opals of the Never Never* by Haill (O'Donoghue)1983/**18**:444
- Opals of the Never Never* by Haill (O'Donoghue)1991/**22**:380
- Opals and Sapphires* by Idriess (SP)1968/**11**:94
- Opals, Rivers of Illusions* by Loneck (O'Donoghue)1987/**20**:500
- Optical Determination of Rock-Forming Minerals* by Tröger (O'Donoghue)1980/**17**:137
- The Optical Papers of Sir Isaac Newton. Vol. 1. The Optical Lectures, 1670–1672* ed. by Newton (O'Donoghue)1999/**26**:546
- Optische Bestimmung der gesteinsbildenden Minerale. Teil 1, Bestimmungstabellen (Optical Properties of Rock-Forming Minerals: Part 1, Tables of Properties) 4th edn.* by Tröger (O'Donoghue)1977/**15**:337
- Ore Microscopy and Ore Petrography* by Craig (O'Donoghue)1995/**24**:604
- Origins of Gemology in Pictures* by Gill (O'Donoghue)1976/**15**:150
- Ornament and Jewellery* by Benda (Anon)1967/**10**:270
- Otamatea Kauri and Pioneer Museum (A Guide to the Museum) 5th Printing* by Otamatea Kauri and Pioneer Museum Board (O'Donoghue)1997/**25**:502
- Papers and Proceedings of the Ninth General Meeting, Berlin (West)—Regensburg, September 12–18, 1974* ed. by Schweizerbart (O'Donoghue)1977/**15**:338
- The Paris Salons* by Duncan (O'Donoghue)1996/**25**:65
- The Paul Hamlyn Dictionary of Australian Gemstones* by Myatt (O'Donoghue)1975/**14**:349
- The Pearl Book: The Definitive Buying Guide* by Matlins (O'Donoghue)1997/**25**:371
- The Pearl Buying Guide* by Newman (O'Donoghue)1994/**24**:122
- Pearl Buying Guide [Third Edition]* by Newman (O'Donoghue)1999/**26**:403
- Pearl Buying Guide. 4th edn.* by Newman (O'Donoghue)2004/**29**:115
- Pearl Museum. Human Involvement with Pearls Through the Ages* by Hakubutsukan (Campbell-Pedersen)2000/**27**:242
- Pearl Science* [in Chinese] by Yukan (O'Donoghue)1999/**26**:469
- The Pearl Seekers* by Bartlett (SP)1954/**4**:321
- Pearling in the Arabian Gulf* by Marsoon al-Shamlan (Strack)2004/**29**:115
- Pearls* by Strack (Stern)2006/**30**:115
- Pearls* by Ward (O'Donoghue)1995/**24**:448
- Pearls, a Natural History* by Landman (O'Donoghue)2002/**28**:51
- Pearls, from Myth to Modern Pearl Culture* by Doubilet (Campbell-Pedersen)1997/**25**:437
- Pearls: Natural, Cultured and Imitation* by Farn (O'Donoghue)1986/**20**:252
- Pearls, Ornament and Obsession* by Joyce (O'Donoghue)1993/**23**:374
- Pearls and Pearl Oysters of the World* [in English and Japanese] by Shirai (O'Donoghue)1999/**26**:468
- Pearls, Their Origin, Treatment and Identification* by Taburiaux (O'Donoghue)1986/**20**:131
- Pebble Polishing* by Fletcher (O'Donoghue)1973/**13**:188
- Pebble Polishing and Pebble Jewellery* by Rogers (O'Donoghue)1974/**14**:143
- The Peking Diamonds [A Tale]* by Read (O'Donoghue)1995/**24**:608
- Periodigo da Associação Brasileira de Gemologia* ed. by Carraro (Anon)1956/**5**:273
- Perlen* by Strack (Stern)2003/**28**:308
- Perlen & Perlmutter* by Schlüter (O'Donoghue)1999/**26**:546
- Perlenfibel (A Primer on Pearl)* by Strack (O'Donoghue)1982/**18**:353
- Peterson First Guides – Rocks and Minerals* by Pough (O'Donoghue)1992/**23**:180
- The Petrographic Microscope* by Kile (O'Donoghue)2004/**29**:1837
- Petrology of Lamproites* by Mitchell (O'Donoghue)1993/**23**:305
- Phase Diagrams: A Literature Source Book* by Wisniak (O'Donoghue)1982/**18**:171
- Phenomenal Gems* by Ward (O'Donoghue)2008/**31**:137
- Phosphate Minerals* by Nriagu (O'Donoghue)1989/**21**:313
- Photo Masters for Diamond Grading* by Roskin (Emms)1996/**25**:68
- Photoatlas of Gem Spectra for Gemmology Students* by Armstrong (Mitchell)2015/**34**:552
- Photoatlas of Inclusions in Gemstones* by Gübelin (Jobbins)1987/**20**:312
