

Contents

Foreword to the 2 nd Edition.....	XIII	Preface to the 2 nd Edition	XV
Foreword to the 1 st Edition	XIV	Contributors	XVI

I Anatomy, Principles of Facial Surgery, and Coverage of Defects

1 Anatomy of the Skin and Skin Flaps.....	3	Tumor Resection with Histologic Control (Fig. 2.21).....	15
The Skin (Fig. 1.1).....	3	Free Skin Grafts (Fig. 2.22).....	17
Types of Skin Flaps	4	Composite Grafts (Fig. 2.23)	17
Random Pattern Flaps (Fig. 1.2)	4	Cartilagenous and Composite Grafts for Auricular and Nasal Reconstruction .	17
Axial Pattern Flaps (Fig. 1.3)	4	Graft Nomenclature	19
Island Flaps (Fig. 1.4)	4	3 Coverage of Defects	21
Myocutaneous Island Flaps (Fig. 1.5; see also Fig. 12.1).....	4	Local Flaps	21
Neurovascular Island Flaps	4	Advancement Flaps	21
2 Basic Principles of Facial Surgery.....	5	Advancement Flap of Burow (1855) (Fig. 3.1)	21
Suture Materials and Techniques	5	Burow's U-Advancement (Figs. 3.2–3.7)	21
Basic Instrument Set for Reconstructive Facial Plastic Surgery (Fig. 2.7)	6	V-Y and V-Y-S Advancement of Argamaso (1974) (Figs. 3.8–3.10).....	22
The Binocular Loupe (Fig. 2.7c).....	6	Flaps without Continuous Epithelial Coverage (Rettinger 1996a, b).....	22
Additional instruments:.....	6	Sliding Flap (Figs. 3.11–3.14).....	22
Wound Management, Repair of Small Defects, and Scar Revision	9	Pedicled Flaps	24
Relaxed Skin Tension Lines, Vascular Supply (Fig. 2.8i), and "Esthetic Units" (Fig. 2.20).....	9	Transposition Flap (Fig. 3.15).....	24
Wound Management, Repair of Small Defects, and Scar Revision	9	Rotation Flap (Fig. 3.19)	24
Management of Wounds with Traumatic Tattooing	9	Bilobed Flap (Fig. 3.22)	25
Scar Revision by W-Plasty and the Broken-Line Technique of Webster (1969) (Fig. 2.8a–j).....	9	Rhomboid Flap (Figs. 3.24–3.27)	27
Small Excisions	12	Turnover Flap (Fig. 3.28).....	28
Z-Plasty (Figs. 2.15 and 2.16).....	13	Tubed Pedicle Flap (Bipedicle Flap) (Fig. 3.29).....	28
Postoperative Treatment of Scars	14	Distant Flaps.....	28
Esthetic Units of the Face (Fig. 2.20)	14	Distant Tubed Pedicle Flap	28
		Myocutaneous and Myofascial Flaps (see Figs. 12.1–12.3).....	28

