

SPECIAL FUNERAL DIRECTORS
AND EMBALMERS MEETING

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I. CAUSE OF DISEASE

Health is a quality of life that renders the individual fit to live most and to serve best. Disease is life on an abnormal plane. Preventable disease is a common phenomenon in all groups of society. It varies with races, geographical location, climate and modes of living. Complete eradication, theoretically possible, is not apt to result in the near future. Men will need to accomplish great studies in sanitation to apply hygiene more completely, to improve racial stocks before such a worthy goal comes in sight.

Types

Endemic: Pneumonia, typhoid fever and diphtheria; i.e., those diseases commonly present.

Epidemic: Localized outbreaks.

Pandemic: World-wide scourge, e.g., influenza.

Not all disease is transmissible. While the cause of many is known, there are some diseases for which the cause is not known at the present time.

Transmission

Disease producing bacterial or parasites may be transmitted to man by:

1. Direct contact of sick with well.
2. Infection of food and drinks.
3. Contamination of articles.
4. Insects and vermin which harbor the germs of certain diseases.

The portal of entry is the point of entrance of germs into the body, i.e., infected droplets containing tubercle bacilli reach the lungs by way of the nose and mouth. Other diseases develop as result of growth and entrance of germs on the surface of the body (local infection). A focus of infection in one part of body may serve as a point of dissemination and cause of disease elsewhere; e.g., paranasal sinuses, throat, etc. A carrier of disease is one who communicates it to others because in him the organism grows and develops without producing the symptoms of the disease. Condition is well recognized in typhoid

and diphtheria. Defense against germ diseases is brought about by forces developed in the body naturally and artificially. (vaccination and serum treatments.) Environment offers forces of tremendous value to man in combating disease. Isolation and quarantine are examples of such measures. The tripod of communicable disease control is: 1. Eliminate cause; 2. eliminate carrier; 3. build up defenses. To eliminate the cause of communicable diseases demands the application of sanitation in the community and personal hygiene in individual life. To control carriers requires sanitary law. To build up defense involves the application of certain hygienic laws and use of vaccines and sera for immunizing purposes.

Types of Disease

Commonly, we think of the transmissible diseases when discussing the ills that affect the human body, but such a view is incomplete and unsatisfactory. Disease may be classified:

1. Communicable disease.
2. Diseases of Nutrition.
3. Acute poisons.
4. Chronic disease of middle life.
5. Functional nervous diseases.
6. Local infections.
7. Cancer and tumors.

1. COMMUNICABLE DISEASES

In order that funeral directors and embalmers may play their part in control of communicable disease, it is suggested that all should possess the following specific information:

Actinomyces (lumpy jaw)

is caused by ray fungus or actinomyces bovis.

Disease is contracted by coming in contact with nasal and bowel discharges, infected material from lesions in human and animal cases of the disease. Uncooked meat from infected animals may serve as a source of infection.

Disease is transmitted by contact with the discharges or with articles freshly soiled with discharges from animal or human cases. Farmers, because of their habit of chewing straw (which may have been contaminated by saliva of infected animals) frequently contract

the disease of the head and neck. Other forms occurring are lungs (inhalation), abdomen (swallowing, wounds), and general systemic involvement.

Acute Infectious Conjunctivitis.

This title replaces the terms gonorrhoeal ophthalmia, ophthalmia neonatorum, and babies' sore eyes.

Infection is contracted by newborn baby through passage of eyes through the birth canal. Infected material from the mother simply gets into the eyes of the baby. Eye infections may occur from articles freshly soiled with discharges of infected persons.

Prevention: silver nitrate solution drops in all babies' eyes at birth.

Anchylostomiasis (hookworm).

Disease is common in the southern part of our country, and is due to a small worm called the *Necator Americanus* or *Anchylostoma*.

Source: Feces of infested persons. Infection generally takes place through the skin, occasionally by mouth. The larval forms pierce the skin, usually of the foot, and passes through the lymphatics to the vena cava and the right heart; thence in the blood stream to the lungs; there they pierce the capillary walls and pass into the alveoli. Next they pass up the bronchi and trachea to the throat, whence they are swallowed and finally lodge in the small intestine, (duodenum). Also by drinking water containing larvae, by eating soiled food, by hand to mouth transmission of the eggs or larvae from objects soiled with infected discharges. Disease is a very common cause of poverty and suffering in certain sections of our country as previously noted. With ordinary care and the development of sanitary facilities, the disease could be stamped out. In spite of the fact that we have medicine for eliminating the worms from the body, sanitary facilities are usually lacking in certain communities and very little progress is being made.

