the whole set of $00l$ reflexions and can be ruled out. I and IV give alternating signs for consecutive reflexions in the set and were considered unlikely; moreover, IV corresponds to the trivial solution. Only V and VIII of the four combinations left gave models with a satisfactory distribution of peak heights in the E maps and no ghost peaks. The model from VIII proved to be correct.

Table 4. *Signs of some $00l$ reflexions for various sign combinations in starting set $A1$*

	I	II	III	IV	V	VI	VII	VIII
	$a=+$	$a=+$	$a=+$	$a=+$	$a=-$	$a=-$	$a=-$	$a=-$
	$b=+$	$b=+$	$b=-$	$b=-$	$b=+$	$b=+$	$b=-$	$b=-$
$00l$	$c=+$	$c=-$	$c=+$	$c=-$	$c=+$	$c=-$	$c=+$	$c=-$
$l=34$	+	+	+	+	−	−	−	−
35	−	+	+	−	+	−	−	+
36	+	−	−	+	+	−	−	+
37	−	−	−	−	−	−	−	−
38	+	−	−	+	+	−	−	+
39	−	+	+	−	+	−	−	+
40	+	+	+	+	−	−	−	−
41	−	−	−	−	−	−	−	−
42	+	−	−	+	+	−	−	+
43	−	+	+	−	+	−	−	+
44	+	+	+	+	−	−	−	−

Conclusions

Intersymbolic relations are of no significance in selecting the correct sign combination in a chosen starting set in $P\bar{1}$.

When incorrect signs have been included in the data, they may cause a very rapid propagation of more errors during the symbolic-addition procedure. It may therefore prove advantageous to break off the $\sum_2$ process at an early stage and calculate E maps with a small number of terms. For three cases examined, E maps were calculated with the 50 structure factors signed in the first stages by $\sum_2$. They were found to contain as much or even significantly more correct information than maps based on all E's above some arbitrary limit, *e.g.* 1·2. It is implied that if incorrect signs enter into the data at a very early stage, even reduced E maps may contain too many erroneous features.

Discrimination between probable and less probable sign models may be aided by the use of structural information. A rather crude application of structural knowledge is shown as an example from the work on a chain structure. More refined methods based on these principles could certainly be of great value, in particular with structures giving heavy overlap in Patterson space.

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A Complete Catalogue of Polyhedra with Eight or Fewer Vertices

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All non-isomorphic convex polyhedra with 4, 5, 6, 7 and 8 vertices are listed. The relationships within each class are described.

In the course of an attempt to describe in a systematic way the coordination of eight ligand atoms around a central atom with no symmetry restrictions, we encountered the problem of enumerating all possible non-isomorphic convex polyhedra with eight vertices. According to Alexandrow (1958) the number $N(n)$ of polyhedra with n vertices is: $N(4)=1$, $N(5)=2$, $N(6)=7$, $N(7)=34$, $N(8)=257$, but we were unable to find any publication in which these polyhedra are described. Grace (1965) has determined by computer search all polyhedra with up to eleven faces with the restriction that only three edges meet at each vertex. The duals of these polyhedra are the polyhedra with up to eleven vertices with the restriction that all faces are triangular; these, however, are only a small fraction of the

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total. Since we could not find the complete list, we decided to make it. We report the results here and shall discuss some of the possible applications elsewhere.

The preparation of the list was briefly as follows: beginning with the tetrahedron, the only polyhedron of order 4, all completely triangulated convex polyhedra (*i.e.* only triangular faces permitted) of order $n+1$ were generated by adding an extra vertex in all possible ways and completing the extra triangles. Our

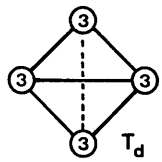


Fig. 1. The tetrahedron – the only polyhedron with four vertices.

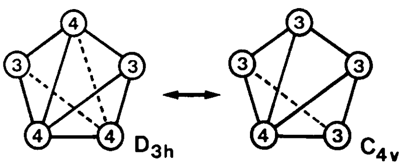


Fig. 2. The two polyhedra with five vertices.

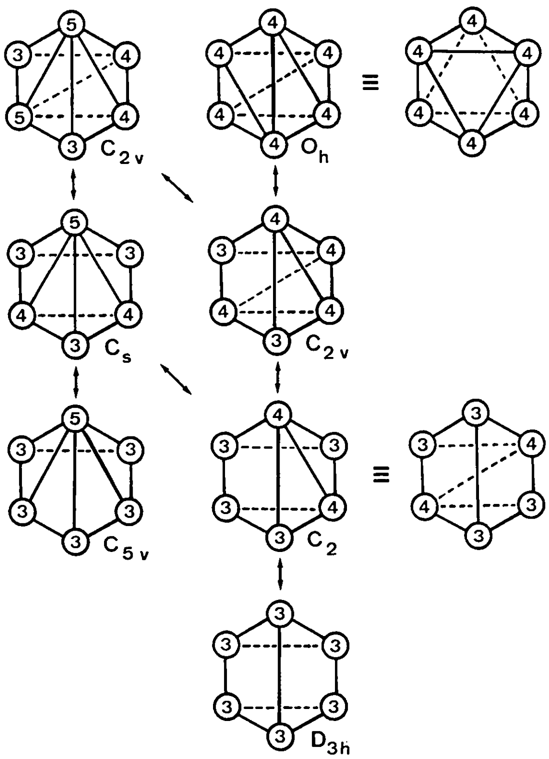


Fig. 3. The seven polyhedra with six vertices: these are shown in the left and centre columns. The right-hand column shows alternative representations for some of the polyhedra in the centre column. The arrows indicate relationship by the removal or addition of an edge.

results agreed with Grace's list. The list for order n was then expanded by removing one edge at a time to produce first quadrilateral faces, then pentagonal faces or pairs of quadrilateral faces, *etc.* This expansion process was continued until further removal of edges would necessarily lead to vertices associated with less than three edges or to non-convex polyhedra with two faces sharing non-adjacent vertices. After elimination of the extensive replications this process finally led to the complete list for order n.

The tetrahedron is the only polyhedron with four vertices. We represent it as in Fig. 1. The circles correspond to vertices, the numbers in the circles give the number of edges that terminate at that vertex, and the lines represent edges, dotted lines corresponding to edges that would be hidden if the faces were opaque. The numbers are redundant but they make the more complicated figures easier to follow and also guard against drawing and copying errors. Although all tetrahedra are equivalent in a topological sense, and no symmetry is required, the maximum possible symmetry of the polyhedron is also given.

