

A Blind Hog's Acorns

What can we learn from the past?

YPSW AIHA

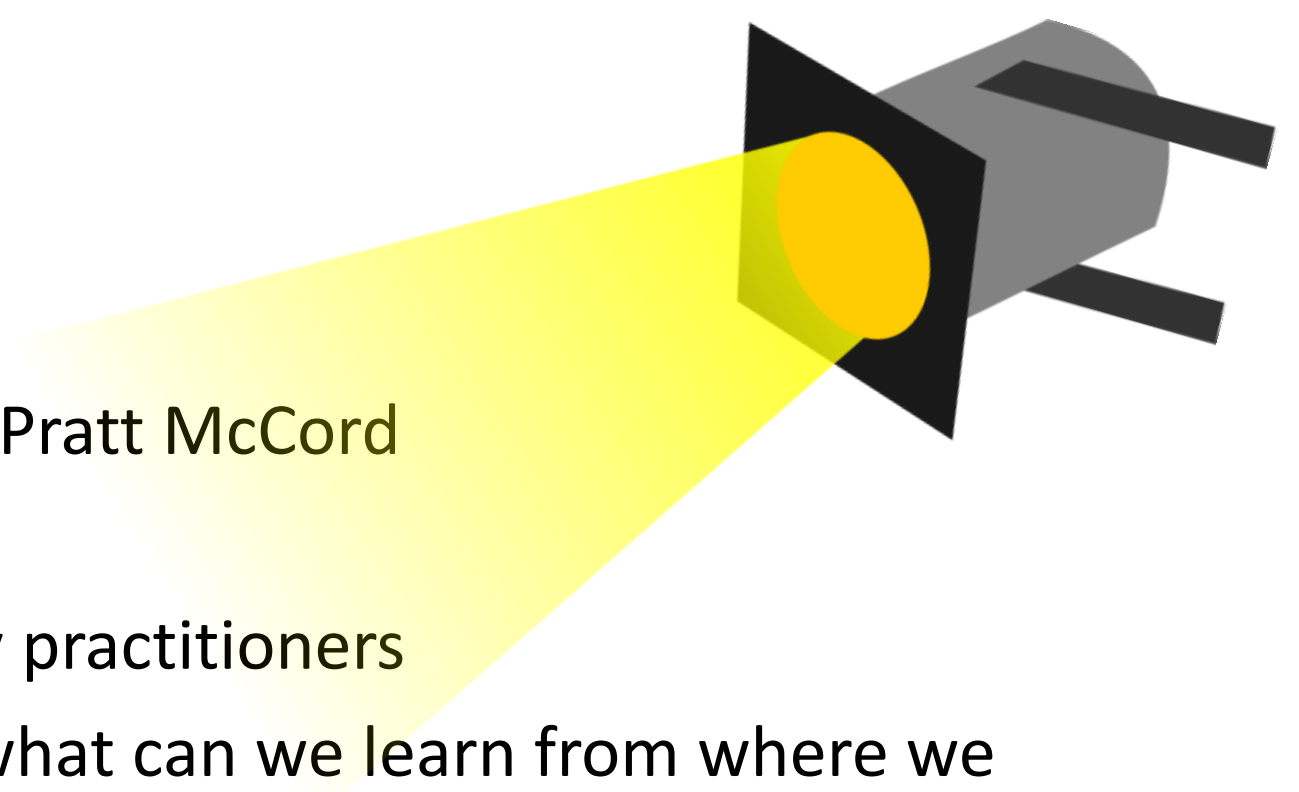
Barbara J. Dawson, CIH, FAIHA, CSP

January 19, 2017

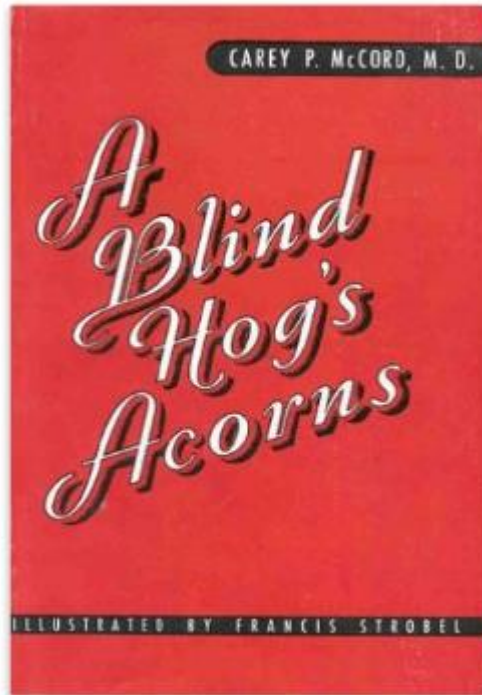


Topics

- Context for discussion – Carey Pratt McCord
- **A Blind Hog's Acorns**
- Attributes of early 20th century practitioners
- How did we end up here and what can we learn from where we came?
- Provocations...
- And some other interesting reads...



