

kidneys was entirely changed; they were turned upside down, with their renal glands towards the pelvis; they were also much nearer to each other, and lower down, than natural. There was a communication between the cavities of the chest and the abdomen, the anterior part of the diaphragm on the right side being found wanting. The pleura and peritoneum were continuous. The spine was much distorted towards the right side, which caused the right shoulder to be considerably elevated. (Fig. 1.)



Fig. 1.—*a*, The heart seen projecting below the sternum.—*b*, The liver.—*c*, The additional appendix.—*d*, Appendix vermiformis.—*e, e, e*, The amnion.—*f*, The funis.

But what appeared to me the most remarkable anomaly was the position of the heart and the variety in the distribution of the vessels proceeding from that organ; the heart was partly in the chest and partly in the abdomen, and could be seen projecting below the sternum, under the integuments of the abdomen (Fig. 1, *a*). The cartilaginous margins of the false ribs on the right side were hollowed out, forming a considerable concavity towards the abdomen, for its reception. The pulmonary artery was very large. It not only divided into its right and left branches, but proceeded upwards, forming a large arch; it then descended, occupied the usual situation of the aorta, and gave off the arteries to the trunk and lower extremities, according to the usual distribution of the aorta. The ductus arteriosus arose

from the upper part of this anomalous pulmonary arch, and from the very centre of the ductus arteriosus was given off the left subclavian artery (Fig. 2, *e*). The aorta proceeded almost in a straight direction upwards; shortly after its junction with the ductus arteriosus it divided into two branches, the arteria innominata for the right side, and the left carotid, and these were all its branches. (Fig. 2.)

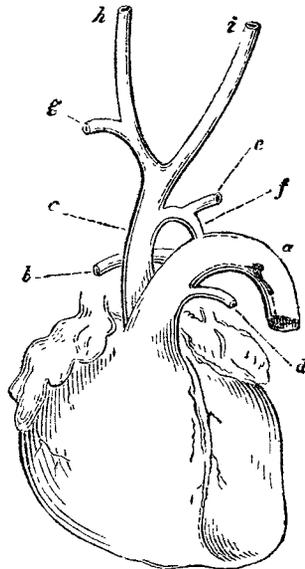


Fig. 2.—*a*, The arch formed by the pulmonary artery.—*b*, Right pulmonary artery.—*c*, The aorta.—*d*, Left pulmonary artery.—*e*, Left subclavian.—*f*, Ductus arteriosus.—*g*, Right subclavian.—*h*, Right carotid.—*i*, Left carotid.

CHEMISTRY AND TOXICOLOGY.

To the Editor of THE LANCET.

SIR,—As I consider that it is particularly important that every fact at all connected with medico-legal subjects should be generally known in the profession, I beg to forward the present communication for insertion in your journal. The strides which chemistry has of late years made, have been exceedingly rapid and highly gratifying. The French chemists especially have, by their researches, contributed towards the elucidation of the important phenomena of this science.

Chemists in their labours do not possess a more powerful agent than electricity, a fact which is well established in the first volume of a work by M. Becquerel, treating exclusively on its laws and those of magnetism, and which a few facts transferred from the pages of that work to your own will illustrate. On the 13th of January, 1834, MM. Pelletier and Couerbe presented a memoir to the Academy of

Sciences containing a new analysis of the *cocculus indicus* (*menispermum cocculus*), in which they announced that they obtained, by the action of the pile, *picROTOXINE* (one of its immediate principles) crystallized. In this principle they recognised the properties of an acid, inasmuch as it combined with alkalies. They submitted an aqueous solution of *picROTOXINE*, slightly alkalized by potassa, to the action of the pile. After half an hour's action, *picROTOXINE*, in finely crystallized needles, was deposited on the positive pole, and a solution of potassa, completely destitute, was found at the negative pole. They also submitted *picROTOXATE* of *brucine* to the action of the pile; the *picROTOXINE* appeared in the form of radiated crystals at the positive pole, and the *brucine* was deposited in granular crystals, on the negative wire. The *picROTOXATES* of *strychnia*, *quinia*, *cinchonine*, *morphia*, *narcotine*, &c., were also submitted to the action of the pile, and were similarly affected. They have, moreover, remarked that the action of the pile turns *brucine* to a red colour, whereas it does not affect *morphia*. These may serve to distinguish these two alkaloids, both of which are turned red by nitric acid.

