

Industrial Nursing

WEDNESDAY AFTERNOON SESSION

October 28, 1942

*Presiding:—*JOANNA M. JOHNSON, R. N., Supvr., Industrial Nursing Div., Employers. Mutuals, Wausau, Wis.

Selling Your Program to Management, Supervisors and Workers

By MARION C. BRITTINGHAM, R. N.
F. G. Vogt & Sons, Inc., Philadelphia, Pa.

Our modern industrial nurse is prepared to meet all emergencies—great or small. She is ever mindful of her oath and practices loyalty to the employee's confidence as well as her doctor and employer. One might call the dispensary a "faith clinic," for through this department many men and women are helped through a crisis. They get sympathy and understanding as well as surgical care. Many times the nurse can discern the reason why John Brown's work has become inferior when only a short time before he had been the best producer in the department. John Brown, like all the other employees, will talk to "our nurse" and tell her his physical, mental, or marital difficulties, and she in turn will go quietly about finding a solution to his particular problem so that he will regain his high rating in the department.

Frequently the nurse is instrumental in restoring order in chaotic homes. Many times trouble at home will keep the employee's mind diverted from his work and this invites and causes accidents. Frequently just a few kindly words or a bit of advice can make everything right again.

The nurse's loyalty to the physician is never forgotten. She clinically systematizes the patients, keeps an accurate up-to-date card system for each one, and has them ready for doctor when needed. She assists with the dressings and carries out orders for the

cases that will need care after he is gone. She gives him an insight to the particular case he is treating whenever she knows there might be a contributing factor that will help in his diagnosis. She holds in confidence all of the reports that are the outcome of these examinations. She patiently details misunderstood directions of routine from family physicians, explaining to the patient the reasons for carrying out instructions. The health programs that our doctors stress must be simply and clearly explained to the worker. They must often be instructed how to care for their teeth, eyes, and body—and no one can do this better than the nurse.

Often she is able to help in the establishment of better relations between employer and employee. The industrial nurse has proven her worth to the safety engineer. Her knowledge of human nature and the type of people dealt with has been most helpful. She is ever ready to urge the employee to adhere to safety regulations and explains to him the seriousness of partial or complete lost time in such a way that he will realize he suffers both a physical injury and a financial one. Because she knows the cause of many accidents, she is in a position to assist in the reduction of occupational hazards.

Bigger Health Programs

Let us suppose Miss Jane Jones, R. N.,

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industrial nurse, is going into the office of the management of her company to ask for an expanded health program. Her conversation is probably something like this. "Mr. Smith, the average loss of time per employee per year due to illness is seven days. In our country there are forty million persons who are losing two hundred and eighty million working days each year because of ill health. Studies made by the American College of Surgeons indicate that illness causes at least fifteen times as much absenteeism as do industrial injuries."

Now Mr. Smith begins to listen. Miss Jones tells him that in order to encourage greater production, and more efficient workers, he must take a hand in their personal life. He might even become resentful and tell Miss Jones that his interests lie only in seeing that the company is protected so far as the compensation laws are concerned.

No industry, goes the argument, can be stronger than its weakest mental and physical unit. The first step in eliminating mental and physical defects is pre-employment examination. We are thus armed with knowledge, and we are in a position to cope with malingerers as well as the chronic complainers. Many times a man has been paid for an old condition that he has had for many years, because the employer was not able to prove to the satisfaction of the arbiters that he did not receive said condition while in their employ. The only way we can successfully cope with unscrupulous charges is to present the employee's health record.

There is much less chance for attempted malingering when we have pre-employment and systematic periodic check-ups. Frequently these examinations will bring to light chronic illnesses. In tuberculosis alone much has been done to prevent its spread among other employees. In hypertension cases a life has sometimes been prolonged because the condition has been recognized and proper treatment started. There have been cases where the condition was not brought to light and the employee had a stroke while working. The company has been held responsible because the man fell while he was at work. There was the case of a man in our own employ who was constantly complaining of indigestion. He was treated several times in the dispensary for the condition and then was referred to his family doctor to have an

examination to determine the cause of these repeated attacks. He reported back to the nurse and told her that he had high blood pressure and a heart condition too. He was advised to do light work and get plenty of rest. His work was light, but since we do not police the employee's life at home, he did not get the required rest, and one Monday morning he dropped to the floor while on his job. The man died of a coronary occlusion that was brought on by overexertion and too much alcohol. Not only in major illnesses do we benefit by being forewarned, but in minor ones as well. For instance, we have the employee who is a good worker, but complains frequently of headaches, sick stomach and vertigo. An examination of the eyes will often show that glasses are needed. In general, we might say that a pre-employment physical examination of employees will tend to make them more health minded and in this way they will unconsciously become safer workers.

Supervisors' Cooperation

Supervisors and foremen can be made to realize that by sending their workers to the dispensary for treatments and care, they will help to improve in the efficiency of their department. Sometimes our foremen try to discriminate as to whether or not a man is ill. If they will send the employee to the medical department to have that decision made, they will be saving themselves time and worry, and also be helping in the establishment of friendlier relations between the employee and the division heads. If the foreman refuses to permit the employee to visit the nurse, the employee will probably return to his job, but under duress. This does not tend to encourage good workmanship. The time lost in visiting the dispensary is gained when the man has had his difficulties solved, and his ills cared for.

The supervisors should insist on their employees reporting all accidents to the dispensary immediately. They should encourage the practice of safety rules and see to it that they are enforced. It is an excellent plan for the industrial nurse to meet with the supervisors and foremen once a month so that the accidents that have occurred during that time can be openly and frankly discussed. They have lots of questions that need answers, and it is up to the medical director and nurse to help them. It will certainly give the super-

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visor a keener insight as to the conditions and problems of the men working for him. If it is noticed that a worker seems to be lacking in his usual efficiency, or seems to be worried, or ill, the supervisor can, and should, approach the man and offer help. This is a kindness that is seldom forgotten and will certainly reap its rewards in loyalty.