Starting Point...



Written by Carey Pratt McCord (1886-1979)

An occupational physician/hygienist

First published in 1945

"even a blind hog gets an acorn once in a while."

" a little piece of man" goes into each job that is performed – it's the IH's role to reduce it to a minimum.

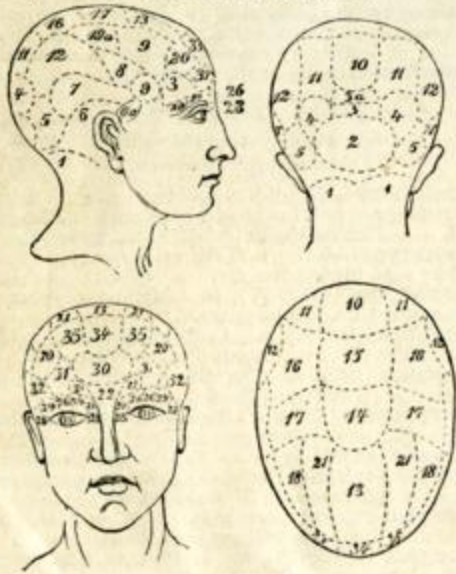
Key Events in the Life of Carey McCord



- 1886: Born in Bibb County, Alabama – father was a Baptist preacher
- 1891: Phrenologist stayed with McCord family and “read” the bumps on Carey’s head
- 1907: Earned AB degree from Howard College (now Samford University)
- 1912: Earned MD degree from University of Michigan
- 1919: Founded the Industrial Health Conservancy Laboratories
- 1933: Awarded honorary “Doctor of Laws” degree from University of Michigan
- 1965: AAOM Award of Honor

Phrenology

Phre-nol'o-gy (-nōl'ō-jī), *n.* [Gr. φρήν, φρενός + -logy.] **1.** Science of the special functions of the several parts of the brain, or of the supposed connection between the faculties of the mind and organs in the brain. **2.** Physiological hypothesis that mental faculties, and traits of character, are shown on the surface of the head or skull; craniology. — **Phre-nol'o-gist**, *n.* — **Phren'o-log'ic** (frēn'ō-lōj'ik), **Phren'o-log'ic-al**, *a.*



A Chart of Phrenology.

1 Amativeness ; **2** Philoprogenitiveness ; **3** Concentrativeness ; **3 a** Inhabitiveness ; **4** Adhesiveness ; **5** Combativeness ; **6** Destructiveness ; **6 a** Alimentiveness ; **7** Secretiveness ; **8** Acquisitiveness ; **9** Constructiveness ; **10** Self-esteem ; **11** Love of Approbation ; **12** Cautiousness ; **13** Benevolence ; **14** Veneration ; **15** Firmness ; **16** Conscientiousness ; **17** Hope ; **18** Wonder ; **19** Ideality ; **19 a** (Not determined) ; **20** Wit ; **21** Imitation ; **22** Individuality ; **23** Form ; **24** Size ; **25** Weight ; **26** Coloring ; **27** Locality ; **28** Number ; **29** Order ; **30** Eventuality ; **31** Time ; **32** Tune ; **33** Language ; **34** Comparison ; **35** Causality. [Some raise the number of organs to forty-three.]

“Brother and sister, I can’t understand how a boy with a head like this got in your family. His bumps are all wrong. He won’t be able to take much schoolin’ and it might kill him if you pushed him. His intellect is like one of those blind Alabama hogs. His head proves he just ain’t fittin’. Of course, even a blind hog gets an acorn once in a while.”

A definition of phrenology with chart from *Webster's Academic Dictionary*, circa 1895

Public Domain, <https://commons.wikimedia.org/w/index.php?curid=104465>

Excerpt from a tribute article in JOM 1969 on McCord's 50th year in occupational medicine

The article references a series that McCord wrote about occupations that have gone out of existence.

“... that the young McCord skull had hollows where bumps should be. An occupation capable of such a grievous and total error *should* cease to exist. If phrenology had any validity, then Dr. McCord should have more bumps on his skull than almost anyone else in occupational medicine – one for his authorship, one for his lectureship, one for his boundless curiosity, one for his omnivorous reading, one for his wit, one for his wisdom, and an especially large one to represent the fact that Dr. McCord is a patrician, held in high and warm esteem as he enters his 51st year in occupational medicine.”

