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MARCH 6, 1925 to OCTOBER 17, 1929
VOLUME II

SCHENECTADY MUSEUM, NEW YORK

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Dawns Collection

SWOPE FILES ON
INDUSTRIAL HYGIENE
AND MEDICAL CARE

March 6, 1925 to
October 17, 1929

VOLUME II

GE MUSEUM 00202

HARVARD UNIVERSITY
SCHOOL OF PUBLIC HEALTH

INDUSTRIAL TOXICOLOGY

55 VAN DYKE STREET
BOSTON, MASSACHUSETTS

Hadlyme, Conn.
August 9, 1928

Dear Mr. Swope:

I am very sorry indeed to hear of the probability of your losing the services of Dr. Smith and I cannot help hoping he may still change his mind. If he does not, it will be hard to fill his place. I quite understand your desire to select if possible some man from your present organization, but I am afraid you will not be able to do so.

The trouble is that the physicians in charge of the manufacturing plants have been selected rather haphazard and few of them are really qualified. The men in charge of the lamp works were more carefully chosen but they have not the surgical training which is needed in the former class of plants. Although preventive medicine is important the first requisite for a candidate for one of the manufacturing plants is that he be able to handle the surgical side of the work satisfactorily. If you could find such a man for Schenectady, Dr. Vosburgh could have charge of the medical side.

The best candidate within the organization is, I believe, Dr. Hanna of Baltimore, but I am not well enough versed in surgery to be sure. Dr. Smith's opinion on this point would be valuable, and indeed he should have the last word in the selection of a candidate and I hope he would be willing to break the new man in. If he does not think well of Dr. Hanna, or if the latter is unwilling to leave Baltimore, then it will be necessary to appeal to the deans of medical schools for the names of candidates, and perhaps also to the Association of Industrial Surgeons.

If I can be of any help in this matter I hope you will command me.

Very sincerely yours

Alice Hamilton

Mr. Gerard Swope
General Electric Company
New York City.

GE MUSEUM 00203

1189
T/5
T/3

August 6, 1928

Dear Dr. Hamilton:

You will remember that I spoke to you about the possibility of Dr. Smith going into private practice. Although this is not definitely decided, I think it may be shortly and would like to know if you have any suggestions for this position at Schenectady.

Dr. Vosburgh is a good doctor, but as I understand it he has no surgical experience, and Dr. Bunn, of whom I think highly, and is connected with the Incandescent Lamp Department, I am afraid also has no surgical background.

Is there anyone in our organization who would qualify for this position, or have you anyone in mind on the outside?

Very truly yours,

Dr. Alice Hamilton
Hadlyme, Connecticut

4/11

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GENERAL ELECTRIC COMPANY

INTERNAL CORRESPONDENCE

Schenectady, December 17, 1927

Mr. James F. Harris
NEW YORK OFFICE

Dear Mr. Harris:

Referring again to your letter of the 15th, my attention was called this morning to the attached article by Mr. Birger W. Nordlander of the Research Laboratory regarding "A New Method for Detecting and Measuring Mercury Vapor." Perhaps the attached would be of more interest to Dr. Hamilton than the article accompanying my previous letter.

Very truly yours,

L. E. Thomas

PUBLICITY DEPARTMENT

Enc.

GE MUSEUM 00205

GENERAL ELECTRIC COMPANY

INTERNAL CORRESPONDENCE

Schenectady, December 3rd, 1927.

Mr. J. F. Harris,
General Electric Company,
New York City.

Dear Harris:-

In answer to your letter of November 28th with its enclosed clipping relative to the work of Dr. Crowder, may I venture to say that this little notice is not of very profound importance. I do not say this in any spirit of unkindly reflection on Dr. Crowder but I have been a member of this organization until 1925 and although its name is rather impressive it is ungainly and rather ineffective, largely by reason of its size and the wide distribution of its members. Dr. Crowder is the legitimate president at the present time, is a perfectly good ethical physician, is interested in his work and probably intends to carry out this move for what it is worth but, if the organization hasn't changed since I was a member, I doubt very much if it ever will go beyond the appointment of a committee.

During the four years that I belonged to the organization it was moving in rather awkward efforts to get organized and purge itself of various internal politics until ultimately many of its members, including myself, finding that we gained nothing from membership except the privilege to pay dues, resigned and joined more effective although smaller organizations. During the six years of its life it has been struggling to become an effective organization in the industrial field but never has been successful and so far as I know is still rather apathetic so that I doubt very much if your enclosed clipping carries any potential promise.

Very truly yours,

DGS:S

M. D.

GE MUSEUM 00207

November 28, 1927

Dr. D. Glen Smith
Schenectady

Dear Dr. Smith:

Mr. Swope has asked me to send you the attached clipping taken from the October number of the NEMA NEWS, which is the organ of the National Electrical Manufacturers Association.