Employee Attitudes

Workers are usually of the opinion that whatever is done is for the benefit of the employer, and they will usually be resentful to suggestions and new rulings. Here the nurse can prove her value. She has it within her power to convince the worker that these safety regulations and these health programs are for his benefit. If a man can be made to realize that he is not apt to lose his job because of some chronic ailment or some physical defect, he will be cooperative and give himself to treatment. Eventually the suspicion subsides and we find the employee coming voluntarily to the medical depart-

ment for consultation.

Each worker should be treated as an individual and made to feel that we are interested in his personal welfare. He should be encouraged to follow through with whatever treatment is indicated and should be commended on whatever progress is made.

The main purpose of any industrial health programs is to keep the employee healthy and contented. If we have a high standard of health, we will unquestionably have a high standard of production and efficiency. The management can do this by advocating pre-employment and periodic physical examinations, by providing an adequate dispensary, to give prompt and careful attention to all conditions necessitating immediate care, and by employing a nurse who is efficient and sympathetic, one who can instruct the employee in better health habits, who can advise the employer, and one who will assist the physician. In other words—a nurse should be a cooperative intermediary.

What the Industrial Nurse Needs to Know About Hand and Foot Injuries

By FREDERICK W. SLOBE, M. D.,

F. A. C. S., Chicago

With wounds of the hands and feet the same principles apply as in the treatment of wounds in any other part of the body. The nurse should use her influence to see that all wounds are sent immediately to the medical department. Every wound is contaminated by bacteria, and it usually takes six hours or so for these bacteria to multiply sufficiently and to burrow deeply enough into the tissues to the extent that they cause an infection.

Each hour of delay therefore increases the likelihood of infection. Hence, the emphatic rule "the patient must be treated at once!" After six hours the bacteria can no longer be removed by cleansing as they have penetrated too deeply into the tissues. This initial cleansing should consist of a thorough, but gentle, scrubbing of first the

adjacent skin and then the wound itself with a solution of mild soap and water. This removes the dirt and with it most of the bacteria. During this gentle scrubbing, thorough irrigation of the wound with a soapy solution is carried out. After that is done, a sterile dressing is applied and over this dressing some fluffed gauze so that firm pressure is applied over the wound.

Wounds so treated will almost invariably heal without signs of inflammation. Wounds that are bruised or gouged-out, such as are caused by grinding wheels, have the dirt ground in the tissues so deeply that simple scrubbing will not cleanse the wound sufficiently. These roughened areas should be excised with a sharp pair of scissors or knife, the entire area of the wound being so treated, thus converting the wound into an incised

wound of the type that will heal readily. If extensive, of course, these wounds should be sent to the physician as local anesthesia facilitates the trimming or debridement of these wounds. If the wound is seen early and carefully cleansed, it should be closed by the insertion of small skin clips which are so easily applied that they lend themselves nicely to use by a nurse. Flamed adhesive strips are also helpful in keeping the wound closed. Obviously, wounds requiring sutures other than a clip or two should be seen by the physician.

Primary closure of wounds is the ideal method and results in far more rapid healing, assuming the above procedure has been carried out. If, however, the wound is over six hours old or of a nature which cannot be well cleansed it should be left open and a moist dressing applied. Incidentally, the use of non-absorbable suture material such as cotton and stainless steel wire has been found to be much more useful than catgut whether buried in the tissues or used in the skin.

Antiseptics

It is quite well recognized that an antiseptic which will kill most bacteria will also harm the tissues. Therefore, if wounds are thoroughly cleansed with soap and water an antiseptic is not necessary. However, we have the psychology of the patient to consider and most patients, perhaps, feel more satisfied if some antiseptic is used. There is very little, if any, harm in applying a few drops of a mild antiseptic by means of a medicine dropper if you wish. However, this antiseptic must be very mild and of an aqueous type. Because of the impracticability of having large quantities of sterile saline or sterile water in the plant dispensary, we like to irrigate these wounds after the soap and water cleansing with a solution of Azochloramid. In this way voluminous irrigations can be carried out as the solution is easily prepared and is very mild.

The sulfonamide drugs have been shown to be very valuable in the prevention of wound infection. An atomizer containing sulfanilamide powder is a very useful way of spraying wounds before closing them and a very valuable way to prevent infection. Sulfathiazole is also valuable but it tends

to cake and is harder to use through an atomizer.

If a wound is of such severity that it is to be sent to the physician or hospital, it is best to do nothing more than apply a sterile dressing or bandage in order to avoid additional contamination of the wound. It is best to have all the cleansing done at one sitting in the hospital as it all has to be done over again by the doctor, anyway. However, spraying these wounds with sulfanilamide powder is a good thing as it will aid in keeping the bacteria inactive until the wound is surgically handled in the hospital. This is especially true when there may be some delay before the physician can take care of the patient.

Droplets from the nose and throat are among the most potent sources of wound infection. No nurse who has a sore throat or cold should handle wounds. If all the nurses wore operating-room masks it would doubtless cut down the occurrence of infections definitely.

The control of bleeding such as is seen on the hands and feet is usually readily controlled by the use of direct pressure over the wound. On the fingers it is a simple matter to apply a temporary tourniquet by means of a rubber band at the base of the finger. When bleeding from the hand is so severe that it cannot be stopped, an elastic rubber tubing tourniquet should be applied halfway between the elbow and shoulder with towelling or gauze under it to avoid undue pressure on the nerves. This tourniquet should never be left on for more than 15 minutes, after which it may be loosened and then reapplied.

In the after-care of wounds, it is best to use simple measures and not over-treat them. If a wound is closed and clean, a dry, sterile dressing is sufficient. For wounds which are open and granulating, a non-adherent vaseline gauze dressing is very effective. In this vaseline there may be incorporated some mild agent such as cod liver oil, xeroform, or one of the sulfonamides.

