

lescent cases, and that these are responsible for many outbreaks which are usually attributed to infected clothing, etc. Upon the appearance of smallpox or other infectious disease, it is the first duty of a public health official to ascertain if other cases of the same character exist in the community, particularly those of a mild type. Success in this direction will be secured only by a most careful and thorough inspection. By this means centres of infection are identified, and disinfection is performed not only where it is urgently needed, but where it will be followed by the most satisfactory results. Than what I have just stated, nothing more clearly shows the transition from old to new methods in public sanitation. While it is accepted by all that the clothing and effects of the sick constitute a medium of infection, considerable doubt now exists as to the danger from clothing actually worn by well persons, who have been in contact with cases of infectious disease which, until recently, has been generally regarded as a frequent source of infection. Within the past few years, careful investigation and practical experience have demonstrated that this is a medium of infection only in comparatively rare instances. It may occur when there is close and prolonged contact, particularly in the case of such diseases as smallpox and scarlet fever, and where the person exposed goes immediately to another apartment. While this should receive proper consideration and reasonable efforts should be made to prevent the transmission of disease in this way, it should be borne in mind that it is not a common medium of infection. The value of this knowledge which has come to us slowly cannot be overestimated, as it teaches us that an outbreak of an infectious disease calls for a most rigid inspection to discover the presence of mild and hitherto unrecognized cases. These constitute a greater menace to the public health than well-marked ones, which are more easily identified and cared for. In other words, we must understand that infectious diseases are usually transmitted by persons rather than by clothing and other material, and this knowledge justifies us in removing many restrictions which in the past have done much to hamper both the public and commerce.

Unreasonable and unscientific theories regarding the transmission of infection are unquestionably encouraged by worthless disinfection, which is more apt to be found in small communities where modern sanitary regulations are not enforced. It is in such places that little effort is made to ascertain the location of mild or ambulant cases.

If we are familiar with the principles which govern modern disinfection, but few specific rules are necessary in the performance of the important work.

The promptness with which a house or apartment can be disinfected depends largely upon the manner in which it is furnished. Hangings, and numerous articles of upholstered furniture, offer a very decided complication. Therefore, if an opportunity is given to prepare a room for the reception of a person suffering from infectious disease, every effort should be made to remove all unnecessary furniture, hangings, carpets, etc. In this way the amount of material to be afterward disinfected is reduced to the minimum.

During the progress of the disease no opportunity should be lost to ventilate thoroughly the sick-apartment, as in no other way can the effect of a general disinfection be secured prior to the termination of the case. Not only is fresh air destructive to pathogenic organisms, but it is of inestimable value to the patient. Neither steam, nor formaldehyde, nor sulphur dioxide can be effectively employed while the patient is confined to the room, as their use in sufficient quantity to act as disinfectants would be destructive to human life. This knowledge should do away with old and farcical methods of spraying the room with so-called disinfecting solutions, placing saucers of carbolic acid under the bed and other methods of a like character, which are worse than useless, inasmuch as they inspire a sense of security which is not real. Therefore, during the existence of the disease, the use of germi-

cides should be confined to the disinfection of discharges, bed-linen, dressings, etc.

At the termination of a case of infectious disease the patient should be thoroughly washed with soap and warm water, the scalp and hair included. After this the body may be sponged with a 1 to 3,000 solution of bichloride of mercury, particularly if desquamation has occurred. It is a practice also to place the patient at this time in a 1 to 5,000 bichloride of mercury bath. However, I am disposed to believe that the use of the sponge is equally satisfactory and safe. There is not a unanimity of opinion regarding the danger from the skin at this period, but it is safe to assume that when the acute symptoms have entirely subsided and convalescence is well along, and when desquamation is fully completed, there is but little if any danger, and the use of soap and water and bichloride may be relied upon to render the patient in no way a menace to the public health.

During the course of the illness bed-linen, dressings, etc., should be placed in a 1 to 2,000 solution of bichloride of mercury, or a five-per-cent. solution of carbolic acid for at least two hours, whenever soiled or when a fresh change is made, and under no circumstances should this material, which is frequently soaked with discharges or in other ways infected, be allowed to accumulate for the final disinfection. There is no doubt that attention to this important detail very materially diminishes the danger of infection in the sick-chamber.

