adjoining towns. Ayer is a large railroad centre. The epidemic began here and reached its height from one to two weeks earlier than in places off the line of travel, and, as far as my observation goes, affected a larger number of the inhabitants.

"The only case I saw as medical examiner was one in Pepperell, said by the neighbors and thought by selectmen to have died from influenza, but proved, on examination, to have died of acute alcoholism."

Returns from towns around Boston — Somerville, Medford, Melrose, Arlington, Cambridge, Waltham, Lexington, Concord, Newtonville, Newton — though varying considerably in the dates of first cases, and still more so in different returns for the same towns (Cambridge, for instance, returning November 15th, 24th, December 1st, 23d, as dates of the first case), agree on the average with the Boston returns, as do those also of the date of the maximum week. Returns from Framingham and Hopkinton, in the southwestern corner of the county, agree as to dates with those from Boston.

The percentage of the affected varies from 75% in five returns to 10% in two returns. It also varies within these same limits for different returns from the same place. The return of the medical examiner, resident at Somerville, estimated 75% of the population attacked; another return from Somerville names 10% as proportion. The average percentage of twenty-four returns tabulated is 44%.

Sex. — Fifteen returns specify the male sex as suffering either most numerous or most severely. Of these, one reads: "Males who were most exposed to weather and hard work"; one return says: "In numbers, females suffered more; in severity, sexes alike"; one return says: "More cases among females, more complications among males"; one return says: "Females more frequently attacked, in the proportion of 3:2."

Other Diseases. — Eleven returns state that pneumonia was increased, and eight that pulmonary diseases were increased; one return states that there was less pneumonia than usual; one reply, affirming an increase of pneumonia, expresses doubt whether "the pneumonia had any direct connection with the influenza, or whether it was an independent disease attacking those already debilitated"; and another reply is accompanied by this comment: "Most cases of so-called pneumonia following influenza are in reality cases of congestion, not croupous pneumonia." Another return states: "No diarrhoea, no constipation, no diseases increased in frequency or severity."

A member of the Board of Health of Lowell writes: "Scarlet fever, which had been rapidly increasing for four weeks, with the first week in January (the maximum week of influenza), suddenly decreased, and the same is true of diphtheria, though in a less degree." This coincides with a return from Lawrence previously alluded to.

(To be continued.)

—The *Medical Record* says that seventeen fatal cases of poisoning from antipyrine occurred in one week in Vienna during the prevalence of the influenza. In many of these cases the drug was bought by the victims themselves without a physician's prescription; but, partly in consequence of these fatalities, it is now illegal to sell antipyrine except upon a written prescription from a physician.

Original Articles.

COLLES' FRACTURE WITH ESPECIAL REFERENCE TO TREATMENT.¹

BY R. C. HUSE, M.D., GEORGETOWN, MASS.

At the risk of being accused of pedantry, I invite your attention to the above subject, hoping in the course of the discussion of the topic to elicit some new facts from my brethren, while at the same time contributing my experience in a number of cases occurring in twenty-four years of country practice.

With one exception, the clavicle, no bone is more frequently fractured than the lower end of the radius; according to Stimson, occurring more frequently in elderly women. Mentioned first by Poteau about the year 1783, it failed to attract much notice until 1814, when Richard Colles succinctly and accurately described it, and with that degree of success that the title "Colles' fracture" has come down to us as a distinctive appellation, and serves as a monument to mark the wisdom and the genius of a great man.

Probably the difficulty of thoroughly understanding the pathological condition of the parts arises from infrequent opportunities for dissection. I may here remark that Professor Morton, of Philadelphia, has, since this was written, January, 1890, dissected and reported a typical case, in which the lower fragment with the hand was to be plainly seen overriding the upper extremity.

Certainly the fact exists that in times past many cases have been considered dislocations of the wrist, and, in consequence thereof, have been subjected to severe and unnecessary force for the reduction of the same, to the great detriment of the tendons and the large nerve trunks lying in close relation to the broken ends, the result being a far worse condition of affairs than if left alone, and in the same unreduced condition they were actually and finally left.