Anthrax

Caused by *Bacillus anthracis*, (not very common).

Source of infection is hair, hides, flesh, and feces of infected animals.

Transmission occurs by inoculation,

i.e., accidental wound or scratch, inhalation of spores of the infectious agent, and ingestion of insufficiently cooked infected meat. United States Public Health Service guards against infections by this organism by requiring the sterilization of all brushes made from hair of animals. It is chiefly an occupational disease and preventable (ordinary care).

Cerebrospinal Meningitis: (inflammation of membranes, dura and pia arachnoid, of the brain and spinal cord caused by the meningococcus).

Source of infection is the discharge from the nose and mouth of infected persons. Clinically recovered cases, and healthy persons who have never had the disease, but have been in contact with cases of disease or other carriers, act as carriers and are commonly found, especially during epidemics. Such healthy carriers are not uncommonly found independent of epidemic prevalence of the disease.

Transmission is by direct contact with infected persons and carriers, and indirectly by contact with articles freshly soiled with the nasal and mouth discharges of such persons. In ordinary times most of the cases of meningitis are due either to tubercle bacilli or this organism (about half and half). Other cases of meningitis represent a sprinkling of other germs. There is a special serum for the treatment of specific cerebrospinal meningitis which is successful in a large percentage of the cases if used early.

Chickenpox

probably due to a virus. The infectious agent is presumably present in the lesions of the skin and of the mucous membranes; may be communicated early as well as during course. Infection takes place and transmission occurs directly from person to person; indirectly through articles freshly soiled by discharges from an infected individual. The chief reason for mentioning chickenpox at this length is because it may be confused with smallpox. It is seldom a cause of death unless complications ensue.

Diphtheria

caused by *Bacillus diphtheriae*.

Sources of infection are discharges from diphtheritic lesions of nose, throat conjunctiva, vagina, and wound surfaces. Secretions from the nose and throat of carriers of the bacillus is also a source.

It is transmitted directly by personal contact, indirectly by articles freshly soiled with discharges, or through infected milk or milk products. This disease could be wiped out if every baby at the age of nine months was given prophylactic injection of toxin-antitoxin or toxoid, a Schick test done after six or nine months and the inoculations repeated if not successful the first time. It is possible for any community today to absolutely determine the incidence of diphtheria in this way. Funeral directors and embalmers should aid in combatting this disease (education).

Dysentery

is due either to an ameba histolytica or bacillus dysenteriae. In both instances the source of infection is the same; i.e., the bowel discharges of infected persons.

Transmitted by drinking contaminated water, and by eating infected foods, and by hand-to-mouth transfer of infected material; from objects soiled with discharges of an infected individual, or carrier; by flies. Although the two diseases are different in their effects on man, the fundamental principles involved is the same.

They represent one of several diseases of this type which are transmitted through carelessness in personal hygiene and lack of sanitary facilities. Infectious material from the lower end of the gastro-intestinal tract of a sick person or carrier finds its way to the upper end of the gastro-intestinal tract of a well person.

Glanders

due to Bac. mallei. Source of infection is discharge from open lesions of mucous membrane, or of skin of human or equine cases of disease. It is transmitted by contact with a case or with articles freshly soiled by discharges from human or equine sources. This is another example of an animal disease which may be transmitted to man. Because of the cooperation of the State Sanitary Board and the State Department of Health, cases of this disease

are very few in number.

Gonorrhoea

Caused by gonococcus. This is the same type of infection which was previously commented on under the heading of Conjunctivitis.

Source of infection is discharge from lesions of inflamed mucous membranes and glands of infected persons.

Transmission is by direct personal contact with infected persons, and indirectly by articles freshly soiled with the discharges of such persons. To avoid this infection is rather simple. Almost without exception, the disease is contracted by illicit sexual relations. The practice of sobriety and common sense is all that is needed to prevent it. It is occasionally possible to contract extra-genital infection by contact with infected material. Disease is serious because of possible after effects.

Malaria

Caused by one of several species of malarial organisms.

Source of infection is the blood of an infected individual. Mode of transmission is by the bite of an infected Anopheles mosquito. These mosquitoes apparently do not exist in large numbers, if at all, in Minnesota. It is possible to get this disease in our state but infection is very rare. At all times, malaria has been the world's greatest scourge. The building of the Panama Canal represents primarily a major achievement of sanitary science rather than that of engineering advance. Panama at one time the world's worst "pest-hole" today is a model country with excellent sanitary laws that are enforced.

