network of bloodvessels; its lymphatics, lying in the subcutaneous tissue; the sweat-glands, with their countless ducts pouring forth a stream of perspiration which never ceases, and may amount to pints; the hair-bulbs, with their attached muscles; and, lastly, the sebaceous glands, which give to the skin its peculiar greasiness and its peculiar odour. The skin must be regarded as a protective organ, a vascular organ, a glandular organ, and a nervous organ. The skin is a protection against mechanical injury, and, being a bad heat-conductor, it protects from excessive heat from without as well as against the too ready escape of heat from within. It regulates the temperature of the body by encouraging or repressing the radiation of heat by the dilatation or contraction of its bloodvessels, as well as by the amount of sweat which it pours forth to be evaporated from its surface. When the skin is dry, and especially when it is covered by woollen clothing, it loses very little heat by conduction; but when it is moist, and in direct contact with good conductors, such as metals or water, the rapidity with which heat is conducted away proves to be a very efficient means of cooling the body. The importance of the skin as a vascular organ is seen in the faintness which is produced by the excessive filling of the cutaneous vessels, and in the dangerous internal congestions which are liable to result when the vessels of the skin undergo an extreme or prolonged contraction. The glandular functions of the skin are such as to entitle it to rank with the most important glandular organs of the body. The sweat is not only a highly necessary excretion from the blood, but serves important physical purposes, in cooling the body, and possibly also in lubricating the folds of the skin during rapid exercise. The action of the skin is to a certain extent complementary to that of the lungs and kidneys, and its activity often bears an inverse ratio to the activity of those organs. The nervous functions of the skin are perhaps more important than any of those hitherto mentioned. The sense of touch is the most widely spread of all our senses, and every impression made upon the surface of our bodies is conducted to our nerve-centres and produces its due effect. The common phenomena of reflex action are the coarse expressions of this intimate union between centres and periphera. The muscular movement when the soles are tickled, the laughter which results from tickling the axillæ, and the sighing and gasping which follow when water is dashed upon the face or breast, all show how easy is the centripetal flow of nervous impressions; while the blanching under the influence of fear, the blushing under the influence of shame, the copious perspirations which result from mental anxiety, and the power of horror to make the hairs of our flesh stand up, all point to the equal ease with which impressions travel centrifugally, and show how intimate is the commerce between the skin and the highest psychical centres.

We have next to consider what, at first sight, would seem to be the most important question with regard to the effect to be produced by baths. This is the power, if any, possessed by the skin of absorbing matters with which it comes in contact. That such bodies as mercury and belladonna, if mixed with suitable vehicles, and applied with friction, are capable of being absorbed, and of producing their physiological action through the medium of the unbroken skin, is one of the most notorious facts of medicine, and arguing from it there has been a tendency to believe that watery solutions are capable of absorption also. The opinions of physiologists on this important point are still unsettled. It seems to be generally admitted that gases may be absorbed by the skin, and both carbonic acid and sulphuretted hydrogen may gain admission to the body in this way. It is admitted also that substances which are miscible with the sebaceous secretion can be absorbed, and hence the comparative ready absorption of bodies which are capable of being dissolved in, or intimately mixed with, oil and lard. Under ordinary circumstances the sebaceous secretion accumulated on the surface of the skin prevents the actual contact of water with the skin, and it is only when this has been washed or scraped away that any absorption of water is possible. Even under the most favourable circumstances the absorption of water is very small indeed, and at present there is no evidence whatever that mineral substances dissolved in water are ever absorbed. If the absorption of mineral solutions by the skin were not a matter of great difficulty it is hard to believe that sea-bathing could be a tolerable or even a safe process. It is at all events certain that, in studying the effects of baths,

the absorption of mineral substances by the skin is a matter of very small importance.