An important fact in toxicological science may here be advantageously mentioned. M. Raspail, in his "Chimie Organique," in alluding to the fallacies of the tests for *morphia*, says,—“According to the treatises on toxicology, the presence of the alkaloids, more particularly of *morphine*, is ascertained by the following characters:—it is reddened by nitric acid, and becomes blue by the action of the salts of iron; it is insoluble in cold water, and, according to some authors, in ether; it is soluble in alcohol, and precipitable by ammonia, and, like most of the alkaloids, it restores the colour of turnsole reddened by an acid. But Bonastre has already shown, and I have verified the remark, that all these characters taken together are very deceptive. The concrete part of the oil of cloves is white, crystallizable, insoluble in water, and soluble in boiling alcohol, it becomes blue by the action of the salts of iron, and red by that of nitric acid, exactly as *morphine* does; ammonia precipitates it; and, if it were kept some time in ammonia, it would assuredly give signs of alkalescence.” The circumstance is well worthy of attention. Cloves are used for various culinary purposes; hence, oil of cloves may be found in the stomach of a person supposed to be poisoned. The test apparatus being produced, to what conclusion would the chemist who is unaware of these facts come? Why, that the deceased had been poisoned by a salt of *morphine* or by *opium*, and

he would deliver his opinion accordingly, to the injury perhaps of some innocent person.

The examination of the form of the crystals by the aid of the microscope was at one time proposed as a test for the various alkaloids; but the fallacies to which such a mode of investigation was liable soon became evident, and like most other hypothetical suggestions, was quickly abandoned. For example, the secondary form of the crystals was modified according to the quantity or nature of the menstruum employed, the length of time occupied in evaporation, or the purity or impurity of the alkaloid base subjected to inspection. The crystals, for instance, of *quinia*, obtained from its alcoholic solution, resemble very much the crystals obtained from an aqueous solution of *narcotine*. The researches of M. Becquerel will, I should suppose, set aside the opinions of those chemists who suppose that the vegetable alkalies do not exist ready formed in the substances from which they are obtained. To decide this question a solution of *opium* was submitted to the action of the pile; numerous flocculi, in a short time, were deposited in granular masses at the negative pole, whilst a few light flocculi appeared at the positive pole. By dissolving the substance deposited at the negative pole in alcohol, and evaporating the solution, crystals of *morphia* were obtained. The substance obtained at the opposite pole presented all the characters of *meconic acid*.

The toxicologist will, in electro-galvanism, find a fertile source for the improvement of his science; and I feel assured, that this powerful agent will contribute as much to the improvement of medico-legal analysis as it has done to general chemistry. I am not surprised at the apathy which medical men evince towards the cultivation of this science, when it is notorious that their evidence is often treated with contempt by ignorant coroners, and their loss of time and trouble are repaid only in the most meagre coin, if acknowledged and paid for at all. I am, Sir, yours respectfully,

WILLIAM MEADE, M.R.C.S.
32, King-street, Borough, Nov. 1834.

KING HARRISON'S HOSPITAL.—There have frequently been more Licentiates attached as physicians to Guy's Hospital than to any other hospital in London. The constituency of the various hospitals varies very much, as respects their being more nearly allied to close boroughs, or open to popular election. Guy's is the closest of all. It is beyond the reach of the Fellows of the College of Physicians as active canvassers.—*Dr. Elliotson's Evid.*, p. 144, *Lancet edit. of Parl. Med. Evid.*