- Photoatlas of Inclusions in Gemstones, Volume 2* by Gübelin (Jackson)2006/**30**:114–115
- Photoatlas of Inclusions in Gemstones, Volume 3* by Gübelin (Jackson)2008/**31**:136–137
- Photographic Guide to Minerals of the World* by Johnsen (O'Donoghue)2003/**28**:307
- Photographing Minerals, Fossils and Lapidary Materials* by Scovil (O'Donoghue)1997/**25**:372
- Physical Gemmology* by Walton (Webster)1953/**4**:36–37
- The Physics and Chemistry of Color* by Nassau (O'Donoghue)1985/**19**:547



- The Physics and Chemistry of Color* by Nassau (O'Donoghue)2003/**28**:370
- Physics and Chemistry of Earth Materials* by Navrotsky (O'Donoghue)1995/**24**:446
- Physics of Minerals and Inorganic Materials: An Introduction* by Marfunin (O'Donoghue)1980/**17**:48
- Pierres de Lumière et Objet Précieux (Shining Stones and Precious Objects)* by Schübnel (O'Donoghue)1988/**21**:116
- Pierres Précieuses* by Gübelin (SP)1970/**12**:91
- Pierres Précieuses dans le Monde* by Schubnel (O'Donoghue)1973/**13**:235
- Pietre Pretioase Fine Ornamentale, Perle* by Mercea-Dragomer (O'Donoghue)2000/**27**:179
- Piètre Preziose Gemme E Piètre Dure* by Schubnel (SP)1968/**11**:95
- Pinzgau – Tal der Kristalle und des grünen Feuers* by Wachtler (O'Donoghue)2007/**30**:463
- Planetary Materials* ed. by Papike (O'Donoghue)2001/**27**:371
- Platinum by Cartier: Triumphs of the Jeweler's Art* by Cogni (O'Donoghue)1996/**25**:240
- The Pleasure of Jewelry and Gemstones* by Sataloff (O'Donoghue)1975/**14**:349
- The Pocket Guide to Rocks and Minerals* by O'Donoghue (Jobbins)1990/**22**:183
- The Polarizing Microscope* by anonymous (Webster)1955/**4**:97
- Polish Amber* by Grabowska (O'Donoghue)1989/**21**:456
- Polnische Edel- und Schmucksteine im Barockschloss Moritzburg (Polish Gem and Jewellery Stones in the Baroque Castle of Moritzburg)* by Sachanbinski (O'Donoghue)1981/**17**:498
- Poona WA and the Seekers of its Emeralds* by Palmer (O'Donoghue)1991/**22**:382
- Popular Gemology* by Pearl (Webster)1949/**2**:26
- Portrait der Edelsteinmetropole Idar-Oberstein* by PROGEM (O'Donoghue)2000/**27**:117
- The Power of Gems and Crystals: How they can Transform Your Life* by Holbeche (O'Donoghue)1991/**22**:381
- The Power of Gold* by Bernstein (O'Donoghue)2001/**27**:434
- Practical Gem Testing* by Lewis (Mitchell)1978/**16**:214
- Practical Gemcutting* by Perry (O'Donoghue)1982/**18**:353
- Practical Gemmology, 4th edn.* by Webster (AG)1967/**10**:207
- Practical Gemstone Craft* by Hutton (O'Donoghue)1973/**13**:189
- Practical Jewellery Repair* by Hickling (Read)1987/**20**:387
- Praktische Edelsteinkunde (Practical Gemmology)* by Fischer (WS)1954/**4**:216
- Praktische Gemmologie (Practical Gemmology)* by Eppler (O'Donoghue)1974/**14**:193
- Praktische Gemmologie. 2nd edn. (Practical Gemmology)* by Eppler (O'Donoghue)1986/**20**:57
- Precious and Coloured Stones* [in Russian] by Isdateltsvo Nauka (O'Donoghue)1981/**17**:425
- Precious Gems: Jewellery from Eight Centuries* by Welander-Berggren (O'Donoghue)2000/**27**:242
- Precious Stones* by Bauer (SP)1970/**12**:91
- Precious Stones Newsletter* by various (O'Donoghue)1979/**16**:492
- Precious Stones and Other Crystals* by Metz (KB)1965/**9**:303
- Precious Stones in Russian Jewelry Art in XIIIth–XVIIIth Centuries* by Martynova (O'Donoghue)1975/**14**:348
- Precis de Mineralogie (Compendium of Mineralogy)* by Aubert (O'Donoghue)1980/**17**:132
- The Price Guide to Jewellery, 3000 B.C. to 1950 A.D.* by Poynder (O'Donoghue)1978/**16**:139
