46. Druse of red **grossular** and greenish **diopside** with white calcite. 5.5 x 4 cm. Specimen: Vladimir A. Pelepenko.

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PART 4. MINERALOGY OF RODINGITES

This chapter is based on numerous studies of various researches covering the period from 1907 to today. The first consolidated list of minerals from Bazhenovskoe chrysotile asbestos deposit (Zoloev *et al.*, 1985) included only 60 mineral species. Erokhin (1997_1) compiled an inventory of minerals from Bazhenovskoe chrysotile asbestos deposit, which had 121 mineral species including 60 from rodingites. Antonov (2003) listed 72 minerals found in Bazhenovskoe rodingites. Erokhin (2006_1) counted 151 mineral species including 80 from the rodingite in drawing up his second inventory. Currently, 113 mineral species are found in various mineral assemblages in one way or another related to rodingites of Bazhenovskiy ophiolite complex. They are listed in Table 4.1. Both correctly identified minerals, which constitute the vast majority (102) and questionable findings (11, * – asterisked in the table) are given in the table. The questionable findings require additional investigation and accurate identification.

Below are described all of the minerals of Bazhenovskoe rodingites. They are divided into major, minor, and rare; ore minerals are reported on separately.

4.1. Major Rock-Forming Minerals of Rodingites

The major rock-forming minerals in rodingites of Bazhenovskiy ophiolite complex are **grossular, diopside, vesuvianite** and **clinochlore**; in some rocks there are **zoisite** and **prehnite**. **Andradite, uvarovite**, and **hedenbergite** are also reported in this section because each of them can be the major rock-forming mineral in some cases. For example, hedenbergite and andradite comprise large clusters in rodingitized gabbro, especially in association with sulfide minerals, while uvarovite is a characteristic mineral of rodingitized chromitite.

Grossular, $Ca_3Al_2[SiO_4]_3$. At Bazhenovskoe deposit grossular was reported as the major rodingite mineral by Kryzhanovsky (1907). Later, V.V. Chernykh, L.M. Stupkina, E.M. Spiridonov, N.S. Barsukova, and A.A. Antonov described this mineral in more detail. Grossular occurs in a rodingite matrix frequently forming the monomineralic rock garnetite (grossularite). It is distinguished by its color, varying from colorless through all of the spectrum; pink, yellow, and brown tint to black. The refraction indices of colored crystals are as follows: 1.738(3) colorless and orange-red and 1.749(3) pink. The unit-cell parameter of these garnets ranges from 11.84 to 11.85 Å (Antonov, 2003). Microscopically, the crystals

Table 4.1. ***List of Mineral Species known in rodingites of Bazhenovskoe deposit***