Life of Carey McCord

- Married Catherine Hostetter McKay on 9-21-1916 and had three children
- Author of many technical papers on a variety of topics and several books (over three thousand publications)
- Editor of journal *Industrial Medicine and Surgery* for 13 years and then of *Journal of Occupational Medicine* after which he was appointed Editor Emeritus
- Listed in *Who's Who in America* as “medical industrial hygienist”
- He carried with him a notebook of the most common health threats of over two thousand trades that he had compiled based upon his research and personal experiences
- Donated his personal library of over 500 bound volumes and 40,000 pamphlets to the University of Michigan library during the 1953-54 academic year (considered one of the best private collections on public health)



Most widely held works by Carey Pratt McCord

- [Odors: physiology and control](#) by Carey Pratt McCord (Book)

10 editions published between 1949 and 1967 in English and held by 263 WorldCat member libraries worldwide

The anatomy of the olfactory system; The physiology of the olfactory sense; Chemical constitution and odors; Odor classification; Odor detection and measurement; The pathology and perversions of the olfactory system; The influence of odors on health and comfort; Human body odors in disease; Odors in the diagnosis of disease; Household odors; Odors of waters and food; Industrial odors; The offensive trades; Air conditioning and odors; Chemical and physical destruction of odors; Odor masking; Odor cancellation and counteraction; The sorption of odors; Odors as warning agents; Odor repellents and odors attractors; The making of an odor survey; The legal aspects of odor nuisances

- 
- [A blind hog's acorns; vignettes of the maladies of workers](#) by Carey Pratt McCord (Book)

5 editions published between 1945 and 2001 in English and held by 90 WorldCat member libraries worldwide

- [Industrial hygiene for engineers and managers](#) by Carey Pratt McCord (Book)

4 editions published in 1931 in English and held by 56 WorldCat member libraries worldwide

- [Benzol \(benzene\) poisoning : a new investigation of the toxicity of benzene and benzene impurities](#) by Carey Pratt McCord (Book)

4 editions published between 1931 and 1932 in English and held by 22 WorldCat member libraries worldwide

- [The basophilic aggregation test for lead absorption and lead poisoning, ten years after its first use](#) by Carey Pratt McCord (Book)

1 edition published in 1935 in English and held by 10 WorldCat member libraries worldwide

- [Lead and lead poisoning in early America](#) by Carey Pratt McCord (Book)

1 edition published in 1954 in English and held by 6 WorldCat member libraries worldwide

Most widely held works by Carey Pratt McCord

- [Silicosis in the foundry : characteristics, control, compensation](#) by Carey Pratt McCord (Book)
2 editions published in 1932 in English and held by 6 WorldCat member libraries worldwide
- [Silicosis in the foundry : characteristics, control, compensation](#) by Carey Pratt McCord (Book)
2 editions published in 1932 in English and held by 6 WorldCat member libraries worldwide
- [The Settle-Suttle family](#) by Carey Pratt McCord (Book)
1 edition published in 1956 in English and held by 4 WorldCat member libraries worldwide
- [American leishmaniasis \(jungle ulcer\) a tropical occupational disease](#) by Carey P McCord (Book)
2 editions published in 1939 in English and held by 3 WorldCat member libraries worldwide
- [The pineal gland, the pineal gland's influence upon growth and differentiation, with particular reference to its influence upon prenatal development](#) by Carey Pratt McCord (Book)
1 edition published in 1917 in English and held by 1 WorldCat member library worldwide
- [Physical impairment among industrial workers. A report based on the complete physical examination of one thousand white, male, machine and hand tool operators. A study made through the Industrial Health Conservancy Laboratories](#) by Heart Council of Greater Cincinnati (Book)
2 editions published in 1930 in English and held by 1 WorldCat member library worldwide
- [The heart problem of the worker ; read at the 41st annual meeting of the Association of Life Insurance Medical Directors of America, October 23-24, 1930](#) by Carey Pratt McCord (Book)
1 edition published in 1931 in English and held by 1 WorldCat member library worldwide

Bentley Historical Library University of Michigan

Carey Pratt McCord Papers: 1913-1978

Summary Information

Title: Carey Pratt McCord Papers

Creator: McCord, Carey Pratt, 1886-1979

Inclusive dates: 1913-1978

Extent: 5.5 linear feet

Abstract: Industrial hygienist, consultant and lecturer in environmental and industrial health in the School of Public Health of the University of Michigan. Logs of daily activities, 1936-1961, correspondence relating to consulting projects, speech and lecture material, and research files on lead poisoning and the effects of air conditioning on workers; history of occupational health at the University of Michigan, 1873-1970, history of the American Academy of Occupational Medicine, 1946-1956; history of the Bernardino Ramazzini Society, 1942-1978; study of automobile body industry in Detroit, 1936; and related photographs.

Call number: 85309 Aa 2

Language: The materials are in English.