Special Part

II Coverage of Defects in Specific Facial Regions

4 Forehead Region	33	Lowering the Alar Rim as a Full-Thickness Bipedicle Flap and with a Composite Graft (Fig. 5.38).....	51
Median Forehead Region.....	33	Turnover Flap and Composite Graft (Lexer 1931, modified by Kastenbauer 1977).....	53
Wedge-Shaped Defects (Fig. 4.1).....	33	Converting a Peripheral to a Central Defect (Haas 1991) and Reconstructing the Alar Rim with a Transposition Flap (Fig. 5.40).....	53
H-Flap (Fig. 4.2).....	33	Wedge-Shaped Defect in the Alar Rim (Fig. 5.41).....	55
Double Rotation Flap (Fig. 4.3).....	34	Nelaton Flap (Nasolabial Flap) (Fig. 5.42).....	55
Lateral Forehead Defects (Fig. 4.5).....	34	Sliding Flap of Barron and Emmett (1965) and Lejour (1972) from the Nasolabial Fold (Fig. 5.44).....	57
5 Nasal Region	35	In-and-Out Flap of Peers (1967) (Fig. 5.45).....	57
Glabella and Nasal Root (Figs. 5.1–5.9).....	35	Median Forehead Flap (see Figs. 5.15 and 5.51).....	57
U-Advancement Flap of Burow (Fig. 5.1) ...	35	Bilobed Flap from the Cheek (Weerda 1983c) (Fig. 5.46).....	57
V-Y Advancement (Fig. 5.2; see also Figs. 3.8–3.10).....	35	Large Defects of the Lateral Nose (Figs. 5.47 and 5.48).....	57
Sliding Flap (Fig. 5.7).....	37	The Columella	60
Nasal Dorsum (Figs. 5.8–5.12).....	38	Nelaton Flap (Fig. 5.49).....	60
Bilobed Flap (Fig. 5.8).....	38	Frontotemporal Flap of Schmid and Meyer (1964).....	60
Island Flap (Fig. 5.9).....	39	Composite Graft (Fig. 5.50).....	60
Rieger Flap (Fig. 5.10).....	39	Partial and Total Nasal Reconstruction	61
Nasolabial Flap (Fig. 5.11).....	41	Converse Scalping Flap (Forehead-Scalp Flap) (Fig. 5.52).....	61
Median Forehead Flap (Fig. 5.12).....	41	Total Nasal Reconstruction with the Sickel Flap (Farrior 1974) (Fig. 5.53).....	65
Nasal Tip (Figs. 5.13–5.17).....	41	Three-Stage Reconstruction of Total Nasal Defects (after Burget and Menick 1994).....	66
Bilobed Flap (Fig. 5.13).....	41	Median Forehead Flap with Soft-Tissue Expansion (Fig. 5.55).....	74
V-Y Advancement Flap of Rieger (1957) (Fig. 5.14).....	42	Nasal Reconstruction with Distant Flaps.....	74
Median and Paramedian Forehead Flap (Fig. 5.15).....	42	Perforations of the Septum	74
Larger Defects of the Nasal Tip and Ala	44	Small Perforations.....	74
Frontotemporal Flap of Schmid and Meyer (Figs. 5.17 and 5.18).....	44	Large Defects.....	75
Nasal Flank	46	Oral Mucosal Flap of Meyer (1988) (Fig. 5.59b).....	75
Flap Advancement of Burow (1855) (Fig. 5.22).....	47	Nasolabial Flap of Tipton (1975) (Fig. 5.60).....	75
Median Cheek Rotation of Sercer and Mündich (1962) (Fig. 5.23).....	47	Bipedicle Flap of Schultz-Coulon (1989) (Fig. 5.61).....	76
Burow's Laterally Based Cheek Advancement Flap (Fig. 5.24; see also Fig. 3.1).....	48		
Imre's Cheek Rotation (1928) (Fig. 5.25)....	48		
Cheek U-Flap (Fig. 5.26).....	48		
Island Flap (Fig. 5.32).....	50		
Sliding Flap (Fig. 5.33).....	51		
Nasal Ala	51		
Full-Thickness Reconstructions.....	51		
Z-Plasty of Denonvilliers and Joseph (1931) (Fig. 5.34).....	51		
Anteriorly Based Alar Rotation (Weerda 1984) (Fig. 5.35).....	51		
Modification of the Anteriorly Based Alar Rotation.....	51		
Coverage with a Transposition Flap.....	51		

