PROBLEMS OF PROOF IN CLAIMS FOR RECOVERY FOR DERMATITIS

Louis Schwartz
United States Public Health Service; New York University and Georgetown University Schools of Medicine

Follow this and additional works at: https://repository.law.umich.edu/mlr

Part of the Medical Jurisprudence Commons, and the Workers' Compensation Law Commons

Recommended Citation
Louis Schwartz, PROBLEMS OF PROOF IN CLAIMS FOR RECOVERY FOR DERMATITIS, 41 MICH. L. REV. 893 (1943).
Available at: https://repository.law.umich.edu/mlr/vol41/iss5/7
This article will consider, first, occupational dermatitis, and, second, dermatitis from wearing apparel and cosmetics.

**Occupational Dermatitis**

Workmen's compensation laws are designed for the purpose of reimbursing the worker for loss of earnings and cost of medical care resulting from occupational injuries or occupational diseases. This immediately brings up the question of a definition of an occupational disease.

Many definitions have been given and, as is the case with most definitions, objections can be made to all of them. Among those suggested are the following:

1. An occupational disease is one which occurs as a result of exposure to a recognized specific occupational hazard. It must have the accepted physical signs and symptoms of the specific disease caused by exposure to the specific occupational hazard.

   This definition leaves no room for inclusion of newly discovered occupational diseases, nor for old ones with unusual or newly discovered symptoms and physical signs.

2. Occupational diseases are abnormal bodily or mental states directly resulting from exposure to harmful substances or conditions directly related to work.1

   This is a broader definition, but still leaves open the question of "harmful substances or conditions."

3. Occupational diseases are the outcome of long exposure to noxious influences during work occurring with particular frequency among workers in a specific industry.

   This definition would leave out occupational diseases caused by short exposures to noxious influences, such as dermatitis2 caused by

---


2 Inflammation of the skin. [This and subsequent definitions here given are simplified for lay readers; they cannot be considered to be complete or entirely accurate from a medical or scientific viewpoint.]
primary irritants, cyanosis\(^3\) which may be caused by short exposure to \(4\) aniline, or caisson disease\(^5\) which may be caused by rapid decompression. Such diseases would have to be classed as occupational accidents, because of their sudden onsets. Compensation should be given for disease caused by the occupational environment rather than for diseases coming within the terms of the above definitions. For instance, if it can be proven that a worker contracted typhoid fever\(^6\) from drinking polluted water at his place of employment and nowhere else, he should be entitled to compensation, regardless of the fact that typhoid fever is not classed as an occupational disease, and regardless of whether his employer was or was not at fault in supplying such water.

State compensation laws\(^7\) are not uniform but can be grouped into three classes:

1. The schedule method, in which only certain specially named diseases are compensated, with a description of the process in which the disease must occur in order to be compensable. (Delaware, Michigan, Minnesota, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, Washington, Kentucky, Massachusetts, Nebraska, West Virginia.)

2. The general or blanket coverage method in which any and all occupational diseases are compensated, without defining the term occupational disease. (California, Missouri, North Dakota, Wisconsin.)

3. The general coverage method, with a statutory definition of the term "occupational disease." (Connecticut, Illinois, Indiana.)

Although occupational dermatitis is mentioned specifically in only a few of the state compensation laws, nevertheless it can be included in most of the above classes and even in the compensation laws of those states in which only occupational accidents are compensated. This is so because the hearings before compensation boards are informal, the laws are broadly interpreted, and the worker always gets the benefit of the doubt. Moreover, compensation commissions are not only ref-

\(^3\) A bluish discoloration of the skin, particularly noticeable in the nail beds and lips, due to inadequate oxygenation of the blood.

\(^4\) An organic compound widely used as the starting point for the synthesis of such substances as dyes, medicinals, etc.

\(^5\) A condition affecting individuals who are too rapidly subjected to decreased atmospheric pressure, such as deep-sea divers coming to the surface or airplane pilots ascending too rapidly.

\(^6\) A specific bacterial disease frequently acquired from drinking water that has been contaminated with excreta from a person harboring the causative organism.

erees, but investigators. Since dermatological investigation is necessary to diagnose and determine the cause of dermatological conditions, all compensation commissions should have available at least one impartial dermatologist who is specially versed in occupational skin diseases. The duty of such a dermatologist would be to inform the commission in regard to the following: (1) Do the working conditions present an actual occupational dermatitis hazard? (2) Has the worker an occupational dermatitis? (3) What is the actual cause of it? (4) Was it contracted at the place against which the claim is made? (5) Is or was the employee disabled by it? (6) Give an estimate of the time of disability. (7) Express an opinion as to measures to be employed to prevent the recurrence of the condition (new occupation; protective apparatus or clothes if worker returns to same occupation).