Repository: Bentley Historical Library, 1150 Beal Ave., Ann Arbor, MI 48109-2113

Phone: 734-764-3482

Fax: 734-936-1333

e-mail: bentley.ref@umich.edu

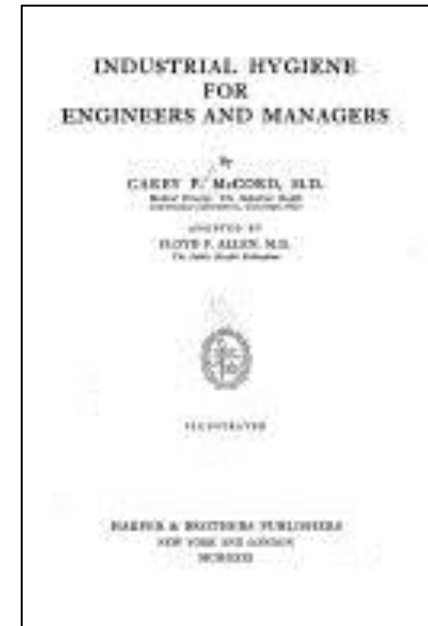
Home Page: http://www.bentley.umich.edu/Finding_aid prepared by: Amy Scott

Another IH Book by Carey McCord

Industrial hygiene for engineers and managers

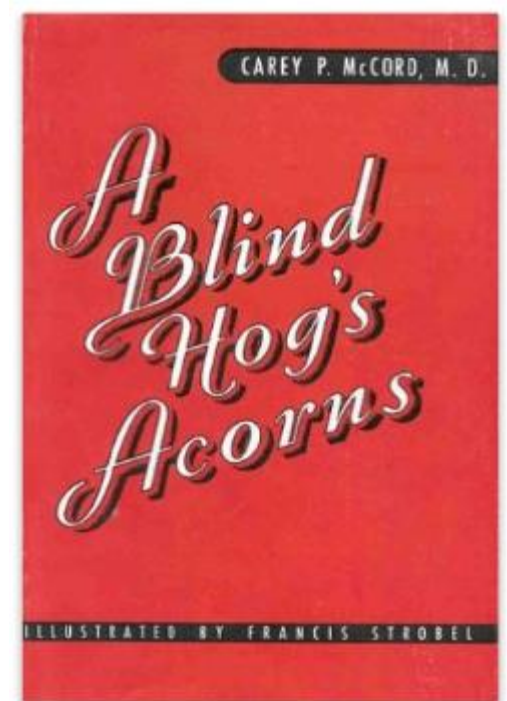
[Carey P. McCord](#), [Floyd P. Allen](#)

Harper, 1931 - [Industrial hygiene](#) - 336 pages



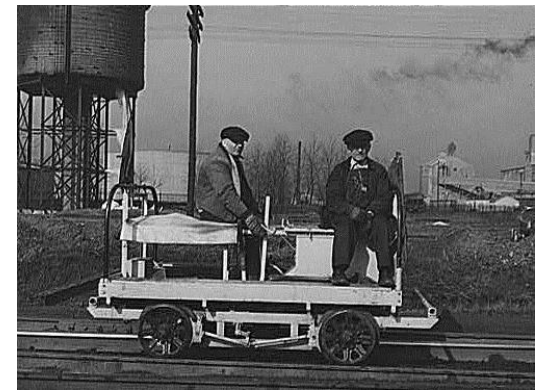
Chapters of A Blind Hog's Acorns

1. The Coming of the Phrenologist
2. What are the Hazardous Trades?
3. Getting Ready for the Hazardous Trades
4. [The First Job](#)
5. [Hannah's Hand](#)
6. Dust is a Friend and a Foe
7. Trial by Dust
8. Two Ghosts of a City
9. Amateur versus Expert Pottery Making
10. Jungle Ulcer
11. A Little Piece of Man
12. Coroner for a Day
13. Panic
14. My Boss
15. The Offensive Trades
16. Chlorine and Chicanery
17. The Four o'clock Mystery
18. Women at Work
19. The Man Who Refused to be Poisoned
20. Medical Sideshow
21. The Tale of Two Coats
22. Saving the Surface
23. Threats from the Refrigerator
24. Dancing Eyes
25. Journey to Junius
26. The Doctor and the Rabbi
27. Hammer Head
28. A Minor Medical Miracle
29. [The Birth of the B.A.](#)
30. A Reversal in Diagnosis
31. Little Giants
32. Black Turns White
33. La Maladie de Skevos Zervos
34. Arsenicism
35. Blindness from Benzol
36. Metal Fever
37. The Country Doctor Shows up the Expert
38. Fits from the Furnace
39. The Workers' Crochets and Incubuses
40. Uncle Jeff's Big Catch
41. "Tet" and "Tri"
42. The Preferred Professions
43. Chrysanthemum's Fingerprints
44. The Amazing Present



First Job of New Consulting Firm

Chapter 4



- Asked by a railway crosstie treating plant to investigate a skin disease in his workers
- Traveled by train with a secretary, staff photographer (both female) and a chemistry instructor from the University of Cincinnati (initially by handcar since there was no regular train and the roads weren't passable in the winter)
- Plant had been doing the same work for many years with no adverse skin reactions
- Now, workers had a blistering rash on their hands, forearms and it was spreading to their shoulders, chest and neck regions with some having it on their knees and thighs

What questions would you have asked?