We shall represent all of the polyhedra in the same way. That is, we shall show all the vertices on the perimeter of a polygon of order n, with the appropriate diagonals. This corresponds to tracing a Hamilton circuit (a closed path that visits each vertex once and only once) for each polyhedron. In general there is more than one such circuit possible so that our representation is not unique. There are many other ways of drawing such polyhedra, and indeed, for any given polyhedron some other way is likely to be preferred.

Table 1. *The relationships among the polyhedra with seven vertices*

The polyhedra listed by number (see Fig. 4) in the first column can be generated by removing the appropriate edge from the immediately following polyhedra or by adding a diagonal across the appropriate quadrilateral, pentagonal, or hexagonal faces of the polyhedra in the second list.

I	REMOVE EDGE FROM											ADD EDGE TO		
1	0	.	.	.	.	.	.	.	.	.	.	.	6	9
2	0	.	.	.	.	.	.	.	.	.	.	6	7	11
3	0	.	.	.	.	.	.	.	.	.	7	8	10	12
4	0	.	.	.	.	.	.	.	.	.	.	9	12	13
5	0	.	.	.	.	.	.	.	.	.	.	.	11	13
6	1	2	.	.	.	.	.	.	.	.	.	14	17	22
7	2	3	.	.	.	.	.	.	.	14	16	17	18	19
8	3	.	.	.	.	.	.	.	.	.	.	15	18	20
9	1	4	.	.	.	.	.	.	.	.	.	17	21	22
10	3	.	.	.	.	.	.	.	.	.	.	.	14	20
11	2	5	.	.	.	.	.	.	.	.	.	.	19	22
12	3	4	.	.	.	.	.	.	15	17	19	20	20	24
13	4	5	.	.	.	.	.	.	15	19	21	22	23	24
14	6	7	10	.	.	.	.	.	.	.	.	.	25	26
15	8	12	13	.	.	.	.	.	.	.	.	.	26	27
16	7	.	.	.	.	.	.	.	.	.	.	.	25	28
17	6	7	9	12	.	.	.	.	.	.	.	26	28	30
18	7	8	.	.	.	.	.	.	.	.	.	.	26	31
19	7	11	12	13	.	.	.	.	.	.	26	28	30	31
20	8	10	12	12	.	.	.	.	.	.	26	27	31	32
21	9	13	.	.	.	.	.	.	.	.	.	28	29	30
22	6	9	11	13	.	.	.	.	.	.	.	.	26	30
23	13	.	.	.	.	.	.	.	.	.	.	27	29	30
24	12	13	.	.	.	.	.	.	.	.	.	27	30	31
25	14	16	.	.	.	.	.	.	.	.	.	.	.	0
26	14	15	17	18	19	20	22	.	.	.	.	.	.	33
27	15	20	23	24	.	.	.	.	.	.	.	.	.	33
28	16	17	19	21	.	.	.	.	.	.	.	.	.	34
29	21	23	.	.	.	.	.	.	.	.	.	.	.	34
30	17	19	21	22	23	24	.	.	.	.	.	.	33	34
31	18	19	20	24	.	.	.	.	.	.	.	.	.	33
32	20	.	.	.	.	.	.	.	.	.	.	.	.	33
33	26	27	30	31	32	.	.	.	.	.	.	.	.	0
34	28	29	30	.	.	.	.	.	.	.	.	.	.	0

Table 2. *The relationships among the polyhedra with eight vertices*

The explanation of the table is the same as for Table 1 except refer to Fig. 5 instead of Fig. 4.

