

EXAMINATION OF THE GASES
CONTAINED IN THE
CAVITY OF THE PLEURA
OF A PERSON AFFECTED WITH
PNEUMO-HYDROTHORAX.

By M. MARTIN SOLON, *Physician to the
Hopital Beaujon, Paris.*

A BAKER, aged thirty-six, apparently of strong constitution, enjoyed good health up to the month of May, 1834, at which time he was seized with hæmoptysis, which continued for twenty-four hours. This was followed by a catarrhal affection, which obliged him to remain twenty days in the hospital. After this he returned to his occupation; but four days afterwards, a restrained and distressing cough, accompanied by a sanguineous expectoration, forced him to give up his work. Returned to his family, this person experienced much anxiety for many months. Upon the 8th of September 1834, he suddenly felt a sharp pain in the right side of the chest. Afterwards he was seized with a shivering fit, which was of short duration, and he was compelled to return to the Hopital Beaujon the next day.

He is now sensibly emaciated, the respiration is quick and short, the cough dry, and accompanied by a sharp pain in the right side of the breast, which is so acute, that percussion can scarcely be borne. The pulse is strong and frequent; he has no appetite; the tongue is red and moist; the bowels are costive. The patient is so severely held, that the medical investigation is very painful to him. Ordered to be bled at the arm, and fifteen leeches applied to the pained part of the chest; julep, pectoral ptisan; low diet.

The pain of the side was diminished by the abstraction of blood by the leeches, and was entirely removed by the application of *flying blisters* over the thorax. We can now examine the state of the case very accurately. The fever and dyspnœa continue; he remains seated in his bed; he can nevertheless lie down upon either side, for a very short time, but when he attempts to lie upon the left side, he experiences an augmentation of cough, which forces him immediately to resume the sitting posture. The right side of the chest is evidently more distended and augmented in volume than the left. The respiration is on the left side *puerile*, and is now considerably removed from the right side. In holding the ear firmly under the arm-pit, or over the clavicle or shoulder-blade of that side, we hear a noise similar to that of a liquid containing gas when agitated in a vessel. The sensa-

tion of the *tide* or *wave* is not known to the invalid himself, although the by-standers hear the noise at a considerable distance. The sound of the voice and of coughing may be heard over better than two-thirds of the thorax; the gurgling murmur is more distinct, but we find no metallic tinkling. We observe that the patient now labours under confirmed pleurisy, occasioned by the rupture of tubercles within the cavity of the pleura costalis, followed by pneumo-hydrothorax. Ordered the actual cautery over the right clavicle, and in the arm-pit. Pectoral ptisan, mixed with tar-water; light diet.

Towards the end of September and beginning of October, the fever diminished, but did not cease altogether. The expectoration was mucous, and improved in appearance, and the patient could now enjoy sleep at night in the recumbent posture. There was no night transpiration, and the appetite became improved to a certain degree. He was ordered pectoral drinks, and two pills, each containing half a grain of belladonna; soups.

October 5. Slight arterial hemorrhagy from the cauterized parts. Continue the same remedies.

8. He is affected with bleeding hemorrhoids, which heretofore seldom troubled him.

11. Diarrhœa; cough not so troublesome; lies easily and readily upon the back; the countenance is sensibly fallen; the hemorrhoidal discharge has ceased. His strength gradually fails, and upon the 15th he expired.

The body was inspected the next day, and a pint of gas was collected from the pleural cavity, and at least half that quantity was left in the thorax. This gas had no particular smell nor colour. It did not inflame when an ignited body was plunged into it, but the ignited body was instantly extinguished thereby. The lime contained in lime-water was precipitated by this gas, and the tincture of turnsol was reddened by it. This gas contained sixteen per cent of carbonic acid gas, and in other respects the results did not essentially differ from those obtained by Dr. John Davy. We were satisfied by experiments that oxygen gas was absorbed and carbonic acid gas disengaged. Nitrogen was also obtained. The experiments of Sir Astley Cooper also prove that healthy serous membranes absorb such gases as come into contact with them; but it is certain that such membranes do not exhale gases.

May we not deduce some practical consequences from these facts? After the analyses which have been mentioned we may infer that pneumo-thorax is prejudicial to the invalid, as much from the *qualities* of the gaseous collection as from the *volume*. We are satisfied that the composition of the

air contained in the cavity of the pleura costalis of this patient, approached in its nature to that which is found after death in the bronchial cavities.