In preparing a room for disinfection attention should first be given to the bedding, mattress, clothing, and other effects of the patient. These should be covered and tied up in clean sheets. If, unfortunately, a carpet has been left on the floor, it should be rolled up; by this means it will present a previously unexposed surface which is the equivalent of a fresh covering. These articles should be at once removed to a steam disinfecting plant.

The woodwork, bedsteads, etc., contained in the apartment should be washed with a 1 to 1,000 solution of bichloride of mercury. Afterward all windows and doors, —excepting one of the latter to be used for entrance and exit during the preparation for disinfection (which is subsequently sealed in the same way)—should be tightly closed and the cracks sealed by pasting over thin narrow strips of paper by means of ordinary flour paste, which can afterward be easily removed with water. The room should now be subjected to the fumes of sulphur dioxide, or formaldehyde gas, and not opened for at least twelve hours. Before closing the room it is well to know the situation of a window which can be easily opened to admit fresh air, as upon entering the apartment for the first time after disinfection there may be sufficient gas present to prove irritating to the respiratory tract. A wet sponge or towel applied to the face on entering the room will greatly diminish this annoyance. It is believed by some that a second fumigation should be performed, but if all linen, bedding, and discharges have been promptly disinfected during the progress of the disease and the room has been well aired, one fumigation properly performed will be sufficient, although the safety of this work depends largely on strict attention to details, such as spreading out of the material to be disinfected, sealing the room, and the proper use of disinfectants. In small towns where steam disinfection is not available, mattresses, comfortables, etc., should be burned, if there is evidence that they have been wet with discharges or otherwise soiled. There is no doubt that the danger from mattresses used by persons suffering from infectious diseases is very much over-estimated, particularly where they are covered with a rubber cloth or other good dressings, and in the majority of cases the use of sulphur or formaldehyde will destroy whatever infection may be present. However, such care is not always taken, and mattresses are frequently soiled. For this reason an unwritten law exists calling for their destruction by fire, provided they cannot be treated with steam.

The good results derived from a strict attention to details in the use of sulphur dioxide, as well as formaldehyde gas, has been strikingly shown in laboratory experi-

ments. While the use of steam is almost always under the observation of those skilled in this work, disinfection by sulphur or by formaldehyde is commonly performed in houses or apartments by members of the family, and not under the observation of the attending physician. In these cases a sulphur candle, or a few small pieces of sulphur are burned without the slightest knowledge of the amount of cubic air space present. The sulphur is ignited by the use of a live coal, and little or no attention is paid to the sealing of windows and doors. Disinfection should always be under the direction of the attending physician or a sanitary officer. If the use of sulphur has been decided upon, after ascertaining the cubic air space of the apartment, four pounds of sulphur should be supplied for each one thousand cubic feet of space. This should be broken in small pieces and spread out in the receptacle. If the room is unusually large, it is better to have a number of receptacles, as in this way the pieces of sulphur are not too closely packed together, and the gas is more freely generated and more equally diffused. The use of the live coal as the means of igniting the sulphur should be discouraged, as when depended upon the combustion is very frequently imperfect. The sulphur should be liberally covered with alcohol and ignited by dropping a lighted match into the receptacle, the operator being as far away as possible. In this way the sulphur is almost always all consumed.

I have already referred to the importance of disinfecting sheets, linen, dressings, etc., as soon as they are soiled or removed from the bed. Discharges which constitute a most potent cause of infection should be received in receptacles containing a disinfecting solution, bichloride of mercury 1:1000, or a five-per-cent. solution of carbolic. Many physicians, nurses, and others in attendance on the sick are prevailed upon, principally on account of pleasant odors and strong recommendations, to use proprietary solutions for this purpose. I cannot too strongly condemn this practice, and desire to emphasize what I have already said in regard to this part of the subject, that disinfecting solutions should be freshly prepared and their composition and strength known to those in charge of the patient. It should be remembered that typhoid fever, diphtheria, etc., are often transmitted by the hands of the attendants. Therefore great care should be taken to prevent infection by this means.

While the value of carbolic acid as a disinfecting agent is indisputable, I believe it to be inferior to corrosive sublimate for the purpose to which I have just referred.