- A Private Collection of Early Chinese Jade Carvings 28 November to 9 December 1994 [Catalogue]* by Weisbrod (O'Donoghue)1995/**24**:609
- Private Mineral Collections in Texas* by Wilson (O'Donoghue)2009/**31**:311
- Produktions und Handlungsgeschichte des Diamanten (The History of the Production and Trade of the Diamond)* by Lenzen (Strack)1967/**10**:245
- Professional Jewellery Appraising* by Cartier (Dunn)1997/**25**:436
- Professione Gemme: Anuario 2000* by Collegio Italiano Gemmologici (O'Donoghue)2001/**27**:371
- Properties and Application of Diamond* by Wilks (Strack)1992/**23**:181
- The Properties of Diamond* ed. by Field (O'Donoghue)1980/**17**:132
- Properties of Gem Varieties of Minerals* by Wigglesworth (AG)1950/**2**:323
- Properties and Growth of Diamond* ed. by Davies (O'Donoghue)1995/**24**:520
- The Properties of Natural and Synthetic Diamond* ed. by Field (O'Donoghue)1993/**23**:494
- The Properties of Optical Glass* ed. by Bach (O'Donoghue)1995/**24**:602
- A Proposal for Delimiting Ruby (from Rose and Violet Corundum) and Emerald (from Light Green and Dark Green Beryl)* by Superchi (O'Donoghue)1980/**17**:273
- Prospecting and Evaluation of Deposits of Precious and Economic Stones* [in Russian] by Kivienko (O'Donoghue)1981/**17**:425
- Prospecting for Gemstones and Minerals* by Sinkankas (SP)1972/**13**:29
- Putevoditel'po Mineralam (Beginner's Guide to Minerals)* by O'Donoghue (O'Donoghue)1987/**20**:502
- Pyrit und Markasit* by Weise (O'Donoghue)1997/**25**:437
- Quand la pierre se fait précieuse ... : Musées royaux d'Art et d'Histoire Brüssel, Musée royal de l'Afrique centrale Tervuren, 1995, see 'Musees Royaux d'Art et d'Histoire...'*
- Quartz. extraLapis No. 37* by Weise (O'Donoghue)2009/**31**:310
- Quartz-Monographie. Die Eigenheiten von Bergkristall, Rauchquarz, Amethyst, Chalcedon, Opal und Anderen Varietäten (2, Überarbeitete Auflage)* by Rykart (O'Donoghue)1996/**25**:68
- Quarz (Quartz)* by Rykart (O'Donoghue)1989/**21**:516
- Quarzrohstoffe (Rough Quartz)* by Blankenburg (O'Donoghue)1979/**16**:415
- The Queen's Jewellery* by Young (SP)1969/**11**:273
- The Queen's Jewels* by Field (O'Donoghue)1988/**21**:115
- Queensland Minerals: A Summary of Major Mineral Resources, Mines and Projects* by Garrad (O'Donoghue)2002/**28**:116
- Queensland's Gem Fields* by Queensland Government Tourist Bureau (O'Donoghue)1976/**15**:152
- Rare Earth Minerals. Chemistry, Origin and Ore Deposits (Mineralogical Society Series)* by Jones (O'Donoghue)1996/**25**:155
- Recovery and Refining of Precious Metals. 3rd edn.* by Ammen (O'Donoghue)1999/**26**:334
- Recursos Minerales del Uruguay (Mineral Resources of Uruguay)* by Bossi (O'Donoghue)1980/**17**:270
- Red Coral, Jewel of the Sea* by Liverino (O'Donoghue)1995/**24**:377
- Rediscover Opals in Australia* by Aracic (O'Donoghue)2001/**27**:371
- Refractometers Made Easy* by Matlins (Fellows)2014/**34**:268–269
- The Regalia of the Russian Empire* by Polynina (O'Donoghue)1997/**25**:372
- Resources Inventory of Botswana: Metallic Minerals, Mineral Fuels and Diamonds* by Baldock (O'Donoghue)1979/**16**:486
- The Retail Jeweller's Guide. 4th edn.* by Blakemore (O'Donoghue)1984/**19**:69
- The Retail Jeweller's Guide. 5th edn.* by Blakemore (Israel)1988/**21**:261
- The Retail Jeweller's Guide. 6th edn.* by Blakemore (O'Donoghue)2001/**27**:370
- Retail Jewellers' Handbook. 7th edn.* by Selwyn (SP)1962/**8**:261
- Retail Silversmith's Handbook* by Selwyn (SP)1955/**4**:42
- Rhinestones* by Schiffer (O'Donoghue)1993/**23**:495



- Ringe. Rings. Die Alice und Louis Koch Sammlung. Vierzig Jahrhunderte Durch Vier Generationen Gesehen. The Alice and Louis Koch collection. Forty Centuries Seen by Four Generations* by Chadour (O'Donoghue)1996/**25**:64
