old, the two sounds had evidently approximated, and the first sound was the longer and stronger. At 3 years of age, the two sounds have in all cases had the character and rhythm they present in the adult.

These are the results of my investigations up to the present time; whether they may be confirmed or corrected by other observers, or whether they may be of any and of what physiological importance, time alone can show. If they are correct, it will be satisfactory to have even a small addition to our knowledge; if they are erroneous, I shall be the first to welcome their overthrow. I think it would be quite premature at present to attempt any explanation of the phenomena I have noticed; I am far more anxious to make sure of the facts; and my especial reason for bringing the matter before the profession so soon, is the hope of engaging others to test most carefully and rigidly the accuracy of my observations. Instead, therefore, of any theoretical explanation, or physiological or pathological inferences, I shall conclude by simply enumerating the deductions which my observations seem to me to justify.

1. That the pulsations of the foetal heart range from 110 to 160 per minute, the average being somewhere about 136, and the audible sounds double, therefore ranging from 220 to 320.

2. That of the two sounds, the first is the weaker and less distinct; the second loud and distinct: the first audible only within a short distance of the foetal heart; the second over a considerable extent of the uterine tumor.

3. That the rhythm may be expressed by dividing the entire period of a pulsation into four parts, and placing a dot at the right of the figures, according to the succession of the two sounds, as 1· 2· 3 4, and an accent over the louder sound.

4. That immediately after birth, the first and second sounds of the heart become equally loud and distinct from an increase in the first sound.

5. That the rhythm changes, and may be expressed thus 1· 2 3· 4.

6. That this peculiarity of the rhythm continues for about a year and a half, and then gradually changes to that of the adult, expressed thus: 1· 2· 3 4, with the first sound stronger and louder than the second.

March, 1855.—I have taken every opportunity of investigating this subject since the foregoing was read before the Dublin Obstetrical Society (in Jan., 1853), and I find no reason to alter the opinions therein expressed.—*Dublin Quarterly Jour. of Med. Science.*

ON THE IMPORTANCE OF ESTIMATING THE AVERAGE DURATION OF DISEASE.

BY FRANCIS MINOT, M.D.

[Communicated for the Boston Medical and Surgical Journal.]

A CORRECT estimate of the average duration of acute disease when uninfluenced by active medical interference, is of great importance

in determining the value of the treatment employed in any particular case. The want of such an estimate is one reason why so great a variety of remedies are vaunted by different practitioners in the cure of certain maladies; for when a disease has a tendency to run a certain course, the method employed often gets the credit of the cure which should be awarded to the natural tendency to restoration inherent in the system. The difficulties in the attainment of such an estimate are often very great. The physician, especially if he have an exaggerated idea of the powers of his art in the curing of disease, naturally feels a reluctance at trying the *experiment* of trusting his patient to the unassisted efforts of Nature; and even when the case is thus left to itself, there are certain conditions, such as the age, temperature, and circumstances of the individual, the character of the epidemic, the season of the year, and many other considerations, which must be taken into the account, in judging of the average duration, no less than the prognosis of the disease. Another difficulty arises from the impossibility of always ascertaining the exact commencement and termination of the affection.

Acute pneumonia is a disease, which, when uncomplicated, usually runs a definite course, and is easily diagnosticated; it would seem, therefore, to be peculiarly appropriate for investigations of this nature. The object of this paper is to invite attention to the subject, and to urge upon practitioners the importance of making careful observations upon cases of pneumonia, especially with regard to the duration, when the disease has not been subjected to much active interference, as the first step towards arriving at the best method of its treatment. In this inquiry it is of importance to note the age, sex, and previous health of the patient; the hygienic influences which surround him; the supposed cause of the attack; the extent of the disease, especially whether it be single or double; and its complication with other affections, or the reverse. The commencement of pneumonia is generally sufficiently marked by pain, with shivering and other constitutional disturbances, though in some cases, especially when it is the sequel of other maladies, its approach is so gradual that the moment of invasion is with difficulty determined. Its termination is much less easily ascertained. It is, in fact, impossible to say at what precise time the disease may be said to be finished, so gradual is the transition from a morbid condition to the healthy state. Indeed, according to Grisolle, after patients are apparently well, and able to resume their usual occupations without inconvenience, the majority of them have more or less cough; and a careful exploration of the chest proves that the lung has not entirely recovered its permeability. It becomes necessary, then, in making our observations, to fix upon some arbitrary point during the convalescence, as the period of recovery. That adopted by M. Louis (in his *Researches upon the Effects of Bloodletting in some Inflammatory Diseases, &c.*), is the time at which the patient begins to take some light nourishment, three days, at least, after the febrile action has ceased, although, in some

cases, before the local symptoms have disappeared. The same period is adopted by Grisolle, and also by Dr. James Jackson, in estimating the effects of bloodletting and tartarized antimony on the duration of pneumonia, in his appendix to Dr. Putnam's translation of Louis's work.