One of the most important factors in the care of wounds of the hands is the diagnosis of severed tendons. A small incised wound caused by a small sharp object is dangerous. On the dorsal surface the tendon is close

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to the surface and on the palmar surface, especially in the flexion creases, one must always be suspicious of a severed flexor tendon. A helpful procedure in ascertaining the depth of a wound is by inserting a sterile hemostat and spreading the tissues apart; thus a previously obscured partially severed tendon may come into view when the patient is told to bend the finger joints up and down. To test for finger tendon function, hold the patient's finger firmly fixing all the joints except the end and then have the patient try to forcibly bend the end of the finger downward and upward. Failure to do this indicates a severed flexor or extensor tendon, respectively.

Unfortunately, this test is not entirely reliable as regards the extensor tendons because they have such wide extensions over the back of the fingers that enough continuity remains to allow fairly good function even though much of the tendon is severed. A partially severed flexor tendon will allow good initial function also. If left alone the unsevered portion of the tendon will soften in a few days and may give away if the patient attempts to use the finger forcibly. Excess scar will form and this will interfere with function. Therefore the physician should explore all such wounds to make sure the tendon is not injured sufficiently to cause subsequent trouble. This is particularly true of the flexor tendons. If the extensor tendon is only partially severed it will heal nicely if the finger and wrist are kept in a hyper-extension splint for from three to six weeks. So do not take chances with wounds that lie over the tendons but refer them to the physician.

Infections

Infections of the hand are very important as they are a source of much functional disability. Most hand infections occur from minor untreated wounds such as punctured wounds or minor abrasions which proves the importance of treating wounds immediately as I stated previously. The common paronychia is readily recognized by the angry appearance of the flesh just lateral to the base of the nail. If this does not subside with moist dressings and hot soaks, it will have to be lanced by the physician.

Infections in the pulp are common and

potentially serious. They are manifested by a tenseness of the tip of the finger, tenderness on pressure, and a painful throbbing such that the patient cannot sleep. When these findings are present it means that immediate surgical incision is necessary and there should be no delay as it may cause an osteomyelitis of the finger tip which may be months in healing. This type of infection is so deep in the pulp that one does not get the usual signs of redness and fluctuation. Hence, waiting for these signs to develop means the diagnosis has been made too late.

Infections of the tendon sheaths on the flexor aspect of the hand are manifested by redness and tenderness with excruciating pain when the finger is hyper-extended. These require hospitalization and should be sent to the physician at once. Where red streaks are seen running up the hand and forearm it means lymphangitis. This requires hot packs with elevation of the part and bed rest. The use of sulfonamides is very helpful here. Surgery is contra-indicated in lymphangitis, only being done when a localized abscess appears.

Small steel particles, if deep and causing no trouble, are best left alone. Copper particles usually cause irritation and should be removed, although if very small and superficial, this can often be done best later after a tiny zone of irritation appears. Sometimes the patient is greatly concerned about a foreign body; when this occurs it is often best to remove it. Ordinary graphite lead pencil fragments are relatively innocuous but fragments of indelible lead are very important in that they cause a chemical necrosis of the adjacent tissues and, therefore, should be sent to the physician as he will wish to excise all the stained adjacent tissue.

The same applies to splinters of magnesium metal. Little gas tumors form around the magnesium splinters and cause necrosis of the adjacent tissues. Hence the fragment should be removed immediately. This applies to pure magnesium; alloys of magnesium may not cause trouble if the magnesium content is low. Wood splinters, of course, should be removed routinely as they cause irritation and infection. If they are of any length one can usually determine their presence by taking both index fingers and pressing them opposite one another, placing one of your

finger tips over each end of the suspected sliver.

Punctures and Fractures

Punctured wounds of the feet are quite common and in almost every instance they cause a flap-like valve which closes over the punctured tract. This flap should be excised as well as the calloused skin at the site of entrance, transforming the tract into a funnel. The surrounding skin and wound should be thoroughly cleansed with soap and water. Foreign material is invariably found beneath the flap and ordinarily most of this can be removed with a fine forceps or by irrigating the tract by means of a bulb syringe and cannula tipped needle. A moist dressing should be applied and hot soaks at home are always most helpful.

The question of the use of tetanus antitoxin is one which your plant physician should decide. Tetanus very rarely develops from machine shop injuries. In general, the deeper punctured wounds, any grossly contaminated wounds, and particularly those seen late or if exhibiting evidence of inflammatory reaction should have antitoxin. One should always inquire as to a history of allergy before giving tetanus antitoxin because annoying and even serious reactions may occur. Wounds contaminated by street-dust are particularly suspicious. Tetanus may develop following a slight abrasion and occasionally crops up where least expected. Because of possible reactions or subsequent sequelae, antitoxin should be administered under a physician's supervision and at his direction.

A common finger injury is an involvement of the fibro-cartilage of the middle joint, manifested by a firm swelling, pain, and impaired function. These last a long time and not infrequently cause permanent thickening and disability. Physiotherapy and massage are the best treatment and, except during the acute stage, the patient should be encouraged to indulge moderately in the use of the joint.

The only way to rule out the presence of fracture is by X-ray. Most fractures involve the shafts of the phalanges and are best treated in flexion. Early motion is desirable as fingers stiffen up quite rapidly when not used. Massage and physiotherapy are very valuable here. It is always important to see

that the patient is taught to keep the uninjured fingers in motion as patients have the bad habit of keeping the entire hand at rest when one finger is injured, causing frequent disability of the whole hand. The hand, whenever possible should be maintained in the "position of function" which is approximately the position of the hand in grasping a water tumbler.

The so-called "base-ball" finger with a drooping of the distal phalanx results from tearing loose of the extensor tendon with or without an avulsion of a bit of bone. This is best treated by using the Lewin splint which keeps the finger tip hyper-extended. This splint should be kept on at least six weeks and should never be removed during that interval. It requires no bandage and the patient may wash and dry the finger with little inconvenience.