Measles and German Measles

probably due to a filtrable virus.

Source of infection is buccal and nasal secretions of infected individuals.

Mode of transmission is directly from person to person; indirectly through articles freshly soiled with the buccal and nasal discharges of infected individuals. Man is said to be universally susceptible to measles (no natural immunity). The early

symptoms are those of a catarrhal condition of the nose, throat and respiratory tract. When death occurs, it is usually due to a complication (pneumonia). It is possible to alter the course of measles today by injecting blood from a person who has had the disease. This is sometimes necessary when children are not well (and have been exposed). The physician usually waits until the patient is just coming down with measles and then injects the blood. An abortive form of measles is the result.

Mumps

Cause is unknown.

Source of infection is secretions of the mouth and possibly the nose.

Mode of transmission is by direct and indirect contact, with the person or freshly soiled articles. The chief medical interest in mumps is the possibility of simultaneous or late involvement of the genital glands (both sexes), with a possible loss of sterility.

Typhoid and Paratyphoid Fever

Should be considered together, as far as the type of infection is concerned.

One is due to B. typhosus and the other to B. paratyphosus A or B. Like dysentery, the source of infection is the bowel and urine discharges of infected persons. Healthy carriers are common especially for typhoid fever. Disease is also contracted by eating foods contaminated with discharges of infected persons or healthy carriers.

Mode of transmission is directly by personal contact; indirectly by contact with articles freshly soiled with the discharges of infected persons or through milk, water, or food contaminated by such discharges. Paratyphoid fever frequently appears as "food poisoning". Again, these two diseases are examples of infections of intestinal tract transmitted to others through carelessness. Modern sanitary facilities take care of most problems of control these diseases with exception of carriers. They must often be discovered after having given the disease to others. In war and other times, typhoid vaccine is used as a preventive measure. During the last World War, 213 deaths from typhoid fever occurred (The majority of our soldiers were protected by typhoid vaccine). If the same conditions had prevailed, i.e., no typhoid vaccine, same

sanitation as during the Civil War, 48,978 deaths would have occurred; if the same as the Spanish-American War, 65,292 deaths. This is probably one of the greatest accomplishments of modern science.

Pneumonia (lobar or bronchial in type).

Various pathogenic organisms are responsible. The pneumococcus is the cause of a special form in man, commonly called lobar pneumonia. An effective serum is used in the treatment of Type I, one that is fairly effective in Type II. Lobar pneumonia is usually a primary disease, Bronchopneumonia secondary to some other cause, and most common in young children and elderly people.

Source of infection is discharges from the mouth and nose of apparently healthy carriers, as well as of recognized infected individuals, and freshly soiled articles.

Mode of transmission is by direct contact with infected persons, or with articles freshly soiled, and possibly from infected dust of rooms occupied by, infected persons. There has been quite a debate for sometime as to whether or not pneumonia should be a reportable disease. Apparently (with ordinary care) the disease is not highly transmissible. It seems to be more of a question of our own personal health (defense) as most often the organisms are commonly present.

Poliomyelitis (infantile paralysis)

Due to a filterable virus?

Again, the source of infection is nose, throat and bowel discharges of infected persons or articles recently soiled therewith. Healthy carriers are supposed to be common.

Transmitted by direct contact with an infected person or with a carrier of the virus, or indirectly by contact with articles freshly soiled by such persons. Recent investigation suggests that many of us have probably had this disease in childhood in a non-paralytic form. Virus of poliomyelitis mixed with pooled blood of groups of adult persons is protective, in from 80 to 90 % against the development of the disease in animals. Note: Perhaps you have noticed by this time the large

number of diseases which are transmitted by infected material from the nose and throat of diseased patients or carriers and those which come from the lower portion of the intestinal tract in fecal discharges. Public Health Educational emphasizes over and over again the necessity of cultivating personal hygiene; i.e., washing the hands after going to the toilet, sanitary disposal of human excreta and watching the careless cough and sneeze because of its danger to others.

Rabies (hydrophobia).

Cause probably a virus from the saliva of infected animals, chiefly dogs. The mode of transmission is by an abrasion and implantation of the virus (almost always however by bites or scratches). The use of the Pasteur treatment in persons known to have been bitten by rabid animals is highly successful. If an animal bites anyone, the animal should not be shot but tied up to see if it develops the disease before disposition is made of the case of the bitten person.