I would not be understood as recommending the physician to abandon all treatment in cases of pneumonia, in order to study the natural history of the disease. We believe that in many cases the duration may be abridged, the sufferings of the patient alleviated, and his life saved by active medical treatment. Yet there are many other cases in which there is no indication for active interference; where the only remedies required are such as cannot be supposed to shorten the period of sickness, although they may contribute much to the comfort of the patient. The recorded observations of such cases would be a valuable addition to our knowledge, by affording a basis for investigations of the effect of remedies. The following case may, perhaps, with propriety be subjoined, as an instance of rapid recovery of pneumonia, without active treatment.

Thomas Selden, a negro boy, aged 14, apprenticed to a tailor, had always enjoyed good health, and had not been particularly exposed to cold, though he had been in the habit of sitting on the curb-stone of the sidewalk during the evening, the weather having been warm for a few days before his illness. On the evening of May 14th, 1855, he was attacked with pain in the side and cough, with sweating. He was first seen on the 18th. At this time I found him lying in bed, with a hot, dry skin, and a pulse of 96. The tongue was moist, with a brownish coat. There was a frequent cough, causing great pain in the right side, as did also a long inspiration. The cough was accompanied by tough, gluey, bloody expectoration. The lower two thirds of the right chest were dull on percussion, and in the same region was an abundant fine crepitant râle, with distant bronchial respiration. On the left side the physical signs were normal. There was no appetite; moderate thirst; no sleep, on account of the pain and cough. He was ordered some spirit of nitrous ether, with solution of acetate of ammonia, a sinapism to the chest, and Dover's powder at night.

The next day (19th) he was better, though the pulse continued the same. The râles were rather larger, and the bronchial respiration more distinct. He had expectorated about four ounces of orange-colored, gluey sputa in twenty-four hours. On the 20th he was sitting up, at the time of the visit, and took some broth. His medicine was omitted. On the 22d, after sleeping well, he had an excellent appetite. The percussion was still dull in the lower right back, and there was a mixture of coarse and fine râles during inspiration, with occasional distant bronchial respiration. He expectorated, in twenty-four hours, two ounces of colorless sputa, the lower part being adhesive, the upper watery and slightly frothy.

On the 23d his pulse was 64, and he had beefsteak; on the

24th he walked out. His pulse on the 25th was at 60. There was still some dulness on percussion in the lower part of right back, and the respiratory sound was feeble, and occasionally tubular. There were no râles. The voice was somewhat resonant in the same place. I was called to him again on the 5th of June, and found him complaining of cough, pain in the side and sweating. He had exposed himself to cold while fishing. He was ordered quinine, oxide of zinc at night, and a stimulating plaster to right back. He recovered perfectly in a few days.

This boy may have been considered convalescent on the 23d, nine days after the attack, although he had some return of the symptoms twelve days afterwards, in consequence of an imprudent exposure. Evidently the shortness of the case could not be ascribed to the remedies taken. According to Grisolle, in forty-five cases which terminated favorably, convalescence commenced on an average at about the *tenth* day; it is remarkable, however, that this eminent authority does not treat specially of the duration of pneumonia. In thirty cases reported by Dr. Jackson, the average period was a little more than thirteen days. The average given by Louis is much larger. In these estimates no distinction is made by the writer of this paper respecting the age and condition of the patients, or the treatment employed. Until the average duration of a considerable number of cases, uninfluenced by active interference, is obtained, the treatment of pneumonia must remain to some extent unsettled.

MEDICAL AND SURGICAL EXPERIENCES AT THE HOUSE OF INDUSTRY.—NO IV.

BY C. E. BUCKINGHAM, M.D., FORMERLY PHYSICIAN TO THE INSTITUTION.

[Communicated for the Boston Med. and Surg. Journal.]

Fracture of the Base of the Brain.

G., AN American, aged 48, of intemperate habits, fell about his length backward down the stone steps of the Franklin House, striking his head upon the steps. He was taken up insensible, having arterial hæmorrhage from the right ear. This was between 11 and 11½ o'clock on the night of October 16th, 1850. He was carried to the House of Industry Hospital, the next morning, where I saw him at 10½ A.M.

Condition.—On the left side, with knees drawn up. Surface cool and feet cold. Insensible to tickling, but roused by severe pinching. Unable to answer questions. Respiration regular, 13 in a minute, and not stertorous. Pulse 50, small and intermitting. Has been bleeding from right ear and nostrils, but the hæmorrhage has stopped. There is an external scalp wound, nearly straight, horizontal, about 2½ inches long, on the right parietal protuberance, passing down to the bone, which is not, however, denuded. No frac-