Appendix

Textbook availability

Information on current textile books and periodicals in-print including free catalogue entitled 'Textile Titles of the World' available from: Blackwells Bookshops, 21 Blenheim Terrace, Woodhouse Lane, Leeds LS2 9HJ Tel: 0113 243 2446 Fax: 0113 243 0661 E-mail: leeds@blackwellsbookshops.co.uk

Further information

Textile Technology Catalogue, Woodhead Publishing, Abington Hall, Abington, Cambridge CB1 6AH,
International Directory and Review 2000, and

Textile Terms and Definitions, Published by The Textile Institute St James's Buildings, Fourth Floor, Oxford St, Manchester M1 6FQ

Technical dictionary for knitwear and hosiery production (German/English/Italian), Eva Lesykova, Meisenbach GmbH, Hainstrasse 18, D-96047, Bamberg, Germany.

RAZ, S., *Flat Knitting*, Universal Maschinen Fabrik (Meisenbach 1993). Based on the Universal flat knitting range of machines, the book covers manually as well as mechanically and electronically controlled machines, computer controls and pattern preparation and programming.

RAZ, S., *Flat Knitting – The new generation* (1991), Meisenbach GmbH. Based particularly on the Stoll CMS range of flat machines, the book progresses from elementary principles through to programming and advanced design.

RAZ, S., *Warp Knitting Production* (1987), Heidelberg Verlag Melliand Textilberichte, Covers the range of warp knitting machinery and structures from elementary through to the most advanced practices.

WILKINS, C., *Warp knit machine elements* (1997).

WILKINS, C., *Warp knit fabric construction* (1996).

REISFELD, A., *The history of warp knit arts and trades* (1999) American Society of Knitting Technologists, New York, US.

Knitting International (formerly the Hosiery Trade Journal) published monthly by World Textile Publications Ltd, 1 Longlands St., Bradford W. Yorks., UK, BD1 2TP.

Knitting Technology (formerly *Knitting Technique*, formerly English edition of *Wirkerei und Strickerei*), Meisenbach GmbH, POBox 2069, D-96011 Bamberg, Germany.

Kettenwirk-Praxis (with English translations). Published quarterly by Karl Mayer Textilmaschinenfabrik GmbH, Postbox 1120, D-63166 Obertshausen, Germany. Provides a comprehensive explanation of up to date practices and developments in warp knitting.

Index

à jour (loop transfer stitches), 172
accordion top (socks), 180
Aitkin's circular latch needle rib machine, 89
Argyle tartan socks, 104
Aston (Lee's knitting frame), 12
Astro turf (raschel), 369
atlas (warp knit), 295–7
automatic kick-back (V-bed), 241

balanced structure (weft knitted), 45
ballet toe, 266
Barfuss, Wilhelm (raschel), 301
Barton, Luke, narrowing mechanism, 194
base weft knitted structures, 60
bearded needle, 10, 20–22
Bentley Komet (hosiery), 262
Betts, Max, presser foot, 232
binding-off (making-up), 17
blind-lapping (warp knitting), 323
blister, 149–51
bourrelet, 149
Brinton trick wheel (circ. knit selection), 123
broche (warp knit embroidery), 333
Brunel (circular machine patent), 12
bulked yarns, 4
butt
  lengths, 110
  positions, 117
  set-outs, 118

cable stitch, 222
cams (engineering), 34
  (knitting), 33–5
cap knitting, 7
Caperdoni, Waltex, 311
cardigan
  cams, 97
  stitches (V-bed), 218
cast-off (knitting cycle), 16
centralised stitch control (circ. fabric machines), 157
chain (warp knitting)
  links, 289–92
  notations, 291
charmeuse (warp knit), 317
Christ's seamless garment, 7
circular garment length machines, 244
circular warp knitting machines, 377
circular weft knitting machines, 82, 87–9
  production calculations, 159–60
circulars *v* flats, 244
circumferential speed (circular weft knitting machines), 159
classes of weft knitting machines, 85
closed lap (warp knitting), 41
cnyttan, 7
Colbert (and the hand frame), 9
coloured stitch designs, 100
Comez crochet machine, 310
composites (technical textiles), 374
compound needle, 26–7
  comparison with latch needle, 27–9
compound needle warp knitting machine, 305
computer graphics and pattern preparation, 137
Conti hosiery, 270
contra knitting, 67, 158
contra sinkers, 241

Coptic knitting, 7
cord, warp knitted, 326
Cotton Machine *see* Cotton's Patent
Cotton William (Cotton's Patent straight bar frame), 194
Cotton's Patent, 194–206
course (def), 16–17
course length (def), 17 *and* run-in per rack, 53–4
Co-we-nit (raschel), 330
Crane (warp knitting inventor), 12
Crimplene, 4
crochet machine, 306–7
cross stitch (hand knit stitch), 7
cut (machine gauge), 30
cut edge (cut and sew), 45
cut pile, 58
cut presser and miss-press (warp knitting), 335–6