6 The Lips	77	Bilobed Estlander Flap (Fig. 6.41)	99
Mucosal Defects	77	Vermilion Reconstruction by the Method	
Wedge-Shaped Defects (Fig. 6.1)	77	of von Langenbeck (1855) (Fig. 6.42) . . .	99
Large Superficial Defects (Fig. 6.2)	77	Tongue Flap (Fig. 6.43)	99
Upper Lip	78	Brown Modification of the Estlander Flap	
Median Deficiency (Fig. 6.3)	78	(1928) (Fig. 6.44)	102
Thin Upper Lip (Figs. 6.4–6.6)	78	Unilateral or Bilateral Gillies Fan Flap	
Thin Upper Lip and Full Lower Lip (Fig. 6.7)	79	(1957) (Fig. 6.45e–j)	102
Median Scars and Upper Lip Defects	81	Universal Method of Bernard (1852),	
Scar Revisions	82	Grimm (1966), and Fries (1971)	
Small Contractures (Fig. 6.11)	82	(Fig. 6.46; unilateral or bilateral)	104
Larger Contractures	82	Reconstruction of the Lateral Lip	
Larger Scar Contractures Causing Lip		and Commissure	106
Retraction (Figs. 6.12 and 6.13)	83	Burow's Method of Reconstructing the	
Defects in the Nasal Floor and		Lateral Upper Lip (1855) (Fig. 6.48)	106
Upper Lip	83	Reconstruction of the Commissure by the	
Transposition Flap from the Nasolabial Fold		Method of Rehn (1933), as Modified by Fries	
(Fig. 6.14)	83	(1971) and Brusati (1979) (Fig. 6.50)	106
Bilobed Flap (Fig. 6.15)	84	Reconstruction of Large Commissural	
Neurovascular Island Flap from the Lower		Defects (Fig. 6.51)	107
Cheek (after Weerda 1980d Figs. 6.19 and		Vermilion Defects	108
6.28)	87	Vermilion Advancement of	
Central Defects of the Upper Lip		Goldstein (1990) (Fig. 6.52)	108
(Fig. 6.20)	87	Combined Reconstruction of the Lower Part	
Celsus Method Combined with an Abbé Flap		of the Face (Lower Lip, Cheek, Chin, Middle	
(Fig. 6.21; see also Figs. 6.20 and 6.22) ..	87	Part of the Mandible) (Fig. 6.53)	108
Classic Reconstructive Techniques in the		Elongation of the Oral Fissure	110
Upper Lip	88	Method of Converse (1959) (Weerda 1983)	
Abbé Flap (1898, reprinted 1968)		(Fig. 6.54)	110
(Fig. 6.22)	88	Method of Converse (1977) (Fig. 6.55)	110
Estlander Flap (1872) (Figs. 6.24; 6.40) ..	90	Method of Ganzer (1921) (Fig. 6.56)	111
Upper Lip Reconstruction with a Rotation		Method of Gillies and Millard (1957)	
Flap (Blasius 1840) (Fig. 6.25)	90	(Fig. 6.57)	111
Gillies Fan Flap (1976) (Fig. 6.27)	92	7 The Chin	113
Neurovascular Skin–Muscle–Mucosal		Coverage of Small Defects in the Chin Area . . .	113
Flap of Weerda (1980d, 1990)		Advancement Flap (Fig. 7.1)	113
(Figs. 6.19 and 6.28)	92	Bilobed Flap (Fig. 7.2a, b)	113
Combined Defect Repair of the Ala,		8 The Cheek	115
Columella, Cheek, and Upper Lip		Medial Cheek Defects	115
(Fig. 6.29)	93	Upper Medial Cheek	115
Lower Lip	94	Esser Cheek Rotation (1918) (Fig. 8.1) . .	115
Scar Contractures and Small Defects	94	Cheek Reconstruction Combining the	
Small Contractures (Figs. 6.30 and 6.31)	94	Methods of Esser (1918) and Imre (1928)	
Larger Contractures	94	(Weerda 1980) (Fig. 8.2)	116
Small Defects	94	Small Cheek Defects	117
Lip Reduction	94	Imre Cheek Advancement Flap (After	
Sliding Flaps in the Vermilion	94	Haas and Meyer 1973, modified)	
Classic Lower Lip Reconstructions	96	(Figs. 8.4 and 8.5)	117
Wedge Excision	96	Defect in the Medial Canthus (Fig. 8.6) ..	117
Estlander Flap (1872) (Fig. 6.40)	98		