No.	Mineral	Authors of the first finding	Year	Rock
	Native metals and intermetallic compounds			
1	gold	V.V. Murzin	1995	serpentinite
2	copper	V.I. Kryzhanovsky	1907	serpentinite
3	***silver***	Yu.V. Erokhin	2010	rodingite, diorite
4	iron	N.D. Sobolev *et al.*	1966	peridotite
5	***tin***	Yu.V. Erokhin	2010	rodingite
6	chromferide	N.V. Chukanov	1997	rodingite
	Sulfides, arsenides, and antimonides			
7	pyrite	P.M. Tatarinov	1937	porphyry, rodingite
8	marcasite	E.M. Spiridonov *et al.*	1996	metagabbro
9	pyrrhotite	Yu.A. Sokolov	1980	metagabbro
10	chalcopyrite	P.M. Tatarinov	1937	metagabbro
11	bornite	K.K. Zoloev *et al.*	1985	metagabbro
12	cubanite	E.M. Spiridonov *et al.*	1996	rodingite
13	chalcocite	K.K. Zoloev *et al.*	1985	rodingite
14	sphalerite	E.M. Spiridonov *et al.*	1996	metagabbro
15	millerite	E.M. Spiridonov *et al.*	1995	rodingite
16	godlevskite	E.M. Spiridonov *et al.*	1995	rodingite
17	mackinawite	E.M. Spiridonov *et al.*	1996	metagabbro
18	pentlandite	E.M. Spiridonov *et al.*	1995	metagabbro
19	cobaltpentlandite	E.M. Spiridonov *et al.*	1995	rodingite
20	heazlewoodite	E.M. Spiridonov *et al.*	1995	serpentinite
21	nickeline	E.M. Spiridonov *et al.*	1996	rodingite
22	maucherite	E.M. Spiridonov *et al.*	1995	rodingite
23	sperrylite*	E.M. Spiridonov *et al.*	1996	rodingite
24	breithauptite	E.M. Spiridonov *et al.*	1995	rodingite
25	vallereiite	E.M. Spiridonov *et al.*	1996	metagabbro
26	tochilinite	A.S. Varlakov	1995	serpentinite
	Oxides and hydroxides			
27	baddeleyite	I.A. Popel *et al.*	1997	rodingite
28	quartz	V.I. Kryzhanovsky	1907	weathered serpentinite
29	***tenorite***	Yu.V. Erokhin	2000	rodingite
30	hematite	L.A. Sokolova	1960	quartz veins
31	ilmenite	P.M. Tatarinov	1940	gabbro-diorite
32	***perovskite***	Yu.V. Erokhin	2005	rodingitized gabbro
33	magnetite	V.I. Kryzhanovsky	1907	serpentinite
34	chromite	N.S. Barsukova *et al.*	1996	rodingite
35	magnesiochromite	A.A. Antonov	1995	rodingite
36	brucite	N.S. Kurnakov *et al.*	1926	serpentinite
37	goethite	E.M. Spiridonov *et al.*	1996	metagabbro
38	quintinite	S.V. Krivovichev *et al.*	2012	rodingite
	Silicates			
39	grossular	V.I. Kryzhanovsky	1907	rodingite
40	andradite	V.I. Kryzhanovsky	1907	rodingite
41	uvarovite	E.V. Galuskin *et al.*	1998	rodingite
42	zircon	N.S. Barsukova	1995	metaplagiogranite
43	vesuvianite	V.I. Kryzhanovsky	1907	rodingite
44	zoisite	P.M. Tatarinov	1928	gabbro
45	clinozoisite	P.M. Tatarinov	1940	quartz porphyry
46	***clinozoisite-(Sr)***	Yu.V. Erokhin	2011	rodingite
47	***epidote-(Sr)***	Yu.V. Erokhin	2011	rodingite
48	epidote	P.M. Tatarinov	1928	gabbro
49	allanite-(Ce)	A.A. Antonov	2003	rodingite
50	titanite	P.M. Tatarinov	1940	pyroxenite
51	diopside	V.I. Kryzhanovsky	1907	rodingite
52	hedenbergite	I.A. Popel *et al.*	1996	rodingite
53	***gittinsite***	Yu.V. Erokhin, V.V. Khiller	2013	rodingite
54	***wollastonite***	Yu.V. Erokhin *et al.*	2000	rodingite
55	xonotlite	Yu.A. Sokolov	1979	rodingite
56	pectolite	A.S. Varlakov, V.O. Polyakov	1986	rodingite
57	tobermorite	A.E. Zadov *et al.*	1995	rodingitized diorite