Burns

Burns are treated according to the same principles that we have emphasized in the care of wounds as burns are simply wounds caused by a thermal or chemical agent. It is very difficult to gauge the depth of a burn when it is first seen. The history is helpful in determining the depth of the burn as all burns caused by burning clothes or molten metal are always very deep whereas the scalds are usually more superficial. A whitish-gray dull appearance usually indicates a deep burn.

Burns should be thoroughly cleansed with soap and water and the loose skin blebs removed. Following this some sulfanilamide powder may be sprayed on the area, then a mild non-adherent dressing of plain or medicated vaseline gauze, over which ample gauze fluffs are placed so that the bandage produces a firm but comfortable pressure. There is no magic burn salve. The simple methods are the best. Tannic acid preparations are not well adapted to office or dispensary use. All extensive burns should be sent to the hospital. Burns of the hands heal rapidly whereas burns of the feet and legs heal very much more slowly.

Fractured toes cause very little trouble and a fancy reduction is not needed. Using the adjacent toe as a splint by means of adhesive tape, strapping the two toes together, works quite well. Extensive fractures of the great toe are more painful and may require a light

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cast or some type of splint, with freedom from weight-bearing for a moderate period. Many cases of fractured metatarsals can be made ambulatory in ten days after the swelling has subsided by means of wearing a regular shoe with a Gebhard foot-piece applied, which is simply a bar of wood screwed across the shoe about $1\frac{1}{2}$ inch in front of the heel. This takes the weight off the painful area and these patients become ambulatory very much earlier.

Sprains of the fingers, wrist, foot and ankle joints are common. The tenderness in a sprain is directly over a joint whereas in a fracture the tenderness is most marked directly over the bone. This sign fails, of course, in joint fractures. Therefore, the only way to be sure is by X-ray and we believe in very free use of X-rays. Simple

support by bandaging or adhesive strapping is effective. Early use in mild sprains is effective but in the more severe sprains complete rest for varying periods is needed. Hot soaks, therapeutic heat treatments, and massage are helpful.

The industrial nurse should follow correct, fundamental principles in handling injuries and should avoid becoming addicted to or developing unmerited confidence in certain pet medicaments. Too many are prone to forget that it is the body itself that supplies the healing power. If we keep clean, use clean materials, and carefully cleanse all injured areas promptly, our body tissues will do the rest. The wise nurse will take no chances; part of her responsibility consists in having the physician see every injury concerning which she is in doubt.

What the Industrial Nurse Can Do About Tuberculosis

By FLORENCE E. MacINNIS, M.D.

Department of Public Health, Milwaukee, Wis.

Several facts are necessary to a full knowledge of what the nurse in industry can do about tuberculosis.

Tuberculosis is a germ disease, caused by a micro-organism, the tubercle bacillus. It is an infectious disease. Every case comes from another. It is still among the leading causes of death. In Milwaukee during 1941, the principal causes of death in order and the rates per 100,000 population were as follows:

1. Heart Disease	299.5
2. Cancer	135.5
3. Apoplexy	86.7
4. All Accidents	56.3
5. Nephritis	44.6
6. Pneumonia	35.8
7. Tuberculosis	35.5
8. Diabetes	32.5

Tuberculosis may exist during any age period. A brief consideration of the ages at which death from tuberculosis occurred among males and females in Milwaukee during 1941 will bring this fact to light.

Age	Male	Female
Under 1	0	0
1-2	1	0
2-3	1	0
3-4	1	0
4-5	0	0
5-9	0	0
10-14	0	1
15-19	1	4
20-24	3	5
25-29	10	15
30-34	6	9
35-39	8	4
40-44	15	3
45-49	23	6
50-54	13	8
55-59	30	2
60-64	16	3
65-69	6	3
70-74	5	4
75-79	2	2
80 and over	0	0
	141	69 Total: 210

Most deaths in childhood occur under five years of age. Overwhelming disease in the form of miliary tuberculosis involving most or all organs, or tuberculous meningitis, account for these deaths.

From the age of five to the teens, few deaths occur. In the teen age the rate of death is higher among girls. This is true until the age of 35, when the deaths among men begin to markedly outnumber those among women. The death rate remains higher among men through the age of 65. After this time, the numbers are fairly equal.

One hundred and forty-one men died—twice the figure 69, the number of women who died.

The importance of tuberculosis in industry looms high when we are faced with figures which show a high death rate in women from 15 to 35 and among men from 35 to 65—the years for each sex during which they are most likely to be employed.

The discovery of tuberculosis in early stages brings about greater and faster probability of cure. To now, unfortunately, 80 per cent of sanatorium patients begin treatment when the disease is moderately or far advanced. The insidious nature of this disease which so often progresses without making its host conscious of its presence, is a partial explanation for this fact.

The following figures on the stage of disease among the cases of tuberculosis reported to the Milwaukee Health Department for 1941, are comparable to those from other cities throughout the United States:

Stage of Disease	Number of Cases	Per Cent of Total
Minimal	81	15
Moderately Advanced	119	22
Far Advanced	138	25
Unspecified	113	21
Non-pulmonary	16	3
Primary	25	4
Death Certificate	54	10
Total	546	100

When tuberculosis exists, if proper search is made, it may be found. The aids to a diagnosis of tuberculosis are:

1. History of the possibility of contact with tuberculosis.

2. Tuberculin skin test

(a) Mantoux—intradermal test is done by injecting a known quantity of a solution of Old Tuberculin or Protein Purified Derivative into the outer layer of the skin.

The mantoux test is inspected in 48 hours. A raised reddened area, or positive test, indicates only that tuberculosis germs have been taken into the body.

A negative test usually means no tuberculosis. There are occasional incidences of negative tests in the presence of tuberculosis. All of these are not explainable. Where the individual tested has a history of exposure or suspicious symptoms, he should be checked further in the same manner as the reactor.