I	REMOVE EDGE FROM	ADD EDGE TO
1	0	16
2	0	15 17 18 20 21 23 24 29
3	0	17 25 28 30 31
4	0	18 19 34
5	0	19 20 22 26 27 28 33 35 38
6	0	22 32 33 36 37
7	0	27 32 39 40 44
8	0	16 24 31 41 45
9	0	30 36 42 46
10	0	44 47
11	0	23 25 35 37 40 43 48 50
12	0	29 38 41 42 46 47 48 49 51
13	0	34 49
14	0	45 50 51 52
15	2	53 65 71 72
16	1 8	73 80
17	2 3	55 67 74 75 76 81
18	2 4	53 54 65 67 68 69 84
19	4 5	54 65 66 67 69 70 85
20	2 5	54 57 65 74 77 86 87
21	2	53 57 75 88
22	5 6	54 66 78 79 83 89 90
23	2 11	69 71 76 77 88 92 98
24	2 8	55 68 72 75 87 92 99
25	3 11	76 79 93 100
26	5	59 74 78 94
27	5 7	56 70 77 78 95 96 101
28	3 5	56 58 67 74 79 91 102
29	2 12	72 81 84 86 88 98 99
30	3 9	55 81 91 93 102 103 104
31	3 8	58 75 100 104
32	6 7	60 78 82 95 97 105 106
33	5 6	54 57 83 91 94 95 97 109
34	4 13	84 85
35	5 11	58 69 86 90 94 96 97 112
36	6 9	60 89 91 113
37	6 11	63 79 90 94 105 106 109 113
38	5 12	59 85 87 89 101 102 109 112
39	7	56 61 95 105 114
40	7 11	61 77 96 97 105 106 115 116
41	8 12	55 58 72 73 87 92 104 107 110 117 118
42	9 12	55 89 93 108 111 119
43	11	62 71 76 90 96 106 120
44	7 10	60 101 114 116
45	8 14	80 99 100 118
46	9 12	60 64 81 102 103 104 108 113 119 121 122
47	10 12	60 101 107 116 123 124
48	11 12	58 61 62 86 88 92 93 109 113 116 120 121 126
49	12 13	62 84 85 110 111 122 124 125
50	11 14	63 98 100 112 115 120 126
51	12 14	59 64 98 99 112 117 118 119 119 120 123 125 126 127
52	14	63 64 118 126 127 128
53	15 18 21	129 133 137
54	18 19 20 22 33	129 132 134 135 138
55	17 24 30 41 42	135 136 139 142 143
56	27 28 39	130 134 144
57	20 21 33	129 140 141
58	28 31 35 41 48	133 141 145 146 148
59	26 38 51	143 147 149
60	32 36 44 46 47	131 144 146 147 150 151
61	39 40 48	130 140 151 152
62	43 48 49	130 137 138 139 150 153
63	37 50 52	145 149 152 155
64	46 51 52	131 142 148 153 154 155
65	15 18 19 20	129 132 156 157 161
66	19 22	132 158 162
67	17 18 19 28	133 134 135 158 166
68	18 24	135 157 167
69	18 19 23 35	133 156 157 158 168
70	19 27	134 156 169
71	15 23 43	137 156 170
72	15 24 29 41	133 157 161 170 171
73	16 41	159 163 172
74	17 20 26 28	134 141 143 160 173
75	17 21 24 31	133 136 141 174 175
76	17 23 25 43	139 158 160 174 176
77	20 23 27 40	140 156 160 177 178
78	22 26 27 32	134 147 160 164 179
79	22 25 28 37	145 158 160 165 180
80	16 45	172
81	17 29 30 46	142 166 173 175 176
82	32	131 183
83	22 33	129 132 164 165
84	18 29 34 49	137 138 161 166 167 168
85	19 34 38 49	138 161 162 166 168 169
86	20 29 35 48	138 140 157 173 177 184
87	20 24 38 41	135 141 143 161 178 184
88	21 23 29 48	133 137 140 174 175 193
89	22 36 38 42	135 147 162 165 180 186
90	22 35 37 43	138 145 158 164 179 186
91	28 30 33 36	135 144 146 165 173 187
92	23 24 41 48	139 157 170 175 178 188
93	25 30 42 48	139 165 176 180 181 189
94	26 33 35 37	141 149 164 173 179 182
95	27 32 33 39	134 140 144 179 183 190
96	27 35 40 43	130 156 164 177 183 191
97	32 33 35 40	140 146 164 182 183 192
98	23 29 50 51	168 170 176 177 188 193
99	24 29 45 51	142 167 171 174 184 188
100	25 31 45 50	145 174 189
101	27 38 44 47	144 147 169 178 190 191
102	28 30 38 46	143 144 148 166 180 187
103	30 46	142 181 185 187
104	30 31 41 46	136 146 148 175 185 189
105	32 37 39 40	151 152 179 182 183 190
106	32 37 40 43	150 152 160 179 183 192
107	41 47	146 159 178 194 195
108	42 46	136 154 180 181 196
109	33 37 38 48	138 141 149 165 187 190 192
110	41 49	130 139 161 163 185 194 197
111	42 49	139 162 196
112	35 38 50 51	148 149 168 184 186 191 192
113	36 37 46 48	150 151 155 173 180 186 187
114	39 44	144 151 190 198
115	40 50	152 177 192 199
116	40 44 47 48	146 150 151 178 190 191 199
117	41 51	143 148 170 172 194 200
118	41 45 51 52	142 145 171 172 184 188 189 195 197 200
119	42 46 51 51	142 143 147 154 176 186 189 196 196 201
120	43 48 50 51	145 152 153 170 174 176 177 186 191 192 202
121	46 48	151 153 175 181 187 201
122	46 49	150 153 166 185 196
123	47 51	137 149 191 194 195 199
124	47 49	150 169 194
125	49 51	153 167 168 194 196 197
126	48 50 51 52	148 149 152 153 155 184 188 189 193 199 201 202
127	51 52	149 154 188 195 197 200 201 202
128	52	155 200
129	53 54 57 65 83	203 204
130	56 61 62 96 110	204 205
131	60 64 82 123	205
132	54 65 66 83	203 209
133	53 58 67 69 72 75 80	204 210 218
134	54 56 67 70 74 78 95	204 206 219
135	54 55 67 68 87 89 91	206 209 216
136	55 75 104 108	207 215
137	53 62 71 84 88	204 218
138	54 62 84 85 86 90 109	204 209 216 219
139	55 62 76 92 93 110 111	209 213 215 220
140	57 61 77 86 88 95 97	204 211 214 217
141	57 58 74 75 87 94 109	204 207 214 217
142	55 64 81 99 103 118 119	213 215 216 226
143	55 59 74 87 102 117 119	206 207 220 226
144	56 60 91 95 101 102 114	205 206 219 223
145	58 63 79 90 100 118 120	210 212 217 227
146	58 60 91 97 104 107 116	205 212 214 225
147	59 60 78 89 101 119 123	206 212 220 224
148	59 64 102 104 112 117 126	205 207 218 225 227
149	59 63 94 109 112 126 127	207 212 221 224 226
150	60 62 106 113 116 122 124	205 208 219 220 225
151	60 61 105 113 114 116 121	205 208 214 223 224
152	61 63 105 106 115 120 126	208 211 217 221 224
153	62 64 120 121 122 125 126	205 208 213 215 216 218 222 225
154	64 108 119 127	207 213 222 227
155	63 64 113 125 128	208 226 227
156	65 69 70 71 77 96	204 228 233
157	65 68 69 72 86 92	209 228 230
158	66 67 69 76 79 90	209 210 234
159	73 107	229
160	74 76 77 78 79 106	217 220 232
161	65 72 84 85 87 110	204 209 230 233
162	66 85 89 111	209 234
163	73 110	229
164	78 83 90 94 96 97	204 212 232 235
165	79 83 89 91 93 109	209 212 231 232
166	67 81 84 85 102 122	216 218 219 234
167	68 84 99 125	216 230
168	69 84 85 98 112 125	218 230 233 234
169	70 85 101 124	219 233
170	71 72 92 98 117 120	218 228 233 241
171	72 99 118	210 230 241
172	73 80 117 118	229 237
173	74 81 86 91 94 113	214 219 226 232
174	75 76 88 99 100 120	210 215 217 242
175	75 81 83 92 104 121	214 215 218 242
176	76 81 93 98 119 120	213 232 234 242
177	77 86 96 98 115 120	211 228 232 239
178	77 87 92 101 107 116	214 220 233 239
179	78 90 94 95 105 106	217 219 224 235
180	79 89 93 102 108 113	220 227 231 234
181	93 103 108 121	213 231 240
182	94 97 105	214 221 235
183	82 93 96 97 105 106	205 211 235 243
184	86 87 99 112 118 126	216 217 226 230 239
185	103 104 110 122	215 225 240
186	89 90 112 113 119 120	216 224 227 232 234
187	91 102 103 109 113 121	216 223 225 226 231
188	92 98 99 118 126 127	213 230 239 241 242
189	93 100 104 118 119 126	212 215 227 240 242
190	95 101 105 109 114 116	214 219 223 224 243
191	96 101 112 116 120 123	205 212 233 239 243
192	97 106 109 112 115 120	217 221 225 232 243
193	88 98 126	211 218 242
194	107 110 117 123 124 125	205 220 225 229 233 236 238
195	107 118 123 127	212 229 238 239
196	108 111 119 119 122 125	213 215 220 222 234 240 244
197	110 118 125 127	213 229 230 238 240
198	114	223
199	115 116 123 126	224 225 239
200	117 118 127 128	226 227 237 238 241
201	119 121 126 127	222 224 226 240 242
202	120 126 127	221 222 227 239 241 242
203	129 132	0
204	129 130 133 134 137 138 140 141 156 161 164	245
205	130 131 144 146 148 150 151 153 183 191 194	245 246
206	134 135 143 144 147	248
207	136 141 143 148 149 154	247
208	150 151 152 153 155	247 248
209	132 135 138 139 157 158 161 162 165	249
210	133 145 158 171 174	253
211	140 152 177 183 193	251
212	145 146 147 149 164 165 189 191 195	250 251
213	139 142 153 154 176 181 188 196 197	249 250 252
214	140 141 146 151 173 175 178 182 190	245 247 251
215	136 139 142 153 174 175 185 189 196	247 252
216	135 138 142 153 166 167 184 186 187	248 249
217	140 141 145 152 160 174 179 184 192	247 251
218	133 137 148 153 166 168 170 175 193	245 253
219	134 138 144 150 166 169 173 179 190	245 248
220	139 143 147 150 160 178 180 194 196	247 250
221	149 152 182 192 202	247 251
222	153 154 196 201 202	247 252 253
223	144 151 187 190 198	246 248
224	147 149 151 152 179 186 190 199 201	247 248 251
225	146 146 150 153 185 187 192 194 199	246 247 250
226	142 143 149 155 173 184 187 200 201	247 248 250
227	145 148 154 155 180 186 189 200 202	247 250 253
228	156 157 170 177	255
229	159 163 172 194 195 197	254
230	157 161 167 168 171 184 188 197	249 255
231	165 180 181 187	249 250
232	160 164 165 173 176 177 186 192	250 251
233	156 161 168 169 170 178 191 194	245 255
234	158 162 166 168 176 180 186 196	249 253
235	164 179 182 183	245 251
236	194	246 254
237	172 200	254
238	194 195 197 200	250 254 255
239	177 178 184 188 191 195 199 202	250 251 255
240	181 185 189 196 197 201	250 252
241	170 171 188 200 202	253 255
242	174 175 176 188 189 193 201 202	251 252 253
243	183 190 191 192	246 251
244	196	252
245	204 205 214 218 219 233 235	0
246	205 223 225 236 243	0
247	207 208 214 215 217 220 221 222 224 225 226 227	256
248	206 208 216 219 223 224 226	0
249	209 213 216 230 231 234	0
250	212 213 220 225 226 227 231 232 238 239 240	256
251	211 212 218 217 221 224 232 235 239 242 245	256
252	213 215 222 240 242 244	256
253	210 218 222 227 234 241 242	0
254	229 236 237 238	257
255	228 230 233 238 239 241	0
256	247 250 251 252	0
257	254	0