Dawson wheel (warp knitting), 12
decitex (yarn count), 5
Decroix (circular machine patent), 12
delayed timing (weft knitting), 71
denier yarn count, 5
Derby rib attachment, 9
design appearance requirements, 18
Detexomat, 270
direct and indirect (yarn feed), 216
direct yarn count, 5
directionally orientated structures, 373
disc selection (circular machine), 127
dividers (purl machines), 12
double cylinder garment length machines, 247
  hosiery machines, 262
double jersey (history), 145, 147, 148
  inlay, 153–5
  non-jacquard stitches, 148–9
double needle bar raschels, 357–69
  lapping principles, 358
double needle overlaps, 291
double pique double jersey, 150–1, 276
double-faced structures, 44
  balanced, 45
double-sided plush, 167
doubling (full-fashioning), 204
Doyle, 274
Draper, Samuel, 351
drop stitch, 91–2
Dubied, H E (V-bed inventor), 224

E 14 gauge, 29
Eisenstuck (flat machine inventor), 207
elasticised warp knitted fabrics, 349
electronic guide bar control, 291, 343
electronic needle selection, 115, 130–3
electronic selection (Shima Seiki), 226
electronics in knitting (the advantages), 134–7
embroidery plating (weft knitting), 12, 105

fabric
  geometry, 280–2
  machines, 8, 82–3
  'quality', 54
  take-down, 284
  weight calculation, 9
face loop, 43
fall-plate (raschel), 328, 332
fancy lacing stitches, 170
fashioning calculations, 185
fibre, 3
filament, 3
filet lace, 173
filler, 329
FIRST (Shima V-bed), 240
fishnet (weft knitted) two course, 93
flat bed purl, 207
flat knitting (principles and structures), 207–23
flat machines rib, 60, 67–72, 86–7
fleecy (weft knitted), 161–3
fleecy interlock, 164
float plating, 93
float stitch, 90, 92
FNF (warp knitting machine), 333
Fouquet (circular machine), 87
front of a knitting machine, 19
front of the machine, 19
full jacquard (weft knitted), 120
full-fashion gauges, 208

garment length machines, 8, 82–4
gauges, 196, 208, 258
geometric fixed selection (weft knitting), 120
geotextiles, 371–2
GL tights, 272
Golden Lady, 271
graduated compression, 260
graduated stiffening, 264
Griswold hand circular, 89
guide bar
  nesting (warp knitting), 342
  pattern mechanism, 289
  shogging summary drive, 343

half gauge, 29
hand frame (invention), 9 (knitting), 10–12
hand operated V-bed machines, 209
hand pin knitting, principles, spread of knowledge, 7–9
HATRA, 274
held loop, 90, 91
  shaping, 190

Henry VIII (stockings), 7
high speed knitting, 283
Hindret (hand frame drawings), 9
hopsack (single jersey), 147
horizontal striping, 101–2
hosiery on small diameter machines, 256
hosiery, product, gauges, classes of hosiery machine, 256–73

indirect yarn count, 5
individual stitch selection, 105
inlay (*see* laying-in), 54–5
intarsia, 102–4
integral garment shaping (flat knitting), 18, 84, 192–3
interactive computer graphics, 137
interlock (circular weft knitting), 60, 73–6
interlooping (mechanical fabric forming), 2
intertwining (mechanical fabric forming), 1
interweaving (mechanical fabric forming), 1
inturned welt (stockings and socks), 179
invisible fleecy *or* three-thread fleecy (single jersey weft knitted), 161, 162–3

jack sinkers (hand frame), 12
jacquard
  backing, 107–8
  design areas, 110
  raschels, 351
  rib, 107
  selection (full mechanical), 123
  single jersey, 106
Jacquardtronic, 340, 352, 353, 355
Jeacock compound needle patent, 26
jersey cord, 149
Jumberca, 253