It is a common belief that theatres, churches, school-rooms, etc., are frequently infected and require disinfection. This is erroneous. The presence for a short time of a person affected with smallpox or other infectious disease in a church or theatre, does not infect the building and does not call for a disinfection beyond the treatment of the seat occupied by him and of the objects in its immediate vicinity. Disinfection of a large structure, such as a public hall, is a most formidable proceeding, and if properly carried out, requires an almost endless amount of work, and is justified only under the most extreme conditions and the most prolonged exposure. The proper and continuous ventilation of these buildings combined with cleanliness offers the best protection against infectious disease. In schoolrooms the danger is not so much from the apartment itself as from contact with unrecognized cases. In these places children are frequently found who are apparently well, but in reality are suffering from diphtheria, scarlet fever, etc., in a mild form. This is so commonly a factor in the transmission of disease among school children that the New York City Department of Health some time ago appointed a number of medical inspectors, known as the "School Corps," who visit the public schools daily for the specific purpose of detecting mild or ambulant cases of infectious disease. The reports presented by these officers fully confirm the statement I have made regarding the danger from the latter class of cases. There are times when the disinfection of a school-room may be called for. In these instances the woodwork should be scrubbed with soap and water, or washed with

a 1 to 1,000 solution of bichloride, and afterward subjected to sulphur dioxide or formaldehyde disinfection, followed by thorough ventilation. It is my belief that a careful scrubbing of the woodwork, desks, chairs, etc., with soap and water prior to the fumigation, will answer all requirements. We know that soap has strong antiseptic properties, and I am quite sure that the future will show that free scrubbing with this agent combined with thorough fumigation can be depended upon for disinfection not only in schoolrooms but elsewhere.

In ship disinfection the general principles to which I have already referred can be successfully applied. Experience has shown that infectious diseases, when present on shipboard, are found in the fore-cabin and steerage quarters, and rarely in the cabin or salon. Furthermore, modern investigation and practical experience have shown that we have little to fear from a ship's cargo, and unless there is reliable evidence that danger exists in this direction, we are not justified in attempting to disinfect the merchandise found in the hold of a ship. The disinfection of a vessel's cargo is the most formidable and difficult task that a quarantine officer is called upon to perform, and if properly done means the removal of almost every article of the cargo. Furthermore, it must not be forgotten that commerce is entitled to consideration, and that sensible quarantine regulations cannot insure complete protection against infectious diseases.

It is in marine sanitation that the danger from unrecognized mild, ambulant, and convalescent cases of infectious disease is fully appreciated. Sailors as a rule receive but little consideration, so far as their health is concerned, and are not released from work on account of trivial complaints, and it frequently occurs that they are affected with a mild type, or pass through the initial stage, of an infectious disease without any external evidence of it or reference to it on their part. Therefore it is imperative that this class of people shall be subjected to a most critical examination, which at times should involve the use of the clinical thermometer, to detect an elevation of temperature. A vessel may arrive at a port having on board one or more unrecognized or mild cases of an infectious disease either in acute or convalescent form. These persons, apparently in good health may, upon entering the town, transmit infection, but, as they are not recognized as a menace to the public, a subsequent outbreak of the disease is very apt to be attributed to infection transmitted by the ship's cargo or the clothing of those on board or from some other place.

The disinfection of ships may be discussed under two heads: First, vessels arriving with infectious disease on board; second, vessels which come from infected ports but with all on board well both at the time of embarkation, in transit, and on arrival. It is a significant fact that the number of ships treated under the second class is gradually diminishing. This is in full accord with the knowledge we now possess, which goes far to prove that infection is, as a rule, transmitted by persons, and that the danger of infection through cargoes, clothing, mail, etc., is comparatively small. The experiments which have been recently concluded in Havana by Dr. Walter Reed of the United States army, and which have furnished conclusive evidence that yellow fever is transmitted by mosquitoes, have also gone far to demonstrate that the clothing and bedding actually used by persons sick with yellow fever do not transmit infection. However, this cannot be accepted as proof that smallpox, scarlet fever, etc., are not transmitted in this way.

It sometimes happens that a serious outbreak of infectious disease occurs in a seaport town with which we are in direct communication, and where we have reason to believe the inspection of departing vessels cannot be depended upon. Under these conditions we may be justified in performing some disinfection on the ships arriving from the said place, even when no infectious disease exists on board. However, I believe that the good which comes from this extra precaution may rightly be attributed to the possible treatment of the clothing and effects of unrecognized or mild cases which may have developed

in transit unknown to the ship's officer. It must be borne in mind that the master of a vessel is not a physician, and that his statement regarding the character of the sickness which may exist on board, or his opinion as to the health of the crew, should be accepted only as corroborative evidence. Furthermore, the certificate of the ship's surgeon, although given in all sincerity, must not be taken in lieu of an inspection. It has occurred in my experience that, after the captain and surgeon have stated that no sickness existed on board, a careful inspection with the use of the clinical thermometer has detected the presence of either mild cases, or cases in the early stages of some infectious disease.