Chapter 4 First Job

- Discovered that company had recently received a new shipment of tar (ordered to the same specs and from the same supplier as the original tar)
- Did some informal “patch” testing of several workers with the new tar on one forearm and the old tar on the other forearm to confirm that the tar was the source of the problem
- Solution to issue was get rid of the new tar and to get no more like it and to get better gloves, aprons and washing facilities

Key Learning was to ask about new shipments first

of entrance for the infecting organism. Finally, it would rather seem, from the clinical and experimental evidences of contagion, and the experiments described herein, that in the production of ordinary warts there must be an infectious agent that is specific, that does not thrive on ordinary cultural mediums, and that is at the same time capable of passing through the finest filtering apparatus obtainable.

CONCLUSIONS

1. The demonstration of a filtrable virus for warts by Wile and Kingery is further substantiated by their production in the second generation.
2. The period of incubation from the time of inoculation to the development of well defined lesions is apparently much longer than pertains to other filtrable viruses.

ZINC CHLORID POISONING

REPORT OF OUTBREAK AMONG WORKERS IN A
WOOD PRESERVING INDUSTRY

CAREY F. McCORD, M.D.

AND

C. H. KILKER, M.D.

CINCINNATI

The preservation of wood is a relatively new industry. The trade processes involved are undergoing frequent alterations, especially with reference to the chemicals employed. As a result, diseases incident to occupation in this industry are frequent. The subjoined report is a record of an outbreak of dermatoses arising in a wood preserving plant.

ESSENTIALS OF THE TRADE PROCESSES INVOLVED

The principal woods treated are railway ties of hard and soft wood. The principal chemicals used are: (1) tars and cresotes because of their ability to render the wood weather-proof and water-proof; (2) zinc chlorid, because of its action as a fungicide and a fire repellent. To insure penetration, wood treatment is carried out in air tight cylinders under pressure. This process, which is employed in this plant, is but one of a highly diversified series of processes, most of which are protected by patents. After cylinder treatment, treated ties are handled by hand in loading and stacking. Dermatoses were noted among all employees handling these ties.



Fig. 1.—Typical lesion from zinc chlorid burn.

NATURE OF LESIONS
Seventeen patients were examined. Early it was evident that four types of skin lesion were being presented. The first three are well known, as incident to work in tar.

(a) *Tar Dermatitis*.—Dermatitis venenata, attributable in part to preparations used by employees in "cleaning up," such as benzene, light and heavy oils from coal tar distillation, and in part attributable to coal tar distillation products in the tar employed, was observed in only two cases.

(b) *Tar Acne*.—This condition was noted in varying degrees among all the employees examined. It is a

common disease among all tar workers and is due to the accumulation of tar in hair follicles, especially those of the forearms.

(c) *Tar Cancer*.—In two cases, lesions were exhibited suggestive of tar workers' or "chimney sweep" cancer, which has been carefully described by Schamberg.¹ One of these lesions was situated on the scrotum,



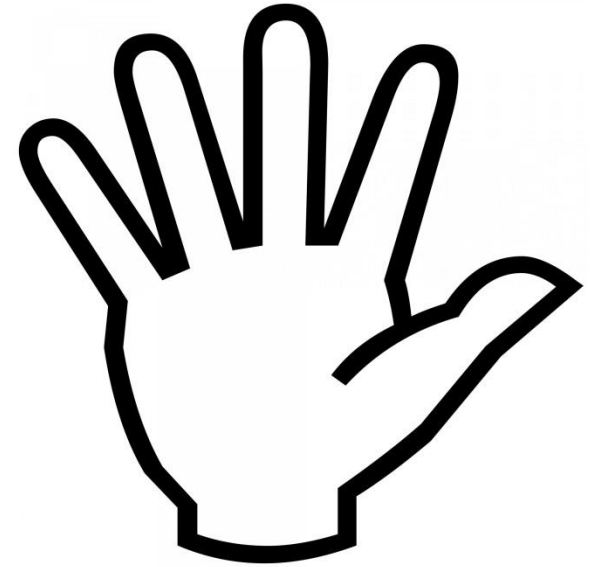
Fig. 2.—Typical zinc chlorid burn on dorsal finger, of three weeks duration. Swelling of hand prevents removal zinc chlorid burn at site of previous tar acne.

and the other on the forearm. The quick disappearance of these lesions under treatment makes one hesitate before making a diagnosis of tar cancer.

(d) *Zinc Chlorid Burns*.—In addition to the foregoing conditions, all patients presented multiple lesions of the fingers, hands, forearms and rarely of the legs and thighs. All patients gave a history of slight injury, such as abrasion, splinters, burns or crevices from chapping. The typical lesion was a small opening in the skin usually corresponding to the size and shape of the antecedent injury. The surrounding skin appeared normal, but on careful examination it was found to be readily removable. When the initial break in the skin was approximately 4 mm. in diameter, the subsequent impaired skin area was about 12 mm. in diameter. This proportion obtained roughly for all sizes of lesions. On removal of the impaired skin, the underlying tissues were found to be white and bloodless. In the center there was a cylinder of escharotic tissue, the depth of which depended on the duration of the lesion. There was no evidence of infection, and little or no swelling was noted. At times, some of these lesions were exquisitely painful, and others were wholly and continuously painless.