Mid-Anterior Cheek (Fig. 8.7)	118	10 The Auricular Region	135
Pedicled Bilobed Flaps	118	Classification (Table 10.1) and Esthetic Units	
Large Inferiorly/Anteriorly Based Bilobed		(Fig. 10.1)	135
Flap (Fig. 8.8)	118	Central Defects: Recommended Defect Coverage	
V-Y Advancement	119	(Fig. 10.2)	135
Upper and Posterior Cheek	120	Conchal Defects	137
Trilobed Flap of Weerda (1979) (Fig. 8.10) ..	120	Reconstruction with a Full-thickness	
Bilobed Flap (Fig. 8.11)	120	Skin Graft (Fig. 10.3)	137
Lateral Cheek Defects	121	Transposition Flap and U-shaped Advance-	
Small Lateral Cheek Defects	121	ment (Fig. 10.4)	137
Small Preauricular Defects	122	Reconstruction with Island Flaps	
Simple Skin Advancement and Rotation		(Figs. 10.5–10.7)	137
(Burow's Method) (Fig. 8.17a–d)	122	Defects of the Antihelix and Combined Central	
Opposing Transposition Flaps (Fig. 8.18) ...	122	Defects (Figs. 10.8 and 10.9)	140
Large Defects Involving the Auricle	124	Converse and Brent's (1977)	
Lateral Cheek Rotation of Weerda (1980c)		Three-stage Reconstruction of	
(Figs. 8.20 and 8.21)	125	Full-Thickness Defects of the Antihelix	
Pedicled Transposition Flaps		(Fig. 10.10)	140
(Figs. 8.22 and 8.23)	125	Superiorly or Inferiorly Based	
Preauricular Hair Loss (Fig. 8.24)	126	Transposition Flap (Fig. 10.11)	140
Inferiorly Based Retroauricular Transposition		U-shaped Advancement Flap of Gingrass	
flap (Weerda 1978b) (Fig. 8.25)	126	and Pickrell (1968) (Fig. 10.12)	142
Large Bilobed Flap from the Neck (Weerda		Weerda's Reconstruction with a	
1980b) (Fig. 8.26)	127	Transposition Flap and Temporary	
9 The Eyelids	129	Repositioning of the Helix (Fig. 10.13) ..	143
Upper Eyelid	129	Weerda's Bilobed Flap as a Transposition–	
Direct Closure (Fig. 9.1)	129	Rotation Flap (Fig. 10.14)	144
Semicircular Flap Closure of Beyer-Machule		Weerda's Scaphal Reconstruction with a	
and Riedel (1993) (Fig. 9.2)	129	U-shaped Advancement Flap (Fig. 10.15)	144
Switch Flap (Fig. 9.3)	130	Tebbetts' (1982) Superiorly Based,	
Upper Eyelid Reconstruction of Fricke and		Preauricular Flap for the	
Kreibig (Fig. 9.4)	130	Triangular Fossa (Fig. 10.16)	144
Bilobed Flap (Fig. 9.5)	131	Mellette's (1991) Preauricular Flap Based	
Total Upper Lid Reconstruction by the Two-		Superiorly on the Helical Crus (Fig. 10.17)	145
Stage Mustardé Technique (Beyer-Machule		Subcutaneous Pedicle Flap of Barron and	
and Riedel 1993) (Fig. 9.6)	131	Emmett (1965) (Fig. 10.18)	146
Reconstruction of the Lower Eyelid	132	Inferiorly Based Preauricular Flap	
Reconstruction of Small Defects in the Lower		(Fig. 10.19)	146
Eyelid	132	Peripheral Defects (Fig. 10.20)	147
Large Defects (Figs. 9.6 and 9.7)	132	Helix Reconstruction with Auricular	
Reconstruction of the Lower Lid with		Reduction	147
Ectropion	133	Simple Wedge Excisions (Fig. 10.21)	148
Transposition Flap (Figs. 9.8 and 9.9) ...	133	Wedge Excision and	
Total Lower Lid Reconstruction		Burow's Triangles (Fig. 10.22a–j)	148
(Figs. 9.11 and 9.12)	133	Gersuny's (1903) Technique of Defect	
Reconstruction of the Medial Canthus		Closure by Transposition of the Helix	
(Figs. 9.13 and 9.14; see also Figs. 5.2–5.7)	134	(Fig. 10.23)	148
		Modification of the Gersuny Technique by	
		Weerda and Zöllner (1986) (Fig. 10.24) .	150

