

coming from the thoracic duct is often bloody, an effect to be expected if the tissues secured their own lymph.

Now what does one mean by offensive lymph? Lymph may be offensive in being devoid of oxygen and nutrition, or containing metabolical and chemical products; high or low temperature would be an offense (to warm blooded animals), high or low pressure, vibrations and certain electrical variations. It is one's right to question "why" as often as "how." Adaptation of pathological process is an axiom in pathology, but there are countless examples in physiology. The adjustment of the iris to varying degrees of light is one of these. Here we see involuntary muscle adapted to expel offense. Heidenhain gave two divisions of lymphagogues, those increasing the water and those increasing the solids. I need not burden you here with details except to say certain salts like magnesium sulphate are powerful lymphagogues. This agent acted first as a lymphagogue, and secondly as a purgative. It is well that internal excretion should precede external excretion.

The lymph passing over to the blood stream contains defensive fluids, as well as waste products. Hence purging within certain limits may be a form of serum therapeutics.⁹

The action of the secretions of the ductless glands has not been brought into this discussion, but they vitally act on the tissues, and consequently on this circulation. The two most powerful agents in interchange of lymph are the muscular systems. They voluntarily expel lymph from their own body, and their sheaths, tendons and attachments, and place, as far as the limbs are concerned, this circulation almost wholly under the control of the will. The influence of the brain over the movements of the involuntary muscles is less than over the voluntary. The emotions can play upon this circulation almost past belief in some individuals.

To consider the skin as a system of external drains is to consider it not an important organ. The enormous amount of involuntary muscular tissue; the ability to corrugate itself to resemble "goose skin" in states of chill and fever, myodema and dermatograph from strong or weak strokes to its surface, and the experimental evidence that stimulation of the pilomotor nerves, causes contraction in the skin, especially over the genital region,¹⁰ will justify one in speaking of the skin as a great lymph heart. The skin's elasticity alone would make it that. One can scarcely separate the lymph heart action of the skin from some of its several other functions, it being sensory surfaces upon which are inaugurated impulses of pressure, temperature, pain, etc., which in turn set up reflexes of various kinds that keep the body adapted to environments. If the skin be considered the external body world, it arouses,