Methods of Determining Cause of Dermatitis

All dermatoses which affect workers are not necessarily of occupational origin, therefore a worker claiming compensation for an allegedly occupational dermatitis must prove its occupational origin. Here we must differentiate between a dermatitis directly caused by the worker's occupation and one which is caused not by the occupation but by the occupational environment. For instance, if a worker is exposed to a skin irritant in the course of his work and as a result contracts a dermatitis on the exposed parts, that dermatitis is directly occupational; but if the worker contracts a dermatitis of his buttocks, because he is sensitive to the paint or wood of the toilet seat which he uses at his place of work, the dermatitis is caused by his occupational environment and not by his occupation.

It is desirable to learn whether an occupational dermatitis is caused by a substance which will cause dermatitis on anyone under similar working conditions, or whether it is caused by a substance which will affect only certain workers who are sensitized to it. In the first case, the substance is designated a primary skin irritant; in the second, a sensitizer. A primary cutaneous irritant is an agent which will cause dermatitis by direct action on the normal skin at the site of contact if it is permitted to act in sufficient intensity or quantity for a sufficient length of time. A cutaneous sensitizer is an agent which does not necessarily cause demonstrable cutaneous changes on first contact but may effect such changes in the skin that, after five to seven days or

---

8 A physician specializing in diseases of the skin.
more, further contact on the same or other parts of the body will cause dermatitis.\footnote{10 Proceedings of the First Meeting of the Consulting Staff of the Dermatoses Investigations Section of the United States Public Health Service, April 20-21, 1942 (unpublished).}

The physician not versed in occupational processes and occupational skin hazards does not usually go to any great lengths in examining the occupational hazard or history of the patient before making a diagnosis of occupational dermatitis. This is especially so in states where the compensation laws do not require adequate diagnostic criteria and are so worded that if a physician undertakes to treat a worker and makes a diagnosis of occupational dermatitis his fee is guaranteed by the compensation commission or the insurance carrier, but if he makes a diagnosis of nonoccupational dermatitis, he must look to the patient for his fee. This encourages diagnoses of occupational dermatitis.

There is no one factor on which a diagnosis of occupational dermatitis can be made. All of the following factors must be considered and properly evaluated.

1. History. This must show that such a dermatitis was not present before the patient entered on his present occupation. It must show that the dermatitis developed during a period of occupational exposure or after a lapse of a reasonable incubation period following the cessation of exposure. This period should not be under a week. If the physician knows that other workers similarly employed are similarly affected, then the diagnosis of occupational dermatitis is more likely to be correct than if his patient is the only one of a group who is affected.

If the patient has previously had similar attacks when working with the same chemicals, the chances that he has an occupational dermatitis are increased. If the history shows that dermatitis occurs whenever the worker is at work, improves or disappears when he is away from work for a few days, and recurs soon after he returns to work, then there is established a definite cause and effect relationship between the occupation and the dermatitis.

2. Site of the eruption. The site of the eruption is important, because occupational dermatitis begins on the parts most exposed to the irritant: the fingers, hands, and forearms if the substance is handled; the face and neck where the industrial operation gives rise to dust, vapors, and fumes; and the covered parts of the body when the irritant penetrates the clothing. Especially is this so if work clothes and underclothes are not changed daily and if shower baths are not
taken before leaving the work place. Portions of the body subject to
friction are often sites of occupational dermatitis; the wrist, the belt
line, the ankle at the shoe top, the neck at the collar line—all are
sites where irritants may be rubbed into the skin. Sometimes an irritant
not strong enough to cause dermatitis on the fingers may be carried by
the hands to the tender skin under the eyes and cause dermatitis there.
Sometimes an occupational dermatitis may become generalized. Espe-
cially does this occur in workers who have a high degree of sensitivity
and who are entirely exposed to irritant penetrating dusts, fumes, or
vapors, or who work for long periods without changing work clothes.

3. Appearance of lesions. This is not characteristic except in a few
classes of occupational irritants. Paronychia and onycholysis are
common occupational lesions among fruit and vegetable canners, dish
washers, soda fountain attendants, scrub-women, and housewives. Acne-
like lesions, folliculitis, and boils on the arms and legs are charac-
teristic occupational lesions among workers exposed to cutting oils,
crude petroleum, heavy coal tar distillates, and certain viscous and
wax-like chlorinated hydrocarbons. Hydroscopic chemicals, such as
sugar, salt, and lime and the volatile solvents, will in time cause the
skin to become defatted and fissured.

4. Differential diagnosis. The common nonoccupational diseases of
the skin, such as seborrheic dermatitis, pityriasis rosea, erythema
multiforme, neuro-dermatitis, fungus infections, and their allergic
manifestations, and contact dermatitis caused by irritants encoun-
tered outside the work shop, must be differentiated from occupational dermatitis. It is true that the presence of these diseases does not exclude the presence of an occupational dermatitis. In fact, an occupational dermatitis may more easily occur on a skin which is already damaged by another skin disease.