Table 4.1. ***Continuation***

No.	Mineral	Authors of the first finding	Year	Rock
58	clinotobermorite	A.E. Zadov *et al.*	1995	rodingitized diorite
59	plombièrite	A.E. Zadov *et al.*	1995	rodingitized diorite
60	rosenhahnite	A.E. Zadov *et al.*	2000	rodingite
61	jennite*	A.A. Antonov *et al.*	1996	rodingite
62	hillebrandite*	A.A. Antonov *et al.*	1996	rodingite
63	tremolite	P.M. Tatarinov	1928	gabbro
64	ferroactinolite	A.A. Antonov	1996	rodingite
65	pargasite	M.S. Rapoport	1996	gabbronorite
66	pyrophyllite*	N.S. Barsukova *et al.*	1996	rodingite
67	phlogopite	K.K. Zoloev *et al.*	1985	ultramafic rocks
68	clinochlore	N.S. Kurnakov *et al.*	1926	serpentinite
69	chamosite	N.S. Barsukova	1995	metaplagiogranite
70	amesite*	A.A. Antonov	2003	rodingite
71	antigorite	V.I. Kryzhanovsky	1907	serpentinite
72	stevensite*	A.E. Zadov *et al.*	2000	rodingite
73	***chrysocolla****	Yu.V. Erokhin	1996	weathered gabbro
74	prehnite	L.A. Sokolova	1967	rodingite
75	***cymrite***	Yu.V. Erokhin	2011	rodingite
76	albite	P.M. Tatarinov	1928	gabbro
77	natrolite	Yu.A. Sokolov	1980	rodingite
78	scolecite	A.A. Antonov	2003	rodingite
79	laumontite	Yu.A. Sokolov	1980	rodingite
80	thomsonite-Ca	Yu.A. Sokolov	1980	rodingite
81	stilbite-Ca	Yu.A. Sokolov	1980	rodingite
82	heulandite-Ca	A.A. Antonov *et al.*	1995	rodingite
83	stellerite	A.A. Antonov	1996	rodingite
84	mesolite	A.A. Antonov	2003	rodingite
85	***gonnardite***	Yu.V. Erokhin *et al.*	2005	rodingite
86	phillipsite-K	A.A. Antonov *et al.*	1995	rodingite
87	***phillipsite-Ca***	Yu.V. Erokhin et al.	2004	rodingite
88	harmotome	V.A. Popov	1995	rodingite
89	chabazite-Ca	L.A. Sokolova	1967	rodingite
90	gismondine	A.A. Antonov	2003	rodingite
91	hydroxyapophyllite-(K)	A.S. Varlakov, V.O. Polyakov	1986	rodingite
92	gyrolite	A.B. Loskutov, E.A. Novgorodova	2013	rodingite
93	kasatkinite	I.V. Pekov *et al.*	2011	rodingite
94	datolite	A.S. Varlakov *et al.*	1986	rodingite
	Carbonates			
95	calcite	V.I. Kryzhanovsky	1907	weathered serpentinite
96	aragonite	V.I. Kryzhanovsky	1907	weathered serpentinite
97	dolomite	P.M. Tatarinov	1928	weathered serpentinite
98	hydromagnesite	P.M. Tatarinov	1928	weathered serpentinite
99	alumohydrocalcite*	N.S. Barsukova *et al.*	1996	rodingite
100	hydrotalcite	N.S. Kurnakov *et al.*	1926	weathered serpentinite
101	pyroaurite	N.S. Kurnakov *et al.*	1926	weathered serpentinite
	Phosphates			
102	***fluorapatite***	Yu.V. Erokhin *et al.*	2003	chromitite
103	hydroxylapatite	M.S. Rapoport	1996	gabbronorite
104	chlorapatite*	A.A. Antonov	2003	rodingite
	Sulfates			
105	***dolerophanite***	Yu.V. Erokhin	2011	rodingite
106	hexahydrite	E.S. Shagalov	1997	rodingite
107	***langite****	Yu.V. Erokhin	2000	weathered gabbro
108	tatarinovite	N.V. Chukanov *et al.*	2016	rodingite
109	thaumasite*	A.B. Loskutov, E.A. Novgorodova	2013	rodingitized diorite
	Nitrates			
110	***gerhardtite***	Yu.V. Erokhin *et al.*	1999	rodingite
111	***likasite***	Yu.V. Erokhin *et al.*	1999	rodingite
	Halogenides			
112	***mitscherlichite***	Yu.V. Erokhin	2011	rodingite
113	***connellite***	Yu.V. Erokhin	2011	rodingite

** Mineral should be verified. The minerals found for the first time by the author at Bazhenovskoe deposit are italicized and* ***bolded.***

51. Druse of nearly colorless **grossular** crystals. 5.5 x 9.5 cm. South open pit. Specimen: Alexey G. Levin.

52. Cluster of **grossular** crystals with traces of natural etching on the surface. 4.5 x 3.5 cm.
South open pit.
Specimen: Alexey G. Levin.

53. Crystal crust of **grossular**. 10 x 6.8 cm. South open pit. Specimen: Alexey G. Levin.

54. Deep green crystal of **grossular** enriched in Cr (1.6 cm) on grossular rodingite.
Specimen: Alexander P. Chertikhin.

57. **Grossular** crystals (up to 1.4 cm). South open pit. Specimen: Alexey G. Levin.

58. Crystal crust of colorless **grossular**. Image size 2.4 x 3.6 cm. South open pit. Specimen: Alexander B. Loskutov and Elena A. Novgorodova.

59. **Grossular** of two generations. Cluster of larger pinkish-yellowish crystals on the crust composed of brownish crystals. 8 x 5 cm. Specimen: Alexander B. Loskutov and Elena A. Novgorodova.

60. **Grossular** crystals on diopside rodingite. Image wide 5 cm. Specimen: Vladimir A. Pelepenko, #5351.

61. **Grossular** crystal with etched surface. 4.5 x 3.2 cm. South open pit. Specimen: Alexey G. Levin.

62. Druse of skeletal **grossular** crystals (up to 1.3 cm), on the faces of which dissolution traces are seen; with green vesuvianite and white calcite. 7.5 x 5.5 cm. South open pit. Specimen: Alexey G. Levin.

63. **Grossular** of two generations: colorless edged skeletal crystals autoeptactically overgrow pink partly dissolved individuals. Image size 6 x 4 cm. South open pit. Specimen: Alexey G. Levin.

64. Transparent **grossular** crystals on rodingite. Image size 2.4 x 3.6 cm. Specimen: Alexander B. Loskutov and Elena A. Novgorodova.