Scarlet Fever

Due to a streptococcus. It simply represents a sore throat with a skin rash. Infections come from the throat, broken-down glands, etc, by direct personal contact, indirectly by freshly soiled articles or contaminated milk. At one time we had great hopes of developing an effective means of controlling scarlet fever through immunization (like diphtheria). It is apparent now that protection is only when large groups of children are studied. Non-protected individuals seem to get scarlet fever in greater numbers than protected persons.

Septic sore throat

Is probably the same disease without the skin rash.

Source of infection is the same. During the war, an attempt was made to prove that influenza was transmissible. A group of soldiers (who had not been exposed to the disease) were brought to the mainland from an outlying island. They visited sick patients, shook hands with them, kissed them; i.e., went through the antics of being around someone who was sick, and then they took them back to the island. Influenza was not contracted but in every instance sore throat

was where such exposure was made.

Smallpox

Cause probably a virus.

Source of infection is lesions of the skin and mucous membranes of infected persons.

Mode of Transmission is by direct personal contact, by soiled articles, probably feces and urine and apparently by flies. All babies should be protected against smallpox by vaccination at the sixth month of life. From time to time, vaccination should be repeated, and it should always be done again in times of epidemics. Funeral directors and embalmers should be very careful about this disease because frequently it does not display usual characteristic form. An unvaccinated funeral director or embalmer is a menace to his community, his family and himself.

Syphilis

Caused by treponema pallidum.

Source of infection: discharges from the lesions of skin and mucous membranes, and the blood of infected persons, and freshly soiled articles.

Transmitted by direct personal contact and indirectly by contact with discharges from lesions or blood. Spirochates enter one portion of the body (Chancre), grow and thrive in tissues causing the primary sore. They next go through blood producing secondary changes and finally may cause trouble as long as 25 or 30 years after the original infection in improperly treated persons. Disease is transmitted like other venereal diseases, usually by illicit sexual relations frequently under influence of alcohol. Every case of active syphilis should receive treatment for at least two years (five courses of at least 16 injections each of arsenic bismuth, etc.)

Tetanus

Due to B. tetani. (Lock jaw).

Source of infection is animal manure, and soil fertilized with animal manure, and, rarely discharges from wounds.

Mode of transmission is by inoculation, or wound infection. Persons with contaminated wounds (street dirt) should receive tetanus antitoxin.

Trachoma

Is form of sore eyes probably due to special germ. Secretions and discharges from the eyes of such patients are the source of infection.

Mode of transmission is by direct contact, indirect with articles freshly soiled. Disease is a menace in certain districts of our country. In most such places the common roller towel, common drinking cup and carelessness in personal hygiene are the rule. Because of its prevalence in undernourished people at one time it was thought to be a form of food deficiency (Xerophthalmia).

Pulmonary tuberculosis

Is commonest form of disease in man. (85%). B. tuberculosis. May affect any part of the body with exception of hair, teeth and nails. Infection always results from another case of the disease, either directly or indirectly--usually the former.

In order to stamp out tuberculosis it is recommended that all school children at periodic intervals should have tuberculin tests done (if the test is positive it means that the child has been in contact with a person who has the disease). Next the child is studied for possible spread of the infection within his own body. A search is then made for the person responsible for the infection. Tuberculosis can be controlled by tuberculin testing of children and cattle, pasteurization and boiling of milk, early diagnosis and treatment of active cases (isolation in sanatoria). It is interesting to note that when a community really gets behind tuberculin testing of animals, immediately there is a drop in bone and joint tuberculosis in children. Christmas Seals are main source of revenue for anti-tuberculosis campaign.

Typhus Fever.

Organism is probably not yet known.

The Source of infection is the blood of infected persons.

Mode of transmission by lice.

War-time problem.

Whooping Cough or Pertussis

May be due to specific organisms.

Discharges from the nose and throat of infected persons are responsible.

Contact with an infected person, also with animals or freshly soiled material

is the source of infection. Whooping cough vaccine is probably not as effective as was at one time believed. Danger chiefly pneumonia.

Yellow Fever

Like malaria is due to bite of a certain type of mosquito.

Source of infection is blood of infected persons. Whenever malaria is controlled, yellow fever is usually controlled. Another great scientific achievement.

Summary

Funeral Directors and Embalmers should cooperate in the control of communicable diseases. Their places of business (technique room) should be light, well ventilated and sanitary. At all times, they should remember that soap, water, sunlight, burning and paint are more efficient than any other type of disinfectant. They should practice personal hygiene by:

(1) Washing the body daily with soap and water.

