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Until very recently , the early definitive closure of wounds proved problematic when full-thickness burns exceeded 50% of the TBSA. The mainstay of burn wound repair has been the split-skin autograft and, at >50% TBSA, the burn area exceeds the donor site area. A number of manoeuvres have been established to facilitate coverage of these wounds by grafting, all of which are utilised in patients with the most extensive burn wounds. Techniques include serial episodes of grafting surgery , harvesting very thin autografts (to allow more rapid re-epithelialisation of the donor sites, facilitating earlier rehar vest and allowing a greater number of harvests from the same Cicero Parker Meek , 1914–1979, general practitioner with a special interest in the treatment of burn patients, Aiken County Hospital, SC, USA. SP Wall Jr , engineer, developed the Meek–Wall microdermatome with CP Meek in 1963. John F Burke , 1922–2011, medical researcher, Harv ard University , Boston, MA, USA, widely known for his co-invention of synthetic skin substitute in 1981 with Ioannis V Yannas. technique (Meek, Humeca, Enschede, the Netherlands). This latter technique involves using small pieces of g raft, placed in a specialised holder on a cork board and run through a series of blades perpendicular to each other, to create small squares of graft each 3 /uni00A0 mm /uni00A0×/uni00A0 3 /uni00A0 mm. Once cut, the holding platform can be pulled apart (to di ff ering distances – the ‘mesh ratio’), separating the tiny grafts. Although ‘fiddly’ and laborious, this technique minimises graft wastage, since even small pieces of graft can be meshed in this way . The use of cadaver skin to cover the non-grafted wounds pending donor site re-epithelialisation and ‘reharvestability’ gained popularity in the late twentieth century as issues of consent and techniques for harvest and storage (banking) were refined. The use of cadaver skin has a number of limitations. Skin banks are frequently short, or devoid, of stock. Its pres - ence ‘passively’ temporises the wound, ‘buying time’ but not improving the wound bed, merely allowing undirected gran - ulation. It cannot be used unless the patient is pathologically immune suppressed. The dermal matrix stra tegy , pioneered by Jack Burke, sought to redress some of these issues . In producing a ‘sca ff old’ to allow autologous tissue in-growth and establish a ‘neo - dermis’ (‘active’ temporisation), he impro ved the outcome of the thin, meshed skin graft. A completely synthetic, biodegradable polymer version has also been developed - (Figures 46.9 and 46.10).

Day 28 Figure 46.9 Day 28 post-full-thickness burns treated with early skin grafting using the Biodegradable Temporising Matrix (BTM) (a synthetic, biodegradable polyurethane dermal matrix) on the arms and immediate skin graft to chest. Day 28

Figure 46.10 Day 38 picture shows a mesh graft on the arm after the dermal substitute has been removed. The day 200 pictures show the difference in scar outcome between the immediate skin

graft to the chest and a Biodegradable Temporising Matrix (BTM) and skin graft to the arm and axilla. Both skin grafts had the same mesh ratio.

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