- Rings for the Finger* by Kunz (O'Donoghue)1974/**14**:93
- Rio Grande do Sul, Brasilien. Landschaften – Menschen – Edle Steine* by Balzer (O'Donoghue)2005/**29**:357
- Roadside Geology of Northern California* by Alt (O'Donoghue)1979/**16**:415
- Roadside Geology of the Northern Rockies* by Alt (O'Donoghue)1979/**16**:415
- Roadside Geology of Utah* by Chronic (O'Donoghue)1994/**24**:119
- Robbing the Sparry Garniture. A 200-Year History of the British Mineral Dealers* by Cooper (O'Donoghue)2007/**30**:463
- Rock Collecting and Making Semi-Precious Jewellery* by Warring (O'Donoghue)1973/**13**:285
- Rock Crystal Products* by Czarnowski (O'Donoghue)1980/**17**:270
- Rock and Gem Polishing* by Fletcher (O'Donoghue)1974/**14**:36
- Rock-Forming Minerals. [Second edition. Vol. 2B. Single-Chain Silicates]* by Deer (O'Donoghue)1998/**26**:48
- Rock-Forming Minerals. 2nd edn. Vol. 4A, Framework Silicates: Feldspars* by Deer (O'Donoghue)2002/**28**:51
- Rock-Forming Minerals. 2nd edn. Vol. 1a. (Orthosilicates)* by Deer (O'Donoghue)1983/**18**:663
- Rock-Forming Minerals. Second Edition. Vol. 5B. Non-Silicates: Sulphates, Carbonates, Phosphates, Halides* by Chang (O'Donoghue)1996/**25**: 310
- Rock-Forming Minerals. Vol. 2A. 2nd edn.* by Deer (O'Donoghue)1979/**16**:487
- Rock-Forming Minerals. Vol. 4B (2nd edn.), Framework Silicates: Silica Minerals, Feldspathoids and the Zeolites* by Deer (O'Donoghue)2004/**29**:240
- A Rockhound's Guide to Metropolitan New Jersey* by Jackson (O'Donoghue)1974/**14**:92
- The Rockhound's Handbook* by Firsoff (O'Donoghue)1975/**14**:396
- Rocks and Minerals* by Arem (O'Donoghue)1976/**15**:91
- Rocks and Minerals* by Desautels (O'Donoghue)1975/**14**:237
- Rocks and Minerals* by Rogers (O'Donoghue)1974/**14**:37
- Rocks and Minerals for the Collector: The Alaska Highway Dawson Creek, B.C., to Yukon/Alaska Border* by Sabina (O'Donoghue)1973/**13**:333
- Rocks and Minerals of the Western United States* by Hanauer (O'Donoghue)1979/**16**:418
- Rocks, Minerals and Gemstones* by Evans (O'Donoghue)1973/**13**:234
- Rocks, Minerals and Gemstones of Southern Africa. 2nd edn.* by MacIntosh (O'Donoghue)1984/**19**:70
- A Roman Book of Precious Stones* by Ball (Webster)1950/**2**:317–319
- Roman Jet in the Yorkshire Museum* by Allason-Jones (O'Donoghue)1996/**25**:310
- Romance of the Golconda Diamonds* by Khalidi (O'Donoghue)2000/**27**:55
- Rough Diamonds. Internal and External Features* by Peters (O'Donoghue)1999/**26**:467
- Rough Diamonds. A Practical Guide* by Peters (O'Donoghue)1999/**26**:467
- Royal Insignia: British and Foreign Orders of Chivalry from the Royal Collection* by Patterson (O'Donoghue)1999/**26**:546
- Royal Treasures: A Golden Jubilee Celebration* ed. by Roberts (O'Donoghue)2002/**28**:181
- The Rubies of Cowee Valley* by Harshaw (O'Donoghue)1980/**17**:198
- Rubies (Diamonds, Emeralds, Sapphires) Are a Girl's Best Friend* by Heady (O'Donoghue)2000/**27**:178
- Rubies & Sapphires. 4th edn.* by Ward (O'Donoghue)2004/**29**:53
- Rubies and Sapphires* by Ward (O'Donoghue)1993/**23**:306
- Ruby and Sapphire* by Hughes (O'Donoghue)1997/**25**:437
- Ruby and Sapphire* ed. by Belyaev (O'Donoghue)1983/**18**:773
- Ruby & Sapphire—A Collector's Guide* by Hughes (Boehm)2014/**34**:176–177
- The Ruby and Sapphire Buying Guide* by Newman (O'Donoghue)1992/**23**:48
- The Ruby and Sapphire Buying Guide. 2nd edn.* by Newman (Howie)1994/**24**:122
- Ruby, Sapphire and Emerald Buying Guide* by Newman (O'Donoghue)2000/**27**:55