(2) Washing hands in soap and water after voiding bowels or bladder and always before eating.

(3) Keeping hands and unclean articles, or articles which have been used for toilet purposes by others away from mouth, nose, eyes, ears, and vagina.

(4) Avoiding the use of common or unclean eating, drinking, or toilet articles of any kind, such as towels, handkerchiefs, hair brushes, drinking cups, pipes, etc.

(5) Avoiding direct exposure to the spray from the noses and mouths of people who cough or sneeze, or laugh and talk loudly, with wide open mouth, or in explosive manner.

In addition, they should protect themselves and their families against smallpox and diphtheria, take an active part in their community in helping stop the spread of tuberculosis, be informed on the cause and prevention of all diseases and accidents, and at all times cooperate with health officials in the control of disease.

" 2. The Diseases of Nutrition:

Rickets is a disturbance of bony and soft tissue development in the first

three or four years of life due to the lack of vitamin D (cod liver oil and sunlight in the environment).

Vitaminosis (scurvy, xerophthalmia, failure to grow, possible susceptibility to respiratory infections, beri beri, rickets, and pellagra) may be prevented by eating a well-balanced diet throughout life. This should include carbohydrates, fat, protein, minerals, fruits, vegetables, dairy products (cod liver oil and sunlight in childhood) and the required number of calories to maintain an ideal weight for each person.

Diabetes

The cause is overeating, sedentary life and heredity. It is said that the first symptom of diabetes is overweight. The disease is due to a failure to properly metabolize sugar due to deficiency of insulin in the body. Deficiency is corrected by alteration in diet and the addition of extra insulin. Diabetes is seldom a direct cause of death today. Complications are common, chiefly hardening of the arteries, gangrene of legs, and other infections.

Goiter

Endemic goiter or common enlargement of the thyroid is present in approximately 37% of school children from first grade through high school years. It may be prevented by the use of iodized table salt during childhood. In Detroit, the incidence has been reduced to .3 of 1% by this method. In Cleveland, where iodized table salt is not widely used, there has been only a reduction of 2% to 35%.

Cretinism and myxedema

Result from under-activity of the thyroid gland. The former is observed at birth and childhood, and the latter in adult life.

Obesity

In 95% of the cases it is simply due to eating too much and exercising too little. Treatment is obvious. Obesity is the first symptom of diabetes, and predisposes to development of hardening of the arteries, high blood pressure and gall-stones.

3. Acute Poisons.

Ptomaine poisoning is a myth. Food poisoning is usually due to a form of paratyphoid infection. It may be due to any other germ, e.g., staphylococci. Special forms are botulism caused by the growth of *B. botulinus* in improperly prepared food and *B. enteritidis* infection. Poisoning from lead, mercury, benzene, phosphorus and arsenic are industrial problems which can be prevented by appropriate means.

4. Chronic Diseases of Middle Life.

Chiefly hardening of the arteries, high blood pressure, involvement of brain and nervous system which are wear and tear diseases. There are probably two factors:

Predisposition (weakened tissues from birth and, secondly, excessive wear and tear). There is little precise information available regarding prevention of these conditions. However, hygienic factors are very important in prevention.

5. Functional diseases.

Neurasthenics are individuals who fail to adjust to their environment and as a result have a variety of complaints. The condition is very common in our complex social existence in cities as well as in outlying districts. Hysteria is simply a special form of functional nervous disease in which there is a definite attempt to elicit sympathy by complaining. Psychopathic individuals (for which a psychopathic hospital is badly needed in Minnesota) may be likened to people midway between sanity and insanity. Through the help of science today, many of them can be reclaimed for society. Functional disorders due not cause organic changes but organic disease may be associated.

6. Local Infections.

Due to disease-producing organisms that enter through a break in the skin or mucous membranes.

(a) Prevention:

Keeping the general resistance

gh, avoiding skin and mucous membrane in-
ies and careful treatment of all wounds
injuries. (A very important subject).

Cancer and tumors.

(See special booklet; "What
Everyone Should Know about Cancer", fur-
ished to you at this time through the
courtesy of the Citizen's Aid Society of
Cincinnati.) A special effort should be
made to dispel fear and ignorance concern-
ing this question. Read the booklet with
care.