We apprehend that the volume of substances contained in the pleura costalis of pneumo-thorax cases, may by its weight and pressure cause asphyxia, and we are of opinion that the air ought to be evacuated from the thorax, in our attempts to remove the disease, as has been fully explained in Dr. Davy's case.* Dr. Davy found the following proportionals of gases contained in the cavity of the pleura costalis of his patient:—Carbonic acid 12.5; nitrogen 85.5; oxygen 2; total 100.

. In the above translation of a valuable paper in one of the French journals, we have limited ourselves to the essential facts. Respecting the gases which circulate in animal bodies, whether they be contained in the alimentary canal, or in the arteries or veins, or in the cavities, we agree with Dr. Solon in his remark at the conclusion of the paper. The skilful evacuation by puncture of air or pus in the cavity of the pleura, whether the case be considered one of pneumo-thorax or empyema, is sometimes the only remedy to save life.

Dr. Apjohn, in the "Transactions of the Association of the College of Physicians of Dublin," has given an analysis of air taken from the pleural cavity, and though the same gaseous substances were ascertained to enter into the composition of the air in that case, they were not found to be in exactly the same proportions. Indeed this could not be reasonably expected. Dr. Apjohn's analysis gives:—Carbonic acid 8; oxygen 10; nitrogen 82; total 100.

ACETATE OF STRYCHNINE IN PARALYSIS.

A GIRL aged twenty years having fallen upon her back, became paralyzed in her inferior extremities, in the bladder, and in the rectum. She had passed urine for many days. The bladder was enormously distended, and the swelling of the urethra rendered the introduction of the catheter very difficult. Dr. Oesterlen prescribed an emulsion composed of linseed, sweet almonds, nitre, and tincture of cantharides. Volatile liniment, to which oil of henbane was added, was rubbed over the hypogastrium, and frictions of volatile camphorated liniment were used over the spine. Soon afterwards the absence of fever and of every inflammatory symptom permitted recourse to be had to phosphoric pomatum.

Laxatives and enemata being ineffectual

for the relief of the bowels, croton oil was administered.

In eight hours, finding that these remedial measures did not succeed, one-sixth of a grain of acetate of strychnine (in wine vinegar) and two ounces of distilled water, were prescribed, of which twenty drops upon sugar were taken every hour. This dose was augmented progressively to half a grain, which at first had no effect, but in five days, during which time five grains of the strychnine were used, the invalid all at once experienced a great disgust, extreme anxiety, cold sweats, headache, pain in the region of the bladder, and a sensation of heat and itching through the whole course of the urethra; at the same time there was great irritation and itching of the skin, which was covered with an eruption. The strychnine was instantly discontinued, and a little nitre was the only remedy prescribed.

On the next day it was found that the above-mentioned unfavourable symptoms were greatly abated. During the night the patient passed involuntarily a small quantity of urine, which gave a scalding sensation in its passage.

Things continued in this state for five days, at the end of which time the strychnine was again had recourse to, producing the same effects as mentioned above, but with less intensity. The urine flowed so freely that the catheter was not again required, though the flow was involuntary, and not attended by pain. The remedy restored sensibility to the system, and the bowels were sufficiently opened by means of enemata. At the end of seven weeks the patient could retain her urine, and could walk round her room by the aid of a crutch.

Some weeks afterwards she returned to her usual occupation, and could walk rapidly, the feet being turned outwards; and though her cure was not completed, nevertheless Dr. Oesterlen was of opinion that the waters of Wild would remove all that remained of her paralytic affection.—*Medicinisches Correspondenz, Blatt, Mar.*

ANOMALOUS SYMPTOMS DURING PREGNANCY.

To the Editor of THE LANCET.

SIR: As the subjoined case is rather a singular one (and in a pathological point of view particularly so), if you can give it a place in your valuable Journal I shall feel obliged, and remain, Sir, your most obedient servant,

W. HAMILTON KITTOE,
Surgeon, &c.

Southampton, 9, Portland-st., April 20, 1836.

In October last I was called to attend Mrs. —, aged 39, who was in the fourth

* Vide Phil. Transactions for 1824.—ED. L.