of mists, exhalations and fogs it has, unfortunately, often been confounded with humidity.

10.—The chief atmospheric conditions modifying health, and therefore causing disease, are sudden and violent *daily ranges in temperature*, and secondarily in *relative humidity*.

11.—The *barometer* is an important but too frequently neglected instrument. A single observation of it gives us nothing that is of true value until it has been compared with preceding and succeeding inspections. The barometer should then be in a physician's office for daily use and not for mere display.

12.—We know, beyond doubt, the influence which certain low and wet localities exert upon health, but we do not understand completely the Why of this influence, so that we are not yet able to formulate with precision the general law under which our empirical observation is a particular instance.

13.—I venture the prediction that when in future years our knowledge of the electricity of the atmosphere is more completely studied we shall find in that mysterious force some solution of this problem. But I spin no gauzy theories upon the subject.

A SUCCESSFUL CASE OF GASTROTOMY FOR REMOVAL OF FOREIGN BODIES.¹

BY MAURICE H. RICHARDSON, M.D.

I WAS called to see Miss X., about thirty years of age, on Sunday, the 26th day of January, 1890. On the preceding Friday morning she had swallowed a gold pencil-case. On Saturday morning she attempted to swallow an open safety-pin of large size. This stuck in her throat, and she pushed it down with a steel crochet-needle. Soon after, she swallowed the crochet-needle and several common pins. On Sunday morning she first told of it. When I first saw her she was very comfortable. The attending physician was of the opinion that her statements were to be relied upon, and that she did actually swallow these things. I was shown a steel crochet-needle and a safety-pin, which she said were about the shape and size of the ones swallowed. She also gave a description of the gold pencil.

On physical examination nothing could be detected. There was no constitutional disturbance at this time. I advised her to be brought into the Massachusetts General Hospital, where she could be watched for a few days. On arrival at the hospital she said that she had considerable pain at times, and had had much discomfort on swallowing. There was pain on pressure in the throat and in the epigastrium. She could not localize the pain exactly, but described it as deeply seated. She was perfectly rational and composed. She was quite conscious of the gravity of the situation, and was desirous of having an operation done. From what description I could get of the articles said to have been swallowed, I thought that none of them would cause any trouble except the sharp crochet-needle. This was about five inches in length, of steel, and had a very sharp point, used in working fine thread. It did not seem to me possible for this object to pass the sharp curves in the duodenum. For this reason I was in favor of opening the stomach at once, although some twenty-four hours had elapsed since the needle had been swallowed.

¹ Read at the Meeting of the Surgical Section of the Suffolk District Medical Society, May 7, 1890.

At a consultation held on the following day, Monday, the prevailing opinion was against operative interference: first, because of doubt as to whether she had really swallowed these things; second, because there were no sufficiently urgent symptoms. The point in the discussion, at this and subsequent consultations, was as to the possibility of the straight, sharp crochet-needle passing safely through the intestine. The same evening, at the Improvement Society, after Professor Dwight's demonstration of the anatomy of the duodenum, I made several measurements with the needle, which was said to be precisely similar to the one swallowed, with reference to the possibility of its passing the curves of the duodenum. I came to the conclusion at that time that it would be very difficult, if not impossible, for this sharp instrument to get safely through this part of the intestine; and I was confirmed in my belief that the safety of the patient demanded interference.

On the following day, Tuesday, the temperature rose to 103° at night, and there was considerable discomfort and pain. I therefore decided to explore the abdomen on the following day.

Wednesday, January 29th, I opened the abdominal cavity in the median line, between the ensiform cartilage and the umbilicus, by an incision four inches in length. There was a thick layer of fat at this point, which made the exposure of the stomach quite difficult. The pyloric end of the stomach was seized, and drawn out of the abdominal wound. I felt at once the sharp point of some foreign body, which I supposed to be the needle. On getting it well between my fingers, I found that it was the open safety-pin sticking into and through the posterior walls of the stomach, just above the pylorus. This I removed through a longitudinal opening, half an inch in length, in the anterior wall of the stomach, two inches from the pylorus. I then explored the stomach itself with various instruments, to feel, if possible, any other foreign bodies. Nothing could be felt in this manner or by digital examination. I next explored, as carefully as possible, the duodenum and the intestines as far down as the ileo-cæcal valve. Nothing abnormal whatever could be felt. Thinking the needle must be in the duodenum, I made another careful examination of that region and satisfied myself that nothing was there, although from the subsequent history of the case I am convinced that I was mistaken. Previous to the digital exploration of the stomach and intestines I made a temporary suture of the opening through which the safety-pin had been extracted. At the close of the exploration this was in such good shape and held so well that I left it. The patient recovered well from the ether and from the operation. Nothing had been taken by the mouth for twelve hours preceding the operation, and nothing escaped from the stomach while the pin was being removed. Great care had been exercised in the preparation of the patient and in the sterilization of the hands of the surgeon and assistant.

The temperature on the day of admission, in the evening, was 100°; on the following night, 102 1-2°; on Tuesday, 103°; on the night of the operation, 102°; and on the following day, 101°; whence it went quickly to a normal line.