Karl Mayer, 340–56
  HDR, 365
Knapton, 282
knitted loop
  stitch, 42, 90
  structure, notation, 16, 19
knitted silk stockings, 8
knitting, 1 (def), 7
  (V-bed widths), 208
knitting action, 197–8
  of a bearded needle, 20
  of a latch needle, 24
knitting
  cams (raising, swing, stitch, up-throw, guard bolt), 35
    bolt, upthrow, raising, stitch guard, 34–5
  machine (main features), 18
  notations, 46
knitting requirements, 4
knitting technology (potential of), 13–14
knitting tubular rib on a V-bed flat machine, 238
knitting waves (Tsudakoma), 241
knock-over, 16
knop, 337
knop structures, 221

lacing points (full-fashioned), 205
laddering, 61, 261
ladder-resist, 261
ladies' fine gauge hosiery, 258–61
ladies' hosiery, 258
Lamb, Rev Isaac Wixom (flat machine patent), 207
lap (warp knitting), 39
lapping diagrams, 291–2
latch needle
  advantages of, 25
  features of, 23–4
  history of, 22
latch needle and compound needle compared, 27
latch-opener fabric, 92
laying-in, inlay, 54–5, 328
  rules, 329, 332
lead sinkers, 12
Leaver's lace, 13
  effect, 354
Lee, William (inventor hand frame), 9, 194
Liba, Shussomat, Weftloc, 333
linear motor drive (Tsudakoma flat machine), 241
linking, 267
links-links, 77
locknit (warp knitting), 317
Lonati (hosiery), 265
loop forming (three types), 37
loop holder, 10
loop length, 276
loop raised, 319
loop transfer stitches uses, 171–82
  on straight bar frame, 201–3
Luddite riots, 9
Lycra, 4

machine gauge, 29–30
machine knitting (def), 16
MacQueen, K (electronic flat machine inventor), 224
marquisette (warp knitted), 348
Matec hosiery machines, 260
Matec HF, 260, 264, 268
McNary heel patent, 258
mechanical jacquard selection, 226
mechanical selection, 123
Mecmor Variatex, 253
Mellor, Moses (circular machine), 89

Mellor-Bromley selection, 125
mesh structures, 330
Milanese, 285, 319
mirror repeat, 118
Mishcon, Lestor (high pile machine inventor), 162
miss press, 335
miss-lapping, 323
Monk, S A, 204
Moratronic (electronic rib jacquard machine), 131–3
Muller crochet machine, 307–8
multi-axial weft insertion, 374
multi-bar tricot lace machines, 342
multi-carriage flat, 236
multi-guide bar, 340
multiple gauge technique, 234
multi-step geometrical selection, 118, 123

nahyat, 7
Nalbinding, 7
NeB, 5
needle, 19 *see also* bearded, latch, compound, slide and carbine needle
needle loop, 38
  intermeshing points, 43
  sequence, 95
needle pitch, 241
NeK, 5
new loop, 16, 43
Newton, 258
Nm, 5
nylon, 3

old loop, 16
one piece tights, 271
open lap (warp knitting), 41
open top, single jersey machine, 63
open shed, 333
openwork, 57
overfed pile, 320
overlap (warp knitting), 39, 40
overlap/underlap variations, 293

Paget moveable needle bar, 194
part threaded guide bars, 323
pattern changing (raschel double needle bar), 365
pattern guide bars, 341
pattern repeats, 118
pattern row weft knitted (def), 17
pattern wheel design areas, 128–30
pattern wheels, 120, 126
patterned plush, 167
patterns (weft knitted), 115
peg frame, 10
pelerine eyelet, 176
piecegoods, 82
Piezo jacquard, 356
Piezo-electronic selection, 12
pile, 58, 366
pillar stitch, 9
  warp knitted, 293, 330
pin net, 325
pitch, 29
plain, 60, 61–7
plain loop transfer, 172
plating (def), 55–7, 104–5, reverse, 104
plush, 58, 164, full density, 167
Polar fleece, 166
power flat knitting (automatic), 224–43
power net, warp knit, 350
presser, 10
press-off (warp knitting), 338–9
press-off stitch, 91, 92
Pretty Polly, 271
primary knitting elements, 29
primary structures (weft knitting), 60
production of heels and toes, 265
Punto di Roma (weft knitted), 152, 276
purl, 60, 79–84

Queen Elizabeth I (stockings), 8
queenscord (weft knitted), 318

racked rib, 219
racked welt, 181
raschel lace (development of), 340
  gauge, 344
raschel machine, 301–5
rayon, 3
reciprocated knitting, 189
Redgate (raschel patent), 301, 361
Relanit, Mayer, 158–9
Remys-Cole (hosiery patent), 260
reverse (left) loop, 43
reverse plating, 104
revolving cam box (*and* stationary needle cylinder), 34, 36
revolving cylinder (*and* stationary cam box), 34, 36
rib jacquard backing, 108
rib knitting, 70
rib loop transfer, 173
rib to plain, 85, 204
Robinson, Frank, presser foot, 232–4
roll welt, 181
Rosso, 267
rotary drop cam (Monarch circ. fabric machines), 157
RTR, 250
run-down toe, 267
run-in per rack, 53
run-in ratios, 320
running-on (full-fashioned, making-up), 204