The treatment and disinfection of a ship having one or more cases of infectious disease on board depends largely on the manner in which the patient has been cared for in transit, the character of the disease, etc. In a general way, it may be said that the patient must first be removed from the vessel, and those who have been exposed should also be transferred to some place where necessary disinfection can be performed, and where these people can be divided into groups and separated from each other, particularly while indoors, and kept under careful observation until the expiration of the period of incubation. Modern sanitation does not sanction the retention and treatment of either the patient or those exposed on board the vessel, if it is possible to remove them to some other place. While they remain on board proper disinfection cannot be performed. After the removal of the persons referred to, all bedding, hangings, etc., should be taken from the section of the ship occupied by the patient or patients, and if possible subjected to steam. If this is not available, it will be necessary for the sanitary officer in charge to use the best means in his power to destroy whatever infection may presumably exist. If the disease has occurred in the steerage quarters which are usually large and hold many people, either the berth occupied by the patient and those in its immediate vicinity, or the entire apartment, may be scrubbed with water and soap or washed with bichloride, 1 to 1,000. To what extent this shall be done depends upon the exposure, etc. However, in such instances we depend principally upon proper fumigation. The treatment of a fore-castle, which is usually quite small and generally overcrowded and filthy, should be particularly searching, as it frequently occurs that sailors suffer from mild attacks of infectious disease which are not recognized. Therefore the appearance of a case of this character among them should be followed by thorough disinfection of the clothing and effects of all who occupy these quarters. Whether or not the disinfection shall extend to the cabin is a matter which depends entirely on the amount of exposure in each case, although in ships of large size, where strict discipline exists, there is but little communication between different sections of the vessel. If smallpox should occur in the steerage or fore-castle, the disinfection of the cabin or saloon would under ordinary circumstances not be called for. If, however, cholera should appear on shipboard, we are justified in disinfecting the living apartments, clothing, bedding, water-tanks, etc., and the destruction of such provisions as may possibly have been contaminated, as in this disease there are many avenues by which its specific organism may reach the system, whereas smallpox is generally contracted by actual contact, or in some cases by infected clothing or bedding. In the fumigation of a ship great care should be observed in preparing receptacles for the generation of sulphur dioxide in order to prevent danger from fire. The immense size of the steerage quarters in some of the large ships would seem to make it more practical to use sulphur dioxide than formaldehyde.

A question which has recently been presented for serious consideration is the possible transmission of bubonic plague by rats and other vermin. It is believed that infected rats steal aboard vessels lying at docks in ports infected with bubonic plague and subsequently transmit the disease to those on board. During the prevalence of bubonic plague at Santos and Rio de Janeiro many ves-

sels from these ports arrived at New York laden with coffee. On one of these vessels three cases of bubonic plague occurred, and it was deemed proper at that time by both the Federal and State Quarantine authorities to have the cargoes of all vessels from the said ports unloaded on lighters at quarantine in order to prevent the possible escape of rats to the mainland. During this period of four or five months, I was able to collect considerable of this vermin, which were all examined bacteriologically, but in no instance was the specific organism of bubonic plague found. The cases of bubonic plague occurring on shipboard which have come under my personal observation have been clearly traced to infection occurring prior to the departure of the vessel, and I believe that thorough investigation will prove this to be the case in almost every instance when cases of this character are found on incoming vessel. Too little attention, however, is given to the frequency of the mild or unrecognized type of bubonic plague, and I feel quite certain that the danger from rat infection on shipboard is exaggerated.

We have yet much to learn regarding disinfection, but the more it receives careful and scientific investigation, the more we find that has been improperly performed.

*Alvah H. Doty.*

**DISLOCATIONS.**—The term dislocation or luxation is used to indicate the displacement of the articular surfaces of the bones composing a joint from their normal position. This displacement may be complete or incomplete. In a complete dislocation no part of one articular surface remains in contact with any part of the other, and in an incomplete or partial dislocation the opposite surfaces are not entirely separated from each other.