- Russian Alexandrites* by Schmetzer (Hart)2010/**32**:113
- Russian Gemstones Encyclopedia* by Bukanov (O'Donoghue)2007/**30**:344
- Rutley's Elements of Mineralogy. 27th edn.* by Gribble (O'Donoghue)1989/**21**:457
- Safirul si Rubinul (Sapphire and Ruby)* by Birau (O'Donoghue)1988/**21**:115
- Saltbush Rainbow: The Early Days at White Cliffs* by Rowe (O'Donoghue)1999/**26**:403
- Salzburger Mineralogisches Taschenbuch (Mineralogical Pocketbook for the Salzburg Area)* by Strasser (O'Donoghue)1979/**16**:420
- Sammlerglück: Die Achatfundstelle Geisberg bei Schweighausen* by Stengler (O'Donoghue)2003/**28**:370
- Scandinavian Diamond Nomenclature and Grading Standards* by Scandinavian Jewellers' Association (SP)1971/**12**:182
- Schatzkammer Hobe Tauern (Treasure House Hobe Tauern)* by Wagner (O'Donoghue)1989/**21**:315
- Schedule of Ornamental and Gem Stones* by Pschichholz (O'Donoghue)1976/**15**:219
- Schmuck- imd edelsteinkundliches Taschenbuch (Gemmological Pocket Book)* by Chudoba (WS)1953/**4**:80
- Schmuck und Edelsteine* by Baumgärtel (O'Donoghue)1989/**21**:456
- Schöne und Seltene Mineralien (Beautiful and Rare Minerals)* by Hofmann (O'Donoghue)1982/**18**:84
- The Science of Gems* by Fisher (Anderson)1968/**11**:133
- Science in the Micro-Cosmos: Gemstones* by Shida (O'Donoghue)1999/**26**:547
- Science and Technology of Diamond* ed. by Bhatnagar (O'Donoghue)1999/**26**:463
- Scottish Gem Stones* by McCallien (Mitchell)1966/**10**:64
- The Scottish Pearl in its World Context* by Woodward (O'Donoghue)1997/**25**:373
- Sea of Pearls: Seven Thousand Years of the Industry that Shaped the Gulf* by Carter (Fellows)2014/**34**:177
- Secrets of the Gem Trade* by Wise (O'Donoghue)2004/**29**:116
- Seeing the Light* by Cartier (O'Donoghue)2005/**29**:357
- Setting of Gemstones* by Zeiss (O'Donoghue)1986/**20**:58
- Shell Life and Shell Collecting* by Murray (SP)1970/**12**:90
- Shells* by Claasen (O'Donoghue)1999/**26**:463
- Silica: Physical Behaviour, Geochemistry and Materials Applications* ed. by Heaney (O'Donoghue)1995/**24**:444
- Silicate Crystal Chemistry* by Griffen (O'Donoghue)1994/**24**:120
- The Simpler? Polyhedra. Part 3* by Taylor (O'Donoghue)2000/**27**:180
- Sinteticheskie Analogi i Imitatsii Prirodnykh Dragotsennykh Kamnei (Synthetic Counterparts and Imitations of Natural Precious Stones)* by Balitskii (O'Donoghue)1981/**17**:640
- Sky Smuggler* by Williamson (HW)1958/**6**:387
- The Smale Collection: Beauty in Natural Crystals* by Smale (O'Donoghue)2006/**30**:245
- Smaragde der Welt* by Weise (O'Donoghue)2003/**28**:370
- Smaragde-Gauner und Phantasten (Emerald, Rogue and Visionary)* by Pech (O'Donoghue)1977/**15**:337
- The Smithsonian Treasury: Minerals and Gems* by White (O'Donoghue)1994/**24**:124

- The Snettisham Roman Jeweller's Hoard* by Johns (O'Donoghue)2003/**28**:307
- Some Semiprecious and Ornamental Stones of South Australia* by Barnes (WAF)1982/**18**:83
- Some Semiprecious and Ornamental Stones of South Australia* by Barnes (O'Donoghue)1987/**20**:387
- Sources of Single Crystals in the United Kingdom and Scandinavia* by Wanklyn (O'Donoghue)1978/**16**:281
- South African Directory of Jewellery and Precious Metals* by Thomson Publications (O'Donoghue)1980/**17**:273
- Spectroscopy, Luminescence and Radiation Centers in Minerals* by Marfunin (O'Donoghue)1980/**17**:136
- Splendour and Science of Pearls* ed. by Dirlam (Strack)2014/**34**:270
- SSEF Diamond-Type Spotter and Blue Diamond Tester Made Easy* by Matlins (Fellows)2014/**34**:268–269
- Standard Catalog of Gem Values Second Edition* by Miller (O'Donoghue)1995/**24**:606