Do you know anything about the work of Dr. Crowder?

Very truly yours,

J. F. HARRIS

JFH

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9/20/27.

GENERAL ELECTRIC WORKS AND MANAGERS

MR. A. B. LAWRENCE
G. E. Works - 1900 Washington Blvd., Baltimore, Maryland

MR. C. D. KNIGHT
G. E. Works - 5 Lawrence Street, Bloomfield, New Jersey

MR. W. S. CLARK
G. E. Works - 1285 Boston Avenue, Bridgeport, Connecticut

MR. E. W. LANKENAU
G. E. Works - Nuttman Avenue, Decatur, Indiana

MR. M. GRISWOLD
G. E. Works - East Lake Road, Erie, Pennsylvania

MR. E. H. BALLARD
G. E. Works - 69 Norman Street, Everett, Massachusetts

MR. W. S. GOLL
G. E. Works - 1655 Broadway, Fort Wayne, Indiana

MR. S. T. POWELL
G. E. Works - 700 Stanton Avenue, New Kensington, Pennsylvania

MR. JOHN HOOD
G. E. Works - 5441 East 14th Street, Oakland, California

MR. G. A. ELDER
G. E. Works - 6901 Elmwood Avenue, Philadelphia, Pennsylvania

MR. E. A. WAGNER
G. E. Works - 100 Woodlawn Avenue, Pittsfield, Massachusetts

MR. B. L. DELACK
G. E. Works - 1 River Road, Schenectady, New York

MR. N. J. DARLING
G. E. River Works - 920 Western Avenue, West Lynn, Massachusetts

MR. F. P. COX
G. E. West Lynn Works - 42 Center Street, West Lynn, Massachusetts

MR. A. A. BAILEY
G. E. Works - Windsor Connecticut

Mr. C. F. OBERMAIER
York Insulated Wire Works of the General Electric Company
463 So. Albemarle - York, Pennsylvania

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HEALTH PRESS
SUITE 714, 111 WEST MONROE STREET
CHICAGO

OCT -2 26

Sept. 30, 1926.

Gerard Swope, Esq.,
Pres., General Electric Co.,
120 Broadway,
New York City.

Dear Mr. Swope:-

Please take the two minutes necessary to read this letter. I think it will be worth your while.

I have just read -- with interest-- your letter in "Side-Track The Reaper" published by the Health Conservative Service of the Equitable Life Assurance Society, in which you announce that you have a thorough physical examination at least once a year; and that you are seeing that all the leading men in your organization far down the line, follow the same course.

This is, of course, a wise thing to do. Your letter was also read by an official of a medical association who suggested this letter to us.

Wise as the examination is -- would it also not be wise to make the examinations 100% or as nearly 100% as possible? The examinations, of course, do not prevent -- they show the way to correct trouble.

Here is the reason for this letter. I am enclosing a booklet "How To Be Healthy, Trim and Strong" -- which please accept with our compliments -- which I hope you will take the few minutes necessary to read. It was published only two weeks ago and has met a real response. Several competent reviewers have called it "The best and wisest book of its kind ever written." Most books of its nature are large and cumbersome and most of them are written by professional athletes or strong men whose very names or reputation discourage the reader or imitator. This is by "A Business Man Who Proved It." It is based on actual experience and is full of common sense. It is in compact form which can be carried in the pocket and used at will. Being in book form it will seem more authoritative than the same truths printed in consecutive issues of the magazines or newspapers. I say this although I have been an advertising man most of my life. The use of the book, if its advice is followed, will undoubtedly make better and stronger men and lend less fear to those yearly examinations.

Therefore -- what would you think of buying a number of these books to present to your colleagues and certain of your employees. We think we can guarantee that in addition to the better examinations -- you would be reimbursed for the cost of the books many times over in a

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few weeks or months in the added efficiency of those to whom you gave them.

May we hear from you?

Yours very truly,

HEALTH PRESS.

G. A. Keith.

GAK:S

P.S. Of course, we could make terms on large quantities at less than the regular price.

H.P.