65. Crystal crust of multocolored transparent **grossular** on fine-grained rodingite. 6.5 x 4 cm. Specimen: Alexander P. Chertikhin.

66. Cluster of **grossular** crystals. 7 x 3.5 cm. Specimen: Alexander P. Chertikhin.

67. Cluster of transparent **grossular** crystals. 4 x 3 cm. South open pit. Specimen: Alexey G. Levin.

68. **Grossular** crystals with zoned coloration. 3.5 x 2.5 cm. South open pit. Specimen: Alexey G. Levin.

74. **Diopside** crystals from rodingites of Bazhenovskoe deposit.
(a, c, d) after Popel and Antonov (1996$_1$),
(b, e) after Varlakov and Polyakov (1986), and
(g) after Popov (1995).

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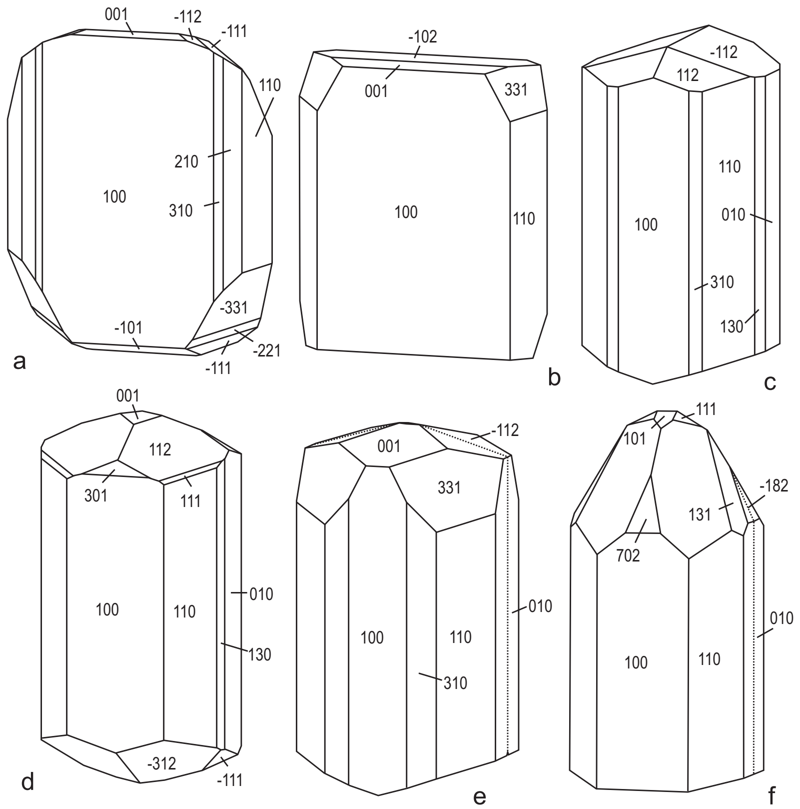


matic or equant twins up to 2 mm in size form druses on fracture surfaces coated by fine-grained crusts of light brown grossular. These forms are typical of these diopside crystals (Fig. 74e): a{100}, b{010}, c{001}, m{110}, f{310}, ω{331}, τ{-112}.

All crystals of greenish diopside from hydrothermally altered rodingites are twinned on [100] (Fig. 74f). Crystal length on [001] to crystal thickness ratio ranges from 2.5 to 3. The crystal forms are: pinacoids a{100} and b{010}, orthorhombic prisms m{110}, y{101}, r{-182}, and J{702}, and orthorhombic bipyramids u{111}, d{131}, and τ{532}. Due to twinning, the crystals are pseudoorthorhombic. Composition planes are not seen and there are no reentrant angles (Popov, 1995).

Our study has supported previous data and revealed new morphological varieties of diopside crystals. For example, tapered extended along axis [001] and weakly flattened on (100) individuals were identified. Strongly developed orthorhombic prisms of vertical belt with completely absent faces {001} caused the shape of these crystals. Tapered individuals are the richest in faces and are associated with yellowish brown Fe-rich grossular, in which percentage of the andradite end-member reaches 30–35%. Such diopside occurs as colorless transparent crystals up to 0.5 cm in length with the following forms (Fig. 80a): pinacoids a{100}, y{101}, and F{301}, and orthorhombic prisms m{110}, f{310}, g{210}, u{111}, ν{221}, ω{331}, and {311}. The crystal terminations have a dull fire; striations due to oscillatory combinations are observed on the prismatic faces of the horizontal belt.

75. Cluster of multicolored **diopside** crystals partly overgrown by white crusts of prehnite. 4 x 3.5 cm.
Specimen: Vladimir A. Pelepenko.