- Standard Mineralogical Catalogue, mid 1977 to mid 1978* by Brazeau (O'Donoghue)1978/**16**:280
- Standards and Applications for Diamond Report, Gemstone Report, Test Report [English Language Edition]* by SSEF (O'Donoghue)1999/**26**:469
- The Star and Cross Polyhedra (Forms Part 4 of the Complete? Polyhedra)* by Taylor (O'Donoghue)2001/**27**:374
- Steinschleifen (Stone Cutting)* by Binneweis (O'Donoghue)1984/**19**:186
- The Stellenbosch Gem Index: A Numerical Approach to Gemstone Identification* by Pienaar (O'Donoghue)1990/**22**:245
- Stones from Heaven: Ancient Chinese Jade* by Kessler (O'Donoghue)1997/**25**:437
- The Story of the Gems* by Whitlock (O'Donoghue)1973/**13**:240
- The Story of New Zealand Jade, Commonly Known as Greenstone* by Pearce (O'Donoghue)1973/**13**:192
- The Strategic Diamond* by Tolansky (SP)1969/**11**:271
- Struck by Lightning* by Taylor (O'Donoghue)1987/**20**:387
- Structure of Crystals* by Vainshtein (O'Donoghue)1996/**25**:69
- Structure of Crystals. 3rd edn. Modern Crystallography 2* by Vainshtein (O'Donoghue)2001/**27**:374
- Strunz Mineralogical Tables. 9th edn.* by Strunz (O'Donoghue)2002/**28**:117
- A Student's Guide to Spectroscopy* by Winter (O'Donoghue)2003/**28**:494
- Studies on Agate. Microscopy, Spectroscopy, Growth, High Temperature and Possible Origin* by Moxon (Jackson)2010/**32**:112–113
- Südtirol und die Dolomiten* by Wachtler (O'Donoghue)2003/**28**:371
- Suomen Gemmologinen Seuray* by Gemmologia/Jalokivet (O'Donoghue)2005/**29**:359
- Surseiva: Kristalle, Klüfte, Cavacristallas* ed. by Wachtler (O'Donoghue)2007/**30**:345
- Sweat of the Sun, Tears of the Moon—Gold and Emerald Treasures of Colombia* by Furst (O'Donoghue)1982/**18**:253
- Symbols of Excellence* by Clark (O'Donoghue)1987/**20**:499
- Symmetrielehre der Kristallographie* by Borchardt (O'Donoghue)2000/**27**:176
- Symmetrielehre der Kristallographie. Modelle der 32 Kristallklassen zum Selbstbau* by Borchardt (O'Donoghue)2007/**30**:344
- Synthesis, Crystal Growth and Characterization* ed. by Lal (Jobbins)1985/**19**:641
- Synthetic Gem and Allied Crystal Manufacture* by MacInnes (O'Donoghue)1973/**13**:282
- Synthetic Gem Materials* by O'Donoghue (DE)1977/**15**:336
- Synthetic Gems, Production Techniques* by Yaverbaum (O'Donoghue)1980/**17**:273
- Synthetic, Imitation and Treated Gemstones* by O'Donoghue (Read)1998/**26**:274
- Tabellen zur Edelstein-Bestimmung* by Walton (O'Donoghue)1973/**13**:239
- Tables of Gemstones Identification* by Dedeayne (O'Donoghue)2007/**30**:463; letter on (Howie)2008/**31**:61
- Tabiti – The Magic of the Black Pearl* by Salomon (Jobbins)1989/**21**:457
- Tangerine Green [A Tale]* by James (O'Donoghue)1996/**25**:66
- Tektites in the Geological Record: Showers of Glass from the Sky* by MacCall (O'Donoghue)2002/**28**:180
- Terra Garnet* by Yavorsky (Dixon)2014/**34**:178
- Texas Gemstones* by King (O'Donoghue)1980/**17**:135
- Texas Rocks and Minerals: An Amateur's Guide* by Girard (O'Donoghue)1980/**17**:133
- The Theodore Horovitz Library* by Christie's (O'Donoghue)1999/**26**:339
- They Struck Opal* by Murphy (HW)1949/**2**:26; letter on (Leechman)1949/**2**:102
- Thirteenth Annual Sinkankas Symposium—Opal* ed. by Overlin (Laurs)2015/**34**:553
- The Tiffany Touch* by Purtell (O'Donoghue)1976/**15**:93
- Topas: Das Prachtvolle Mineral, der Lebhaftige Edelstein* by Glas (O'Donoghue)1998/**26**:275
- Topaz* by Hoover (O'Donoghue)1993/**23**:374
- Tourmaline—Fascinating Crystals with Fantastic Inner Worlds* by Rustemeyer (Laurs)2015/**34**:738–739
