But in stating the composition of an organic body, these four elements would be all placed within one bond or bracket; and in the analysis of such a compound the elements part asunder, and recombine in compounds, which vary according to the circumstances in which the change takes place, and of which compounds there may be no reason to believe that *any previously existed in the substance analyzed*.—p. 6.

The existence of carbonic acid in both arterial and venous blood has been proved by several experimenters, who have obtained *appreciable* quantities of it by exposing the blood to the vacuum of the air-pump, or more certainly by agitating it with atmospheric air, oxygen, or other gases, such as hydrogen or nitrogen. By the latter process carbonic acid may always be extracted from venous blood. Some, indeed, *have failed* to procure any gas from blood by means of the air-pump; but this may be explained by the fact observed by Magnus, that carbonic acid is not given out until the air in which the blood is placed is so rarified that it supports only one inch of mercury. Heat also commonly *fails* to evolve carbonic acid from blood.—p. 170.

Dr. John Davy says that "carbonic acid *is not evolved* from coagulating blood."—p. 47.

What an extraordinary method of proving a fact! "By agitation with atmospheric air carbonic acid may always be *EXTRACTED* from venous blood." No doubt about it; the only wonder would be if it were otherwise. The excess of carbon in the venous blood unites with the oxygen, &c.; but the phrase should run thus: "by agitating venous blood with atmospheric air, carbonic acid may always be *OBTAINED*." Now let it be distinctly remembered that this carbonic acid is not part and parcel of "that organic compound, the blood, whose elements are held so loosely together, so ready to decompose and fall asunder;" but it is a foreign, inorganic, and chemical compound, a deadly poison, joggling on with the venous blood most harmlessly and lovingly, like the Indian juggler with his poisonous snakes, or the happy family in Trafalgar-square, from the capillaries to the lungs, and there not less than twenty-three cubic inches are evolved per minute. If this strange theory be true, it is not at all surprising that learned professors, physiologists, and hospital physicians, British, French, and German, having their brains surcharged with carbonic acid, should miscomprehend the spasmodic contortions of a dead donkey's heart made *deadly*-lively by artificial respiration.

It is objected against the theory of heat being produced in the lungs that the temperature of the blood in the left side of the heart ought to be much more than two degrees higher than that in the right; but unless such objections are supported by better evidences than the so-called proofs of carbonic acid being present in large quantities in the blood, I shall consider the following theory more satisfactory and far preferable to the other: "Carbon and hydrogen permeate the membranous walls of the air-cells, and combine with the oxygen of the atmospheric air; the heat is carried off by the arterial blood as rapidly as it is evolved. The secretion or separation of its carbon and hydrogen from the blood is essentially a vital act, and the combination with the oxygen in the air-cells is purely chemical; and that chemical combination takes place on an external surface, the carbon, hydrogen, and oxygen forming no part of the living body, though in the centre of it." The increased or diminished temperature of the various parts of the body depends on the increased or diminished supply of the arterial blood, as in blushing; in paralyzed limbs, where the circulation is enfeebled, and in muscular action there is not only increased temperature, but also swelling of the muscle, as may be easily proved by using the dumb-bells for a few minutes, and measuring the arm round the biceps.

In my letter in *THE LANCET* last December, I stated that the radial pulse was synchronous with the impulse of the heart in a case of stricture of the mitral valve, the dilatation of the ventricle being retarded by that cause. I rejoice greatly to find another case supporting the diastolic theory in no less a work than the *Edinburgh Monthly Journal of Medical Science* for May, 1853. Dr. Peacock, of St. Thomas's, London, states, (page 397,)—"The pulse at the wrist follows the impulse of the heart by a very distinct interval,"—evidently something more than usual,—and he afterwards adds, "that the orifice of the mitral valve was increased in size, the mitral aperture being three inches and six lines in circumference." It thus appears that the diastolic theory satisfactorily explains two important variations of the pulse, which are perfectly inexplicable according to the systolic theory. *Magna est veritas et prevalebit*.

Edinburgh, July, 1853.

A FEW REMARKS UPON THE ORGANIC MUSCLES OF THE URETHRA.

By JABEZ HOGG, Esq., M.R.C.S., &c.

FINDING that difficulty is occasionally experienced by anatomists in dissecting out the organic muscular fibre, and having lately received a request to furnish the plan adopted by my friend, Mr. Hancock, and myself, in our investigations made for the purpose of showing the distribution of this very interesting structure, you will do me the favour to find a place for the following remarks upon the subject:—

Having slit up a fresh urethra, throw down the flaps, and put them upon the stretch by pinning down to a board. By carefully dissecting off the first or mucous coat, we come to a second or firm substratum of elastic cellular tissue; having removed this, we next have a grayish layer, which, with the unassisted eye, may be seen to be of a different structure to the former: this is the muscular coat. Take a very small piece, and *tease* it out with fine needles in a drop of water, previously placed on a glass slide; ten or fifteen minutes will be required to break this up for examination under a power of not less than 250 diameters; to develop the nuclei and render them distinct, a drop of very dilute acetic acid will be a necessary addition. The parts in which the muscular fibre will be more readily found are the prostate and the glans penis; in other portions of the urethra they degenerate, as in the other tissues, with age from defective nutrition; assuming at times the form of minute granules, which evidently consist of oily or fatty matter from their solubility in ether, and yielding to analysis a large quantity of fatty matters; at other times we have the wasting peculiar to a cessation of some of the functional uses of the part, or a conversion of it into the fibro-cellular tissues. This is indicated by an examination of the urethras of young persons, even as early as foetal life; the muscular fibre is the more readily traced and seen throughout the whole extent, and the nuclei will be observed to be of a much larger size than in after life. Beneath and distributed amongst the muscular fibre will be seen filaments of nervous matter, which appear freely supplied to the whole organ, commencing at the glans penis, with a closely-set network of absorbent vessels.

A Mirror OF THE PRACTICE OF MEDICINE AND SURGERY IN THE HOSPITALS OF LONDON.

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum, et dissectionum historias, tum aliorum proprias, collectas habere et inter se comparare.—MORGAGNI. *De Sed. et Caus. Morb.*, lib. 14. Prooemium.

ST. GEORGE'S HOSPITAL.

Hæmatemesis quickly fatal.

(Under the care of Dr. BENGE JONES.)

It is sometimes thought that with due care it is not a very difficult matter to determine, in cases of hæmatemesis, on what pathological changes the vomiting of blood depends; but the differential diagnosis is nevertheless now and then rather difficult. Vicarious gastric hæmorrhage in women, the pouring out of blood from the mucous membrane of the stomach in scurvy, bleeding from a simple ulcer of the same cavity, or from recent or old cancerous ulceration, may perhaps be pretty easily made out; but when the hæmatemesis is connected with obstructive disease of the liver or spleen, or with affection of the heart, it may be impossible to find out which of the viscera is at fault. Nor is it at all strange that hæmatemesis should sometimes be looked upon as purely idiopathic, as the alterations which take place in the liver or spleen may give rise to no tangible symptoms. It is not always easy to ascertain, on the other hand, whether the blood comes really and truly from the mucous membrane of the stomach; for, leaving out of view that the hæmorrhage may proceed from the gums, the tongue, or the nasal fossæ, the blood being subsequently swallowed, the distinction between *vomiting* of blood and hæmoptysis may offer great difficulties. And here we