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HAMILTON'S INDUSTRIAL POISONS IN THE UNITED STATES

TABLE OF CONTENTS

Chapter

1. Introduction to Industrial Toxicology
2. Lead: Pathology
3. Lead: Absorption and Excretion. Quantity
4. Lead: Colic. Arthritis
5. Lead: Palsy
6. Lead: Encephalopathy
7. Lead: Diagnosis
8. Lead as a Race Poison
9. Toxicity of Lead Compounds. Compounds Used in Industry
10. Lead Mining. Lead Smelting and Refining. Metallic Lead
11. The Printers' Trade
12. White and Red Lead. Storage Batteries
13. Glazes and Enamels. The Pottery Trades
14. The Painters' Trade
15. Miscellaneous Lead Trades
16. Arsenic
17. Mercury
18. The Hatters' Trade
19. Copper, Zinc, Brass
20. Manganese. Antimony. Cadmium. Nickel Carbonyl
21. Selenium. Tellurium. Vanadium. Phosphorus
22. Caustics. Ammonia. Chromates
23. Sulphuric Acid. Hydrochloric Acid. Phosgene
24. Nitric Acid. Hydrofluoric Acid
25. Hydrocyanic Acid and Cyanids. Cyanogen Chlorid. Calcium Cyanimid
26. Hydrogen Sulphid. Carbon Disulphid
27. Carbon Monoxid. Mine Gases
28. Petroleum Distillates
29. Oil Furunculosis and Tar Cancer
30. Methyl Alcohol
31. Ether, Aldehyds. Hexamethylenetetramin. Metol. Amylacetate. Dimethyl Sulphate
32. Methyl Chlorid. Tetrachlormethane. Tetrachlorethane. Other Chlor Compounds. Methyl Bromid. Nitroglycerin
33. Benzene
34. Benzene Derivatives
35. The Coal Tar Dye Industry
36. The Rubber Trade
37. Turpentine. Tobacco
38. The Prevention of Industrial Poisoning

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Mr. E.Z.Steever, Schenectady
Dr. M. J. Hanna, Baltimore
D Dr. G. W. Vannatta, Bloomfield
Dr. F. A. Taylor, Bridgeport
Dr. T. A. Little, Erie
Dr. W. H. Garton, Fort Wayne
Dr. F. E. Schubmehl, River Works, Lynn
Dr. L. F. Reefe, Jr., Philadelphia
Dr. W. L. Tracy, Pittsfield
Dr. D. G. Smith, Schenectady
Dr. E. C. Jackson, Harrison
Cleveland (?)

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July 31, 1925

Mr. J. N. Myers
The MacMillan Company (Medical Department)
60 Fifth Avenue
New York, N.Y.

My dear Sir:-

I have had some correspondence with your Mr. Hall and have talked with him over the 'phone relative to Doctor Hamilton's book "Industrial Poisons in the United States", and in his letter of July 8th he quoted a price of $4.00 per copy upon an order of twelve or more plus postage. Will you please send a copy of this book to the following:-

Doctor M. J. Hanna
General Electric Company
1900 Washington Boulevard
Baltimore, Maryland

Doctor G. W. Vannatta
General Electric Company
5 Lawrence Street
Bloomfield, New Jersey

Doctor F. A. Taylor
General Electric Company
1285 Boston Avenue
Bridgeport, Connecticut

Doctor T. A. Little
General Electric Company
East Lake Road
Erie, Pennsylvania

Doctor W. H. Garton
General Electric Company
1635 Broadway
Fort Wayne, Indiana

Doctor F. E. Schnbmehl
General Electric Company
River Works, 920 Western Ave.
West Lynn, Massachusetts

Doctor L. W. Reefe, Jr.
General Electric Company
429 North Seventh Street
Philadelphia, Pennsylvania

Doctor W. L. Tracey
General Electric Company
100 Woodlawn Avenue
Pittsfield, Massachusetts

Doctor W. H. Bunn
Youngstown Mazda Lamp Works
617 Williams Street
Youngstown, Ohio

Mr. E. Z. Steever
General Electric Company
1 River Road
Schenectady, N.Y.

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118.9

HADLYME, CONNECTICUT
TELEGRAMS VIA SAYBROOK
TELEPHONE, DEEP RIVER 65-2

July 10, 1925.

7/12/25

My dear Gerard:

I am very glad on behalf of the physicians' Committee. Your suggestion, that I should work as consultant for it seems quite practical and would probably work out well.

Dr. Smith would be the logical chairman. As for the relations of the Committee to Colonel Stevens, I hesitate to speak positively. He seems to me diplomatic and

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" 10 25

HADLYME, CONNECTICUT
TELEGRAMS VIA SAYBROOK
TELEPHONE, DEEP RIVER 65-2

adapted to most situations and I should suppose that the arrangement would work smoothly but if Dr. Smith could be consulted informally about it, that might be better.

Thank you for Mr. Coolidge's letter. The fact is that Dr. Coolidge knows the situation in Schenectady perfectly but has not been able to make enough information on the management. Now it will probably go through as it should.

Sincerely yours

Alice Hamilton

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G. Swope

11826
11819

INTERNATIONAL INDUSTRIAL PHYSICIANS' CONFERENCE

AMSTERDAM, HOLLAND. - September 7 - 12, 1925.

DR. ELMER C. JACKSON

June 11, 1925.