Our representation has the advantage, however, that it provides an easier visualization of the relationships between different polyhedra. Note that every convex polyhedron can be represented by a planar graph of connectivity at least three. Such a graph is obtained from our representation if the dotted edges are replaced by connexions drawn outside the basic polygon of order n, in such a way that they do not intersect. The completely triangulated polyhedra correspond to maximal planar graphs, *i.e.* they contain the maximum number of edges compatible with the non-intersection criterion.

There are two polyhedra of order five (Fig. 2). As described above, the second can be generated from the first by the removal of an edge (or *vice-versa*); the arrow indicates this relationship.

There are seven polyhedra with six vertices, related as shown in Fig. 3; if the O_h octahedron were drawn in the more conventional form indicated as an alternative, then successive removal of inner edges to produce finally the trigonal prism (D_{3h}) is only possible if the order of vertices in the basic polygon is rearranged. Indeed, exhaustive removal of edges to leave the basic polygon without rearrangement of vertices is only possible for the polyhedra of order five and six; it is not possible for higher polyhedra in general.

The polyhedra with seven vertices are shown in Fig. 4. They are arranged first by the number of edges,

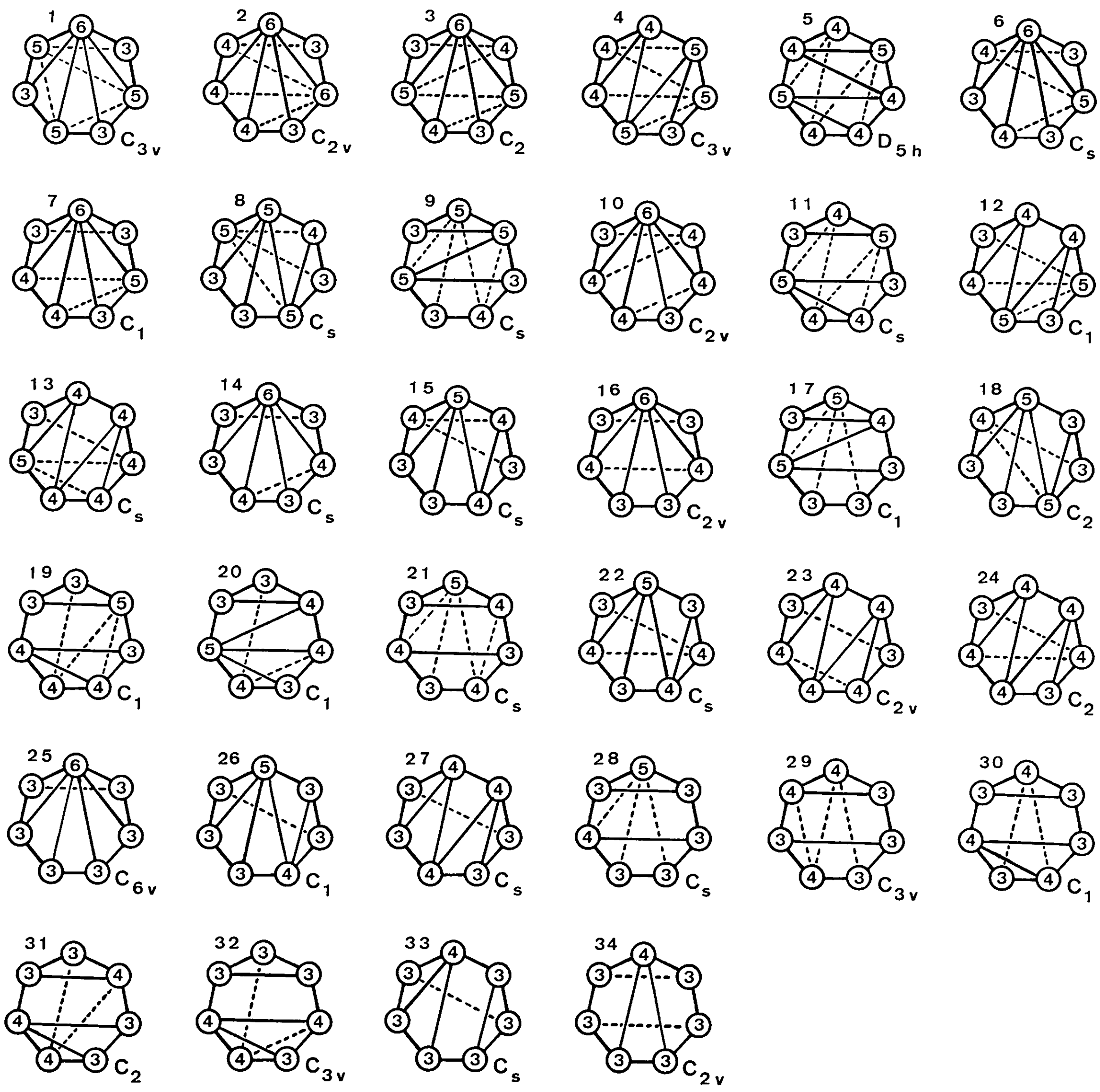


Fig. 4. The 34 polyhedra with seven vertices. The interrelationships are given in Table 1.

