Correspondence.

*"Audi alteram partem."***"ASTHMA IN RELATION TO DISEASES OF THE UPPER AIR PASSAGES."***To the Editors of THE LANCET.*

SIRS,—The discussion on this subject at the Laryngological Society of London will have been useful if it has done nothing more than elicit the interesting letter in *THE LANCET* of May 13th from Mr. Armstrong pointing out the connexion between gout and asthma. I am fully convinced of this connexion and I had prepared notes on this point for the discussion, but as chairman I waited until the end. The last speaker did not finish until past seven, the hour for adjournment, so I was compelled to call upon the openers of the discussion to reply without saying more than a few words. If I had had the opportunity I would have insisted on the importance of recognising the threefold origin of asthma. 1. The diathesis of the individual; in many asthmatics gouty symptoms are met with and many of the sufferers are neurotic. 2. Some morbid condition of the mucous membrane of the respiratory tract. 3. The direct exciting cause—i.e., the pollen of certain grasses, ipecacuanha, and certain odours, as of horses and cats.

In bronchial asthma the condition of the digestive tract also requires careful consideration. From my experience in the treatment of hay fever and asthma I am convinced of the necessity of paying attention to all the factors concerned in the production of the asthmatic state. Indeed, I regard asthma as nothing more or less than a symptom, and before any treatment is undertaken the cause of it should be investigated. It is only by the judicious combination of general and local treatment that we must look to relieve our patients of one of the most distressing complaints to which flesh is heir.

I am, Sirs, yours faithfully,

F. DE HAVILLAND HALL.

Wimpole-street, W., May 13th, 1899.

"THE PATHOLOGY OF THE PERICARDIUM."*To the Editors of THE LANCET.*

SIRS,—Dr. Harry Campbell in *THE LANCET* of April 29th, 1899, criticises my paper on "Certain Points in the Pathology of the Pericardium" published in *THE LANCET* of April 22nd, 1899. As the title implied, my paper was upon the pericardium, and the respiratory vascular pump was only introduced to show the place of the pericardium in the general venous circulation. In the *Journal of Physiology*, 1897, will be found a paper by Leonard Hill and myself devoted to the vascular functions of respiration, and in that fuller account Dr. Campbell will find several of his questions answered by actual experiment.

By Section 1 of his letter Dr. Campbell would appear to imply that Leonard Hill and I claimed originality for the remarks which I made on the vascular functions of respiration. The fact that the respiratory movements assisted the circulation was not only taught by Cohnheim and before him but finds a place in elementary text-books of physiology. We do, however, believe that we were the first to demonstrate that the respiratory and other movements of skeletal muscles play well-nigh as essential a part as the heart in the circulation of the blood and that in the erect position the circulation cannot be carried on continuously without such contractions of skeletal muscles, and this is all that was claimed as original in my paper.

Dr. Campbell is of opinion that under ordinary circumstances respiratory movements do not aid the circulation to an appreciable extent. Respiratory waves appear on nearly every trace of a blood-pressure experiment even during quiet breathing, and when it is considered that during deep respiration in man the negative pressure of the thorax varies from - 1 to 2 mm. Hg. in expiration to - 30 mm. Hg. during inspiration it must be admitted that the thorax must exert a very considerable pumping action on the blood. The blood tends to be sucked into the lungs during inspiration, whilst the rise of pressure during expiration passes it on to the left heart as the way to the veins is barred by the pulmonary semilunar valves. A constant negative pressure,

such as Dr. Campbell supposes, can no more be maintained in the pulmonary vessels when the capacity of the thorax is increased for a considerable time than it can in the alveoli. The air tends to flow into the alveoli and the blood into the pulmonary vessels until equilibrium is once more established and then further flow arising from the increased size of the thorax ceases. Where, however, the intra-thoracic pressure oscillates the blood is sucked in when the pressure is low and pushed on as the pressure rises, for the valves prevent regurgitation. In short, in a system provided with valves a periodic change of pressure at any part will produce a flow along the system in the direction of the valves.

In Section 3 of his letter Dr. Campbell states that I contend that the expiratory act favours the pulmonary circulation. It is not expiration by itself which favours pulmonary circulation but expiration after inspiration has sucked blood into the lungs. Hill and I have carried on the circulation of an animal (after the heart had stopped) by rhythmic and alternate compression of the abdomen and thorax.

Dr. Campbell states that "in such athletic exercises as running the mean size of the chest is increased—inspirations being full and expirations shallow—and as breathlessness increases the latter becomes shorter than the former." Dr. Campbell here describes the condition which follows excessive and unwonted exercise in an untrained person whose heart and respiratory vascular pump fail. I can positively state that in a well-trained cross-country runner whose heart and respiratory pump are efficient for the exercise he undertakes inspirations are profound and expirations complete. The air exchange at each respiration is maximal. At the same time, I infer a maximum wave of blood is inspired from the abdominal veins to meet the air in the lungs and is expired into the left ventricle and aorta. In such a runner it will be found that the abdominal wall contracts and hardens with each inspiration (Section 5 of Dr. Campbell's letter). This reversal during exercise of the usual inspiratory condition of the abdominal wall is an observation, not a deduction. It may also be observed when a fall of blood-pressure is produced in an animal in the erect position and in cases of pericarditis with effusion.

(Section 4 of Dr. Campbell's letter.) Rhythmic descent of the diaphragm would push the liver in front of it without compressing it were it not more or less resisted by the remainder of the "muscular sphere" containing the great veins of the abdomen.¹ As it is the muscular sphere encloses and compresses: 1. The portal vein and its radicals emptying the blood through the liver into the hepatic veins which it will be remembered open practically at the orifice in the diaphragm for the inferior vena cava. The blood cannot return to the mesenteric arteries against arterial pressure. I have shown² that the pressure exerted is amply sufficient to empty the portal vein through the liver at each contraction of the muscular sphere. 2. The blood which reaches the capacious inferior vena cava from the legs is simultaneously pressed up into the right heart whence it cannot return when once past the tricuspid valve. Reflux to the legs is prevented by the valves in the femoral veins.

I trust that these remarks may satisfactorily clear up the obscure passages in my paper.

I am, Sirs, yours faithfully,

Finsbury-square, May 10th, 1899.

HAROLD L. BARNARD.

"A CONTRIBUTION TO THE ANATOMY OF THE PERITONEUM."*To the Editors of THE LANCET.*

SIRS,—I have read with considerable interest the article under the above title in *THE LANCET* of May 13th.

Case 1 is, I presume, that described by Mr. Mansell Moullin in a clinical lecture reported in *THE LANCET* of April 1st as a hernia into the "post-cæcal" pouch. As Mr. Keith points out, it is undoubtedly a case of hernia into the fossa iliaco-subfascialis (the fossa of Biesiadecki). This form of hernia is exceedingly rare. So far as I am aware only two previous cases are recorded. The first is described in a most meagre and unsatisfactory manner by Engel

¹ See figure, *THE LANCET*, April 22nd, 1899.² Proceedings of the Physiological Society, 1898.