The fungus infections and their allergic manifestations, the so-called phytids, cause the most controversies before compensation boards. The defendants often contend that the skin disease for which the worker claims compensation is not occupational, but is of fungus origin. Especially is this the defense when the worker is found to have a definite fungus infection of the feet, groin, or other parts of the body not exposed to the occupational irritant. In these cases the defendant claims that the skin lesions on the exposed parts are also fungus infections or the result of allergic manifestations to the fungus infections (dermatophytids). The various tests with tricophytin\(^{22}\) are of little value in making a differential diagnosis because they are nearly always positive as most persons have had these infections. They are of value only in the rare cases in which the tests are negative because then they tend to show that the claimant has had no fungus infection. But even if it is shown that the claimant has an active fungus infection or phytid, this does not rule out the possibility that he may also have an occupational dermatitis. In fact, it is held by some authorities that an allergy to fungus infections predisposes to allergic occupational dermatitis. I cannot subscribe to this theory. While I agree that a skin damaged by the lesions of a fungus infection is more easily irritated by an external irritant than the normal skin, and may even grant that such a damaged skin may be more easily entered and sensitized by a sensitizing substance, I cannot conceive that sensitivity to a specific substance predisposes to sensitivity to an entirely different substance. If this were so, our accepted theories of specific sensitivities and specific immunities on which rests much of our therapy would have to be entirely revised. Those of us who are allergic to some substance, and many of us are, would all tend to become allergic to many substances, and those of us immunized to one disease, such as typhoid or smallpox, would tend to become immune to all diseases. The facts are exactly the opposite. Most of us do not take on new allergies, but tend to lose the ones we have. Children affected with the so-called atopic eczemas\(^{23}\) tend to

\(^{22}\) An extract of a certain pathogenic fungus or fungi used for doing skin tests the results of which are useful in determining whether the individual is or has been infected with certain fungi.

\(^{23}\) Dermatitis characterized by redness, and tiny blisters, and usually itching. It is caused by a substance acting from within the body, such as a certain food.
lose them as they grow older. Adults sensitive to ragweed do not as a rule become sensitive to other plants. Those immunized against smallpox must also be immunized separately against typhoid, yellow fever, typhus fever, plague, or whatever other disease they are to be protected against.

It is also difficult to differentiate occupational from nonoccupational contact dermatitis. The lesions and sites are similar and only a careful elicitation and consideration of all the facts can lead to a correct understanding of the cause. In these cases and in differentiating fungus infections, the patch test is of great value.

The patch test is based on the theory that if a dermatitis is caused by hypersensitivity to a certain substance, such substance when applied to an area of unaffected skin of the susceptible individual and left on for a period of time will cause an inflammation at the spot where it touches the skin. In doing patch tests, it is important to know what concentrations of certain chemicals can come in contact with the normal skin for a stated period of time without causing an inflammation or reaction. It is also important that no primary irritants, such as strong acids or alkalies, be used in the patch test, as they will burn any skin. The portion of the body on which a patch test is to be performed is also of importance because it has been found that the different portions may vary in sensitivity to certain chemicals. For instance, the tough horny skin on the hand is less susceptible to irritants than the more tender skin on the inner surface of the forearm. For this reason, patch tests performed on uninflamed skin adjacent to the eruption are more likely to give reactions of diagnostic significance than when performed on more distant areas.

If the worker is handling known irritants and his fellow workers are also affected, the cause is obvious and the patch test is unnecessary, but if he is the only one of the group who is affected, then he should be tested with the materials with which he comes in contact in the course of his occupation. If he is patch tested with only one substance, a control patch should be also used. If the subject is tested with more than one substance any negative reaction from one of these substances serves as a control. A test which is identical in all respects to an experimental test except for the omission of the substance which is being tested, or using the identical test on another person who is then the “control.”

In patching with solids, best results are obtained by moistening them, preferably with perspiration obtained from the armpit of the patient. Sometimes it may be necessary, in order to obtain a reaction

24 A test which is identical in all respects to an experimental test except for the omission of the substance which is being tested, or using the identical test on another person who is then the “control.”
from a patch test, to use perspiration of differing hydrogen ion concentrations. The results of patch tests must be correlated with the worker’s particular occupation, the history of the dermatitis, and the site and morphology of the lesion, in order to arrive at a correct etiologic diagnosis.

Patch tests are only a link in the chain of evidence on which a diagnosis of industrial dermatitis is made. A positive reaction shows only that the portion of the skin on which the patch was applied was at that time sensitive to the particular substance. In order to state that this substance was the cause of the occupational dermatitis, we must be sure that the patient was exposed to the substance in the course of his work and presuppose that the patient’s skin was also sensitive at the time of industrial exposure.

When negative results are obtained from patch tests with the materials met with in the course of the patient’s occupation, we must not conclude too hastily that the dermatitis is not of industrial origin, for one or more of the following reasons:

1. The skin area over which the patch was placed may not be hypersensitive, while the area covered by the eruption may be hypersensitive.
2. If the eruption has disappeared, the patient may no longer be sensitive when the patch test is performed but may have been sensitive at the time he had the eruption and when he was industrially exposed.
3. A negative reaction may be due to the fact that the patch test never accurately reproduces actual working conditions, such as friction, maceration, heat, cold, and sunlight, which may be additional factors adding to the irritating effect of the substance to which the patient is exposed.
4. It may be that the concentration and amount of the chemicals applied as a patch test may not be as great as they actually were during industrial exposure.
5. Finally, the actual industrial irritant may not have been discovered and applied as a patch test.