Antia and Buch's Modification with Mobilization of the Helical Crus (Fig. 10.25).....	150	Reconstruction without Auricular Reduction	160
Lexer's (1933) Modification (Fig. 10.26) ..	150	Reconstruction with a Costal or Conchal (see Fig. 10.48) Cartilage Framework and Skin Pocket.....	162
Argamaso and Lewin's (1968) Technique of Ear Reduction and Defect Reconstruction Meyer and Sieber's (1973) (Fig. 10.27) ..		Reconstruction by Insertion of an Expander.....	165
Modification of the Technique (Fig. 10.28) 150		Crikelair's (1956) Reconstruction using an Anterosuperiorly Based Posterior Flap (Figs. 10.51 and 10.52).....	165
Tenta and Keyes' (1981) Excision of the Triangular Fossa with Reduction of the Auricle (Fig. 10.29).....	150	Crikelair's Flap for Coverage of Large Defect (Fig. 10.52).....	166
Weerda and Zöllner's (1986) Technique for Defects of the Helical Crus and Preauricular Region (Fig. 10.30).....	152	Harvesting a Skin Graft from the Thorax (Fig. 10.53).....	166
Pegram and Peterson's (1956) Reconstruction with a Free Full-Thickness Composite Graft from the Contralateral Ear.....	154	Secondary Reconstruction Using a Postauricular Flap Pedicled on the Helix (Ombredanne 1931) (Fig. 10.54).....	166
Helix Reconstruction without Auricular Reduction	154	Partial Reconstruction with a Temporoparietal Fascial Flap (Fan Flap) .	168
Superiorly Based Postauricular Transposition Flap (Fig. 10.33)	154	Middle-Third Auricular Defects (Fig. 10.55).....	168
Preauricular Transposition Flap (Fig. 10.34a–c).....	154	Reconstruction with Auricular Reduction ..	168
Retroauricular Flap of Smith (1917) (Figs. 10.35a–h)	156	Reconstruction of the Middle and Lower Thirds, as Described by Templer et al. (1981) (Fig. 10.56)	168
Tube-Pedicled Flap	156	Reconstruction without Auricular Reduction:	168
Tube-Pedicled Flap for the Superior Helix (Fig. 10.37).....	157	Recommended Methods of Reconstruction	168
Tubed Bipedicle Flap for Defects of the Superior and Middle Thirds (Figs. 10.38 and 10.39).....	158	Retroauricular U-shaped Burow Advancement Flap (Fig. 10.57)	168
Three-stage Reconstruction of a Defect of the Middle Third with a Tube-Pedicled Flap (Fig. 10.39).....	159	Inferiorly and Superiorly Based Transposition Flap of Scott and Klaassen (1992) (Fig. 10.58).....	170
Converse and Brent's (1977) Reconstruction with a Preauricular Tube-Pedicled Flap (Fig. 10.39).....	159	Reconstruction with a Subcutaneous Pocket or a U-shaped Advancement Plasty (Fig. 10.59).....	170
Reconstruction with a Superiorly Based Posterior Flap.....	160	Reconstruction with a Pocket as a Tunneled Flap (Fig. 10.60a–h)	170
Inferior Helix.....	160	Reconstruction with a Rotation Flap (Fig. 10.61)	170
Partial Reconstruction of the Auricle.....	160	Weerda's Rotation–Transposition Flap ..	172
Upper-Third Auricular Defects (Fig. 10.40).....	160	Posterior Auricular Flap Based on Scar Tissue	173
Reconstruction with Auricular Reduction ..	160	Reconstruction with a Fan Flap (Temporoparietal Fascial Flap) (Fig. 10.62)	173
Wedge Excisions.....	160	Reconstruction with Tubed Flaps.....	173
Helical Sliding Flap of Antia and Buch (1967) (Figs. 10.42 and 10.43).....	160	Lower-Third Auricular Defects (Fig. 10.63) .	174
Full-thickness Composite Grafts of the Contralateral Ear, as Described by Pegram and Peterson (1956)	160		