Further divisions, commonly made use of, are these:—

1. Traumatic or accidental—due to force or violence.
2. Pathological or spontaneous—the result of morbid changes in the bones forming, or the soft parts surrounding, a joint. Such changes are: erosion, necrosis, softening, etc., in the one case, or paralysis of muscles or relaxation of ligaments in the other.
3. Congenital—the result of a malformation that has taken place prior to birth. It may also occur during parturition, and will then not be strictly congenital, but traumatic or accidental; although this distinction can clearly be made out only by close observation during the development of the condition.

The first division may be further divided, for practical purposes, into:

(A) Recent—when the dislocation has taken place within a few days or a few weeks, a sufficient time not having elapsed to produce material changes, such as result from inflammatory, exudative, or other processes, and which are likely seriously to impede reduction. Recent dislocations, it is clear, are usually reducible.

(B) Ancient or old—when several weeks or months have elapsed since the occurrence of the dislocation. The time which must elapse before a dislocation becomes old varies for different localities of the body and under different circumstances, but in any case it must be sufficient for such changes to have taken place as are likely seriously to interfere with the return of the bone to its proper position, or to render dangerous (to life or limb) any efforts that may be made to effect a reduction, or, finally, to render such reduction or restoration impossible—an irreducible dislocation.

A dislocation is regarded as (a) *simple*, when the separation of the bones is attended by only a limited or reasonable degree of injury to the soft parts, the skin retaining its continuity; as (b) *compound*, when the head of the bone, or a fragment thereof, has been forced through the soft parts and skin, or when in some other way an external wound communicates with the joint; as (c) *complicated*, when there is an extra complication, which may attend either a simple or a compound dislocation. A fracture of one or more of the bones entering a joint; laceration of important blood-vessels, nerves, muscles, integument, etc., although the wound may possibly not communicate with the joint; an extensive or serious vis-

ceral or organic lesion elsewhere in the body—all these are examples of such a complication.

Dislocations may be single, involving one joint; multiple, involving two or more joints; unilateral or bilateral; and entire, as when both extremities of a single bone, as the clavicle, or all the articular surfaces of one or more bones of the carpus or tarsus, are displaced. A bone may be at first lodged in one position—a primary or primitive dislocation; or by accident, or through the efforts made to effect a reduction, it may be removed to another position, when it is said to be a secondary or consecutive dislocation. If after a dislocation is reduced it slips back into the abnormal position formerly occupied by it, the term recurring is used. In regular dislocations certain tissues of special joints are involved; but when other than these are involved, either exclusively or in addition to those ordinarily affected, the dislocations are known as irregular.

Special dislocations are sometimes designated by the name of the joint involved, as dislocations of the shoulder, hip, elbow, etc.; more properly, however, the proximal end or ends of the distal bone or bones involved give the designation; and yet, in the case of the clavicle, it is not unusual to speak of a dislocation of the sternal or of the acromial extremity, and not of a dislocation of the clavicle alone in the one instance, and of the scapula in the other.

**ETIOLOGY.**—In our discussion of the predisposing causes of dislocations, we must consider, first, the forms of the various joints. Thus, for example, the shallow glenoid cavity—if such it can be called, at the shoulder-joint—is quite different from the deep cup-shaped acetabulum, although both are known as ball-and-socket joints. Under normal conditions, the ligaments which enter into the formation of the shoulder-joint—viz., the capsular, the coraco-humeral, and the glenoid—are conspicuously weaker than those which form a part of the hip-joint—viz., the capsular, ilio-femoral, cotyloid, and transverse ligaments, and the ligamentum teres; and consequently luxation can much more readily occur in the former than in the latter. Ball-and-socket joints, from their greater range of mobility, are, as a rule, more liable to luxation than ginglymoid or hinge joints. In the next place we must consider how the different component parts of a joint are altered under abnormal conditions. Thus, for example, by overstretching of the ligaments in early life undue relaxation of the latter may be produced. Such overstretching may be brought about by the abuse of the natural functions of the joint, as well as by the normal growth of the bones themselves. Relaxation of the ligaments may be congenital or it may be the result of disease, which may also produce softening of the capsular as well as of the bones. Excessive action of antagonizing muscles, and defective contractility, from paralysis or impaired nerve function, are not only to be classed as predisposing factors, but may be the direct cause. Age is unquestionably a predisposing factor, and sex has its influence. Habit, occupation, etc., also have bearings upon the question of predisposition. I quote the following from the article of Dr. E. M. Moore, in Vol. II. (p. 485) of the former edition of this HANDBOOK: "The following statistics of dislocations (*Am. Jour. Med. Sciences*, October, 1842) are so complete that we make no apology for inserting them here:

"From an examination of the register of the Hôtel-Dieu of Paris, M. Malgaigne found that, during a period of sixteen years, 530 dislocations were admitted into that institution, of which there were:

Below 5 years old.....	1 case.
Between 5 and 10 years.....	4 cases.
" 10 " 15 ".....	20 "
" 15 " 20 ".....	29 "
" 20 " 25 ".....	32 "
" 25 " 30 ".....	40 "
" 30 " 35 ".....	48 "
" 35 " 40 ".....	38 "
" 40 " 45 ".....	45 "
" 45 " 50 ".....	52 "
" 50 " 55 ".....	52 "
" 55 " 60 ".....	51 "

Between 60 and 65 years.....	51 cases.
" 65 " 70 ".....	42 "
" 70 " 75 ".....	19 "
" 75 " 80 ".....	13 "
" 80 " 90 ".....	4 "
At 90 years.....	1 case.

"Of these 530 cases, 395 occurred in males and 135 in females. Of 497 cases in which the seat of injury was particularized, there were, of the humerus, 321; clavicle, 33; elbow, 26; radius, 4; wrist, 13; thumb, 17; fingers, 7; femur, 34; knee, 6; patella, 2; foot, 20; jaw, 7; spine, 7.

"The frequency of luxations of the shoulder in elderly persons is well shown by the fact that of 164 dislocations observed in patients above the age of sixty, when the seat of injury was mentioned, 131 occurred in this part.

"The dislocations of the clavicle were principally confined to adult life; those of the elbow, on the contrary, were mostly in young persons; one-third of all cases observed being in subjects between ten and twenty; beyond fifty-four no example of it was met with. Of the 34 dislocations of the femur, 26 were in males and 8 in females."

Finally, the position of the joint at the time of dislocation is to be considered. From their position and use some joints, although stronger, are more liable to dislocation than others. Thus, for example, the ginglymoid joint of the elbow is more often dislocated than that of the hip.

Of the direct causes, we consider of first importance violence or force, whether external or internal. In most cases the dislocation results from a combination of forces, being partly the result of a blow and partly that of muscular action; yet either will suffice in some cases. Prof. Frank H. Hamilton\* says:

"The action of certain ligaments in determining the direction of some dislocations, is also a direct cause, but only subsidiary to the other causes named.

"External violence operates either directly or indirectly. When a person falls upon the knee and dislocates the head of the femur, the force is said to have acted indirectly, and this is by far the most frequent mode of dislocation; but when the blow is received upon the upper end of the humerus, and the head is sent into the axilla, it is said to have been dislocated by direct violence.

"Muscular action produces dislocation slowly, as in severe cases of chronic rheumatism, and then it is termed a spontaneous or pathological dislocation; or suddenly, as in the violent spasmodic contractions which accompany convulsions; or sometimes by the mere voluntary effort of the muscles; and both of these latter are true accidental dislocations.

"It is very probable that external force can seldom be regarded as the sole cause of a dislocation, but that, in a large majority of cases, muscular action consenting with shock, performs an important rôle in the history of the accident. The limb, being driven obliquely across its socket by the external violence, is seized by the excited and stretched muscles with such vigor as to contribute not a little to the unfortunate result. Thus it will be found that the same force which is adequate to the production of a dislocation in the living subject is wholly insufficient to accomplish the same in the dead; and a man who is fully intoxicated seldom suffers from a dislocation."

**GENERAL SYMPTOMS AND DIAGNOSIS.**—The most prominent symptoms are pain and deformity; loss of normal function, as shown by impaired mobility, though in some instances we may have increased mobility; change in the length and direction of the limb; change in the natural axis of the limb with its socket; the fact that when the dislocation is reduced, the parts, if undisturbed, remain, as a rule, in position; and possibly crepitus. In some of the joints the peculiar appearance of the one injured suffices to indicate the lesion, yet the swelling from in-

\* "Practical Treatise on Fractures and Dislocations," 7th American edition, 1884; H. C. Lea's Son & Co., Philadelphia.