Even as late as the year 1821, Sir Astley Cooper, one of our great surgical lights, evidently confounded it with dislocation of the wrist, and thought that powerful extension would restore the parts to their normal condition; and not until 1830 did Dupuytren assert and maintain the fact of the existence of such a fracture, both evidently unaware of the discovery of Colles.

Early in professional life, I chanced to see a marked case of Colles' fracture entirely unrecognized and consequently left unreduced, incurring great misfortune to the patient and no little discredit to a valued member of "Essex North." Not many years after, another worthy member was severely mulcted in damages for the same sin. These to me, then quite young, were of the nature of night-riding incubi and full of warning. Added to these are the unfortunate results in three cases of my own; the whole serving as a stimulus to inquire as to the factors entering into success or the converse.

Rarely, does the average doctor nowadays make a faulty diagnosis, the surgical landmarks being so well established that the fairly booked man has no trouble in making his diagnosis at a glance. The cause is almost universally conceded to be a fall upon the hand, causing extension or hyperextension. The weight and momentum of the body being suddenly thrown upon the ball of the thumb, which is firmly

¹ Read before the Essex North District Medical Society.

articulated with the trapezium and this in turn with the scaphoid bone which forms the chief part of the radio-carpal joint, transmits the whole force to the radius. Now a glance at the anatomy shows that the radius alone enters into the articulation and a still closer view shows that the bone is not in its entirety perpendicular to the blow, which, therefore, renders it less able to resist with integrity to its structure. The combined forces of the blow being transmitted at an angle to its perpendicular gives a cross strain which divulses, so to speak, the head from the shaft. The pronator quadratus being thus unopposed and probably injured by the fragments tends to draw the shaft toward the "flexors" and laterally toward the ulna, allowing the lower fragment to ride upon the upper, hence the resemblance to a "silver fork." Now the ulna is about the same length as its fellow, the radius, and, while the latter is shortened by overriding or displacement, itself is forced out laterally and downward by the force and weight of the body, causing the characteristic deformity on the ulnar side; and if the anterior and posterior radio-ulnar ligaments are separated, then the escape of the bone from its articulation with the radius is still more marked.

With these causes entering into a typical case of Colles' fracture, it may well give the practitioner opportunity for study and occasion for solicitude as to its outcome. With a case well diagnosed, treatment is, of course, the immediate sequence, and that has many and varied authorities. Stimson, as well as others, considers that in this fracture especially thorough reduction is essential to success.

This might equally well be said of all fractures. But there seems in times past, if not in the present, to have been many obstacles in the way, judging from results in cases seen by the writer. One of the greatest hindrances to the reduction of the parts is their extreme hyperaesthesia; in fact, pain is one of the most constant factors in making the diagnosis. This renders the muscular spasm almost irresistible, and to my mind goes far towards making up the frequent diagnosis of impaction. At any rate, it is a fruitful source of the violent extension and rough usage to which many wrists are submitted, and which are so depreciated by all authorities.

To avoid these causes, fruitful of disaster alike to doctor and patient, anaesthesia is of the greatest advantage. To speak from experience, my worst results were, in every case, put up without; two of them, however, apparently being so little displaced that I deemed it quite possible to restore them *in situ* without the use of ether. These cases were all in females, which are, according to one authority at least, the most prone to bad results. Given then, a fracture of the wrist, presumably of the radius, *ergo* a Colles', the *sine qua non* is complete anaesthesia. After that is accomplished, it is surprising to see how a supposed impaction turns out to be muscular spasm; and where before the strongest kind of extension failed, now the weight of the hand almost suffices to restore the parts to position. And I know that in one case, merely grasping the hand as in hand-shake, the extension not being noticeable, served to perfectly set the bones and they remained fixed. Finally, if the radius is left shortened, or in other words, left unreduced, just so much is the ulna longer, and the hand is drawn back to the radial side, leaving the styloid process of the ulna out of line with the side of the hand, so that it

is not so much a dislocation of the ulna, as of the hand towards the radial side of the arm, away from the ulnar.

