

8. Moncrief, J. A., Switzer, W. E. and Rose, L. R.: Primary Excision and Grafting in the Treatment of Third Degree Burns of the Dorsum of the Hand. *Plast. Reconstr. Surg.*, **33**:305, 1964.
9. Moyer, C. A., Brentano, L., Gravens, D. L., Margraf, H. W. and Monafu, W. W.: Treatment of Large Human Burns with 0.5% Silver Nitrate Solution. *Arch. Surg.*, **90**:812, 1965.
10. Order, S. E. and Moncrief, J. A.: The Burn Wound. Springfield, Illinois, Charles C Thomas, 1965.
11. Peacock, Erle E., Jr.: Preservation of Interphalangeal Joint Function: A Basis for the Early Care of Injured Hands. *Southern Med. J.*, **56**:56, 1963.
12. Peacock, Erle E., Jr.: Some Biochemical and Biophysical Aspects of Joint Stiffness: Role of Collagen Synthesis as Opposed to Altered Molecular Bonding. *Ann. Surg.*, **164**:1, 1966.
13. Peterson, R. A.: Electrical Burns of the Hand. *J. Bone Joint Surg.*, **48-A**:407, 1966.
14. Robertson, D. C.: The Management of the Burned Hand. *J. Bone Joint Surg.*, **40-A**:625, 1958.
15. Ross, W. P. D.: The Treatment of Recent Burns of the Hand. *Brit. J. Plast. Surg.*, **2**:233, 1950.
16. Slonim, M. D. and Stahl, W. M.: Sodium and Water Content of Connective Versus Cellular Tissue following Hemorrhage. *Surg. Forum*, **19**:53, 1968.
17. Spira, M., Miller, J., Hardy, S. B. and Gerow, F. J.: Silicone Bag Treatment of Burned Hands. *Plast. Reconstr. Surg.*, **39**:357, 1967.
18. Williams, D. W.: A Review of Burned Hands in Children. *Brit. J. Plast. Surg.*, **2**:313, 1955.

#### DISCUSSION

DR. BOYD W. HAYNES, JR. (Richmond): I would like to agree with almost everything that Erle has said, because I think it is basic and fundamental, and he said it so well that it is hard to find a point to disagree upon.

However, I have a few reservations about excising areas of viable tissue in an effort to promote better and softer healing by grafting. Our Sulfamylon experience suggests that, given the difficulty in determining the depth of the burn, and with the use of Sulfamylon, which, as Erle points out, does seem to preserve viable tissue which might be subjected to loss by infection, that the wound will heal nicely and softly, with good recovery of function associated with active and passive motion during the wound-healing process. Perhaps that's a small area of disagreement.

The major points of agreement, I believe, have been certainly well stated. It is important that the wound be healed in the shortest time; that motion and not positioning be emphasized. By utilizing these principles, I believe a great deal can be done to recover the function in a burned hand.

DR. MILTON T. EDGERTON \* (Baltimore): When Dr. Peacock gives a report, it's usually because someone else made a statement that upset him; this makes him go back to work and he often comes up with something interesting—a new point of view. It always stimulates us.

I agree with Erle, and I think this will take a lot of the fun out of it for him. However, I believe he has said something rather important. In treating burned hands for a number of years at The Johns Hopkins Hospital we have advocated and reported early grafting of third and

deep second-degree burns of the hand—grafting within the first 48 to 96 hours. Our experience is not numerically large, but such early grafting provides the most mobile hands possible in comparison with grafting at later stages. I believe there is a big difference in the degree of joint stiffness seen with grafting at this early period, as opposed to grafts performed even 1 or 2 weeks later.

A word of caution should be expressed, although a policy of immediate grafting of deep burns on the dorsum of the hand and fingers is a relatively safe, nonradical approach, even deep second-degree burns of the dorsum of the hand often require total resurfacing to achieve ideal function, and, in that area, we are not troubled by removing or debriding a modest amount of tissue that would otherwise be viable. This is not a safe policy to use on *the volar surface of the hand*. On the palmar surface, even deep burns may spare epithelial islands that will regenerate and give a better quality of sensation and a more highly functional hand than one can achieve by more radical resurfacing and grafting.

The concept of "bound" water as an explanation of the lack of function of these stiff joints that look like big, puffy, swollen "sausages" needs considerable additional evidence. I would like to ask Erle if he means to suggest that maybe the "bound" water would migrate out of these delicate periarticular tissues as a result of early mobility? Is it possible, Erle, to skin-graft burned hands and try rather bold active movements in combination with open treatment of the grafts? Have you undertaken this approach?

DR. ERLE E. PEACOCK, JR. (Closing): I would like to thank the discussers for adding points which were needed in this presentation. These points are covered to some extent in the report and I do not believe that they bring up any major points of controversy.

\* Division of Plastic Surgery, The Johns Hopkins University, School of Medicine, the Johns Hopkins Hospital, Baltimore, Maryland 21205.