

Contents

<i>Preface</i>	<i>page</i> ix
<i>List of notation</i>	xi
Introduction	1
1 Making and flexing flexagons	5
1.1 The trihexaflexagon	5
1.2 The pinch flex	6
1.3 A simple square flexagon	7
1.4 General assembly instructions	8
1.5 Decoration of faces	13
2 Early history of flexagons	14
2.1 The discovery of flexagons	14
2.2 The Flexagon Committee	15
2.3 Revival of interest	16
3 Geometry of flexagons	18
3.1 Flexagon characteristics	19
3.2 Appearance of main positions	20
3.3 Flexagons as linkages	21
3.4 Mapping flexagons	24
3.5 Flexagon figures and symbols	29
4 Hexaflexagons	31
4.1 Degrees of freedom of hexaflexagons	32
4.2 The trihexaflexagon revisited	33
4.3 Multicycle hexaflexagons	36
4.4 Hexaflexagon design	40
4.5 Hexaflexagon face arrangements	42
5 Hexaflexagon variations	47
5.1 Triangle flexagons	47
5.2 The V-flex	49

vi	Contents	
5.3	Origami with hexaflexagons	52
6	Square flexagons	53
6.1	Single cycle square flexagons	54
6.2	Reconstruction from a flexagon figure	58
6.3	Square flexagons with main position links	59
6.4	Distinct types of square flexagon with main position links	69
6.5	Square flexagons with box position links	70
6.6	Square flexagon face arrangements	76
6.7	The interleaf flex	78
7	Introduction to convex polygon flexagons	82
7.1	The convex polygon family	83
7.2	Degrees of freedom of intermediate positions	84
7.3	The digon flexagon	87
7.4	Triangle flexagons revisited	90
7.5	Square flexagons revisited	93
8	Typical convex polygon flexagons	96
8.1	Characteristics of typical convex polygon flexagons	97
8.2	Pentagon flexagons	98
8.3	Hexagon flexagons	106
8.4	Octagon flexagons	110
9	Ring flexagons	119
9.1	Star flexagons	120
9.2	The ring flexagon family	121
9.3	Compound flexagons	123
9.4	Compound square flexagons	126
9.5	Compound pentagon flexagons	128
9.6	Compound hexagon flexagons	132
10	Distorted polygon flexagons	137
10.1	Distorted polygons	137
10.2	Some distorted polygon flexagons	140
10.3	Right angle triangle flexagons	149
11	Flexahedra	154
11.1	Four dimensions	154
11.2	Prism flexahedra	155

Contents		vii
11.3	Pyramid flexahedra	157
11.4	Cube flexahedra	158
	<i>References</i>	164
	<i>Flexagon index</i>	167
	<i>Subject index</i>	169