¹ Schamberg, J. F.: Cancer in Tar Workers, J. Cutan. Dis. 54: 414, 1915.

Chapter 5 Hannah's Hand



McCord's Involvement in the case began with a letter:

Dear Doctor:

In the town of Ogden, near your own city, Dr. John Pharis, with offices at 89 Walnut Street, has had under his care for nearly two years the above captioned claimant. This Board is of the opinion that this claimant's condition should be more thoroughly investigated., which opinion is shared with Dr. Pharis, who himself has requested some assistance. This doctor has been notified of your appointment as the special investigator in this case.

We are especially concerned to have any information that may account for the prolongation of what was apparently only a moderately severe injury. We do not wish to make further statements at this time in order that we may not Hamper you in your own inquiries. Will you please make arrangements with Dr. Pharis and in time make appropriate report to this office?

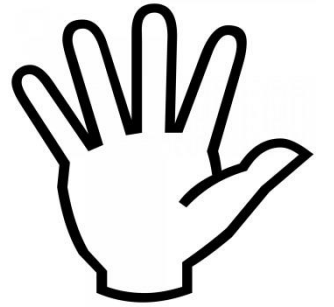
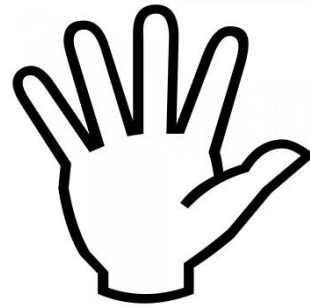
Chapter 5 Hannah's Hand



- Worked in a laundry
- Hand burned when caught between a laundry cart and a steam pipe
- Was hospitalized for a skin graft
- After good signs of proper healing, the skin graft failed with deep ulcerations after she was cleared to go back to work and another was performed
- Second skin graft failed after she was cleared to go back to work
- Third skin graft failed after she was cleared to go back to work
- Fourth skin graft had just been performed when Dr. McCord was asked to see her



What questions would you have asked?



Chapter 5 Hannah's Hand



- 20 years old when Dr. McCord saw her
- Lived alone in poor neighborhood
- In the hospital, she was waited upon – it was clean, food was served on silver service, nurses bathed her, changed her linens and combed her hair
- McCord suspected she was destroying her own skin grafts
- Gave her a solution of thymolphthalein under the guise of using it to “toughen the skin”
- Bandage and skin turned blue – he determined that she had been applying lye to the surface of her skin graft so she could go back to the hospital

Key Learning – take into account all aspects of a person's case not just the obvious ones

Chapter 29 The Birth of the B.A.

- Basophilic aggregation test to diagnose lead poisoning
- Discovered by McCord because he mistranslated a German publication entitled “Anleitung zur Diagnose in dicken Tropfen”
- He applied the technique (as he understood it) to blood smears looking for a particular kind of red blood corpuscle but could not find one. Instead, he stumbled upon a different kind of red blood cell which he found to be present in large numbers in the blood of people with lead poisoning but was hardly present at all in normal blood.
- “Prophetic medicine” – enabled the diagnosis of the disease before symptoms were exhibited so that people could be removed from exposure and controls implemented

Key Learning – be willing to take a chance – scientific discoveries result from trial and error

adhere to the dietary limitations has immediately reproduced the conditions that had been abolished by the avoidance of such sensitizing foods.

491 Commonwealth Avenue.

THE BASOPHILIC AGGREGATION TEST IN LEAD POISONING

PRELIMINARY REPORT *

CAREY P. McCORD, M.D.

DOROTHY K. MINSTER, A.B.

AND

MATHILDE REHM, A.B.

CINCINNATI

The testing of the blood in lead poisoning by the basophilic aggregation method is based on the fact that the developmental period of red cells within bone marrow may be interrupted under conditions of physiologic need or pathologic changes in the bone marrow. These conditions that make demands on the bone marrow lead to the appearance in the peripheral circulation of red cells in varying stages of immaturity. The nucleated red cell is characteristic of marked immaturity. The transition to maturity is marked by the extrusion from the red cell of a single highly refractile body, recently described by Isaacs.¹

CHARACTERISTICS OF YOUNG ERYTHROCYTES

In addition to these two characteristics, other qualities serve to distinguish these young erythrocytes from old ones.

The premature red cell is usually larger than the mature one in the same preparation.²

Immature red cells contain a basophilic substance, the nature of which is not fully known.³ In the unaltered young cell this basophilic material is ordinarily evenly distributed throughout the hemoglobin-bearing portion of the cell. Following vital or nonvital staining, the same basophilic substance may appear as punctate stippling, fragmented stippling, or dark-stained cells.