On the 4th of February she passed the pencil. It was of gold, with rounded ends, and about a quarter of an inch in diameter. There was nothing about it

which would in any way hinder its passage through the entire alimentary canal. On the 14th of February she passed one of the common pins.

The patient rapidly recovered her strength after the operation, and was soon able to take abundant food by the mouth. The stitches were removed at the end of the seventh day.

On the 7th of February, nine days after the operation, the temperature began to go up, and a slightly fetid discharge was noticed from the dressing. On exploring the wound, at least a pint and a half of foul pus, with distinctly faecal odor, was evacuated from the depths of the wound. Exploration with the probe showed that the abscess was a localized peritonitis, and that the pus had become infected in some way from the alimentary canal. I came to the conclusion that the needle had perforated some part of the intestine high up, probably the lower part of the curve of the duodenum. I have seen no reason as yet to change this opinion. I fully expected to find the needle in the abscess cavity, but although I explored very thoroughly, nothing could be felt suggestive of a foreign body. By careful irrigation the abscess rapidly closed, and on the 10th of March the wound was entirely healed. During this time she had no unpleasant sensations whatever, except a feeling of discomfort about the epigastrium, which she called dyspepsia. Since leaving the hospital she has been in the best of health and spirits.

The most interesting point in connection with this case is, whether it is possible for a steel needle, five inches in length, with a sharp point and a hook on one end, to pass through the duodenum. I think it doubtful whether it would go through the rest of the intestine, even, and that it is almost impossible for such a thing to get as far as the jejunum. I was able by manipulations to pass through the duodenum of a cadaver a director of about this length, but the point of an ordinary director is much less sharp than the point of this needle.

There is so little danger in opening the stomach that I should not hesitate to resort to this procedure in all cases where there is any question as to the possibility of the foreign body getting safely through. The experiments of Senn, and very numerous clinical cases, have shown us that substances of most remarkable shape and size may successfully pass through the intestines; so that one would hesitate before saying that an object could not pass through which had successfully entered the stomach. For the purpose of removing the open safety-pin, which apparently had caused all the trouble there was in the stomach, and the pencil and the common pins, I should not have thought for a moment of performing this operation. I did, however, think the presence of the sharp crochet-needle a great menace to the patient's life, and in a similar case, where it was certain that the patient had swallowed an object five inches in length, sharp on one end, I should not hesitate immediately to perform gastrotomy, which is one of the safest of abdominal operations.

— Dr. William Lomax, an aged and wealthy physician of Marion, Ill., has given his entire estate, supposed to amount to \$100,000, to the Medical College of Indiana. The college has been reorganized to meet the views of Dr. Lomax, and is chargeable with a small annuity during the life of the doctor and his wife.

EXCISION OF THE KNEE FOR ANGULAR ANCHYLOSIS: REPORT OF FOUR CASES.

BY ROBERT W. LOVETT, M.D.

ANGULAR ankylosis of the knee-joint, from whatever cause it arises, is a particularly disabling and distressing deformity. Especially is this the case in women, with whom walking without crutches is rendered impossible, for the reason that when one leg is so much shorter than the other, on account of the bend at the knee, the skirts would drag on the ground every time that the short leg was stepped upon, to an extent that would make progress impossible. With men the deformity is unsightly and the occasion of much discomfort, but it is not the positively disabling affection that it is in women.

Operations for the relief of the condition are so simple, and so satisfactory in their results, that the subject seems to merit more consideration than it ordinarily receives.

The following cases are of interest chiefly as a group, because they represent the same deformity due to three widely-differing causes, and because the affection was so severe that each of the patients was crippled by it, and gladly consented to any operation which promised relief.

In each of the cases excision was done, with the removal of a wedge of bone from the affected knee, so that the limb could be straightened. Two other operations are recommended by modern surgical writers, for the relief of this condition, *brisement forcé* and osteotomy of the femur.

In all of these cases an attempt was made, under ether, to straighten the limb by manual or instrumental means before resorting to a cutting operation, but no justifiable amount of force produced any effect. Had the ankylosis been of more recent date, this method might have proved useful, but during the operation the ankylosis was seen to be bony in all but the last case.

The operation of osteotomy above the condyles of the femur, with subsequent transverse fracture of the bone, has been recommended by some French and German writers;¹ but it has obvious objections in cases of angular ankylosis at the knee, unless the deformity is very slight, because when the leg is straightened, the lower fragment of the femur, below the fracture, is carried forward, and forms an unsightly bony prominence on the front of the leg, which is very marked in cases of severe deformity.

Proceeding without further comment to the cases in question, they were as follows:

CASE I. Mary R., age sixteen. Angular ankylosis of the knee, due to infantile paralysis.

The girl suffered from an attack of infantile paralysis in early childhood, which attacked the entire right leg; and the resulting disability was so great that, for a time, the limb was useless, and ankylosis of the knee in a flexed position resulted in the course of time. When seen, she was unable to bear any weight on the limb, on account of the flexion of the knee, which was bent about sixty degrees. There was a certain amount of knock-knee present, due to the overgrowth of the internal condyle of the femur. Motion at the knee was absent; and the whole limb was wasted, blue and cold, and the patient unable to walk without crutches.

¹ Revue d'Orthopédie, March, 1890.