When negative reactions are obtained from patch tests with substances encountered in the workroom and the dermatitis which the worker has resembles a contact dermatitis, an effort must be made to perform patch tests with materials met with in the patient’s home, which may be the cause of dermatitis. Certain plants, or perhaps paints, or even new furniture are examples of such materials. Tests of this kind will in some cases show that the patient is sensitive to materials
met with outside of industry, and is not sensitive to the materials with which he comes in contact in his place of employment.

Patch tests properly performed and evaluated can be of great help in the diagnosis of industrial dermatitis, but if improperly performed and evaluated, they may lead to confusing and unjust conclusions.25

Allergy as a Cause of Occupational Dermatitis

Allergy is a word to denote an altered reactivity in human beings or in animals caused by a first contact with a substance and manifested after an interval of time (period of incubation) upon second contact with the original or identical substance. A standard medical dictionary however defines it as “A condition of unusual or exaggerated specific susceptibility to a substance which is harmless in similar amounts for the majority of members of the same species.”26 This definition differs

25 The technic of performing patch tests is important. When testing for hypersensitivity to primary irritants, such dilutions must be used in the tests as are known not to irritate the normal skin. Schwartz, “Sensitivity to External Irritants in Industry,” 36 N. Y. State J. Med. 1969 (1936).

The ordinary procedure in performing a patch test is as follows: A sample of the material to be tested is first placed on a suitable skin site—the inner surface of the arm or forearm or the back usually being chosen. If the material to be tested is a solid, it may be used as such, or a piece of gauze about fourply thick and a quarter to a half inch square may be moistened with water or perspiration and impregnated with the material. In the case of liquids or solutions of the substance to be tested, the gauze square is dipped in the fluid and applied to the skin. Again it is emphasized that only those materials, or proper dilutions of substances in solution, should be used that are known not to affect the normal skin. Over the patch test substance, or the gauze patch impregnated with this substance, is placed a piece of insulating material about an inch square, and a two-inch square of adhesive is placed over all to hold the patch in place. The insulating material inserted between the chemical and the adhesive plaster should be a nonirritant substance, such as unvarnished cellulose, or better still, a thin sheet of mica may be used. The resin on waterproof cellophane itself may be an irritant, as may be some of the compounds in dental rubber. The adhesive plaster used to hold the patch in place often causes an erythema (redness of the skin due to congestion of blood in the skin capillaries) of the skin. The patch test is allowed to remain on the skin for 24 to 48 hours before removal and the site is observed for several days thereafter for determination of the result.

Patch tests are considered negative (−) when no reaction occurs at the site in contact with the substance being tested. A transient erythema that does not persist at least 24 hours is also considered negative. Positive patch tests are usually graded from one plus (1+) to four plus (4+) depending on the severity of the reaction.

At the time the patches are removed there may be no reaction present, but some time later, a few hours to a few days, a delayed reaction may develop at the site of the patch. We should regard delayed reactions as denoting a lesser degree of hypersensitivity than undelayed reactions, provided the concentration and amount of the patch testing substance is the same and the area covered by the patch is the same.

radically from the first by the fact that it does not presuppose that sensitization is caused by the first contact and that it develops only after a period of incubation has elapsed, and only after another contact has occurred.

The "allergy" as defined by the dictionary may be caused by a visible or demonstrable breach in the defense mechanism of the skin, such as abrasions, disease of the skin, thinning of the epithelium, loss of the normal fluids of the skin, etc., which enable an irritant to enter it easily. But the conception of the first definition implies that changes, caused by the first contact, so condition the skin, even though no change is demonstrable, that after a period of incubation has elapsed, second contact with the substance causes a dermatitis. If the first definition is to be accepted, then allergy causes less than twenty per cent of all occupational dermatitis.27

Allergy should not be a bar to compensation for occupational dermatitis. Allergic occupational dermatitis usually develops in new workers about five days to three weeks after beginning work. In most cases, if the worker is able to keep on working, the dermatitis clears up,—the worker becomes "hardened." Only a small percentage of such cases do not develop this "hardening." The worker should be removed from the job if the dermatitis does not clear up after two months of treatment or if he develops recurrent attacks of dermatitis while working.

A chronic dermatitis more or less generalized occasionally occurs in a worker, usually past middle age, the cause of which it is almost impossible to determine. Such a worker's history shows that he has worked at the same occupation for many years without any trouble and then suddenly develops a dermatitis which persists even though he stops working for a long time. An examination of his work may reveal no new chemicals or changes in process to which the dermatitis can be attributed. The claim is made that the worker has become sensitized to some substance or substances in his work and that as a result of that sensitization he has become sensitized to many other substances which are not connected with his work. Therefore he cannot get well even though he leaves his job. There are many dermatologists and allergists who will support such a contention. But they cannot prove that the patient did not first develop a sensitivity to a substance met outside the working environment, and that the occupational sensitivity did not follow and was not secondary to the nonoccupational one.