sandfly net (warp knit), 326–7
Sangiacomo (hosiery machines), 268
satin (warp knit), 319
Scott and Williams, 268
seaming (automatic), 270
seamless bodywear, 255
seamless glove knitting, 237
selection devices, 118
  disc, 125
  mono system, 130
  multi-step, 123
  pattern wheel, 128–30
selvedge, 45
separation, 183
separation of garments (automatically on machine), 26
sequential knitting, 85
sharkskin (warp knitted), 317
shaping during knitting, 164, 184
shell-stitch (warp knitting), 337
Shima Seiki (compound needle, 28–29), 225
Shima total design system, 144
shog, 286, 288
shogging mechanism, 289
shogging of guide, 37
simplex machine, 357, 359–61
simulation (loop) computer software, 138
  Monarch, 137
single cylinder hosiery machines, 262
single guide bar fabrics, 46
single jersey, 63, 145
  tuck and float stitches, 147
single-faced structures, 44
sinker
  (loop forming, holding-down, knocking-over), 10, 31–3
  loop transfer, 176–8 *see also* pelerine eyelet
  loops, 17, 39
  plush, 164
  timing, 66
  top, 63
sinkers and dividers, 12
sinkerwheel plush, 165
slide compound needle, 240
sliver high pile, 168
slurcock (frame knitting), 10
spacer fabrics (double needle bar raschel), 376
speed factor, 159
SPJ Mellor-Bromley, 247
split cam carriages, 215
split stitch (filling-in stitch V-bed shaping), 236
spot *or* knop, 337
sprang, 7
start-up comb, 206
Steiger Vesta Multi (V-bed flat machine), 206
step motor, 219
stitch
  bonding (non-woven), 375
  density (def), 17–18
  length, 42
  length shaping, 191
  pressing-down, 231–4
  selection, 105
  shaping, 189–90
Stoll CMS flat machine, 137
  CAD, SIREX pattern prep system, 140–3
Stoll H, 225
storage feed, 277
straight bar frames, 12, 85, 194–206
  and full-fashioning, 194
stretch tricot, 350
Stretton and Johnson (double cylinder hosiery machine), 262
striping, 101
Strutt's Derby rib, 12
Stuttgarter Mailleuse (circular machine), 87
summary guide bar drive, 344
surface relief and openwork fabrics, misslapping, 323
SWG-V, 240
SWG-X, 240
swing, 286, 288
swinging of guide, 37
synchronised timing, 71
synthetic fibres, 4

take-down, 284
tape positive feed, 277
technical back (left side), 44
technical face (right side), 44
technical textiles, 370
technically upright, 18
Terrot (circular machines), 87, 131
terry, 339
  by press-off, 339
tex count, 5
texere, 1
Textronic, 355, 340
the bearded needle, 10
the computerised knitting machine, 136
thread, 3
three colour jacquard, 106
three-thread fleecy, 162
three-way technique, 97
tightness factor, 281
tights, 270
timing, 71–2
toe closing, 267
Townsend, latch needle, 12
tricot, 313–16
tricot machine, 29, 298, 300

Tritex, 377
true rib, 258
Tsudakoma TFK, 241–2
tubular articles, 363
tubular fabric, 45
tubular welt, 181
tuck presser, 98
tuck stitch, 90, 94–7
tulle, 344
tulle, marquisette, voile (warp knitted), 348
two guide bar warp knitted structures, 313
  loop raised, satin, locknit, Tricot, sharkskin, queenscord, 314
two types of flat machine, 207
types of closed toe, 268

underlap, 17, 39, 40
unrove, 17
upright loop structures, 18, 46

variable width carriage traverse, 231
varying float stitches, 97
varying tuck stitches, 97
V-bed cam system, 211
velour, 164, 319
velvet, 319
verdol, 351
Vignoni (compound needle), 28

waffle, 362
wale (def), 17
wale fashioning, 184–7
wales, 16
Waltex machine, 311
warp and weft knitting compared, 48–59
warp guide lapping, 37, 39
warp knit basic principles, 286–97
  development of, 12–13
warp knitting machines, 298
warp let-off, 277–9
  electronic control (Karl Mayer), 279
warp pattern mechanism, 289
weaving, 1
web holder (sinker), 32
web knitting, 375
weft insertion, 55, 328
  full-width, 333
weft knitted fabric production, 145
weft knitted fabric relaxation, 279
weft knitting machines (evolution), 12
  three classes of, 85
welt stitch, 92
welts, 179
WholeGarment knitting technique, 237
Wise, S (power frame), 194
worsted count, 5
wrap patterning, 169
wrapping (weft knitting), 42

yardgoods, 82
yarn, 3
yarn count systems, 4–6, conversion formulae, 5
yarn feeding, 36, 214
Y-heel, 266

'Z' or slant sinker, Monarch, 159
Zodiac hosiery machine, 260