76. Group of twinned **diopside** crystals. 7 x 3 cm. Specimen:
Vladimir A. Pelepenko, #5339.

77. Multicolored semitransparent **diopside** crystal (2.1 x 1 cm) on crystal crust of **clinochlore**. Specimen: Vladimir A. Pelepenko, #5336.

Tapered crystals with simpler facing were observed in crystal crusts on dense rodingite. The crystals do not exceed 1 cm in length; they are light gray and semi-transparent. No other minerals are associated with them. These forms have been found: four pinacoids a{100}, b{010}, q{-301}, and c{001}, and two orthorhombic prisms m{110} and ω{331} (Fig. 80b). Vicinals and striations due to oscillatory combinations are seen on the prismatic faces. Occasionally, individuals are twinned on [100] causing their pseudoorthorhombic habit. Such transformed morphology of diopside from Bazhenovskoe rodingites was previously mentioned by Popov (1995).

Also, we have identified columnar rod-like individuals extended along the axis [001] and occasionally weakly flattened on (100). This crystal habit results from three strongly developed pinacoids a{100}, b{010}, and c{001}. Typical rod-like individuals form crystal crusts in association with crystals of light pink grossular (the content of andradite end-member no higher than 5%) on prehnitized rodingite. This diopside is dark gray and semitransparent. Its crystals reach 5 mm in length and have the forms (Fig. 80c): a{100}, b{010}, c{001}, m{110}, f{310}, ω{331}, n{-102}, e{011}, s{-111}, p{-101}, }, and w{123}. Striations due to oscillatory combinations and vicinals are observed on the prismatic faces of horizontal belt and faces of the third pinacoid are observed. The twinning on [010] is characteristic of these individuals with reentrant angles and composition plane on the faces of the first pinacoid.

Weakly flattened rod-like crystals are distinguished by a strongly developed first pinacoid and nearly constant twinning on [100]. They form crusts in association with acicular vesuvianite on prehnitized rodingites. Individuals of this diopside up to 1 cm in length are greenish gray and weakly translucent. Forms are: pinacoids a{100}, b{010}, c{001}, and n{-102}, and orthorhombic prisms m{110}, f{310}, ν{221}, ω{331}, ε{133}, e{011}, τ{-112} (Fig. 80d). The observed twins are also pseudo-orthorhombic.

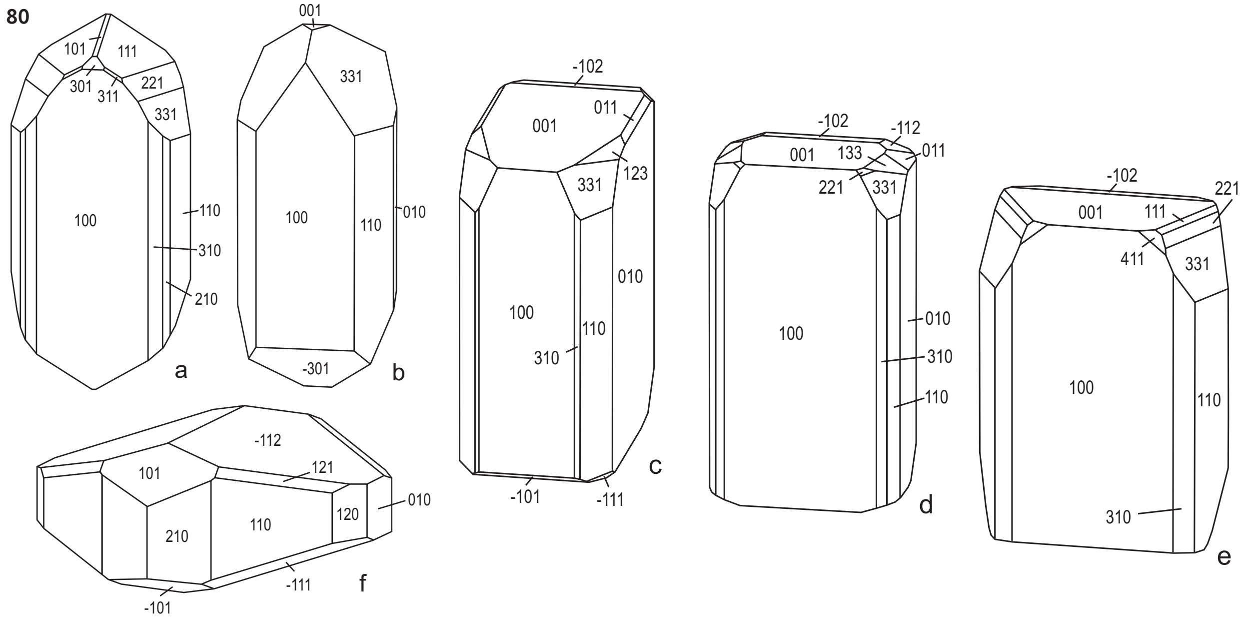
78. Cluster of multicolored **diopside** crystals on crystal crust of **clinochlore**. 8 x 7.5 cm. Specimen: Vladimir A. Pelepenko, #4337.