- Tourmaline: A Gemstone Spectrum* by Neumeier (O'Donoghue)2005/**29**:359, 489
- The Tourmaline Group* by Dietrich (O'Donoghue)1986/**20**:193
- Tourmalines, Minéralogie, Gemmologie, Gisements* by Cassedanne (O'Donoghue)1997/**25**:436
- Traditional Jewellery from Soviet Central Asia and Kazakhstan* by Sychova (O'Donoghue)1988/**21**:116
- Treasures from the Earth: The World of Rocks and Minerals* by Shaub (O'Donoghue)1976/**15**:152
- Treasures of the U.S.S.R. Diamond Fund* [in Russian] by Rybakov (O'Donoghue)1977/**15**:268
- Treasury of the World: Jewelled Arts of India in the Age of the Mughals* by Keene (O'Donoghue)2001/**27**:434
- Treatments* by Sechos (O'Donoghue)2001/**27**:373
- Trésor du Muséum: Cristaux Précieux, Gemmes et Objets d'Art* by Schubnel (O'Donoghue)2002/**28**:117
- The Triumph of Love: Jewellery 1530–1930* by Munn (O'Donoghue)2000/**27**:180
- Tropical Gemstones* by Clark (O'Donoghue)2002/**28**:116
- Tsumeb, A Historical Sketch. 2nd edn.* by Söhngé (O'Donoghue)1977/**15**:460
- Tudor and Jacobean Jewellery* by Scarisbrick (O'Donoghue)1996/**25**:69
- Turkis: der Edelstein mit der Farbe des Himmels* by Ahmed (O'Donoghue)1999/**26**:547
- Turmalin (Tourmaline)* [in Russian] by Kuz'min (O'Donoghue)1980/**17**:271
- Turmalin 2000. Katalog zur Ausstellung im Deutschen Edelsteinmuseum Idar-Oberstein vom 19.2 bis 27.8.2000* by Zang (O'Donoghue)2001/**27**:374
- Turmalin: der Edelstein des Regenbogens. Neueste Nachrichten von der Turmalin-Gruppe* by Cook (O'Donoghue)1995/**24**:522
- Turquoise* by Pogue (O'Donoghue)1974/**14**:37
- Turquoise* by Pearl (O'Donoghue)1977/**15**:266
- Turquoise Annual. Vol. 1* by Barnes (O'Donoghue)1975/**14**:351
- Turquoise, the Gem of the Centuries* by Branson (O'Donoghue)1978/**16**:57
- Turquoise and the Indian. Revised edn.* by Bennett (O'Donoghue)1973/**13**:186
- Twelfth Annual Sinkankas Symposium—Peridot and Uncommon Green Gem Minerals* ed. by Thoresen (Laurs)2015/**34**:459
- Twentieth Century British Jewellery, 1900–1980* by Hinks (O'Donoghue)1984/**19**:187

- Ultraviolet Guide to Minerals* by Gleason (O'Donoghue)1973/**13**:189
- Ultraviolet Lamps Made Easy* by Matlins (Fellows)2014/**34**:268–269
- Ultraviolet Spectroscopy and UV Lasers* by Misesa (O'Donoghue)2002/**28**:116
- Umgang mit edlen Steinen (Getting Acquainted with Gemstones)* by Schütt (O'Donoghue)1983/**18**:664
- Understanding Jewellery* by Bennett (O'Donoghue)1990/**22**:182
- Understanding Jewellery. 2nd edn.* by Bennett (O'Donoghue)1999/**26**:463
- Users' Guide to Industrial Diamonds* by Smith (O'Donoghue)1975/**14**:238
- Van Cleef and Arpels* by Raulet (O'Donoghue)1989/**21**:315
- Van Nostrand's Standard Catalog of Gems* by Sinkankas (Anderson)1968/**11**:130
- Vanadium III als Farbträger bei natürlichen Silikaten und Oxidenein Beitrag zur Kristallchemie des Vanadiums (Vanadium III as a Colouring Agent in Natural Silicates and Oxides—a Contribution to the Crystal Chemistry of Vanadium)* by Schmetzer (O'Donoghue)1978/**16**:280
- Vases and Volcanoes. Sir William Hamilton and His Collection* by Jenkins (O'Donoghue)1996/**25**:241
- Versteinertes Holz. Aus Holz wird Stein: die Mineralogie der Holzversteinierung* by Dernbach (O'Donoghue)1995/**24**:444
- Verzeichnis der Schmuck und Edelsteine (List of Ornamental and Precious Stones)* by Verlag Heinz Wöhrle (O'Donoghue)1974/**14**:197
- Victorian Sentimental Jewellery* by Cooper (O'Donoghue)1975/**14**:348
- Visage des Minéraux et des Pierres Précieuses (The Face of Minerals and Gemstones)* by Metz (O'Donoghue)1979/**16**:488
- Visual Optics: Diamond and Gem Identification Without Instruments: The Hodgkinson Method* by Hodgkinson (O'Donoghue)1995/**24**:444
