

readily retained in the stratum corneum, even after 16 days (22), the total elimination of exogenous lipophilic materials becomes difficult.

Methods used to obtain skin surface lipids for studies usually involve application of a solvent to the anatomical site of interest. This can be done by using cotton swabs (23), solvent cups (24), and head soaks (25). Nonsolvent methods exist that take advantage of the absorbent properties of bentonite clay (26), and the use of absorbent paper (7,27) as well as ground-glass surfaces (28) has been reported. The amounts and composition of the lipids are then determined by chromatography. Other spectroscopic (29) and thermal (3) techniques have also been used.

IV. FALLACIES CONCERNING SKIN SURFACE LIPIDS

In 1963, Kligman, in the article *The Uses of Sebum?* (31), challenged a number of previously held concepts concerning the human integument. Despite the vintage of this essay, some of these fallacies that Kligman refuted still surface in the literature and, thus, are worthy of restating. Two of these fallacies are that sebum is antibacterial and antifungal and that sebum contains a vitamin D precursor. The vitamin D precursor was found to be of epidermal origin, whereas the antibacterial and antifungal properties were considered to be primarily artifacts of in vitro testing methods. Kligman concluded this article with the statement: "Human sebum seems to be useless. Since hair has become vestigial over most of the surface of the human body, sebaceous glands are probably obsolescent appendages." Although this final statement seems extreme, it provides a balance to the previously overemphasized benefits of skin surface lipids.

Another area of confusion in the literature is the question of whether or not there was a feedback mechanism (the concept that the glands shut down sebum production when a certain level of surface fat is achieved) controlling the sebaceous glands. Kligman and Shelly (32) demonstrated that, under carefully controlled conditions, it was clearly possible to demonstrate a large buildup of skin surface lipids, well above the level that was speculated to cause shut-down of the glands' production. This work, together with a better understanding of the holocrine nature of the sebaceous glands (1), has fully discredited the feedback hypothesis. Note, however, that even though the rate of formation of sebum is constant, from the practical point of view of, "how much sebum will a topical formulation encounter on normal healthy skin?", the sebum flow and refatting processes on the surface of the skin are a more direct concern. Moreover, it is also well established that the amount of sur-