Strongly flattened crystals of diopside are abundant in Bazhenovskoe rodingites. Varlakov and Polyakov (1986) and Antonov and Popel (1996$_1$) reported their morphology; we found similar individuals within the contact zone of metasomatic rock, where diopside-chlorite veinlets up to 1 cm in thickness are observed in host antigorite serpentinite. Cavities filled by flattened diopside crystals (strong flattening is caused by the intensively developed first pinacoid) are observed in swells of these veinlets. The crystal length reaches 3–5 mm; these crystals are colorless and transparent. The forms are (Fig. 80e): pinacoids a{100}, c{001}, and n{-102}, and orthorhombic prisms m{110}, f{310}, u{111}, ν{221}, ω{331}, o{411}. Striations due to oscillatory combinations are seen on the prismatic faces; vicinals are observed on the plane of the first pinacoid.

In addition, unusual individuals strongly flattened on [001] were found in this study. They occur in open fractures cutting gray dense diopside rodingite. No any other minerals are observed. Light green, opaque diopside individuals do not exceed 5–6 mm in size. These forms were observed: pinacoids y{101}, b{010}, and p{-101}, and orthorhombic prisms m{110}, g{210}, l{120}, μ{121}, τ{-112}, and s{-111} (Fig. 80f). Such unusual morphology results from crystal twinning on

79. Short-prismatic **diopside** crystals with clinochlore. 10 x 5 cm. Central open pit. Specimen: Igor V. Pekov, #11448.

80



80. **Diopside** crystals from rodingites of Bazhenovskoe deposit.

planes (100) and (010). Apparently, reentrant angles on the faces of the first and second pinacoids cause the individuals to be stronger developed in these directions.

Thus, the morphology of diopside crystals from rodingites of Bazhenovskiy ophiolite complex is diverse. In general, the following morphological types are identified: strongly flattened (on [100] and [001]), prismatic, flattened-prismatic, tapered, flattened-tapered, rod-like, and lath-like. According to the previous study and this one, a total of approximately 30 forms have been identified on individuals of Bazhenovskoe diopside. Twinning on [100] and [010] is recorded. Twins on the first pinacoid are the most abundant and individuals become pseudoorthorhombic which complicates the crystal habit. Twins on [010] are less abundant and this twinning does not cause changes in the crystal habit.

Compositionally, diopside ranges from pure $CaMgSi_2O_6$ to Fe-rich varieties (Table 4.4) to form a continuous solid solution series with hedenbergite, which is also reported from Bazhenovskoe rodingites. Along with the high Fe content, in some cases pyroxene has the high Cr (up to 1.7 wt. % Cr_2O_3) and Mn (up to 2.8 wt. % MnO) contents. The Cr-bearing diopside is bright green, whereas the Mn-bearing variety is light pink. In addition, the mineral frequently contains Al (up to 1.4 wt. % Al_2O_3) and Na (up to 0.6 wt. % Na_2O).

Erokhin and Sokolov (2000) also studied diopside associated with wollastonite from rodingites. This pyroxene constantly contains Na (up to 0.2 wt. % Na_2O) and Mn (up to 0.7 wt. % MnO) (Table 4.5, anal. 1–3).

Erokhin (2006) examined diopside from a dike of rodingitized Ti-rich diorite. It was observed in both a rodingite and chlorite-serpentine rim. In the dike body, diopside occurs as equant grains of a few portions of mm in size among amphibole and in a saussurite aggregate. Microscopically, this pyroxene is distinguished by high birefringence, clear relief, and is colorless. The chemical

