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## NOTABLE NOTES

## Purity in the Eye of the Beholder—Home Remedies for Freckles

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In ancient Rome, the poet Ovid mentioned in his *Medicamina Faciei* that Pharian fish and crocodile intestines and dung were used as cosmetics to brighten the complexion and remove freckles. In the late 1800s, an extract from the white lily-of-the-valley flower, common throughout England, was prescribed to rid the skin of the unsightly spots. Early do-it-yourself recipes from the 18th century were toners, cleansers, and other homemade apothecary cures to diminish the presence of freckles. Honey and rose, which are skin-softening agents common in many lotions, were used in combination with cream of tartar. The latter ingredient is an acidic substance, as is the citrus wash suggested to finish the treatment.<sup>1</sup> The instructions hinted at the origin of freckles: "these yellow spots...are found to be the product of fuliginous vapors, and like smoke, molest those most who have the fairest skins, as if Beauty, jealous of being outlived by too clear a complexion, did bestow that yellow livery on others, which she rather deserved to wear herself."<sup>1</sup>

Resorting to these skin treatments was linked to the notion of restoring purity. Cream of tartar, an ingredient in the cleansing recipe, was used as a purgative, and it is possible that its role in ridding the body of the unwanted was part of the inspiration in its use for purifying the complexion. Freckles were considered to both darken and blemish the skin, and had to be eliminated. The supposed antidotes to Beauty's wrath were not entirely without basis.

Studies show that vitamin C, abundant in lemon cleansing, is a powerful anti-inflammatory and antioxidant agent that can protect keratinocytes from UV radiation. Topical application of vitamin C cream showed

remarkable depigmentation of dark spots, stimulated collagen synthesis, and softened the skin. This lessening of pigment is due to the suppressive effect of vitamin C on tyrosinase-dependent melanin formation.<sup>2</sup> Freckle remedies today target the same molecular mechanism. In conditions such as UV-B melanosis and solar lentigo, the inflammatory cytokines interleukin-1 and tumor necrosis factor upregulate endothelin-1 and membrane-bound stem cell factor, which then stimulate melanocytes to produce the enzyme tyrosinase, leading to increased epidermal pigmentation.<sup>3</sup> Many current treatments for epidermal hyperpigmentation target the melanogenic mechanisms and are associated with risk of hypopigmentation.

The desire to diminish freckles permeates history, literature, and present-day research, and society continues to turn to herbal and natural remedies to achieve the blemish-free status.

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