Summary

Disease results in recovery or death.
Recovery may be complete or partial.
There is a great diversity in effects pro-
duced. Some diseases attack a single or-
gan while others are characterized by
general effects upon the body. The outcome
of any disease is dependent first upon the
nature of the condition and secondly upon
such personal factors as age, habits,
heredity and resistance, and upon such
environmental factors as economic strain,
social surroundings and sanitary standards,
and finally upon the judgment and skill of
the physician and other attendants. The
aim of science today is to prolong
existence until death takes place from
natural wear and tear. All other diseases
are considered accidental, especially
those which have been discussed in detail
as communicable. We must not forget
that while disease is the chief cause of
death today, that accidents are the
chief cause of death in childhood and
young adults. Accident prevention is
just as important as disease prevention.

II. THE AUTOPSY QUESTION

1. EDITORIAL: THAT QUESTION OF AUTOPSIES.

Ref. The Casket and Sunnyside,
61:11 (Aug. 15) 1931.

Relief from unnecessary and
complete autopsies is the boon being
sought by hundreds of funeral directors
throughout the country, who feel that a
great imposition is being placed upon them
by the medical profession. Whether or not
it is true that embalming can be done
just as well after a body has been autop-
sied, it is a fact that would-be surgeons

in their student days, and many sur-
geons after years of practice, are too
prone to autopsy every body that comes
within their reach.

If a death occurs in a hospital
from an abdominal trouble the operators
are more than apt to lay open the body
from chin to umbilicus. That is what
makes the work of the embalmer
harder, and it is that he is objecting
to. Such an incision is wholly unnec-
essary, but since the ruling was made
that so many autopsies must be made
before training of internes and nurses
is complete there has been a vast
increase in the number of post-mortems,
all in the interest of science, and too
frequently of the "complete" character.

It is true that for the benefit
of the living there must be autopsies
to determine the cause of death, but
there is no legal right to perform a
complete autopsy when local work is
sufficient. But storming on the part
of funeral directors will not correct
the abuse; the medical profession
has public interest on its side to
begin with, and generally speaking the
funeral directing profession would not
get far in an open contention.

The matter is local, and must be
fought out locally. In many city and
county associations the value of moral
suasion has been tried and with good
results. A coroner or an official of
a medical society, or a pathologist
in connection with a hospital has been
invited to speak on the subject. He
presents his viewpoint and that of
the public, and funeral directors have
presented their views, with the result
that co-operation seeming necessary
there has been an improvement. Usual-
ly funeral directors have been made to
see that their opposition to autopsies
is not in harmony with the public
interest; on the other hand the medi-
cal man has been made to understand
that less complete autopsies will serve
the purpose at hand, and has agreed to
bring about a change in the hospitals.
Better conditions have prevailed in
many cases.

It is a case of personally
getting farther into the good graces
of the coroners and medical men if
you want your posted cases brought to
you in a more favorable condition. It
is worth the effort, at least.

2. EDITORIAL: COOPERATION IN NECROPSY WORK.

Ref. J.A.M.A. 97, 1894-1895 (Dec. 19) 1931.

The percentage of necropsies performed in this country is still lamentably low. A properly performed necropsy is not only necessary in many cases to establish the exact cause of death but is one of the chief means of advancement of medical knowledge. The reasons for failure to obtain necropsies are obvious. The physician in charge of a case lacks the scientific urge, the relatives of the deceased are opposed, and the mortician is, to say the least, cool, because necropsies may disturb the routine of his work. A joint committee of the New York Academy of Medicine, the New York Pathological Society and the Metropolitan Funeral Director's Association recently held a series of meetings to discuss the problem. A substantial agreement was reached. All agreed that a necropsy by a pathologist is desirable in order to advance knowledge concerning the nature of the disease and to provide reliable records. The performance of necropsies in a hospital is a constant influence to improve the service and to help physicians serve the next patient with greater confidence and skill.

The hospital and its staff have not completed their services to the family on the death of the patient, but they owe to the family an account of what has occurred. This requires that a representative member of the family come to the hospital for personal interview and to give permission for examination of the body of the deceased. The funeral director must recognize this relationship and should not oppose the discharge of this obligation. Unreasonable delay by the hospital in its attempt to obtain permission for necropsy is objectionable to a funeral director as it may require him to cancel contracts for transportation and other services and thus increase his expense. The conflict of interests requires mutual consideration and cooperation. Arrangements should be worked out in every hospital whereby the unnecessary loss of time on the part of the funeral director may be obviated. Hospital employees in general must not give informa-