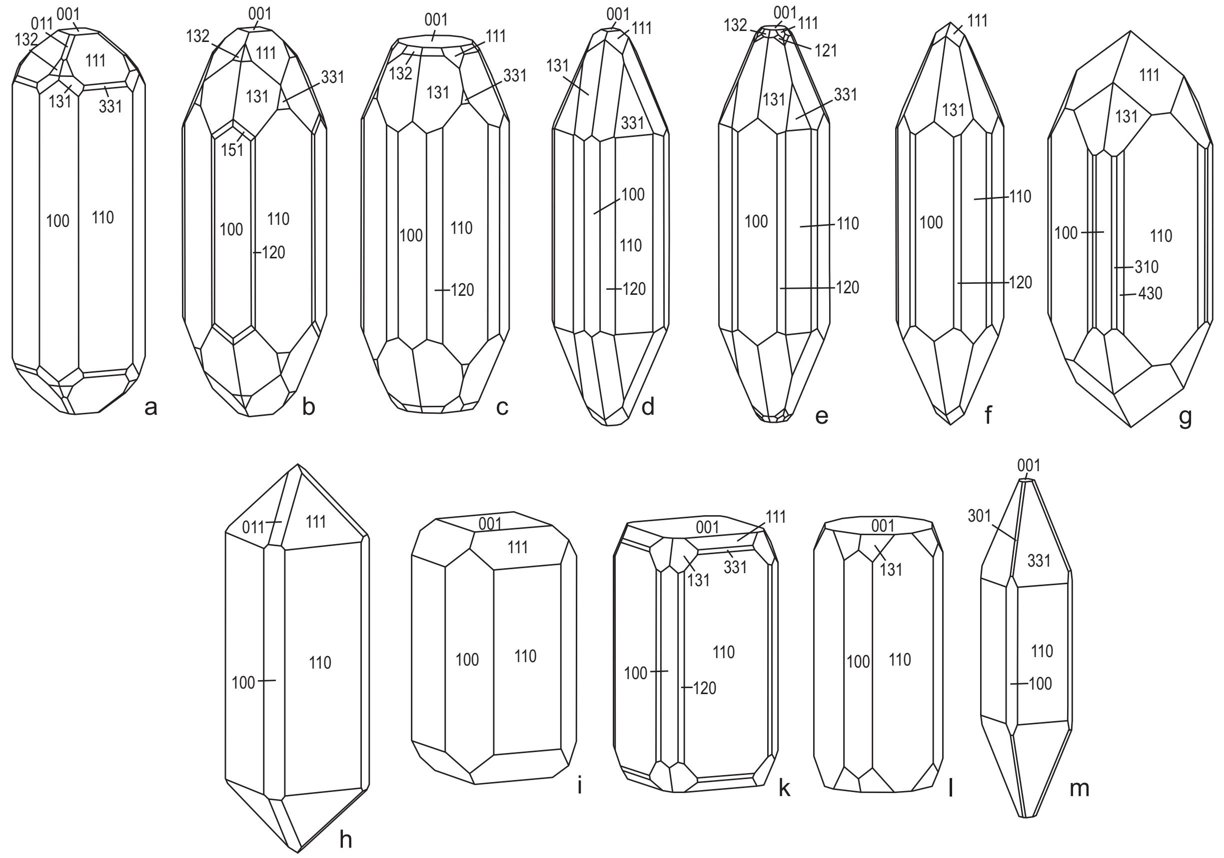
81

81. Druse of multicolored long-prismatic **diopside** crystals (up to 2.3 x 0.3 cm) Specimen: Alexander P. Chertikhin.

82

82. Multicolored (purple terminations are enriched in Mn) **diopside** crystals. Image size 2.4 x 3.6 cm. Specimen: Alexander B. Loskutov and Elena A. Novgorodova.

91



91. **Vesuvianite** crystals from Bazhenovskoe deposit.

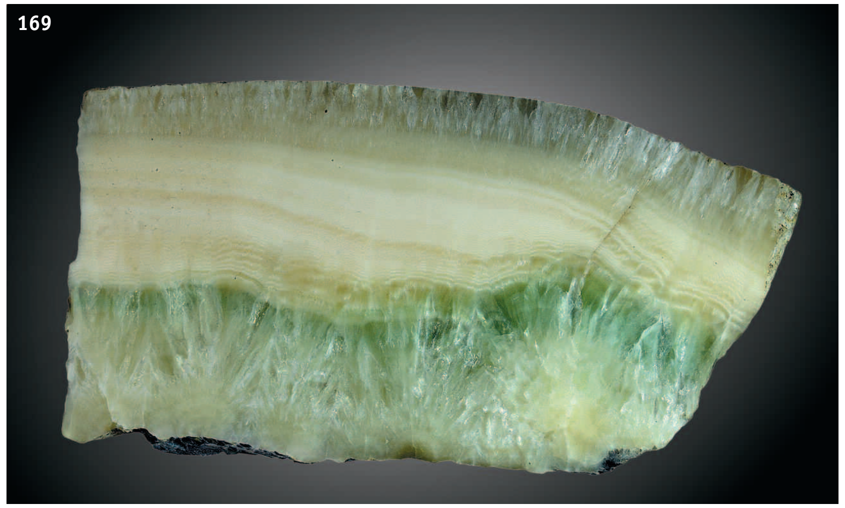
Two more types of crystals, dipyramidal (pencils) and short prismatic (viluite-like), were identified in Bazhenovskoe rodingites as a result of later investigation. The first variety fills fractures in metasomatic rocks and host serpentinites. The absence of pinacoidal faces is a characteristic feature of these individuals (Figs. 91f, g, h). They are faced by ditetragonal dipyramids s{131}, tetragonal dipyramids p{111} and o{101}, tetragonal prisms a{100} and m{110}, and ditetragonal prisms f{120}, d{310}, and w{430}. Prismatic faces are striated parallel to crystal elongation (Mineralogy..., 1996; Antonov, 2003).