Recommended Methods	174	Subtotal Defects	186
Superiorly and Inferiorly Based		Special Reconstructive Techniques.....	186
Transposition Flap (Fig. 10.64)	174	Single-stage Reconstruction with	
Reconstruction of the Entire Lower		Weerda's Bilobed Flap as a Transposition–	
Auricle Using a Gavello Flap (Fig. 10.65)	174	Rotation Flap (Fig. 10.87).....	186
Modified Gavello Flap (Fig. 10.66)	176	Single-stage Reconstruction of the	
Reconstruction with a Modified		Anterior Surface with a Bilobed Flap	
Gavello Bipedicled Flap (Fig. 10.67).....	176	(Fig. 10.88).....	187
Reconstruction of the Earlobe (Fig. 10.68)	177	Loss of the Auricle	189
Traumatic Earlobe Cleft	178	Fresh Avulsion Injuries	189
Reconstruction without Preservation of the		Microvascular Replantation.....	189
Earring Perforation	178	Replantation of the Auricular Cartilage .	189
Passow's Procedure (Fig. 10.70)	178	Replantation by the Technique of	
Reconstruction with Preservation of		Mladick et al. (1971).....	189
the Earring Perforation.....	178	Auricular Replantation by the	
Pardue's (1973) Method of		Technique of Baudet (1972) and Arfai (in	
Reconstruction (Fig. 10.71)	178	Spira 1974) (Weerda 1980) (Fig. 10.89) .	189
Defects of the Earlobe	180	Auricular Reconstruction Following Total	
Loss of the Earlobe.....	180	Amputation (Figs. 10.90, 10.91, and 10.92;	
Gavello's Method of Earlobe Reconstruc-		Weerda 1983c, 1987, 1997; Weerda	
tion (1907; Figs. 10.65 and 10.66)	181	and Siekert 1998).....	190
Posterior Defects	182	Reconstruction of the Ear or Auricular	
Postauricular defects (Fig. 10.75).....	182	Region in Patients with Skin Loss or Burns	
Small Flaps (Fig. 10.76 and 10.77)	182	(Fig. 10.93).....	194
U-Formed Advancement Flap		Fan Flap of Parietotemporal Fascia	
(Fig. 10.78)	184	(Fig. 10.93).....	196
V-Y advancement (Fig. 10.79a, b).....	184	Dressing the Ear (Fig. 10.95).....	198
Closure of Defects Caused by		Removal of Sutures	198
Skin Harvesting (Fig. 10.80).....	184	Fine-Tailoring After Operations.....	198
Weerda's Bilobed Flaps	184	Forming the shape of the Helical Crus,	
Weerda's Rotation–Transposition Flap		Concha, Antitragus, and	
(Fig. 10.81a–f)	184	Intertragic Notch	200
Weerda's Double Rotation Flap		Reconstruction of Defects of the Auricular	
(Fig. 10.81)	185	Region after Partial or Total Amputation	
Retroauricular Defects (Fig. 10.82).....	185	(Figs. 10.99)	200
Elliptical or W-shaped Excisions and		Free Skin Graft (See Fig. 2.22, p. 16)	201
Primary Closure (Fig. 10.83)	185	Rotation Flap of the Neck (Fig. 10.101) ..	202
Preauricular Transposition Flap		Reconstruction with Rotation Flaps	
(Fig. 10.84)	186	(Fig. 10.101) and Double (Bilobed)	
Coverage with Skin of the Postauricular		Flaps (Figs. 10.102 and 10.103).....	202
Surface and Rotation of the Cavum	186	Bone-Anchored Defect Protheses	202
Combined Post- and Retroauricular			
Defects (Fig. 10.85).....	186		
Free Skin Grafts (Fig. 10.86).....	186		

III Rib Cartilage, Myocutaneous and Free Flaps, and Microvascular Surgery

11 Rib Cartilage	207	Microvascular Surgery	227
Obtaining Rib Cartilage for Ear		Instrumentation (Fig. 14.5)	227
Reconstruction (Fig. 11.1)	207	Practicing for Microvascular Surgery	227
Operative Technique	208	Knot-Tying Practice Under a Microscope	
Preparation of Cartilage Grafts (Fig. 11.2;		or Binocular Loupe (Fig. 14.6–14.9)	228
Nagata 1994)	208	Microvascular Anastomosis in an	
Carving an Auricular Framework (Fig. 11.3)	208	Experimental Animal: Vascular	
Instruments	208	Dissection in the Rat (Fig. 14.10)	228
12 Myocutaneous Island Flaps	213	Problems and Complications	
Pectoralis Major Island Flap (Fig. 12.1)	213	(Figs. 14.16–14.20)	232
Latissimus Dorsi Island Flap (Fig. 12.2)	216	Test for Patency (Fig. 14.21)	232
Neurovascular Infrahyoid Myofascial Flap of		15 Harvesting Bone Graft from	
Remmert et al. (1994) (Fig. 12.3)	216	the Iliac Crest (Figs. 15.1–15.5)	235
13 Deltopectoral Flap	219	16 Harvesting Split Calvarian Bone Graft	
14 Free Flaps	221	(Fig. 16.1)	239
Radial Forearm Flap (Fig. 14.1)	221	17 Dermabrasion (Figs. 17.1)	241
Allen Test	223	References	243
Groin Flap (Fig. 14.2)	225	Further Reading	247
Transplants Anastomosed Using a		Index	251
Microvascular Technique			
(Fig. 14.3 and 14.4)	226		