- Visual Optics II: Diamond and Gem Identification Without Instruments: The Hodgkinson Method* by Hodgkinson (O'Donoghue)2000/**27**:54
- Von Ammoniten und Zwillingen (Catalogue of the 1999 München Mineralientage)* by Glas (O'Donoghue)2000/**27**:117, 180
- Von edlen Steinen* by Goebeler (Strack)1942/**3**:194
- Wabroongai News, Special Commemorative Issue...50th Anniversary* by various (O'Donoghue)1997/**25**:438
- The Wakabayashi Mineral Collection* by Sadanaga (O'Donoghue)1975/**14**:299
- The Weardale Mines* by Fairbairn (O'Donoghue)1997/**25**:371
- Welke Edelsteen is dit?* by Bolman (Anon)1950/**2**:231
- Welsh Minerals* by Bevins (O'Donoghue)1991/**22**:379
- West African Diamonds* by Greenhalgh (O'Donoghue)1985/**19**:734
- Western Asiatic Jewellery c.3000–612 B.C.* by Maxwell-Hyslop (O'Donoghue)1975/**14**:349
- Wie Kauft man Diamanten, Farbsteine, Perlen, Schmuck? (How do You Buy Diamonds, Coloured Stones, Pearls and Jewellery?) 3rd edn.* by Morenz (O'Donoghue)1973/**13**:331
- The Wonderful World of Gems* by Axon (Webster)1968/**11**:94
- Wonders Within Gemstones: The Elusive Beauty of Gemstone Inclusions* by de Goutière (O'Donoghue)1996/**25**:240
- Wonders Within Gemstones II* by de Goutière (Hyršl)2014/**34**:271; response (de Goutière)2014/**34**:374
- Working with Gemstones* by Firsoff (O'Donoghue)1974/**14**:91
- Working with Gemstones. A Bench Jeweler's Guide* (O'Donoghue)2008/**31**:137
- The World of Fluorescent Minerals* by Schneider (O'Donoghue)2007/**30**:464
- The World of Jade* ed. by Markel (O'Donoghue)1994/**24**:121
- The World of Jewel Stones* by Weinstein (Anderson)1960/**7**:198
- The World of Kyocera Crescent Vert* by Jewelry New Age (O'Donoghue)1985/**19**:547
- The World of Minerals* by De Michele (O'Donoghue)1973/**13**:187
- The World of Opals* by Eckert (Howie)1999/**26**:336
- The World of Sapphires* by Mumme (O'Donoghue)1991/**22**:381
- The World of Tourmaline – The Gerbard Wagner Collection* by Mauthner (Dryland)2015/**34**:553
- The World's Finest Minerals and Crystals* by Bancroft (O'Donoghue)1975/**14**:299
- The World's Mineral Masterpieces* by Equit (O'Donoghue)2003/**28**:369
- Wörterbuch der Perlenkunde* by Plate (O'Donoghue)1972/**13**:112
- Wunder aus dem Reich der Mineralien (Wonders of the Kingdom)* by Ruppenthal (O'Donoghue)1979/**16**:420
- X-ray Diffraction Topography* by Tanner (O'Donoghue)1977/**15**:401
- Zauber der Mineralien (Wonder of Minerals)* by Blüchel (O'Donoghue)1981/**17**:640
- Zauberwelt der Mineralien (Magic World of Minerals)* by Medenbach (O'Donoghue)1979/**16**:488
- Zeolites of the World* by Tschernich (O'Donoghue)1995/**24**:520
- Zillertal* by Augsten (O'Donoghue)1998/**26**:134
- Zur Genesis des Diamanten* by Rodewald (O'Donoghue)1972/**13**:151
- Zur Geschichte der Schmucksteinschleiferei im Gebiet der oberen Nahe und Saar (History of the Gem Cutting Mills of the Upper Nahe and Saar)* by Wild (Webster)1960/**7**:201
- see also Other Book Titles

**Gem-A Members and Gem-A registered students receive 5% discount on books and 10% discount on instruments from Gem-A Instruments**

Contact [instruments@gem-a.com](mailto:instruments@gem-a.com) or visit our website at [www.gem-a.com](http://www.gem-a.com) for a catalogue



**Gem-A**  
The Gemmological Association of Great Britain  
21 Ely Place, London EC1N 6TD  
[www.gem-a.com](http://www.gem-a.com)

Registered Charity No. 1109555  
Registered office: Palladium House, 1-4 Argyll Street, London W1F 7LD

ISSN: 1355-4565  
© 2016 The Gemmological Association of Great Britain