tion to funeral directors or to any other unauthorized person in regard to persons critically ill or dead in the hospital. The hospital authorities should be certain that the necessary data for a death certificate are on the chart at the time of admission of the patient, with exception of the facts relating to the nature, progress and termination of the disease. Any interference by a funeral director with the legitimate efforts of the hospital to obtain permission for necropsy shall be regarded as a reportable grievance. The necropsy may be performed in a way to facilitate the work of the embalmer. The main longitudinal incision, the committee believes, with the concavity toward the head should be carried laterally to each shoulder. When the skull is opened, the frontal bone should be cut above the hairline and the base of the skull cemented with plaster before the skull cap is replaced. When the neck organs and tongue are removed, the head should be embalmed through the carotids unless there is a serious contra-indication. Other recommendations made by the committee as to technique are that necropsies should be completed at the time promised, if there has been an advance agreement, and that a representative of the funeral director should be a welcome associate at the necropsy table. The spirit of cooperation shown in the report of the joint committee is commendable. Similar cooperation everywhere would no doubt result promptly in an increase in the percentage of necropsies.

Gradually, competent embalmers are tending toward the encouragement of postmortem examination. In the November issue of the Casket and Sunnyside, a publication for morticians, appears an editorial commenting on a previous statement on this subject by The Journal. The concluding statement of this editorial reads:

We might as well recognize, first as last, that the welfare of the living, the public health, is the chief concern of the public, and that to permit the medical profession to secure sufficient scientific data, autopsies must be performed. We might as well also decide that if we explain our difficulties to the medical practitioners, rather than

agonizing them, they will be willing to cooperate with us in avoiding unnecessary mutilation of bodies committed to them for autopsy. Finally, we might as well realize that if we say "an autopsied body can't be embalmed or so prepared that family and friends may view it," we're mutilating ourselves and our claims to professional standing, and admitting our own incompetence.

The editorial points out further that the mortician should be proud of his ability to make presentable a body that has been subjected to postmortem examination and that the cry against such examinations on the part of morticians must be taken as a confession of incompetence. Such support from one of the leading trade publications in the field is an encouraging sign to scientific medicine. It means that the pathologist will now need only to instruct the family and not to convince the mortician.

3. UNIVERSITY OF MINNESOTA

Ref. The Mid-Continent Mortician, VII:8 (April 1931).

It is apparent from reading the foregoing editorials that both are in practical agreement on two points. First, that autopsies are here to stay, and, second, that cooperation must be worked out locally.

The University of Minnesota established the course in Funeral Directing and Embalming in 1908 (24 years ago). Late reports indicate that it is still the only course of its type offered by a State university, as part of its regular curriculum. Twenty four years ago the Department of Pathology and the Funeral Directors and Embalmers established a uniform technique for doing autopsies so that the body could be buried in the usual way. Through all these years this program has been satisfactory to both. As a result Minneapolis has taken first place (large cities) in the percentage of autopsies done on all deaths. In addition, the Mayo Clinic, Minneapolis General Hospital and University Hospitals as a group have attained the highest percentage of autopsies of any group of institutions in the United States or Canada. The local (and general) effect on medical practice and the advancement

of science is perfectly obvious to all (just look about).

The purpose of doing autopsies is still not clear to many people. When the real purposes are understood, many of the objections are overcome. The following may be considered some of the reasons for postmortem examinations:

1. Is the patient alive or dead? It is very important before bodies are turned over for disposition to be sure that life is extinct. It is also evident that no one would be buried alive after a routine autopsy had been done.
2. Does contagious disease exist? This point may not be clear during life. At the autopsy the diagnosis is usually made without much difficulty, and as a result serious epidemics may be avoided.
3. Is inherited disease present? This is a matter of great interest to the family, and a point which is always mentioned, not only in asking for permission, but in discussing the findings afterward. For many relatives this is the most convincing argument.
4. What is the cause of death? As the result of routine autopsy investigations on a large number of cases, the diagnostic accuracy in the United States has increased from 50 to more than 85%. The weakest of all arguments against an autopsy is that the cause of death is known. It would be very easy to slip back and nullify the advances which have been made.
5. Disciplinary effect in institutional and private practice. All hospital governing bodies recognize this feature as one of the most important reasons for doing routine autopsies. In a modern approved hospital all cases are discussed freely at staff meetings, errors pointed out, good judgment commended, and if anything has been left undone it is brought to light.
6. Teaching value. It can be said without fear of contradiction that the autopsy is the best single teaching method in training medical men. This also includes Embalming students who are able to see the type of visceral changes present in certain cases, and to plan their procedures on such cases when they are not autopsied.
7. To render justice. As a rule this comes under the jurisdiction of the coroner, but justice may be served

the ordinary routine autopsy.