Patch tests on such persons are unsatisfactory and sometimes impractical because the patient may be feeble and the risk of a flare-up of
the skin lesions cannot be taken, or there may be no normal areas of skin on which a patch test could be performed. Such a damaged skin may react to anything in the form of a patch test. If such patch tests are performed and results are positive, it may be concluded that his occupation is at least a contributing factor to the dermatitis. Even if the patch test shows negative reactions to the substances in his working environment and positive reactions to nonoccupational ones, it still can be argued that this is only presumptive and not positive proof that he was not sensitive to those substances in his occupational environment at the time that he first became sensitized. This would imply that the worker originally developed a dermatitis as a result of becoming sensitized to some substance encountered in his occupation. Following this he developed a polysensitivity—that is, he also became hypersensitive to substances encountered elsewhere than in his occupational environment. Subsequently, and prior to the time of patch testing, he lost his original hypersensitivity to substances encountered at his occupation but retained his hypersensitivity to the substances encountered away from his occupational environment. This contention should not be supported. If it is, then every allergic condition in a worker which first manifested itself after he begins to work can be reasoned to be of occupational origin. Besides, such a theory is contrary to the accepted theories of specific sensitivities and specific immunities. In fact, it is usual for new workers handling sensitizing chemicals to develop an allergic dermatitis five days to three weeks after beginning work, and for the large majority of them to get well, become "hardened" as the workers call it, and work without further trouble; they become desensitized instead of polysensitive.

But even if we should admit that one sensitivity predisposes to another and finally to polysensitivity, it would still remain debatable whether polysensitivity causing a chronic persistent allergic dermatitis in a worker is the result of an occupational sensitivity first acquired to which the nonoccupational sensitivities are secondary, or vice versa.

Polyvalent sensitivities causing allergic generalized eczemas also occur among people exposed nonoccupationally to sensitizers. Their causes are many and often undetermined. It is true that if such a worker shows a positive reaction to a patch test with any of the substances which he encounters in the course of his work, his occupation should be considered to be at least a contributory cause of his dermatitis; but if the patch tests with these substances are negative, or are not performed, then the occupational etiology of his dermatitis has not been established and is open to question.
Claims have been made before compensation commissions that the ordinary skin diseases of unknown etiology, such as psoriasis and lichen planus, are caused by the worker's occupation. The physician on the witness stand is often asked, “Well, Doctor, since the causes of this disease are not known, is it not possible that the plaintiff's occupation was the cause of it? Answer yes or no.” The physician should answer “No,” and then explain that if the plaintiff's occupation were one of the causes of the disease, then a large percentage of the workers employed at it would also be affected, which of course is not so.

It is possible that new lesions of psoriasis and lichen planus may appear on areas of skin which have been injured in the course of work, as is the case in injury from any cause, but the psoriatic tendency was present before the trauma. So while new lesions which occur on areas of the skin occupationally traumatized may be said to be occupational, this cannot be said of the disease entity itself.

**Occupational Cancer**

It is generally recognized that tar, soot, pitch, crude petroleum, the actinic solar rays, roentgen rays, and radium have carcinogenic properties. Workers with these substances who develop carcinoma can claim that it was caused by occupational exposure, but it must be remembered that the normal incidence of cancer among human beings must also be taken into account. Occupational skin cancers have certain characteristics:

- They always appear on parts exposed to the carcinogenic agent.
- They are often multiple and recurrent.
- They are always preceded by a precancerous lesion.
- They always appear in workers who have long been exposed to the carcinogen.
- They usually do not have metastases.

For instance, if a worker develops a cancer on the face and it is shown that in his occupation he is exposed to the fumes of coal tar pitch, it is likely that the cancer is an occupational one. But if a similar worker

---

28 A common skin disease of unknown cause characterized by scaly erythematous plaques found most frequently on the knees, elbows and on the scalp.
29 A skin disease of unknown origin occurring frequently on the extremities, characterized by elevated, flat-topped angular papules. There is usually some itching.
30 A cancer, or malignant growth.
31 A malignant growth occurring in another part of the body from that of the original malignancy, having reached its new site through the transportation of cells from the original growth by lymph and/or blood vessels.
develops a cancer on the lower lip and it is shown that he is a pipe smoker, the occupational origin of his tumor is, to say the least, questionable.

Workers exposed to alpha- and betanaphthylamine and benzidine in synthetic-dye plants who develop tumors of the bladder have a legitimate claim for the occupational origin of the tumors. Workers in radium mining who develop carcinoma of the lungs can also rightly claim occupational origin. Physicians and laboratory technicians who work with x-ray or radium and develop carcinomas of the hands have a legitimate claim of occupational cancer. Radium can also cause cancer of the bones, especially if it is ingested. But the actinic-ray cancers on the exposed parts of workers in sunny tropical climes are not so clearly of occupational origin, because they live in that climate and are still exposed to the actinic rays when they are not at work.