Mr. W. R. Burrows, Manager,
Edison Lamp Works,
Harrison, N.J.

Dear Mr. Burrows:

Careful consideration has been given to your letter of June 2d and Mr. Homer N. Calver's accompanying letter of the 1st.

While I should wish to encourage our Works Physicians, in every practicable way, to keep informed in regard to the most advanced practices affecting their work, yet I do not feel that the General Electric Company is justified in sending Dr. Jackson, at this time, to the above Conference.

It seems to me that our Works Physicians have, in general, a comprehensive understanding of the work in hand and ahead of them, and that there is so much that is constructive for them to do at home that the results of such a journey as that proposed would hardly offset the disadvantages of the resulting absence.

Very truly yours,

(Signed) FRANCIS C. PRA -
J. W. H. Jr.

FCP.HFH

(GerardSwope)
(EZStoever)

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"197'25

HARDVARD SCHOOL OF PUBLIC HEALTH
BOSTON, MASS.

June 1, 1925.

Gerard Swope, President,
General Electric Company,
Broadway,
New York City.

My dear Mr. Swope:

The conference of physicians and others connected with industrial relations, which was held in Schenectady last week, was very successful. You will remember that I was not in favor of inviting Dr. Goldthwaite, fearing that he would be too technical for non-medical people, and therefore I hasten to tell you that the high light of the conference was the evening meeting at which Dr. Goldthwaite not only spoke, but demonstrated to us the essential elements of good posture and the principles which should govern the choice of factory chairs. I am sure that a new attitude toward the importance of seating will soon be manifest in the General Electric Company, and will be traceable to Dr. Goldthwaite's speech.

The program was well planned and the meetings small enough to permit a frank and detailed discussion. Colonel Steever is to be congratulated on his success in a difficult task, for although the program was full and discussion not shut off, we managed to cover it all in the appointed time.

The points which remain in my mind from this conference are the following:

(1) The comparative importance of industrial medicine in contrast with industrial surgery. The latter is now well established, methods change little, it is successfully carried on almost everywhere and no new problems confront it. Industrial medicine, on the contrary, is not nearly so well understood nor so successfully administered, and it faces new problems all the time. The absenteeism due to illness is many times greater than that due to injuries, and it is probably true that what may be called minor medical work, the treatment of colds, sore throat, headache, backache, indigestion, is quantitatively the most important branch of industrial medical service.

(2) The importance of certain dangerous dusts encountered in the Company's plants and the various ways of preventing silicosis.

(3) The great field of preventive medicine which awaits the industrial physician. A part of this has already been entered and the Company's physicians are endeavoring to prevent lead poisoning, mercury poisoning, benzol poisoning and silicosis. But there remain still the less conspicuous disorders which are the result of long continued strain from over exertion of various kinds, such as spinal curvature,

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and flat foot, chronic arthritis, chronic cardio-vascular-renal disease, and especially tuberculosis.

(4) The need of establishing certain standards for the work in dispensaries and for the reporting of cases. As it is now, there is not enough uniformity to permit us to compare the records of one physician with those of another. For instance, when the figures showing infected wounds were discussed, it was discovered that no definition of infection has ever been established, and while one man regards any redness around the wound as evidence of infection, another calls nothing infected unless there is actual suppuration. Some physicians are seeking to discover all cases of latent tuberculosis and to place them under proper treatment . Another has no idea whether or not there is any tuberculosis in the works.

(5) The fact that the Company has already experts in certain fields who might be more widely used than they are now, for instance, Dr. Knabe, the eye specialist in the Schenectady works, could be consulted about the important problems of illumination in lamp works and in certain departments of manufacturing plants; Dr. Pacini, in Chicago, might train attendants in physio-therapy, who would be invaluable in the work of rehabilitating injured employes. There are several physicians now in the employ of the Company, who could work out a practical scheme for the treatment of men and women who have incipient tuberculosis, without obliging them to quit work.

This conference had the effect of crystallizing in my mind a rather vaguely formulated plan for medical service which should be at once more extensive, and under some form of centralized control.

That the Company is not now giving first class industrial medical service in most of the plants, and that in some it is distinctly inferior, has been brought to your attention several times already. The arguments in favor of a wider program do not need to be repeated I think. What I should like to discuss is a practical method of introducing improvements without too much disturbance. There are two ways of doing this: to bring in an outsider, an expert in industrial medicine, or to utilize your own men. The trouble with the first plan is that there are few, if any, available experts. Wadewright would be the best, but he is on full time for the Metropolitan Life, and I doubt if he could be secured even for a single short period, and the objection to having a temporary relation like that with your expert would be that he could not repeat his supervisory visits, could not check up as he should. The objection to having me do it is that there are limits to what a woman can do when dealing with men, and I have repeatedly gone to that limit and am not rash enough to wish to venture beyond it.