The undeveloped cell appears to consume oxygen, while the adult erythrocyte is not known to consume oxygen.⁷ Cytologically, therefore, the adult erythrocyte is not a living cell, while the developing erythrocyte is to be regarded as living.³

BASOPHILIC SUBSTANCE⁸

With any tissue having so many distinguishing markings as indicated above, it should prove readily possible to devise some test to measure the occurrence of this tissue, either qualitatively or quantitatively, or both.

Of all the characteristics of young cells, the presence of basophilic substance appears to be most constant, and the one that lends itself best to the demonstration of immature cells. This basophilic substance is not known to occur in any cells other than blood and bone marrow cells.

Occasionally this basophilic material is found as punctate stippling, preformed in the blood. From 30 to 70 per cent. of lead poisoning cases present this blood alteration, varying according to the experiences of different observers. Ehrlich and Grawitz⁹ maintained that red cell basophilia is diagnostic of plumbism. Anything over 100 preformed stippled cells per million red cells has been regarded as proof positive of this condition. Since other anemias exhibit the same preformed stippled cells in such proportions, this diagnostic specificity is not warranted. Nevertheless, it is a common practice in the determination of lead poisoning to examine blood smears, stained by the Wright's method, for these preformed stippled cells. Diagnostic significance is attached if even four preformed stippled cells in 100 microscopic fields are detected. Such punctate stippling is also found in other industrial poisonings, such as from anilin and nitrobenzene.

Often this pathologic stippling is missing and the basophilic substance is evenly distributed throughout the cell, and is not readily detectable after ordinary staining methods. After Wright's staining of blood smears it is frequently noted that some cells are slightly dissimilar to the main group. Such cells may be larger and so take the stain as to appear more deeply stained

Attributes of McCord and other early IHS

- Inquisitive
- Good listener
- Able to take seemingly unrelated observations and weave them together to solve occupational disease mysteries to prevent their future recurrence
- Looked at all aspects of a case – physical, social, and psychological
- Able to learn from “accidents”
- A keen sense that the job is not about the IH, it is about what we can do to educate and encourage others to work in a manner that allows them to go home every night after work and thoroughly enjoy their families
- Good mentors to colleagues and the next generation

Then... and now....



- McCord's anecdotes describe a time when occupational medicine and industrial hygiene were just beginning
- ACGIH* (1938) and AIHA (1939) were formed – McCord played an important role in the formation of AIHA (Cook estimated there were ~300 IHS in the US in 1939 by suggesting that an IH association be formed led by an IH who was not a physician)
- 1962 – 484 people were certified by ABIH based upon their experience. Exams began later that year (believed to be almost everyone who had been in practice for at least 15 years)
- 2015 - 6817 CIHs in active practice

Do we still have the same work ethic, curiosity, and passion as our earlier colleagues?

*National Conference of Governmental Industrial Hygienists



Dr. Carey P. McCord and Dr. Clarence Selby-1946.

From **The American Industrial Hygiene Association Its History and Personalities 1939-1990**, page 2

Provocations...

- Did more people entering the career lead to more specialization so that comprehensive IH was no longer recognized as a distinct career?
- Has that pendulum now swung the other way so that only health and safety generalists are being hired?
- Did OSHA regulations halt innovation in worker health protection and lead to a compliance mentality?
- Did fear of litigation impede progress in protecting worker health?
- Has the media created a cultural fear of chemicals?
- Did improvements in analytical chemistry lead to public concerns at extremely low levels of exposure?
- Has the practice of IH differed significantly by employment area?
- Has the emphasis on short term profit made it more difficult to defend actions to protect workers from chronic exposures?
- As we got larger as a profession, did we lose our connection to allied professionals (e.g. occupational physicians)?
- Are we too busy to sit back and reflect on what we've learned and how to share it?

Sharing what we've learned...

- Ancient tradition of passing knowledge from older generation to younger generation is what keeps communities together
- Elders look back at their lives and reflect on what went well, what could have gone better and what really matters
- Community is dependent of the virtues of the elders and the passing on of traditions to meet the needs of the next generation
- It's important to tell our "life stories" – we must live our lives with purpose so that we can pass on what we've learned

What have you learned that you could share?

- Questions to ask?
- Observations to make?
- Case studies where you've protected workers?
- Friends and acquaintances that you have made doing IH work?
- Places that you've traveled for work?
- Funny stories or anecdotes?
- Sad stories in which you learned about an occupational disease before it could be prevented?

Other Industrial Hygiene Published Memoirs

Exploring the Dangerous Trades: The Autobiography of Alice Hamilton, M.D.