The role of arsenic as a cause of occupational cancer is open to debate. There is no doubt that the long-continued oral ingestion of inorganic arsenic can cause palmar and plantar keratoses. But to claim that the cancer appearing on the face or hands of a farmer is due to the arsenical insecticides which he may use is rather farfetched, especially when the farmer is also exposed to actinic rays. Examination, by the author, of many hundreds of workers with arsenical insecticides and other arsenic compounds has failed to show any skin cancers. The medical records of the factories in which these persons were employed also failed to show skin cancers. Reports of state compensation boards received by the author for the past ten years fail to show any skin cancers attributed to arsenic, although there are many reported as caused by coal tar and petroleum.

The reports of cases of occupational arsenical cancers by certain authors are open to the criticism that the etiology of the cancers was not proven but inferred. The proof usually consisted in the fact that the worker said he handled arsenic, or he was a miner of ore which may have contained arsenic. "Post hoc, ergo propter hoc." This is poor evidence.

Trauma as a Cause of Cancer

Cancer when it occurs is often attributed to faintly-remembered blows; but blows are of common occurrence, while cancer at the site of trauma is extremely rare. Therefore the burden of proof of trauma causing cancer is on the claimant. He must first show that the part was normal before the trauma; that the blow was a severe one, or very

32 A horny growth on the skin.
often repeated, and included the site of the tumor; that a sufficient interval elapsed between the occurrence of the injury and the appearance of the tumor; that a biopsy\textsuperscript{33} verifies the carcinomatous nature of the tumor.

Chronic occupational irritation may be a cause of cancer.

Cancers arising in scars resulting from occupational injuries can certainly be called occupational.\textsuperscript{84}

\textit{The Physician and the Compensation Commission}

Every physician making a diagnosis of occupational dermatitis should fill out the following questionnaire in reporting his case:

\textbf{SKIN CLINIC}

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Age</th>
<th>Race</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of skin: (dry moist) (thick thin parchment-like) (dark light freckled) chapped</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous skin diseases</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>History of allergy (hay fever, asthma, plant poisoning, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name of employer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacture what</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Briefly describe work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present work began</td>
<td>Present disease began</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemicals or substances contacted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Describe lesions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\textbf{PATCH TESTS PERFORMED}

<table>
<thead>
<tr>
<th>Substances</th>
<th>Concentrations</th>
<th>Time</th>
<th>Reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermatitis caused by</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnosis based on</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment given</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preventives advised</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advised cease work</td>
<td>How long</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The answers to these questions will enable the commission to judge the criteria on which the diagnosis is made.

If the physician is to appear before the commission, he should make himself thoroughly familiar with the occupational process at which the patient works, with the health hazards involved, the occupational history of the patient, and the literature concerning the hazards of the

\textsuperscript{33} Examination of a piece of tissue, including microscopic examination, removed from a living subject for purposes of diagnosis.

\textsuperscript{84} Schwartz and Tulipan, \textit{A Text-Book of Occupational Diseases of the Skin} 508–509 (1939).
patient's occupation. He should be familiar with all the diagnostic tests involved and should be prepared for a rigid cross-examination.

The expert physician should confer with the lawyer before the trial and coach him as to what questions to ask on direct examination to best bring out the evidence in favor of his client. He should also instruct the lawyer on weak points in the case of the opposition so that he can cross-examine to the best advantage the expert physician on the other side of the case.

The physician on the witness stand should answer the question as put (if his counsel does not object); but if an explanation is necessary, he may give it after answering the question. He should never hesitate to say "I don't know" when he does not know. It makes what he does say much stronger, and may keep him out of trouble.

For instance, a certain well-known dermatologist testifying before the Federal Trade Commission in the case of a progressive lead hair dye which was advertised as stimulating the natural pigment-forming cells of the scalp testified that the preparation was a dye. He was asked on cross-examination "Would it dye cotton?" After hesitating he answered "Yes." Whereupon the lawyer placed some cotton in the colorless liquid hair dye, allowed it to stay in for a while, then pulled it out to show that it was not dyed. The physician was chagrined, and the incident tended to belittle the physician's qualifications as an expert. He should have answered, "I do not know. I never tried to dye cotton with it." Fortunately the author was present and knew that lead salts could be made to dye cotton if the cotton was first treated with a sulphur compound so that it contained sulphur, as does the hair. He asked the lawyer (for the government) to put him on the stand and ask the same question, to which the same answer was given, and a piece of white gauze was first dipped into a solution of sodium thiosulphate, allowed to dry, then immersed in the colorless lead hair dye solution. After a few minutes, when lead sulphide was formed on the gauze, it was seen to turn dark.

The physician should also confer with counsel so that he may know how to bring out facts showing that the medical qualifications, experience, ethics and standing of an unscrupulous expert are not of the best.

