

Ibrelle observed that infested hides can transmit anthrax to man and advocated their sterilization with boiling water. Other French dermatologists and the occupational dermatoses described by them during this period were: Potton, dermatitis among silk winders; Lespiau, dermatitis caused by coal tar; Récourt and Chevalier, dermatitis caused by potassium bichromate. Bazin in 1862 published a classification of the causes of occupational dermatitis.

In Germany the outstanding contributors to the literature on occupational dermatoses during the nineteenth century were Casanave, Schedel, Von Brandt, Hebra, Eulenberg, and Hirt.

European legislators about this time inaugurated compensation laws first for industrial accidents, then for certain industrial diseases including dermatoses. After 1900 the interest in Europe concerning occupational dermatoses increased and there were noted contributions to the literature by such eminent dermatologists as Blaschko, Jadassohn, Bloch, Mayer, Oppenheim, McLeod, Sequira, Percival, and Prosser-White.

In the United States there was but little interest in occupational dermatoses before World War I. There were only a few scattered contributions by a few American dermatologists, Hazen and Lane especially.

During and after World War I there was a great increase in industrial activity in the United States, resulting in more occupational dermatoses and the subject became of greater interest to dermatologists. Contributions to the literature were made by such men as Gardner, Fordyce, Lane, Foerster, Downing, White, Sulzberger, and others.

In 1928 the United States Public Health Service organized a section for the study of occupational dermatoses. Since then interest in the subject has increased greatly in the United States; the literature now abounds with new observations and our compensation laws are including occupational dermatoses among the compensable diseases. At the present time all states have laws under which compensation for certain occupational dermatoses may be obtained.

II. Incidence

The records of state boards of health and state compensation boards have been showing a yearly increase in the number of cases of occupational dermatoses. This is largely the result of educational work among physicians and enforcement of reporting laws. For instance, in 1933, the Connecticut compensation board reported 386 cases of occupational dermatoses and none were reported by physicians; whereas in the month of December, 1943, alone there were reported nearly 400 cases, and during all of 1943 nearly 2000 cases. Of the 2000 there were less than 300 reported by the compensation board, showing that the number of cases of occupational dermatitis sufficiently severe to cause absence from work of one week or more is not increasing, but that physicians are reporting the cases they are treating. California in 1933 reported 1150 cases of occupational dermatoses,

whereas in 1943 there were close to 5000 cases reported. The reasons are the same given for Connecticut.

Conservative estimates of an annual incidence of 30,000 cases of occupational dermatoses in the United States are now known to fall far short of the actual number. Our examinations in factories show that, any time a survey is made, more than 1 per cent (sometimes 10 to 15 per cent) of all the workers have occupational dermatoses. Of 60 million workers this would give a conservative estimate of at least 600,000.

The annual loss in time from work plus cost of medical care, compensation, and civil court awards for occupational dermatoses approximates 100 million dollars annually.

III. Causes of Occupational Dermatoses and Their Classification

The most frequent cause of occupational dermatoses in the United States is petroleum oils and grease. This is not because these are more powerful skin irritants than other chemicals, but because more workers are exposed to their action than to any other class of irritant chemicals. Practically all machine tools use cutting oils and lubricants. Next in etiologic frequency are the volatile solvents, alkalis, plants, and materials encountered in metal plating. With our entrance into World War II, dermatitis from explosives ranked in frequency with those in the above list. This, of course, ceased with the war.

In the course of our studies in the various industries we have found the highest incidence of occupational dermatoses among workers engaged in the manufacture and use of the resins containing formaldehyde, such as the phenol-formaldehyde resins, and among workers engaged in the manufacture of chemicals and dyes.

A. PREDISPOSING CAUSES

The cornified cells of the epidermis, the pigment, and the secretions of the skin glands constitute the defense of the skin against the action of external irritants. The cornified cells are attacked by strong alkalis, but will withstand the action of fairly strong acids and some solvents.

The secretions of the skin, consisting principally of water, liquid waxes, and cholesterol, act as diluents to water-soluble skin irritants as well as forming a protective coating against them. The pigment of the skin, melanin, aids to protect against the action of light. The perspiration, however, sometimes aids the action of irritants by macerating the skin, and by dissolving solid irritants and thus permitting them actually to come in contact with the skin.

The openings in the skin, the ducts of glands and the hair follicles, are the vulnerable portions because through them irritant chemicals that do not affect the cornified cells may penetrate the skin. Thinning of the cornified layer and breaks in the skin, such as are caused by wounds and lesions of skin diseases also offer points of entry for external irritants.