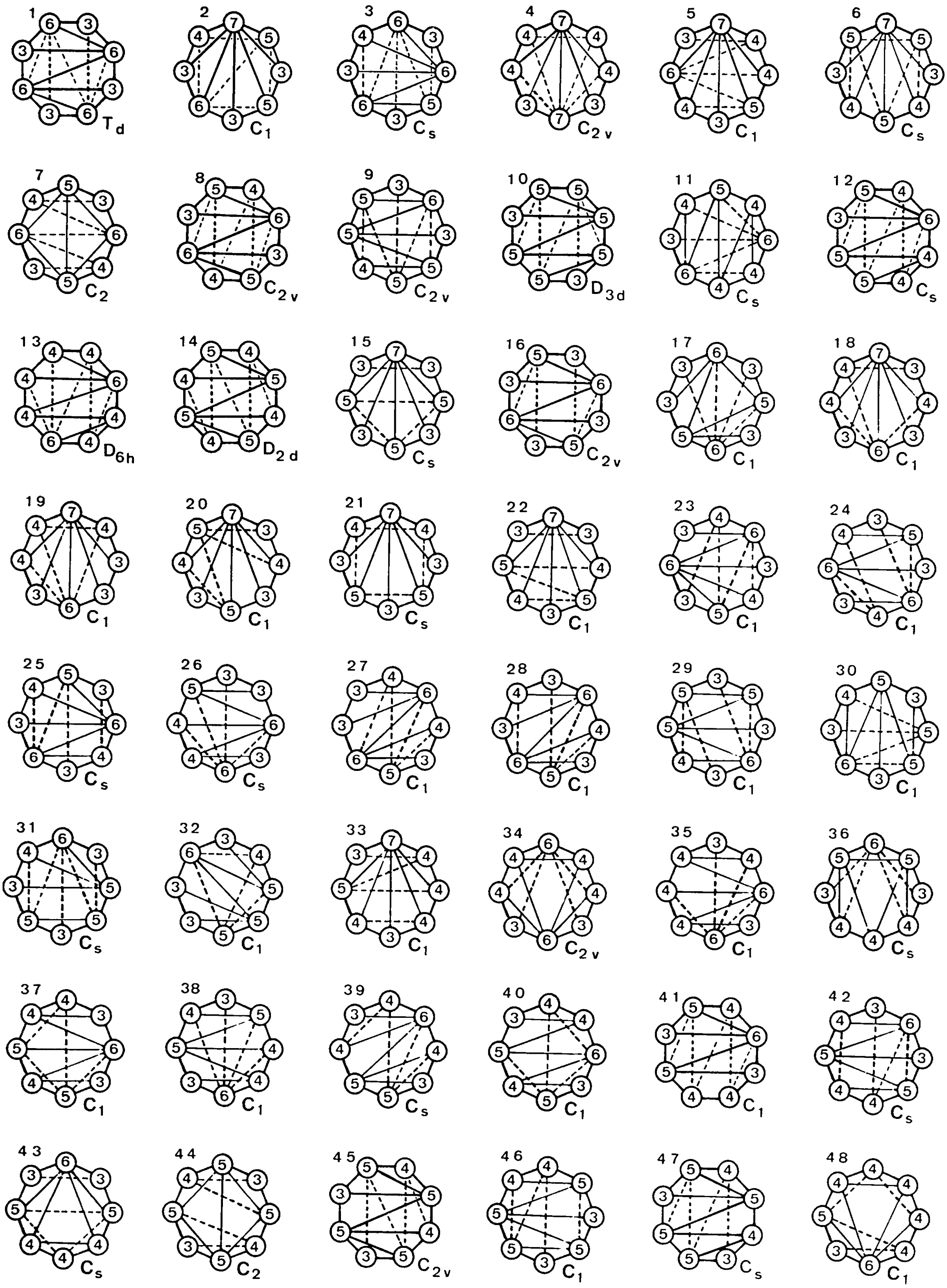


Fig. 5. The 257 polyhedra with eight vertices. The polyhedra related to the cube (No. 257) are distinguished by the different orientation of the octagon (*cf.* No. 256 and No. 257).