Dermatitis from Wearing Apparel and Cosmetics

Dermatitis allegedly caused by wearing apparel, cosmetics, and jewelry is frequently reported; but when we consider that the entire population is constantly exposed to them, we realize that the percentage of the population affected is almost negligible.
The records of the casualty insurance carriers for 1941\textsuperscript{35} show that only seventy-eight claims for dermatitis from wearing apparel and cosmetics were reported to them. The table below classifies these cases according to cause:

<table>
<thead>
<tr>
<th>Wearing apparel</th>
<th>Cosmetics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hat bands</td>
<td>Hair preparations</td>
</tr>
<tr>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Pajamas</td>
<td>Soaps</td>
</tr>
<tr>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Underwear, women's</td>
<td>Face creams</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Hose, women's</td>
<td>Nail polish</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Dresses, women's</td>
<td>Mascara</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Shorts, men's</td>
<td>Face powder</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Wrist watch straps</td>
<td>Deodorant</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Clothes, men's</td>
<td>Hand lotion</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Dress shields</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Total</strong></td>
</tr>
<tr>
<td><strong>44</strong></td>
<td><strong>34</strong></td>
</tr>
</tbody>
</table>

The National Retail Drygoods Association sent a questionnaire to its members asking the number of claims they had for dermatitis from January 1, 1940 to July 1, 1941.\textsuperscript{36} Fifty stores reported that they had no complaints, sixty stores reported 656 cases, classified as follows:

| Wearing apparel, women | 425 |
| Wearing apparel, men   | 61  |
| Cosmetics              | 61  |
| Miscellaneous          | 9   |
| Not accounted for      | 100 |
| **Total**              | 656 |

One hundred and thirty-three stores reported that they had complaints, but did not give the number of them, nor the year in which they were made. They were classified as follows:

Number of stores reporting complaints from wearing apparel and cosmetics—

| From dresses | 14 | From cotton | 5 |
| From rayon   | 13 | From pajamas| 5 |
| From furs    | 11 | From jewelry| 4 |
| From corsets | 10 | From underwear, women’s | 3 |
| From hosiery | 10 | From garters  | 3 |
| From wool    | 9  | From miscellaneous | 21 |
| From underwear, men’s | 8  | From cosmetics | 10 |
| From coats   | 7  |               |   |
| **Total**    | 133 |

The stores reporting to the National Retail Drygoods Association reported only 17 of these cases to the insurance carriers so that there is but little duplication in all of these figures. Therefore, it is safe to say

\textsuperscript{35} Personal communication from National Retail Drygoods Association.

\textsuperscript{36} Id.
that there are less than 1000 cases of dermatitis per year allegedly
caused by wearing apparel and cosmetics among 130 million people.
This is one case per 130,000 and even less, for when we examine the
reports we find that only a small percentage of the claims were proven,
if judged by accepted medical criteria.

Only a few of these cases went to trial. Most of them were either
dropped or were settled by crediting the merchandise, by paying the
medical bills, by small cash settlements, or by combination of these.

Allergenic substances are the principal causes of dermatitis from
wearing apparel, and there will always be some people who are allergic
to substances which are harmless to by far the large majority.

Hair wave preparations, hair dyes, medicated soaps, skin creams,
and nail polish are the principal cosmetics reported as causes of derma­
titis. The hair wave preparations are strongly alkaline and are classed
as primary irritants, but the hair dyes, soaps, creams, and nail polish are
only sensitizers.

In looking over the claims we note that the products complained
of were made by a few manufacturers. For instance, all the hat band
complaints were against one large hat manufacturer. The wrist-watch
strap complaints were all against one product. The large majority of
the hosiery and pajama complaints could be traced to one finish. Most
of the hair-preparation complaints were against two or three cosmetic
trade names, and all the nail-polish complaints were against one maker
of nail polish. Therefore, it must be presumed that the manufacturers
used some unusual or new chemicals in their products, or that they were
careless in their manufacturing processes. Furthermore, it must be
presumed that they did not perform approved toxicity tests on the
products before selling them to the public. It seems likely that if the
plaintiffs in these cases had known that many others were being affected
by the same products, they could have made a strong case against the
manufacturers.

Except for the occasional outbreaks of dermatitis from new and
untested products, the majority of the claims for dermatitis from
wearing apparel and cosmetics are either due to the constitutional idio-
syncrasy of the plaintiff, or they are false.

It is not difficult to determine the cause of a dermatitis due to
wearing apparel or cosmetics. Such an eruption begins at the site of
contact with the irritant, usually five days or more after the first con­
tact, provided there is at least a second contact at the lapse of this
period, or if the contact has been continuous or intermittent. This is
the period of incubation for the establishment of sensitivity. The
eruption may occur sooner if the article of wear or the cosmetic con­
tains a primary skin irritant, or if the patient has previously been sensitive to the sensitizer in the garment or the cosmetic.

The eruption is usually confined to the sites touched by the irritant. Only in exceptional cases is there a generalized eruption. The eruption disappears or improves when the offending garment or the cosmetic is not used, and becomes worse or returns every time it is again used.

It is possible to find the actual chemical in the garment or cosmetic which is the cause of the dermatitis. Methods for determining this have been devised. It may be a long and difficult process in an individual case, and not of sufficient importance to warrant spending the time, but every physician making a diagnosis of dermatitis from a fabric or cosmetic in the case of a patient who intends to claim damages should be at least required to fill out the following form. If he does this properly, he will make a favorable impression on the witness stand and escape much embarrassment on cross-examination.