3. An X-ray of the chest is the next step. A well taken roentgenogram interpreted by a physician trained in the reading of chest X-rays is the most important aid in the finding of tuberculosis. X-rays, however, show shadows only. From shadows alone one cannot always determine whether the disease is active.

4. Careful physical examination of the chest is the next aid.

5. Sputum, blood and temperature studies will help in the determination of the status of the disease.

With these basic facts in mind let us consider the tuberculosis problem which faces the nurse in industry today.

War always brings forth significant rises in tuberculosis rates. Tuberculosis among the armed forces during the last war has cost the government of the United States \$960,000,000. To avoid this in the present war, Selective Service is doing its part in early diagnosis. Definite dicta have been laid down to bar men and women from service on chest X-ray evidence. Those who are rejected should have adequate study to determine their status. Many of those rejects are already working or will be applying for work in the war industries.

Vigilance on the part of the nurse will lead to correct diagnosis and solve the problem of adequate observation and care of these individuals. Some are able to work on a full time basis; others, while non-infectious, are able only to do limited work. Many are definitely ill and should be hospitalized.

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Industry has been on the alert for tuberculosis. Many industrial plants have installed their own X-ray equipment. In these, pre-employment X-rays are mandatory. Others have made use of private X-ray facilities. In some instances all prospective employees are X-rayed. In other cases, the nurse plays a large part in picking those who should have films. Some industries use the tuberculin test routinely prior to employment and depend upon private or public facilities for roentgenograms and other study.

In Milwaukee, the Tuberculosis Division has been called on constantly during the past year to decide yes or no for a prospective employee in industry.

Recently, the Committee on Industrial Tuberculosis of the American Trudeau Society, in a report on tuberculosis among employees of hospitals, projected a plan which should be helpful in industry. This plan includes pre-employment examinations and periodic examinations during employment. It is as follows:

Pre-employment examinations:

1. A history record with specific reference to previous tuberculosis contact.
2. Mantoux test with standardized tuberculin properly applied and interpreted.
3. A chest roentgen examination satisfactory to a critical expert.

Periodic examinations during employment. According to the results of the pre-employment examinations, applicants should be divided into three groups for which the recommendations for subsequent periodic examinations differ:

Group A: Those tuberculin negative on employment. Tuberculin test should be repeated every three months. (Every six months may be sufficient in an industry where there is no special tuberculosis hazard.)

Those who become tuberculin positive while employed should be kept under careful clinical observation for at least two years—with repeated chest roentgen examinations; they may then be transferred to Group B.

Group B: Those tuberculin positive on employment but no history or roentgen evidence of significant tuberculosis.

Roentgen examination should be repeated at least once a year.

Group C: Those with recorded history of past tuberculosis or evidence of arrested tuberculosis on employment.

Examinations should be made in accordance with the history and findings.

Pre-employment discovery of active tuberculosis in an applicant means that companies will avoid paying compensation or sick allowance to that individual when such payment would not be chargeable to the industry.

Periodic examinations are also important. Discovery of tuberculosis in early stages means shorter duration of the disease and a lower death rate—profit to employer and employee.

Periodic tuberculin testing of negatives will result in:

1. Early case finding.
2. Decreasing roentgen examinations.
3. The provision of a sensitive index of where and when infections are occurring.

The nurse in industry who is familiar with the basic principles of tuberculosis and with this plan, is in a key position to make a big contribution to tuberculosis control. In plants where no tuberculosis facilities exist, the nurse who knows her employee, who has taken an adequate medical history, can find some way to have him examined thoroughly.

The nurse in one Milwaukee industry, which employs about 1,000 men and women, by taking a good history promoted the discovery of six cases of tuberculosis in six months. This was followed by a survey of the entire plant in which all employees were X-rayed. Five additional cases of tuberculosis were discovered. The X-rays were done in the photofluorographic trailer unit of the Wisconsin Anti-Tuberculosis Association. Now that all of the employees have been checked, all prospective employees with a history of possible contact are required to have a tuberculin test and if positive a chest roentgenogram.

This is one example of what has been done. Similar stories may be told of nurses in many industries. Corresponding opportunities are open to every nurse in industry.

THURSDAY NOON SESSION

October 29, 1942

Presiding:—MRS. CHRISTIAN SEABROOK, R.N., Local Field Supvr., Metropolitan Life Insurance Company, Chicago

The Mental Health of Workers

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Unless one has had experience in dealing with persons affected by nervous and mental disorders he is apt to have an incomplete and often a distorted conception of the vast social, economic and industrial problem which these patients offer for solution. Persons ill enough to be in a hospital or asylum for mental cases do not, of course, concern us in industry but the much larger number of people with mild or early cases of this nature are an industrial problem of major importance. Furthermore, no one with experience in dealing with large numbers of employees will deny the great significance of the so-called psychologic factors among workers whom everyone regards as mentally normal.

It is a compelling fact that there are actually more hospital beds in the United States that are occupied by patients with nervous or mental diseases than by patients with all other kinds of diseases combined, and we should keep in mind that for every neuropsychiatric case actually occupying a hospital bed there are probably several who are not. In this vast army of persons, who are usually not ill enough to ever reach an institution, we shall find our workers. It is not my intention to imply that a large portion of industrial employees are insane, but that mild nervous disorders and the early stages of serious ones occur far more often than is generally realized.

The obviously insane person can be detected by any intelligent layman but it is the duty of the industrial physician and nurse to detect that person at the beginning of his disorder before he causes serious accidents or spoilage at work and if possible to prevent his entering a place of danger. To the borderline

mental cases, to persons with mild nervous disorders, to the emotionally unstable, to the persons with limited intelligence and to others that we may label as mental misfits in industry we can attribute an impressive share of accidents, frequent layoffs, errors, spoilage, slowed production and damage to that precious ingredient of our war effort, which we call morale.