8. To unearth scandal. This is very important, especially when a person has communicable disease thought to be cured.

9. Vital statistics. It has been said that we now live in the age of measurement. It is only through vital statistics (the bookkeeping of humanity) that we know the real progress that we are making.

10. Insurance claims. Insurance companies know the value of an autopsy, as a result unjust claims are not paid, as well as claims which would not have been allowed unless an examination had been done.

11. To study rare and unusual disease. Science advances with the classification of the various conditions it encounters. Very often a disease of unusual type may be overlooked without an autopsy examination.

12. To evaluate diagnostic methods. The X-ray is one of the real advances in medical science. Radiologists frankly confess that if it were not for the ability to check their findings at autopsy examinations that this advance would not have been made.

13. Scientific discovery. Funeral Directors and Embalmers, physicians, and others frequently make the statement (as you will notice in one editorial) that routine autopsies are not necessary. How do such persons know that an autopsy considered routine may not be the starting point for a great scientific discovery? How did the University of Minnesota Hospitals know that when an autopsy was done on a patient with stone in the pancreatic duct that the discovery of insulin would result as a consequence of one examination? The diagnosis was known, the cause of death could have been signed, the family was satisfied, but a routine autopsy brought to light a condition which stimulated Dr. Banting to work on a discovery which is generally believed to be one of the science's greatest achievements.

14. Better embalming. The blood is removed, opportunities for the injection of the circulation in smaller units are made possible and the flow is controlled at all points.

15. To study disease. This is by far the most important reason for doing autopsies, and does not need amplification.

Permission

Permission must be obtained, preferably in writing, from the nearest relative. The courts have ruled that the body belongs to the same people who inherit the personal property. Funeral Directors and Embalmers should watch this point very carefully, especially on examinations done in their own establishments.

Approved Technique

1. No ties shall be placed on the hands or face of any body after death.

2. The face shall be kept upright at all times so that blood does not collect in any other place except on the back of the head.

3. The body is to be cooled as soon as possible.

4. Funeral Director must not be kept waiting (without being informed as to the reason for delay) an unusual length of time while arrangements are being made to conduct an examination. He should be informed as to the exact time he can call for the body and should not call earlier than this.

5. The crutch incision is used.

6. The vessels shall be cut long in the neck.

7. All viscera, except those needed for further study of the case shall be replaced in the abdominal cavity.

8. If the bone marrow is to be inspected, a lateral incision is made on the thigh and the femur exposed in the middle third.

9. Routine examinations of the head are not done. (Only such examinations as are indicated by the nature of the case).

10. Scalp incisions shall start behind the ears and not show.

11. The frontal bone shall be cut as high as possible so that the forehead is preserved.

12. The skull cap shall be saved in such a way that a notch is left in the back to avoid slipping. The temporal muscles are also cut so that they can be tied.

13. In children, the "Beneke technique" shall be used. The parietal bones are cut around and pulled down, the frontal and occipital bones are not disturbed.

14. In removing the spinal cord,

incision shall be either posterior or anterior depending upon the nature of the case.

15. After the examination is completed, the incision is sewed up with baseball stitch, the body cleaned, and then turned over to the Funeral Director with the certificate completely filled out at the time stated.

16. Ethics prescribe that neither the Physician nor the Funeral Director or Embalmer will at any time divulge the findings of the examination unless by proper authority.

17. Any unusual procedure not stated in the preceding shall be covered by a written notice, attached to the body at the time it is called for by the Funeral Director.

Summary

It is felt that it is no longer necessary to urge young men (either Physicians or Funeral Directors and Embalmers) to support autopsies. The reasons are only repeated here because it is felt that a restatement each year is a good thing. In approaching the medical profession in regard to any phase of this matter, do so in a professional way. If you have any complaints or suggestions, offer them freely to the proper persons. Any attempt at retaliation for alleged unjust treatment is unprofessional and condemned by all right thinking people.

When every Funeral Director and Embalmer develops the viewpoint that he is a professional man, and a graduate of the Extension Division, not of the course of Funeral Directing and Embalming, but of the University of Minnesota, then real progress will be made in working relations.

We feel that the time has come for our group to have a positive attitude toward this problem. We ask not for your mere warm acquaintance to the practice but for a definite, positive, aggressive and far-reaching, in the name of humanity.