You have already two men in your employ who are products of first class schools and are far superior to the usual industrial physician. Most industrial physicians, no matter how well trained they are, fall victims to routine, lose their imagination, and their ambition to form larger programs and carry them out. Dr. Smith of Schenectady and Dr. Jackson of Harrison have these qualities. If the Company is to continue to have the services of these men and to add others like them to its force, they must be given opportunity to develop, to plan a progressive

Course

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and carry it out. Such a program should not be forced upon any plan but should be presented as one which has been formulated at the request of the Company, and has its endorsement. It will probably not be difficult then to put it gradually into force in all plants.

The plan which I discussed with Mr. Eveleth and which met with his approval was to form a medical committee of three, one from each of the three branches, Dr. Smith from the manufacturing, Dr. Jackson from the Edison, and from the National Lamp Works, Dr. Bunn of Youngstown. He is younger than the two others, his experience is more restricted than theirs, but he has gone far in his own field, and like them, he is a forward looking man with a capacity for research and he has a real interest in preventive medicine. I believe he is the best man in the National Lamp Works and there are obvious advantages in having all three branches represented. These men have the same standards and could work together amicably. They would be able to deal with situations in the plants which especially need jacking up, without demanding anybody's discharge and without trying to reform too rapidly. I should not suggest that they give up their positions in their own plants, only that they be given enough assistance to release them for occasional visits of inspection and conferences. Of course the selection of physicians for new branches should be left to them, as should be also the planning of dispensary quarters in new and in old buildings.

Mr. Eveleth agreed with me that this Medical Committee should not be under the Industrial Relations Committee, but should report directly, - in his opinion to the Manufacturing Committee, mine would be that they should report to the President, but whichever it were Mr. Eveleth thought that the carrying out of the Committee's recommendations would have to be in the hands of the Works' Managers, the medical men would act only as advisors.

I believe that if you adopt some such plan as this you will be making a start toward the sort of industrial medicine which the General Electric Company ought to provide. It will be more expensive than now, but not more so than the service given by many Companies. It can, I believe, be carried out with a minimum of the human complications which attend any change in the management of the personnel end of industry.

I shall be in New York sometime toward the end of the month, and I will let you know in advance so that we can make an appointment to meet if you wish.

Sincerely yours,

Alvi Warnier

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GENERAL ELECTRIC WORKS PHYSICIANS CONFERENCE
SCHENECTADY, N. Y.
MAY 25-26, 1925.

Ma, 25
Daylight Saving Time
9:30 A.M. (Manufacturing Committee Room, Building 2, General Electric Works)

1. Address of Welcome.

F. C. Pratt, Vice President
In Charge of Engineering
and Manufacturing.

2. What Medical Care should be provided in a Manufacturing Plant of the General Electric Company.

Dr. D. Glen Smith,
Schenectady Works.

3. What should we do as a Company in regard to outside care, by Doctor and Visiting Nurse? Ethical situation between Works and City Physicians.

Dr. T. A. Little,
Erie Works.

Dr. F. A. Taylor,
Bridgeport Works.

4. Tuberculosis in Industry.

Dr. E. C. Jackson,
Edison Lamp Works,
Harrison.

Dr. B. L. Vosburg,
Schenectady Works.

12:45 P.M. Luncheon, Office Restaurant.

2:00 P.M.

5. Medical Service of the International Harvester Company.

Dr. Alice Hamilton
Harvard University.

6. Written description of The John B. Stetson Hospital Service, Philadelphia, Pa., By Milton D. Gehris, Vice President, John B. Stetson Company, Philadelphia.

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Dr. P. E. Schumacher,
Lynn Works.

9. [illegible]
P.M., Dr[illegible], Welfare, Ventilation.

Dr. Alice Hamilton,
Harvard University.

9. Medical Supervision over Sanitation Operations.

Dr. H. W. Garton,
Fort Wayne Works.

Mr. J. M. Sampson,
Supt. of Foundries,
Schenectady.

7:00 P.M. Dinner.

10. Fatigue Studies
Rest Periods
Seating - Postures

Dr. J. E. Goldthwait,
Boston.

Dr. C. A. Eaton (presiding)

Miss B. K. Kinne,
Fort Wayne Works.

May 26
Daylight Saving Time
9:30 A.M. (Manufacturing Committee Room, Building 2,
General Electric Works)

11. Relation of Works Physician to Employment Office.
Examination of Applicants for Employment, rejections, placing, transfers.

Dr. F. A. Taylor,
Bridgeport Works.

Dr. K. J. Hanna,
Baltimore Works.

Mr. C. E. Pfeil,
Schenectady Works.