Mental Misfits

As the present war progresses industry will be saddled to an increasing extent with the mental misfits in our population for the simple reason that they are being rejected by the armed forces. At the present time it is generally recognized that such men are far more trouble to the military services than they are worth, and they are being excluded for the very same reasons that would cause them to be a source of difficulty in industry. Many of these persons, as a matter of fact, give a history of being unable to give satisfactory service on a job for any appreciable length of time. They commit errors, are not dependable, do not adapt themselves to the conditions of work, show a high rate of short, voluntary absences from work and impair the working morale of their fellow employees by their poor example, bickering and complaining.

In the present stage of conflict the armed services find it wiser to simply reject these men than to attempt to correct their peculiarities or adjust to their shortcomings. Because of labor shortages industry will be forced to cope with the shortcomings of these mentally unstable men, whether it wishes to do so or not. We shouldn't leap to the con-

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clusion that these men are entirely useless to industry as they are now considered to be by the armed services. In the proper environment, with suitable attention being given to what they can do as well as what they cannot do and with an understanding of their infirmities valuable work can be obtained from these individuals and is being obtained. Today those who are concerned with maximum production at the factory may profitably turn their attention to such psychologic problem cases and try to understand them.

For the purposes of the present paper the employees who present nervous or mental problems in industry can be divided into three basic groups. First, there are those persons whom everyone considers normal up to a certain point in time when they begin to show signs of mental abnormality. These workers are similar to those who are perfectly healthy up to a certain point in time and then develop disease in other parts of the body. They are healthy, work well and act normally until mental illness strikes them. The severity of their illness can vary considerably from being barely noticeable, like a slowly developing mild deafness, to being so severe as to incapacitate their victim completely just as a paralytic stroke will do.

Into the second group, which is a much more numerous one than the first, we may place employees who have always been and always will be considered different from the average person as far as their mental behavior is concerned. They are like persons who have always been unusually tall or have peculiar shaped features in the face. In other words, from birth or early childhood the mental makeup of these persons is different from that which is considered normal. From the discussion which appears below, it will be apparent that industry must learn to appraise the defects in these persons, to correct them when possible and to place them where their defects are not costly to production. The third and largest group consists of persons we call normal. Among them there are problems of a mental or psychologic nature, which appear from time to time and which industry finds are often as important as the problems of buying and selling their commodities.

Employees in the first group are obviously medical problems and can best be handled by physicians who understand diseases of the

nervous system. Like diseases of other organs in the body the diseases of the nervous system present many insoluble problems to the physician and also present problems with which our medical science of the present can cope fairly adequately. The causes of some of these mental illnesses are clearly understood, general paralysis of the insane, for example, being due to the same organism that causes syphilis. Other illnesses in this group have causes which are as poorly understood today as is the cause of cancer. As a rule, a patient with a disorder of the nervous system which falls into this first group, comes to the attention of an industrial physician or nurse or to the attention of his private physician relatively early in the course of his illness. This is true because his sickness has caused him some distress for which he seeks relief or persons around him, at home or at work, notice that he is not well and urge him to get medical attention. The early detection and proper treatment of such cases is almost as great a responsibility of industrial medicine as the detection and treatment of tuberculosis.

To describe all the disorders of the nervous system which fall within this first group would mean to write a text book of psychiatry and neurology. For purposes of illustration perhaps a brief description of one common nervous disorder will suffice.

Types of Disorders

The depressed phase of manic-depressive psychosis, an illness which is commonly known as melancholia, is a disorder with which industrial physicians and nurses will have to cope frequently. The cause of this illness is not known and its appearance in a worker cannot be attributed to the living conditions in which he finds himself. Up to the time this illness begins the patient is very apt to be a valuable employee because quite often it affects those persons who have been particularly conscientious, intelligent, industrious and of excellent character. For no discernible reason this worker (men and women are affected with about equal frequency) begins to show many symptoms that impair his working efficiency and are responsible for many absences from his job.

The patient begins to complain of fatigue with little or no provocation for this. He loses his previous keen interest in his job, in

his friends and even in his family. Severe insomnia appears, especially the variety in which the patient is unable to sleep in the early morning hours. The appetite falls off badly and with this there may be a marked loss in weight. The patient becomes apprehensive and worries excessively about many things of little or no consequence.

He develops many fears which are often absurd in the light of the facts, but which are nevertheless real to the patient and extremely disturbing. For example, he can be obsessed with the idea that he is about to lose his job or that he is going insane despite the fact that everyone with a right to an opinion assures him that this is not true. A very common complaint of these patients is that they cannot concentrate on their work and that they find it difficult to keep up. They slow down in their rate of work and make many errors. A patient with this illness becomes depressed or sad for no apparent reason; he will weep on little or no provocation; his feelings are hurt much more easily than usual; he becomes irritated and impatient much more quickly than in his normal condition.

To complete their misery these patients develop numerous aches and pains in any or all parts of their body, which are very distressing despite our inability to demonstrate a basis of organic disease for them. Headache, palpitation, dizzy spells, indigestion, numbness in the arms or legs, pain in the heart, and choking sensations in the throat can all occur in this disorder and even be more alarming to the patient than his mental symptoms.

On the other hand, this illness never leads to insanity as the average man uses this terms. The memory, judgment, reasoning ability and understanding of these patients suffer little or no impairment as a result of the disorder. When it is over the patient can usually resume his old job with equal skill and reliability as was present before he became sick. The illness has its ups and downs. For no apparent reason it comes, for no apparent reason it gets better or worse for a few days or weeks and for no apparent reason it will disappear. The doctor's problem is to recognize this disorder to distinguish it from many others which it may resemble and finally to offer medical aid, which frequently is very helpful.