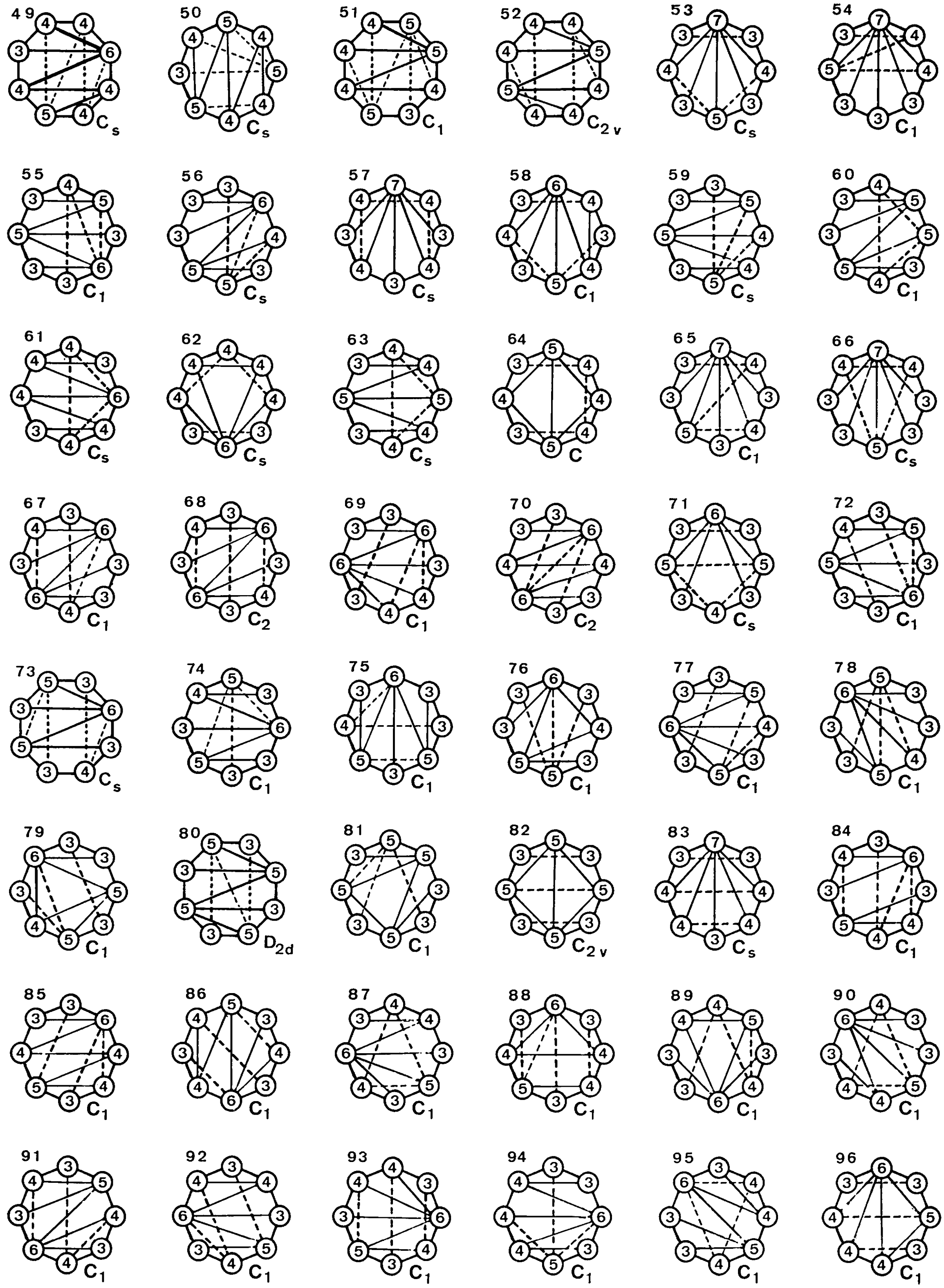

49 C_s
50 C_s
51 C_1
52 C_{2v}
53 C_s
54 C_1
55 C_1
56 C_s
57 C_s
58 C_1
59 C_s
60 C_1
61 C_s
62 C_s
63 C_s
64 C
65 C_1
66 C_s
67 C_1
68 C_2
69 C_1
70 C_2
71 C_s
72 C_1
73 C_s
74 C_1
75 C_1
76 C_1
77 C_1
78 C_1
79 C_1
80 D_{2d}
81 C_1
82 C_{2v}
83 C_s
84 C_1
85 C_1
86 C_1
87 C_1
88 C_1
89 C_1
90 C_1
91 C_1
92 C_1
93 C_1
94 C_1
95 C_1
96 C_1

Fig. 5 (*cont.*)

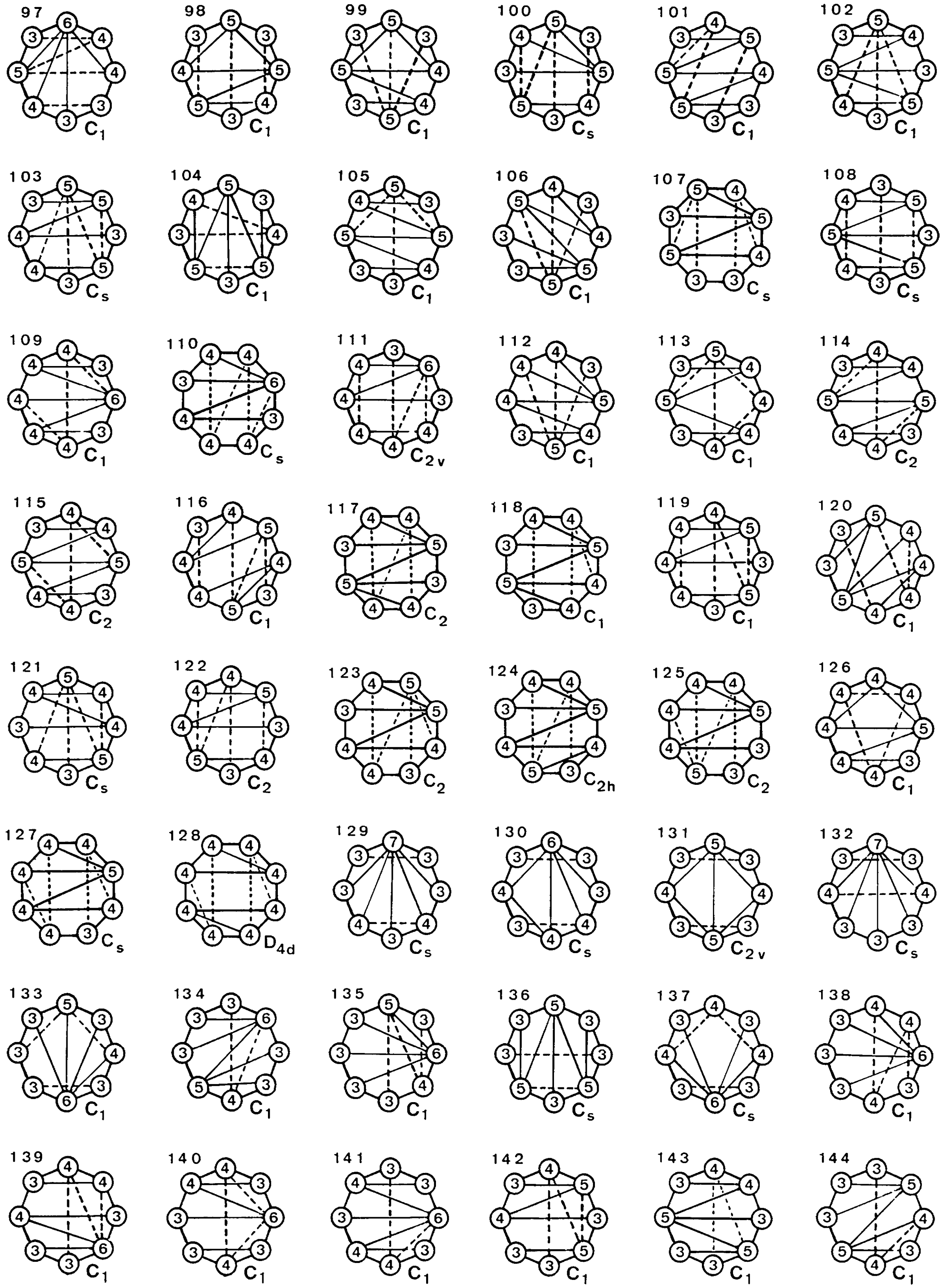

97 C_1
98 C_1
99 C_1
100 C_s
101 C_1
102 C_1
103 C_s
104 C_1
105 C_1
106 C_1
107 C_s
108 C_s
109 C_1
110 C_s
111 C_{2v}
112 C_1
113 C_1
114 C_2
115 C_2
116 C_1
117 C_2
118 C_1
119 C_1
120 C_1
121 C_s
122 C_2
123 C_2
124 C_{2h}
125 C_2
126 C_1
127 C_s
128 D_{4d}
129 C_s
130 C_s
131 C_{2v}
132 C_s
133 C_1
134 C_1
135 C_1
136 C_s
137 C_s
138 C_1
139 C_1
140 C_1
141 C_1
142 C_1
143 C_1
144 C_1

