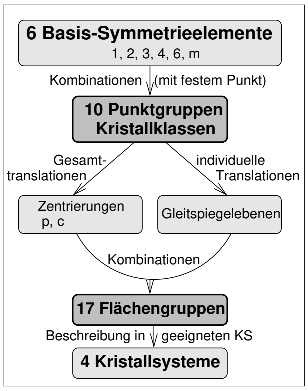
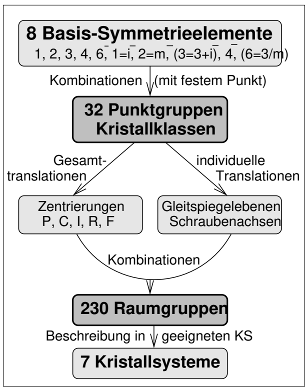
10.3. Flächengruppen (Forts.)



2-dim. Translation (Flächengruppen)



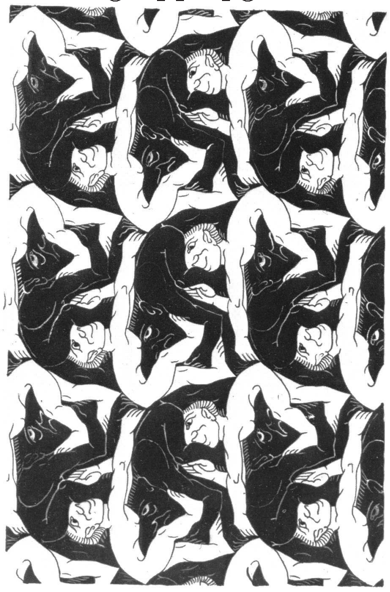
3-dim. Translation (Raumgruppen)

Tabelle der Flächengruppen

Punkt-gruppe	Flächen-gruppen	Koordinaten-system
1	p1	schiefwinklig
2	p2	($a \neq b; \gamma$ beliebig)
1m1	pm, pg, cm	rechtwinklig
2mm	pmm2, pmg2, pgg2, cmm2	($a \neq b; \gamma = 90^o$)
411	p4	quadratisch
4mm	p4mm, p4gm	($a = b; \gamma = 90^o$)
311	p3	hexagonal
3m1	p3m1, p31m	$a = b; \gamma = 120^o$)
611	p6	
6mm	p6mm	

Beispiele Flächengruppen

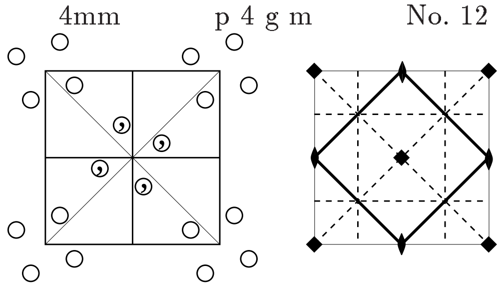
Flächengruppe pg



Flächengruppe p4gm

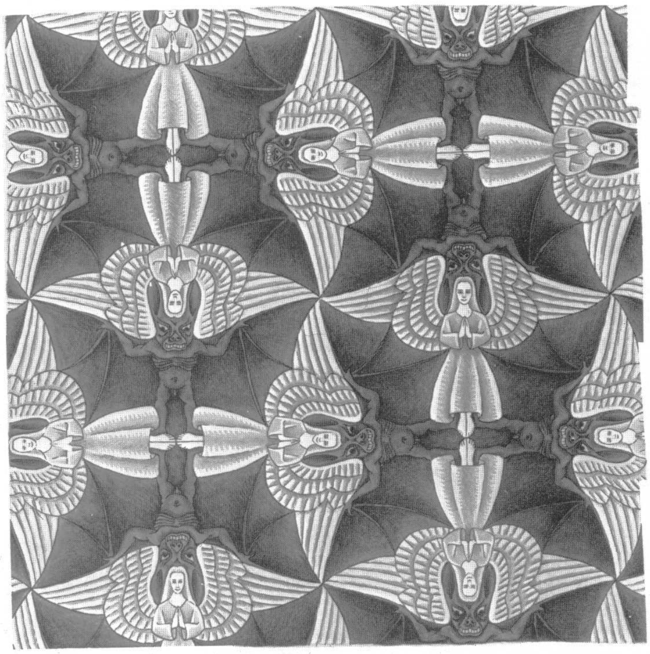
Auszug aus den *International Tables*

Square 4mm p 4 g m No. 12 **p4g**



Origin at 4

Number of positions, Wyckoff notation, and point symmetry			Co-ordinates of equivalent positions	Conditions limiting possible refelctsions
				General:
8	d	1	x, y; y, $\bar{x}$; $\frac{1}{2}-x$, $\frac{1}{2}+y$; $\frac{1}{2}-y$, $\frac{1}{2}-x$; $\bar{x}, \bar{y}$; $\bar{y}$, x; $\frac{1}{2}+y$, $\frac{1}{2}-y$; $\frac{1}{2}+y$, $\frac{1}{2}-x$.	hk: No conditions h0: h=2n (0k: k=2n) hh: No conditions
				Special: as above, plus
4	c	m	x, $\frac{1}{2}+x$; $\bar{x}$, $\frac{1}{2}-x$; $\frac{1}{2}+x$, $\bar{x}$; $\frac{1}{2}-x$, x;	no extra conditions
2	b	mm	$\frac{1}{2}$, 0; 0, $\frac{1}{2}$	hk: h+k=2n
2	a	4	0, 0; $\frac{1}{2}$, $\frac{1}{2}$	hk: h+k=2n



Beispiel p4gm

M.C. Escher: "Engel und Teufel" (1941)