There are of course, dozens of illnesses in this group, some of which resemble the example cited very closely, while others do not resemble it at all. Some nervous disorders disable a patient completely and permanently as well as quickly, whereas with others a long and useful industrial life is possible if the case is properly handled. As in the case of tuberculosis or syphilis, the problem in these cases is to recognize them early and treat them correctly. That is primarily the responsibility of industrial physicians and nurses but in a lesser degree of the community and employer as well.

The "Dumb" and "Peculiar"

The second group of problem cases of a psychiatric nature within industry constitute a much more troublesome situation. The people who fall into this category are much more numerous in industry than the first group and their shortcomings are very difficult if not impossible to correct in many instances. These are the persons who from early life and as long as they live present abnormalities in their intelligence or personality traits. To put it into the language of the streets, they have always been and always will be "dumb" or "peculiar" or both; how dumb and how peculiar they are varies greatly. It is these persons who are not sharply demarcated from normal persons.

Just as it is impossible to say with finality how tall a man must be before he is considered abnormally tall so we cannot say, without resorting to an artificial limit, how stupid a man must be before he is considered feeble-minded. Again, like all Gaul, we must divide this group into three subdivisions, namely: the feeble-minded, the neurotic and the psychopathic. The feeble-minded or mentally deficient can be dismissed here with a few words. They are simply persons whose mental powers remained at a childhood level while the rest of their body matured to an adult level. The judgment, reasoning power, memory, initiative and knowledge of such persons is no greater than that of a normal child of 12, of eight or of four, depending on how severely retarded their mental development has been.

The neurotic group of persons, more accurately spoken of as psychoneurotic, are persons with normal intelligence but their personality traits are such that they are often

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problems in an industrial establishment. We commonly call them the excitable type or the high strung sort of person. It is characteristic for such an individual to become excited easily, to find fault easily, to be offended easily and to be swayed easily in the formation of their opinions, that is to be highly suggestible. They bear strain or unpleasantness badly. They are upset and their work spoiled by trivial unpleasant experiences such as a cross word from a gruff foreman, the noise of a gum chewing partner or a fancied insult.

When we say that a man "goes to pieces easily" we mean that he belongs in this group. As long as the circumstances in which he works, lives, and plays are to his liking he may be a valuable worker but if they change his efficiency may suffer and his errors and accidents may increase. Let his mother-in-law move into his house and his foreman may notice a change in his work very soon; let his wife scold him one morning and he is more apt to be careless and accident prone on that day. This may be summarized by saying that the neurotic type of person is more easily upset by unpleasant experiences than one who is not neurotic and that he finds many more things unpleasant. When morale has to take a pounding he is one of the weak links in the chain.

The last type of individual in this trio is more difficult to describe, but he is troublesome nonetheless. Typically the psychopathic individual, or to give him his full name, the person with a psychopathic personality is always getting into trouble because of his own acts. Perhaps his most constant trait is impulsiveness; he acts and speaks before he thinks. He talks back to the foreman or customer first and later realizes that he has gained nothing thereby. He boasts or lies about his accomplishments and later learns that his lie has cost him or his company dearly. He gets drunk before he stops to think that he won't be able to work the next day. Such a person is often a troublemaker. He is frequently vain, extremely selfish, cruel, intolerant, lazy, moody, not dependable, irritable, irresponsible or lacking in perseverance.

His past record is often a series of industrial failures; he has held many jobs at many different kinds of work for short periods of time, until he was fired or quit in disgust. He borrows money indiscriminately and

often with little intention of repaying his debts. He clamours loudly about the mistreatment he receives from everyone and is indignant if anyone intimates that he is none too perfect. Boasting, lying, cheating, loafing, gambling, drinking, fighting, and grumbling are a few of the acts by virtue of which he is a burden to his family and a monkey wrench in the gears of industrial production.

Often such a person is talented and simply must be tolerated. Occasionally work or home conditions can be so arranged that his shortcomings are overbalanced by his contributions to an industrial establishment. It is also true that the milder instances of this type of person often become less troublesome as they pass from early adult life to middle life. To put it simply, however, the psychopath is somebody's headache almost all the time.

There are numerous facets to the problem of the psychopathic personality which must be left unmentioned because of the limitation of space but all in all they constitute a fascinating and challenging problem in society today. In industry, in these times, we may not be able to just discharge this kind of an employee; we may find it necessary to learn to get the best he can give and to put him in a position where he can do the least harm.

The Normal Worker

The problems presented by the feeble-minded, neurotic and psychopathic are very difficult to solve in industry. Because of practical necessity industry cannot concern itself with the causes of these mental difficulties but it will pay to understand these people better, to know their limitations as well as their usefulness, to ascertain where possible changes can be made and to do the best with what we have. To successfully live and work with persons in this group is similar to learning to live and work in a war torn country. We don't like it; we can't understand how it happened; we didn't choose it, but we have just got to make the best of it because that is the wisest course to follow. Before leaving this group it should be pointed out that there are persons who show more or less of the traits found in all of the three subgroups discussed. Transitions and combinations of defective intelligence, neurotic personality and psychopathic trends are not infrequently found in the same person.

The last group of workers left to discuss are the normal ones. Again, we must realize that the psychologic or mental factors relating to the working performance of the normal man or woman is a most complicated situation. The productivity of a worker may be said to rest upon or be determined by a triangle of forces. First, there is the personality and intelligence of the employee or put in another way, what kind of a man or woman we are dealing with. Is he smart or stupid, is he energetic or indolent, is he ambitious or contented, is he meticulous or careless and so on. How these various character traits came to be is a theoretical problem which does not concern the foreman or plant manager when John Jones walks in for a job, because the man is there in his fully molded state. But the kind of work he can entrust to John Jones does depend on these traits for obvious reasons.