1. When did patient buy the garment or cosmetic?
2. From what firm?
3. Date when it was first worn or used.
4. Date when eruption was first noticed.
5. What parts of body were first affected?
6. Give order in which eruption spread.
7. Describe entire extent of eruption.
8. What previous skin diseases did the patient have?
9. Has the patient a history of skin or mucous membrane allergy?
10. What drugs, if any, does the patient use?
11. What laxatives?
12. What sedatives?
13. Were any drugs taken before present eruption?
14. Was poison ivy or other irritant plant contacted before eruption?
15. Is the eruption still present?
16. When was use of garment or cosmetic discontinued?
17. How long after this did the eruption persist?
18. Were patch tests performed?
19. If so, with what substances? Describe tests in detail and give results.
20. If no patch tests were done, give reasons for not doing them.
21. Has the actual chemical causing the dermatitis been found?
22. Describe how this was accomplished.
23. Summarize the facts on which you base your diagnosis.
24. What treatment was given?
25. Give prognosis.

Before testifying in court the expert must make himself thoroughly familiar with all the aspects of the case and with the medical literature pertaining to such cases. The counsel and the expert der-

matologist, before appearing in court on claim cases, should discuss the merits of the case so that they can agree on the questions which, on direct examination, will best bring out the facts to prove their claims and to refute the claims of their opponents.

**Some points the plaintiff should try to show:**

1. That there were many other users similarly affected.
2. That the material causing the dermatitis was made with chemicals which are notorious sensitizers.
3. That the materials causing the dermatitis contained new chemicals or chemicals not previously used in such materials.
4. That the manufacturer did not properly ascertain the skin irritating properties of the product before offering it for sale.
5. That the particular garment was not properly processed according to the accepted custom of the trade; i.e., "dirty fur," finish not properly applied, dyes bledded, etc.
6. Patch tests properly performed on patient and controls show that garment or cosmetic is a primary irritant or sensitizer, and was the cause of the dermatitis.
7. That the patient was not sensitive before the substance was used.
8. That using the substance was the cause of the sensitization.
9. That using the material caused the eruption to appear or get worse, and vice versa.
10. That the plaintiff was not allergic to any other substance which may have caused the dermatitis.

**Some points the defendant should try to show:**

1. That although there were thousands of users of similar substances, the plaintiff was the only one affected.
2. That the substance contained no primary irritants nor strong sensitizers.
3. That the substance contained no new chemicals or chemicals not previously used in such materials.
4. That the substance was made in the usual manner in which such substances are made and approved by the trade.
5. That the new chemicals used, if any, were properly tested by recognized authorities and found to be no more irritating than chemicals commonly used for the same purpose.
6. That the finished product was properly tested by recognized authorities on a sufficient number of people and found to be no more harmful than other similar substances before it was placed on sale.
7. That the particular garment or cosmetic used by the plaintiff did not differ from all the others which had been sold and which caused no trouble.
8. That the dermatitis of the claimant did not have a cause and effect relation with using the substance; i.e., that it did not begin where the substance touched the skin; that it appeared, disappeared, got worse, improved, regardless of whether the substance was or was not used.
9. That the patch tests were negative; or if positive, were not properly performed or evaluated; i.e., patch tests made with extract of substance; permitted to remain on too long; patch tests were more severe than actual use; no control patches or control persons were used.
10. That the disease was not a contact dermatitis, but something else.
11. That the plaintiff is allergic to other substances which may have caused the dermatitis.
APPENDIX

Journals publishing the Symposium Series

Medical Journals:
5. Medicine, Johns Hopkins Hospital, Baltimore, Md. Price, $1.50 a copy.

Legal Journals:

Italicization of a journal signifies that it is devoting an entire issue to the symposium.

Complete List of Symposium Articles

Unless otherwise indicated, the articles are scheduled for publication in the April 1943 issue of each journal.

PART I

Law-Medicine Problems and Scientific Thought

I. Projection Paper.

II. Clinical Forensic Medicine.
13. Bennett, Granville Allison, "Medical Criteria which Govern Relations of Trauma to Joint Disease," 1 Clinics 1448.

III. Forensic Pathology.
21. Jetter, Walter W., "When is Death Caused by or Contributed to by Acute Alcoholism?" 1 Clinics 1487.

IV. Scientific Crime Detection.

V. Modes and Mechanisms of Scientific Proof.

VI. Scientific Proof as a Means of Testing Premises Underlying Legislation or Legal Doctrine.

VII. Medical Criminology.

VIII. Socio-Medico-Legal Problems.

IX. Scientific-Legal-Medical Correlations.

X. Historical Notes on Law-Science Relations.

PART II
Law-Medicine Problems and Legal Doctrine

I. Expert Testimony and Juridical Mechanisms.

II. Private Law Problems of Interest to Medical Men.

III. Public Law Problems of the Medical Profession.