The viluite-like individuals are found exclusively in cavities in massive vesuvianite (Erokhin, Shagalov, 1998; Antonov, 2003). Crystals with both simple (Fig. 91i) and complex (Fug. 91k) facing are reported. Individuals of the later generation sometimes overgrow them. The viluite-like crystals are poorly faced. They are formed by the pinacoid c{001}, ditetragonal dipyramid s{131}, tetragonal dipyramids p{111} and t{331}, tetragonal prisms a{100} and m{110}, and ditetragonal prism f{120}. Apparently, these crystals of vesuvianite are the earliest; they have strongly developed pinacoidal faces.

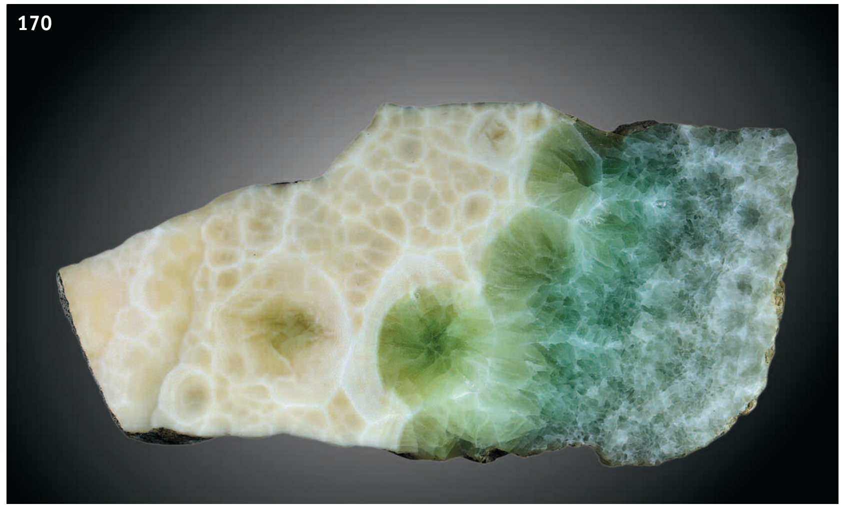
The vesuvianite crystals were reported from massive chromitite found as xenoliths in rodingites. Here they fill open fractures together with uvarovite and chlorite. The length of individuals of this dark green variety reaches 10 cm. They have a tapered dipyramidal habit and are faced by tetragonal dipyramids n{301} and

92. **Vesuvianite** crystals (up to 1.5 cm high) with serpentine. South open pit. Specimen: Alexey G. Levin.

169. Complexly zoned **brucite** crust: cross section (polished plate). 20 x 10.5 cm. South open pit. Specimen: Alexey G. Levin.



170. Complexly zoned **brucite** crust similar to that in Fig. 169 but as section near-parallel to surface on which it overgrew (polished plate). 19 x 9 cm. South open pit. Specimen: Alexey G. Levin.



171. Crust of zoned prismatic **brucite** crystals. Image size 2.4 x 3.6 cm. Specimen: Vladimir A. Pelepenko #5378.

172. Druse of tabular and short-prismatic **brucite** crystals *(blue color is caused by irradiation)*. 20 x 20 cm. Specimen: Oleg S. Bartenev.

173. Crust composed of zoned **brucite** spherulites (cross section). 14 x 4.5 cm. South open pit. Specimen: Alexey G. Levin.

In general, Bazhenovskoe brucite is very well known. It is one of the most famous minerals of the deposit in museums and collections. One of the best specimens of brucite from the deposit was found from Bazhenovskoe ultramafic rocks and studied in detail by Kurnakov and Chernykh (1926). Brucite is a rock-forming mineral of hydrothermally altered chrysotile serpentinite and in recrystallized rock, it occurs as large (up to 1–2 m) monomineralic segregations frequently within cavities filled by rhombohedral, prismatic, tabular, or lamellar crystals up