DISLOCATION OF THE BONES OF THE STERNUM.

By C. B. Lyman, M.D., Denver, Col., Assistant Surgeon, Union Pacific Railroad.

The patient, a passenger brakeman on the Union Pacific Railroad, was twenty-seven years old. On January 22d, while running up an embankment to catch a train, and when nearly at the top, he fell, and struck with his chest upon the end of a projecting tie. He suffered a good deal of pain during the day, and with every breath or movement of the body, he felt something snap at the seat of pain.

I first saw him on January 25th, three days after the accident; the pain had diminished, but he could still feel the snapping. Upon examination I found a depression of nearly an inch just below the line of the second ribs, and in the median line; with forced inspiration there was a distinct cartilaginous grating. In fact, I had to do with a backward dislocation of the gladiolus upon the manubrium, the second rib on each side remaining attached to the manubrium.

Reduction was attempted by manipulation of the fragments, and also by standing behind the patient and drawing the shoulders back forcibly, while the patient was made to take a deep inspiration. This, however, failed. The patient was then taken to the Union Pacific Hospital and etherized; the dislocation was then reduced by Dr. O. J. Pfeiffer and myself by depressing the upper fragment firmly, while pressure was being exerted upon the chest in the axillary line on either side, over the ribs which were attached to the lower fragment, the object being to spring the lower fragment forward at the same moment that the upper fragment was most depressed.

This failed several times; but finally, the patient most opportunely gave a slight cough, owing to fresh ether on the sponge, just at the moment when pressure was being exerted as described, and the lower fragment came forward into line with a distinct crepitus. An adhesive strip was then placed around the chest to hold the fragments immobile for a few days. There has been no tendency to re-dislocation, and the fragments remain in perfect line. This case is of interest for several reasons:

(1) On account of the infrequency of the accident. Poland, in "Holmes's System," says that during the last thirty years "several cases" have been seen at Gay's Hospital.

(2) Its method of production. Most of the cases reported, have been produced by indirect violence; this was produced by direct violence, the end of the tie striking the sternum just below the line between the manubrium and the gladiolus.

(3) Because the lower fragment was displaced backwards. In almost every case on record the upper fragment has been displaced backward instead of the lower one.

RECENT PROGRESS IN PUBLIC HYGIENE.

By Samuel W. Abbott, M.D.

THE ACTION OF DIFFERENT WATER-SUPPLIES UPON LEAD-PIPES.1

Sheffield, in England, has a population of about 300,000. It is supplied with water from several reservoirs, being of moorland origin and furnished by gravity. The high service of the town is furnished from a separate reservoir. Cases of lead-poisoning have been frequent in the town, and there has been an alarming increase of such cases during the past winter, the recent cases amounting to several hundred. On inquiry it was found that these were quite exclusively among the population supplied from the high-service reservoir. The waters of these reservoirs are obtained from different districts; and in the case of the lower-level water the amount of lead per gallon has usually been but a trace only, never more than 0.5 grain even after standing in the pipes all night, while that in the higher-level water has often been found to be as high as 1 grain per gallon, and occasionally as much as 1.5 grains.

The water of the high-service was found to be distinctly acid, and it was claimed that the acid was of vegetable origin, arising from the peat upon the moors.

Certain differences in the character of the supplies may account for the variable action of the water upon lead.

The low-level supply is obtained partly from a reservoir, the water in which has been stored for a long time, and the water of this supply also passes for two miles through a brick conduit, the mortar of which may cause the neutralization of the free acid. These, however, are mere conjectures, since no systematic inquiry has been made. The water company has had blocks of limestone placed in the conduit. Mr. Allen, the public analyst, criticizes this measure, saying that the use of too much limestone will injure the water, and render it as liable to act upon lead as if it had not been thus treated. He says, moreover, that the only rational method of using lime is to introduce it regularly and constantly in powder, or as milk of lime, in such quantity as previous analysis shall have shown to be requisite for the neutralization of the free acid.

The panic produced by this epidemic of lead-poisoning was followed by an alarming waste of water, the taps being kept open for hours at a time. The filter manufacturers drove a lively trade, since it was found that animal charcoal seemed capable of removing lead from the water, probably, as the writer states, in con-