(Completion of discussion)

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[illegible]

Dr. W. R. Knabe,
Schenectady Works.

Dr. E. L. Thassong,
Larkin Company,
Buffalo, N. Y.

14. Works Physicians Part in Accident Prevention
[illegible]

Dr. M. J. Hanna,
Baltimore Works.

Mr. C. E. Sanford,
Secretary, General
Safety Committee.

15. [illegible]

16. Duties of an Industrial Nurse
Her training, personality, general qualifications.

Miss A. M. Fagan,
Schenectady Works.

16. Experiments in Feeding and Efficiency.

Dr. W. H. Burn,
National Lamp Works,
Youngstown

17. Company Medical Service as viewed by the Employee.

Mr. J. J. Leary,
New York.

Mr. H. L. [illegible],
Hospital Visiting Nurse,
Schenectady Works Council
Schenectady Works.

[illegible]
Hospital Visiting Nurse,
Schenectady Works Council
Schenectady Works.

(Summation Mr. H. L. Baltozer).

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MEDICAL COST TO THE GENERAL ELECTRIC COMPANY

The service of medicine to industry affords a study from many interesting points of view. For the first time in its history its rather novel service in industry puts it in a showcase where all manner of individuals can review its various functions and be interested according to their profession or training. This meeting will, by its diversification of discussions, illustrate the fact that there are a multiplicity of interests and a multiplicity of services which will entertain a variety of men according to their own fields of endeavor. It falls to my lot today to attempt to entertain that group of individuals particularly who are more interested in the finances of this company than they are in perhaps any other phase of its operations. I do not mean to say that this particular group of men are not interested at all in some of the services of medicine to industry but it is quite natural from their point of view to be most interested in the cost. It would seem illogical that one with so little business sense as I have should attempt to put down the facts that are to follow but since it must be done and I have been chosen to attempt it, I will, with all due apology and plea for patience on the part of those who must listen, try to arrange with some degree of intelligence a few facts and figures which might more appropriately be done by one who is familiar with business methods and the proper formality and procedure by which such things

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different environments by local circumstances, practices, size, etc., and for the purpose of arriving at a unit of cost as the working basis upon which to make comparisons, etc., it would seem more logical to take one given situation and reduce the cost of operating in that environment to some given unit of our organization such as, for example, the individual employee. For this purpose I would like to take the Schenectady Works because the information is more easily available for me, because the number of employees is large and the medical department is large in proportion and the practices are, I believe, as economic as they could be made. On this basis I offer for your approval a standard cost per capita which must be the figure that comes out of the division of our total cost, $ 73,500, by our average number of employees which is 20,000 . This gives us $ 3.65 per employee per year which is the cost therefore per capita of maintaining the medical service in the Schenectady Works, or in other words, one cent per employee per day. I am quite sure that in the other plants, if the unit of cost is determined in this way, that it will be very nearly the same because the size of the plant more or less determines the relative size of a medical department, supplies, etc., and our general practice in economy is sufficiently controlled to about the same. This figure is lower than practically any other industry of our size and importance in this country. Such industries, for example, as the International Harvester Company, the Eastman Kodak Company, the Western Electric, Endicott & Johnson, etc., are spending from $ 5.00 to $ 10.00 per year per head for their medical service

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which is I hope no better in quality than ours but considerably more elaborate and comprehensive.

Against this cost as outlined above I would like to sum up a few facts and figures which indicate the saving thru this expenditure. In order to do this it is necessary to outline the functions of the medical department as it exists today in order that it may be readily seen what factors are tangible enough to charge against and what factors are intangible in such a way that the saving can not possibly be estimated.

The practices of the medical department may be outlined as follows:-

1 - THE PRE-EMPLOYMENT PHYSICAL AND MENTAL EXAMINATION.

No intelligent employer will today be so wasteful of human endeavor as to blindly employ workmen without some intelligent guide as to their physical and mental fitness to serve the industry on the job for which they apply because there is no question as to the wastefullness, the unhappiness, the discontent, the accident hazard, etc., of misfitted workmen. In other words it is no longer the problem of getting a job for a man but it is now exceedingly important to get the man for the job in order to avoid the factors as just outlined above. Moreover, with the restricted immigration, the responsibility of the employer under the Compensation Law and the several other factors, labor is no longer a cheap element in industry but must be husbanded with the greatest care. In order to be intelligently guided in this respect an employer must resort to the Pre-employment Physical and Mental Examination.

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I will not go into any technical discussion at this time of the routine, classification, methods, etc., in conducting this examination because I must stay close to costs and savings. Such discussion if desired can be obtained from a former paper entitled "Scope of Industrial Medicine".