As to the retention of the fracture many authors have sought out many devices, each one striving to carry out in his splint, the principle which avoids the characteristic deformity. Perhaps the most familiar are Bond's and Dupuytren's, both of which tend to draw the hand to the ulnar side with a view that in so doing the tendency of the ulna to protrude would be avoided, at the same time keeping up extension on the radial side, which was necessary, in their opinion, to counteract overriding. Other splints looking more at the anatomical shape of the radius, as Carr's and Levis', have, in later years, received favor at the hand of the profession; the former, Carr's, is probably the development of the shingle and piece of broomstick. Carr seems to have seen the need of support to the upper part of the radius which curves to quite a degree, and which in the ordinary flat splint is left quite unsupported, however well it may be padded. It is well-known and is much in use at the present time, it retains the parts well, but requires pretty frequent supervision; it has done much, however, towards lessening the number of deformities.

Within a few years, Dr. Levis, of Philadelphia, has offered to the profession an anatomical, metallic splint, perforated with many holes, these perforations opening from within outward, serving to retain the bandages and at the same time contributing to lightness. When lined with a layer of wadding, or two or three thicknesses of old muslin, they are wonderfully comfortable, and from their conformity to the shape of the limb, they give the doctor and the patient more of a feeling of security than any other contrivance. This is no small item when one lives at a great distance from the patient, as the writer can speak from experience in a case happening last winter.

If, then, the fracture is well reduced there are several splints that may be of service, but to the writer the Levis is of great value for reasons before mentioned. Freedom of the fingers is insisted on by many writers. This seems to me to depend upon the ability of each patient to move them, varying according to the amount of inflammation incident to each injury. The Levis certainly allows as much of this as any, and, if support for the fingers is needed, this splint is extremely grateful. The amount of the time essential to union is about thirty days; in one case of my own, however, shortening and marked deformity began about the fifth week, going to the extent beyond the original displacement; whether it was not reduced, as before hinted, or from absorption, is an open question.

Since finishing this article, I have visited my two last cases, and find that consolidation was not complete at the end of five weeks in one, as evidenced by the gradual shortening of the radius and a consequent extension of the ulnar. This was one of the cases which was unsatisfactory, being reduced without ether. The other case occurring at the same time in a female of sixty-two, with far greater displacement, is as fine a result as one could desire. This was reduced with ether.

Within a short time, I have seen another case which I had the good fortune to see at the first, but did not reduce, it having been attended by one of the oldest members of "Essex North." I suggested

at the time, as he was quite muscular and there was much displacement, that he should not have it set without ether, but his surgeon said there was no call for it.

This was three years ago. There is now protrusion of the ulna, great weakness of the wrist, with much difficulty of pronation; the most of which, I venture to say, would have been avoided, had reduction under ether been attempted. According to the patient's statement, much violence was used, while only partial success was obtained, as the result shows.

RÉSUMÉ.

Colles' fracture is a divulsion of the head of the radius from its shaft.

The deformity arises from the overlapping of the fragments, the consequent shortening of the radius and the dislocation of the ulna from its fellowship with the radius. Complete reduction is the only cure against deformity. This is much more easily accomplished and far better results are obtained with anaesthesia.

Many cases are considered to be impaction simply because of extreme muscular contraction, and consequently left unreduced where complete anaesthesia would clear up the whole matter and bring about satisfactory results.

A CASE OF MALIGNANT ENDOCARDITIS SECONDARY TO COLITIS: REMARKS.¹

BY FREDERICK C. SHATTUCK, M.D.,

Jackson Professor of Clinical Medicine, Harvard University; Visiting Physician to the Massachusetts General Hospital, etc.