Fig. 5 (*cont.*)

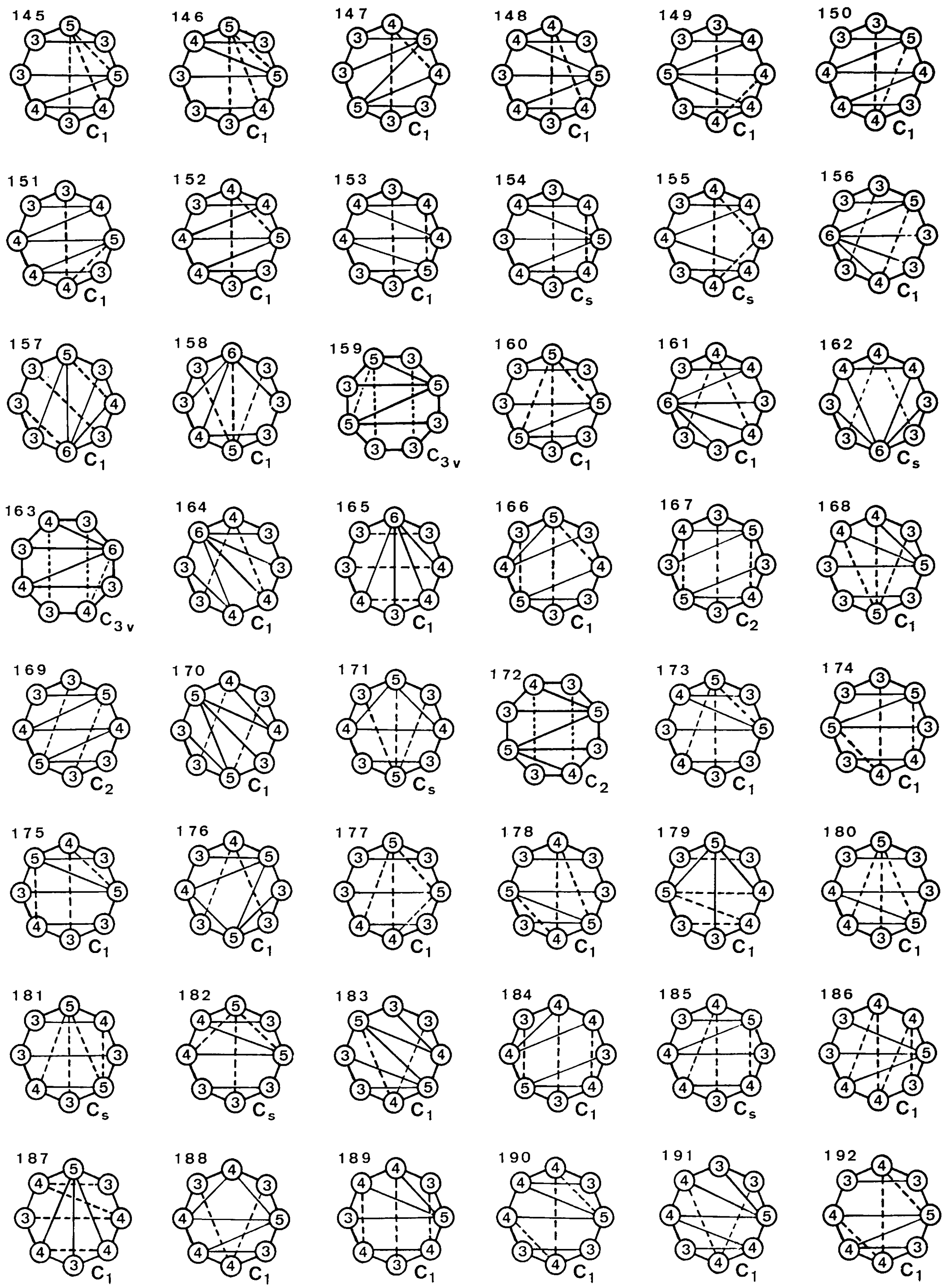
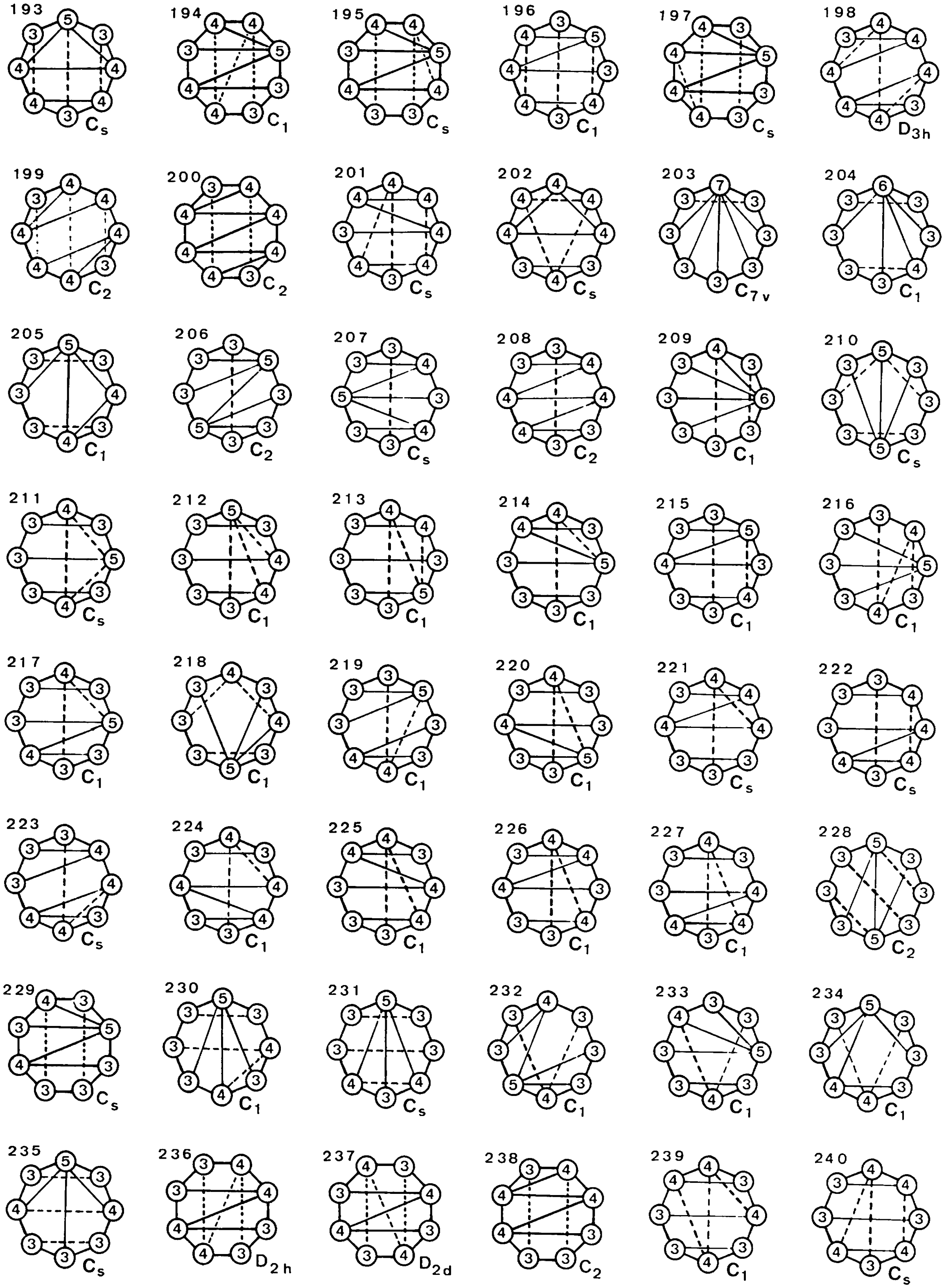