This pre-employment examination if paid for by the employer to any disinterested physician would cost at least $ 2.00 per examination. This would be the minimum county medical fee in the County of Schenectady. I will base all calculations here and hereafter on the minimum county medical fee but it is very unlikely that the General Electric Company with its reputation for prosperity and wealth would secure the services of any reputable physician even in a disinterested way for the minimum county medical fee. It is more likely and in fact is a positive truth based on former experiences that the fee charged would be the maximum county medical fee to the General Electric Company for such service. Considering then the fact that the examining physician disinterested in the industry would have no knowledge of the physical and mental requirements of any job not knowing a drill press from a punch press nor a lathe from a milling machine and so on thru all the varieties of occupations which it is the business of the Industrial Medical Departments to be familiar with, and considering that the company would pay the maximum county medical fee for this imperfect service no matter how skilled the professional phase of it would be, this service if it were not available in the plant would have cost for the year 1923 $ 68,215. This represents 13,643 examinations that

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were done during the year at $ 5.00 an examination which would probably be the fee charged to the company. This one small phase of our medical work would cost therefore but $ 4,000 less if procured outside than the cost of maintaining the whole medical service in the plant. Leaving the maximum out of consideration and charging the minimum fee that the company could hope to get for this service, i.e. $ 2.00 an examination, we would have paid on this basis $ 27,286 for the 13,643 employment examinations conducted during the year 1923. This figure is ten times more than the salary of the examiner who not only provides efficient medical observations from a professional point of view but is quite familiar with the occupational demands of the industry and is equipped therefore with that bit of information which is not a part of the average physician's armamentorium.

2 - PERIODIC EXAMINATIONS OF EMPLOYEES.

This branch of service is devised to provide a periodic complete and painstaking examination for executives and other important individuals whose services are valauble and not easily replaced. The object of it is to prolong the efficient service of such men to the greatest degree by checking up at intervals, consistent with conditions found on examination, in order to retard or avoid the degenerative changes of advancing years and the attending diseases that if detected in their incipiency can be very satisfactorily handled. It is devised also for the purpose of examining workers in occupational hazards such as dust, sand, mercury, lead, benzol, etc., and it is devised also to control more carefully the operators of rolling stock such as

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locomotives, cranes, etc. It is, moreover, open to any employe who chooses to take advantage of the service. It is, therefore one strong factor in preventive medicine but the results are so intangible that no calculation of saving can be made against th: function since we never know nor can we estimate what damage we have prevented or what length we have added or what efficiency or what comfort are obtained thru this service. It is entirely out of the calculation of savings. It is merely mentioned in passing as one of the intangible factors that is of definite but unmeasurable value.

3 - ACTIVITIES SURROUNDING THE WORKS HOSPITAL.

The Works Hospital provides care for minor and major surgical cases complete and minor and major medical cases within the limits of our capacity for such work. The care of medical cases is left entirely to the discretion and capacity of the hospital, is not a company function, adds no expense but is a great saving of time and production in such an intangible way however that we can not compute it in figures. The surgical cases, however, which are all accident cases have a very distinct definite value that can be expressed in money. This class of work is a company responsibility made so under the Compensation Law of this State by which the employer must of necessity pay the bills for professional service or else provide the care by maintaining a hospital with medical and surgical staff. On the basis that this company had no such institution and would have paid out during the year 1923 to a heterogeneous group of doctors, trained or untrained, scrupulous or unscrupul-

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ous, chosen by the individual employee intelligent or otherwise, it would have paid $ 542,083 . This figure is obtained by taking the yearly report of 1923 which shows 27,762 accidents of a variety as indicated by the enclosed sheet which is a copy from our yearly report and charging against each individual accident the minimum county medical fee for the care of that accident. I would like to emphasize at this point the fact that if we had no medical service in the plant, that besides all the inconveniences in keeping track of cases, the losses of time and production, the legal difficulties, etc., that this company, aside from all these things would have paid out over one-half million dollars for its compensation accidents based on the minimum fee of the County of Schenectady. If this figure is doubled to approach the maximum county medical fee which this company surely would have levied against it for this same amount of work, the legitimate expense to be expected would be $ 1,084,166 . This figure minus the $ 73,500 represents what I believe to be the saving on the one tangible factor of the hospital service for the expenditure of its yearly cost of $ 73,500 . To reduce the figure $ 542,083 to a standard unit per capita as has been done in calculating the standard unit of cost we find that $ 27.10 per employee per year is saved by the expenditure of $ 3.65 per capita per year or 7.4 cents per employee per day is saved by the expenditure of one cent per capita per day. To estimate this more accurately as if you were expected to actually pay, multiply the above figures by 2.

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4 - THE PREVENTION OF OCCUPATIONAL DISEASE, INFECTIOUS AND CONTAGIOUS DISEASE.