The second force in the triangle is the environment to which the employee is exposed when he is away from his job at home or at play, the combination of influences acting upon him through his wife, his children, his friends, his recreation, his diet, his state of health, his financial status, etc. Progressive employers would willingly pay good money to insure adequate sleep, proper recreation, adequate diet, freedom from economic worries, freedom from mental strain and freedom from illness in their employees because they are learning that these things are just as important to accident-free, high performance on the job as safety catches or clean washrooms in the factories. It is slowly becoming apparent to many that ignoring these factors in a large industrial establishment can cost as much as ignoring the quality of materials going into the manufactured product.

In this connection it may be well to digress for a few moments to discuss the value of education among employees as a means of controlling important off the job factors as well as those within the plant. Education, propaganda, or advertising, depending on your point of view, is without doubt one of man's most potent weapons for getting some people to do as other people want them to. In some quarters, however, the value of education among industrial employees is looked upon as either useless or hopeless. Their belief is that the intelligence of the average laborer is not such as to interest him or to

enable him to understand ideas that increase his health, safety, well being or his efficiency at work. They contend that employees are suspicious of employer sponsored education.

The effect of an education program is said to be that of a "shot in the arm," brief and temporary. All in all they maintain that an educational program for employees is not worth the expenditure of time or money that is entailed. An eloquent rebuttal to all these points is the mere fact that all employee groups, almost without exception, own or aspire to own a radio. They indulge in well known cigarettes or smoking or chewing tobacco and today they are buying war bonds or stamps. Advertising does it, most of us will agree, but what else is advertising but education of a potent nature. It is potent because it implants ideas by a simple, attractive and most important of all, by a continuous technique.

Effective education among employees must borrow the techniques of advertising. We must tax our ingenuity to sell ideas and attitudes to employees by making them attractive, interesting, and understandable to the particular group concerned. The program must appeal to the self interest of the employees and it cannot be successful unless it is a continuous and well coordinated effort. A continuous and well coordinated program of education skillfully assembled can go a long way toward assuring better physical and mental hygiene among employees, more adequate rest and less harmful recreation, more consciousness and pride in safe practices, both at work and away from work and more interest in doing a certain job well. The program, however, must be continuous and coordinated, not sporadic and ill conceived and it must be genuinely directed toward the welfare of the employee. More than a year's experience with such a program has amply sustained these opinions.

Environment

Returning to the third angle of forces upon which worker performance depends, we come to those conditions to which he is exposed at his place of work. By these is meant a complex web of all the things, persons, and attitudes he comes in contact with. These include his fellow workers, his superiors, his equipment or materials, his salary and opportunity for improvement, his se-

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curity of tenure on the job, the interest shown in his initiative or efforts, the cleanliness of the workroom, its temperature and humidity and its lighting equipment and dozens of other factors, some of which have received far more stress than they deserve and others far too little. The extent to which each of these factors can be altered or the effect such an alteration will have in a specific place of employment varies a great deal and is an individual problem for the management.

Any program intended to boost the amount or quality of service rendered by employees or even to decrease accidents and errors cannot afford to ignore any of the three aspects or angles mentioned above. Most can be accomplished in the way of correction by attacking the last two angles, conditions away from work and conditions at work and both are equally important.

The importance of the second aspect, the away from the job factors, is receiving more attention from employers today. It is to their advantage they are finding to look into the dietary habits, personal problems and recreational habits of their employees because it means dollars and cents to their business. To put it in another way, progressive business is concluding that what is good for its

employees, either inside or outside of the plant, is also good for itself.

The mental health of workers, we may summarize, offers many interesting problems whose ramifications are very wide. An understanding of these problems and attempts to solve them means rewards in the form of more efficient industrial production, with less accidents and waste, from happier and healthier employees. Common sense as well as professional skill are needed. Fancy theories and confusing explanations will retard the application of sound knowledge in industrial psychiatry. General principles have been stressed here rather than concrete solutions for specific problems, because the topic is too large for such treatment and conditions vary from plant to plant and industry to industry. If the present discussion has stimulated a desire to understand these problems more fully and has shed some light in what is still a dark corner of industrial medicine, its purpose is amply rewarded.

The opinions or assertions contained herein are the private ones of the writer and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

THURSDAY AFTERNOON SESSION

October 29, 1942

Presiding:—Mrs. CHRISTIAN SEABROOK, R. N., Local Field Supvr., Metropolitan Life Insurance Co., Chicago

Mrs. Seabrook introduced Miss Olive M. Whitlock, Associate Public Health Nursing Consultant of the U. S. Public Health Service, told of some of the findings of the committee for the study of the duties of nurses in industry.

The survey was done by a special committee of the Public Health Nursing Section of the American Public Health Association consisting of several industrial and public health nurses. Before the survey was begun an advisory group laid out the plans for it and this advisory group is continuing its work and will prepare recommendations based on

the findings of the survey.

In 716 industrial establishments employing approximately 2,000,000 workers nursing activities were carried on by 2,257 full-time registered nurses, 38 part-time registered nurses, and 567 non-professional people. The non-professional people were practical nurses, medical students, and first aid workers.

Nineteen per cent of the plants employed fewer than 500 workers. Fifty-five per cent employed from 500 to 2,500 and 23 per cent employed over 2,500.

Full-time physicians were employed in 23

per cent of the plants, part-time physicians in 35 per cent and physicians on-call in 42 per cent.

At least one full-time registered nurse was employed in 93 per cent of the establishments surveyed.

Nursing services were established for the first time in 31 per cent of the establishments surveyed during the period from 1940 to 1942.

Of 1,900 full-time registered nurses, 70 per cent began employment sometime during 1940 to 1942.

In only 33 per cent of the plants where a

physician serves part-time or is on-call does the nurse have the guidance of written orders outlining the procedures to be followed.

A wide variety of duties, professional and non-professional are performed by nurses. In 35 plants nurses are responsible for inspection of the cafeteria and give dietary advice to cafeteria managers in 20 plants. Nurses in 12 plants manage the cafeteria or lunchroom.

Miscellaneous non-professional duties include clerical work, secretarial work, and personnel work.

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