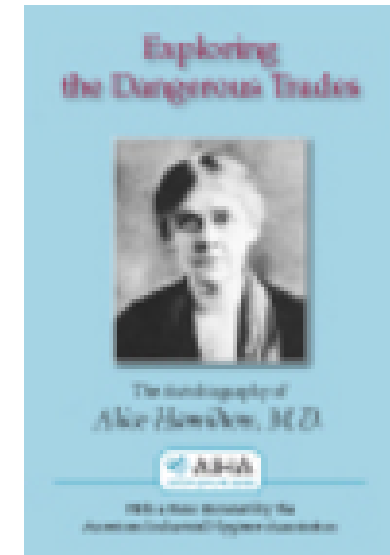
Stock Number: BHIB08-206

Alice Hamilton

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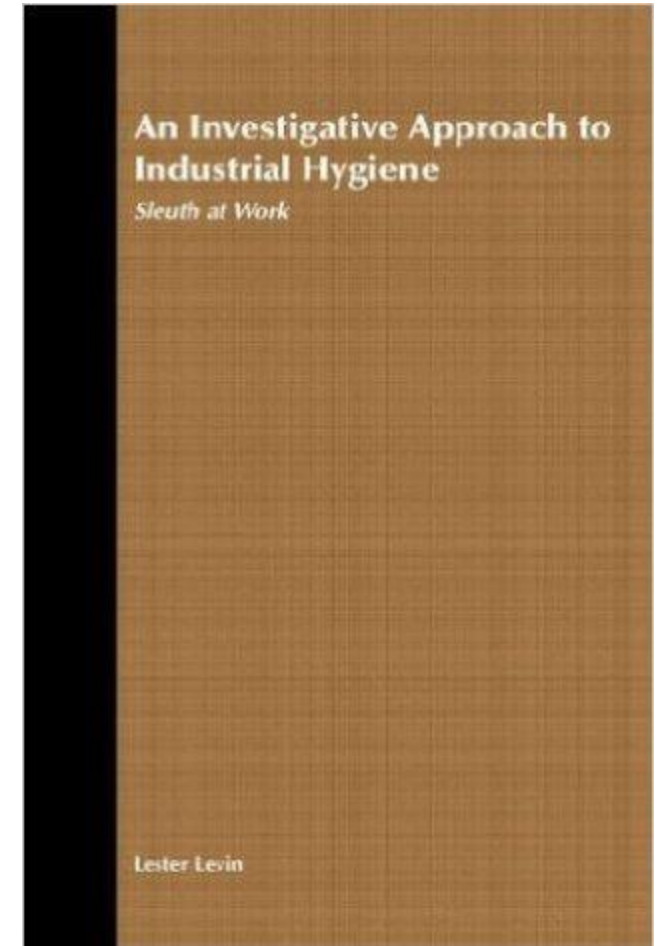


Other Industrial Hygiene Published Memoirs

[An Investigative Approach to Industrial Hygiene: Sleuth at Work
\(Industrial Health & Safety\)](#)

Mar 14, 1996

by [Lester Levin](#)



Other Industrial Hygiene Published Memoirs

[Jas: Chronicles of intrigue, folly, and laughter in the global workplace](#)

Feb 18, 2014

by Jas Singh PhD and with Gregory Beckstrom

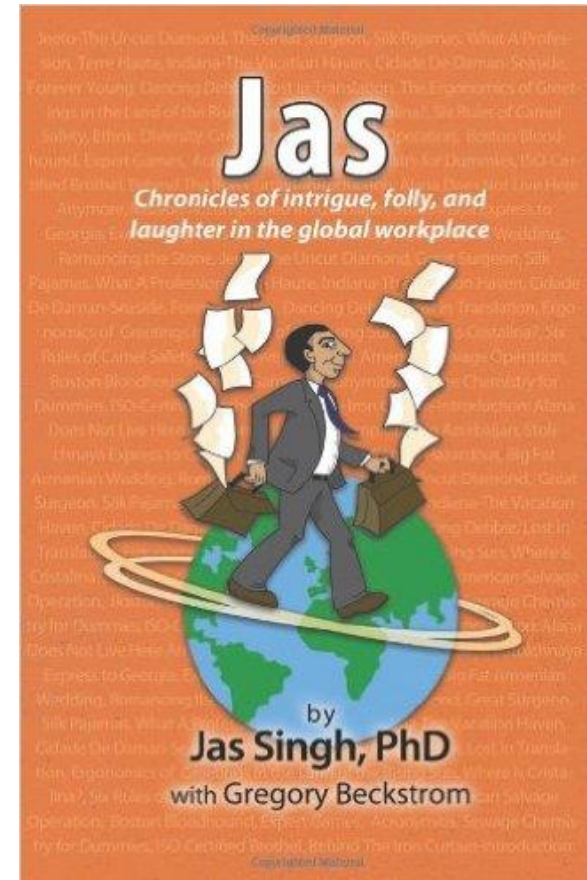




Illustration from final page of **A Blind Hog's Acorns**