This function is exercised thru more or less continuous inspection of the factory thru a direct agent and thru Safety Committee activities in the effort to prevent the occurrence or spread of the above named disturbances. This is entirely intangible as far as estimating any concrete value in figures and it is therefore for the purpose of this paper mentioned only in passing.

5 - THE SANITARY AND HYGIENIC SUPERVISION OF THE PLANT.

This function pertains to the care of toilets, rest rooms, drinking fountains, and many of the ordinary public health details. It can be given no concrete value for the purpose of this paper and is mentioned only in passing.

6 - EDUCATIONAL ACTIVITIES.

This function consists in teaching individuals by contact, groups by lectures, and the community at large thru articles written in our Works News. It likewise has no concrete value that can be estimated in figures and is mentioned only in passing.

7 - RESEARCH.

This function is likewise of intangible value. It consists in studies of the various factors pertaining to accidents based on statistics largely; studies for example of the incidents of accidents as to nationality, degree of illiteracy, occupation, environment, fatigue, etc.; studies of absenteeism; studies of other factors which affect the efficiency of workers such as temperature, humidity, environment, etc. Along with this, of

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course, goes research in a purely medical field in the attempt to perfect our service in handling varieties of conditions that are brought to us for care and repair.

8 - INTELLIGENCE DEPARTMENT IN THE FIELD OF INDUSTRY.

This function is entirely divorced from all hospital work as such but out of the close contact that the medical department has with all types and kinds of workers a multitude of diversified complaints other than those pertaining to physical wellbeing are ascertained. The value of this service to the management and to the workers is intangible and can not be calculated in terms of money.

In conclusion, therefore, and on the basis of the facts outlined above we have the definite cost of maintaining our medical department which is $ 73,500 per year or $ 3.65 per employee per year when reduced to this standard or one cent per day per employee when reduced to a lesser standard. Against this we are able to check only one part of one of the above named functions, i.e. the srugical service of our department because of its tangible nature and as calculated above shows a saving of $ 542,083 per year or $ 27.10 per employee per year 7. 4 cents per employee per day. This all it must be remembered is calculated in the minimum and in only one branch of our service. The other branches must be left to speculation or left to an individual much more able to compute such intangible things than I am. From the figures already recorded which are on a very definite basis and with which I have been very careful to be very conservative by

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keeping absolutely to the minimum standard, I do not hesitate to say and to feel that I have proved that it pays and pays well even far beyond most investments, to maintain a medical service in industry and to suggest that there is plenty of room, reason and profit in extending that same service.

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TENTATIVE WORKS' PHYSICIANS CONFERENCE PROGRAM.

1. Medical Cost to the General Electric Company.

   Dr. D. Glen Smith,
   Schenectady.

2. Fatigue Studies.
   Rest Periods.
   Seating - Postures.

   Dr. Goldthwaite,
   (Leading Orthopedic
   Surgeon), Boston.

   Miss B. K. Kinna,
   Fort Wayne.

3. Eye Examinations for Visual Accommodation.
   Lighting, General and Job Illumination with a
   View to Increasing Skill and Speed of Production.

   Dr. Knabe,
   Schenectady.

4. Dental Care.

   Industrial Dentist.

5. Factory Sanitation Inspection.

   Dr. F. E. Schubmehl,
   Lynn.

6. Occupational Poisons.
   Fumes, Dust, Gases, Poisons, Ventilation.
   Better Working Conditions Toward Increasing
   Efficiency of Employees.

   Dr. Alice Hamilton,
   Harvard University.

7. Works' Physicians Part in Accident Prevention.
   Treatment of Infections.
   First Aid Jars.
   Lost Time Accident and Infection Records.
   Accident Charts.

   Dr. H. W. Garton, Ft. Wayne.
   Dr. M. J. Hanna, Baltimore.
   Mr. G. E. Sanford,

Relation of physician to employment office
Examination of applicants for employment
organization of plant clinic

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8. Tuberculosis in Industry.
Better Working Conditions.

Dr. E. C. Jackson,
Edison Lamp Works,
Harrison.

Dr. B. L. Vosburg,
Schenectady.

9. Sick Benefit Associations.

Mr. H. L. Baltozer,
Schenectady.

10. Duties of an Industrial Nurse.
Her training, personality and general qualifications. Paper to be presented by a nurse.

Miss Fagan,
Schenectady.

11. What should we do as a Company in regard to outside care, by Doctor and visiting nurse?
Ethical situation between Works and City Physicians.

Dr. T. A. Little,
Erie.

Dr. F. A. Taylor,
Bridgeport.

12. Inspection Schenectady Works Medical Department.

13. Formation of small committees to follow up conference.

(a) Examination and standardization of present hospital reports.

(b) _____

(c) _____

Discussion follows each paper.

EZS/FEB

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