145 C1
146 C1
147 C1
148 C1
149 C1
150 C1
151 C1
152 C1
153 C1
154 Cs
155 Cs
156 C1
157 C1
158 C1
159 C3v
160 C1
161 C1
162 Cs
163 C3v
164 C1
165 C1
166 C1
167 C2
168 C1
169 C2
170 C1
171 Cs
172 C2
173 C1
174 C1
175 C1
176 C1
177 C1
178 C1
179 C1
180 C1
181 Cs
182 Cs
183 C1
184 C1
185 Cs
186 C1
187 C1
188 C1
189 C1
190 C1
191 C1
192 C1

Fig. 5 (*cont.*)



193 C_s
194 C_1
195 C_s
196 C_1
197 C_s
198 D_{3h}
199 C_2
200 C_2
201 C_s
202 C_s
203 C_{7v}
204 C_1
205 C_1
206 C_2
207 C_s
208 C_2
209 C_1
210 C_s
211 C_s
212 C_1
213 C_1
214 C_1
215 C_1
216 C_1
217 C_1
218 C_1
219 C_1
220 C_1
221 C_s
222 C_s
223 C_s
224 C_1
225 C_1
226 C_1
227 C_1
228 C_2
229 C_s
230 C_1
231 C_s
232 C_1
233 C_1
234 C_1
235 C_s
236 D_{2h}
237 D_{2d}
238 C_2
239 C_1
240 C_s

Fig. 5 (*cont.*)

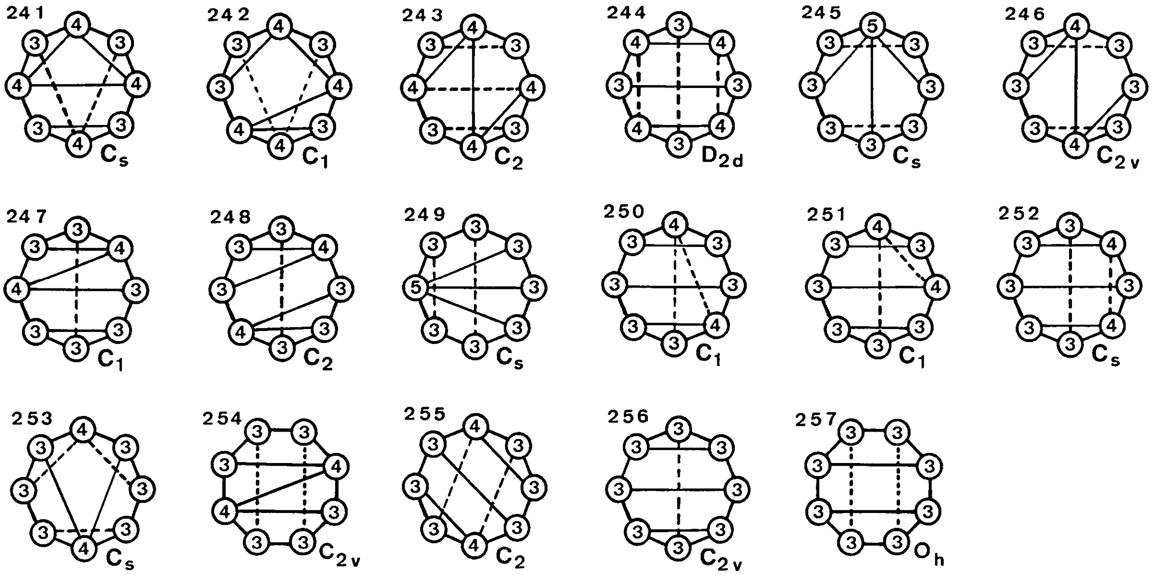


Fig. 5 (*cont.*)

then by the distribution of types of faces, then by the distribution of types of vertices, but this does not completely order the list, so they are also numbered arbitrarily from 1–34. Note, for example, that 17 and 18 are isomers in the sense that both have a face distribution $3_6 4_2 5_0 6_0$ and vertex distribution $3_4 4_1 5_2 6_0$ (in both codes the subscript indicates the number of faces or vertices with a given order). For polyhedra with seven vertices the inter-relationships are so complicated that a drawing (as provided in Fig. 3 for polyhedra with six vertices) would be more confusing than useful. These inter-relationships are described in Table 1.

The polyhedra with eight vertices are shown in Fig. 5. The 37 polyhedra that can be generated from the cube (No. 257) are shown with the basic octagon rotated by $\pi/8$ from the orientation used for the remaining figures. The two other common coordination polyhedra with eight vertices, the Archimedean antiprism (No. 128), and the dodecahedraon (No. 16), are also members of the family derived from the cube. The inter-relationships are given in Table 2.

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