A MAN, thirty-four years old, a cook, of good family and previous history, was admitted to my ward December 5, 1889. Four weeks before entrance, without known exciting cause, his bowels became loose, moving sometimes eight or nine times daily without pain or tenesmus. A small amount of blood was noticed on the toilet paper, and at the end of a week he first inspected the dejections. He then found that he was passing at times fresh blood without clots, the maximum amount of blood being estimated by him at six ounces. The frequency and character of the discharges remained about the same until a few days before entrance, when they became less frequent and less bloody. The day of entrance he passed, for the first time since the onset of the intestinal affection, a semi-solid motion. He remained at his work until ten days before entrance, when pain, swelling and tenderness in the shoulders and right hip came on with malaise, and compelled him to take to his bed.

At entrance to the hospital the pulse was 100, respiration 24, temperature 101.4°. Physical examination of the internal viscera was absolutely negative, except that the first sound of the heart struck me as rather sharp and valvular. The shoulders and the right hip were painful, especially on motion, and tender; the former were somewhat swollen. Under treatment, the articular inflammation gradually subsided, the right ankle, however, becoming involved; the intestinal symptoms also abated, and within ten days the motions became perfectly normal in every respect, remaining so until death.

The heart was carefully examined every day, and on the eighth day after entrance, a faint, soft, systolic

murmur was heard, limited to a small area over the fourth left costal cartilages. Later, this murmur increased somewhat in intensity and in the area over which it was audible, but never became very loud or diffused; it was never as loud at the apex as midway between that point and the base. No cardiac enlargement was detected, and no further murmurs were developed.

December 12th, the seventh day after entrance, the patient called attention to a "boil" on the inner aspect of his right leg, rather nearer the ankle than the knee. This proved, on examination, to be an abscess, somewhat raised above the surface, with but little surrounding inflammation, darkish in color, with undermined edges. Incision was followed by the escape of about two ounces of pus. A similar abscess was found over mid-sternum, and was also opened. The next day another abscess was found over the seventh rib in the left posterior axillary line. Subsequently two more appeared, one on the left leg, the other on the left great toe. The skin over the abscesses sloughed, and the ulcers spread more or less in spite of the most careful dressing. The tissues about the abscess on the right leg, the first to attract attention, underwent rapid necrosis, and it was daily necessary to trim off an edge at least a quarter of an inch wide.

By December 28th, the ulcerated surface completely encircled the leg, but the general condition of the patient was better, the appetite and digestion were good, he read and played cards. The smaller ulcers were healing, and early in January, 1890, were completely cicatrized. The large ulcer also made rapid progress toward recovery, and was nearly closed at the time of death.

Early in January tympanitic distension of the upper abdominal segment first appeared without tenderness and persisted, gradually though very slowly increasing to the end; but the digestion remained good, and large quantities of nourishment were taken without inconvenience almost to the last. The heart grew weaker, a small bed-sore formed over the sacrum, finally vomiting occurred, and became persistent; nutrient enemata were not retained; the dejections were somewhat loose, but normal in color and free from any gross abnormal constituent.

January 14th, at 2 A. M., he died.

Two or three weeks before death, Dr. Henry Jackson, at my request, was kind enough to make culture experiments with both the blood and the contents of one of the abscesses, which was opened at the time and for the purpose. The most approved methods were adopted and carefully carried out, but all the culture experiments were negative.

Summary.—A vigorous man in the prime of life is taken with the symptoms of intestinal ulceration, probably seated in the colon. After two to three weeks, a polyarthritis, apparently rheumatic, appears. The symptoms of the former soon disappear completely, those of the latter subside. Fever, however, persists; a systolic murmur appears and gradually grows more distinct, but is never as loud over the mitral or aortic valves as between them; multiple superficial abscesses form and spread for a time with great rapidity, but ultimately heal; tympanitic distension comes on in the region of the transverse colon; death occurs from exhaustion six weeks after entrance to the hospital, ten weeks after the first symptom indicative of disease.

Clinical Diagnosis.—Malignant endocarditis, prob-

¹ Read before the Boston Society for Medical Improvement, April 28, 1890.