The effects of baths are produced mainly by their action on the cutaneous nerves. The sudden immersion of the body in cold water produces a shock, which is followed by a slight shiver in the muscle, and the contraction of the cutaneous capillaries. There is often also a slight gasping of the breath. There is a feeling of cold, and the temperature is at first slightly elevated and then depressed. The pulse and respiration are both quickened, and the amount of carbonic acid eliminated by the lungs is notably increased. If the water be very cold, and the bath continued, those symptoms deepen in intensity; but if the body be quickly removed from the bath, the familiar phenomenon known as reaction appears, and the first effects are all reversed; there is dilatation of the cutaneous vessels, accompanied by a sensation of warmth and a general feeling of vigour. The cooling effect of a cold bath is brought about, probably, in two ways: first, by the actual conduction of heat from the surface of the body by cold water; and, secondly, by a modification of heat-production induced by the influence of the cutaneous impressions upon the heat-regulating centres in the upper part of the spinal cord and the medulla. The very rapid depression of temperature which takes place when hyperpyretic patients are immersed in water can hardly be explained by reference merely to the ordinary laws of heat, and it is almost certain that the central effects produced by cutaneous impressions play a very large if not the largest part in the process. The effects of the cold bath being mainly due to impressions made upon the cutaneous nerves, the various modifications of the cold bath largely depend on their power of increasing its stimulating action. The colder the water, the more violent the impression. The frequent change of water, such as we get in the sea or in running streams, increases the stimulating effect. Great force of impact, as when water falls from a height or comes forcibly through a hose upon the body; the division of the stream, as is seen in shower-baths and needle-baths; and the addition of acids or salts to the water, all act, it would seem, by increasing the stimulating power which the water exerts upon the cutaneous nerves.

Warm baths produce an effect upon the skin directly contrary to that which is brought about by cold water. The cutaneous vessels dilate immediately under the influence of the heat, and although this dilatation is followed by a contraction of the vessels, this contraction is seldom excessive, and the ultimate result of a warm bath is to increase the cutaneous circulation. The pulse and respiration are both quickened, as in the cold bath. The warm bath increases the temperature of the body, and by lessening the necessity for the internal production of heat, it decreases the call which is made upon certain of the vital processes, and enables life to be sustained with a less expenditure of force. While a cold bath causes a certain stiffness of the muscles if continued for too long a time, a warm bath relieves stiffness and fatigue, as every hunting man must know full well. The ultimate effect of hot and cold baths, if their temperature be moderate, is about the same, the difference being, to use the words of Braun, that "cold refreshes by stimulating the functions, heat by physically facilitating them; and in this lies the important practical difference between the cold water system and the thermal method of treatment."

REPORT ON THE SURVIVORS FROM THE WRECK OF THE "EURYDICE."

By JAMES M. WILLIAMSON, M.D.

A LITTLE before 7 P.M. on Sunday evening I was taken on board the schooner *Emma*, lying in Ventnor Bay, and was shown down into the cabin. There I found Mr. Moreton; he had arrived some time before me, and was working very hard and enthusiastically to restore animation in the body of Lieutenant Tabor, which lay on the floor in front of the fire. Cuddeford was sitting at the side of the cabin, and although suffering from shock, was fairly well. I therefore took my place by the side of Captain Ferrier's body, but after persevering for a considerable time no signs of returning life exhibited themselves. The case of Lieutenant Tabor seemed more promising, because the schooner's crew said he

was alive when he left the water, but that he had a fit as they lifted him on board. Mr. Moreton's efforts failed however. We were told that another man (Fletcher) in the fore-castle was doing well. It was therefore arranged that I should take Cuddeford on shore and place him in the Cottage Hospital at Bonchurch, and that Fletcher should be sent on afterwards. I saw the dead body of the fifth man, Bennett, in the bottom of the boat as we rowed ashore.

Cuddeford was soon got to bed. His temperature seemed good, and his pulse was 88, of fair strength. His noisy respiration after being in bed made us anxious lest bronchitis was following the exposure, but he ascribed it to a cold caught after leaving the warm latitudes. A linseed poultice was applied to his chest, and next morning he was apparently quite well. His pulse was 80; his temperature 98.6°; and his only anxiety to go to Portsmouth and report himself to the Admiralty.

Fletcher, aged nineteen, did not bear the exposure so well. He complained much of cold, and evidently felt the shock severely. His pulse was 90 and very compressible. On the following morning the pulse was 72, much stronger; his temperature 99.3°. He expressed himself as feeling perfectly well.

As might be expected, neither men slept well; they said they "could not get it out of their heads."

Both men left on Monday afternoon for Portsmouth, and, after reporting themselves to the Admiralty, were required to return to give evidence at the inquest. They are both powerfully-built men, and have now almost recovered their usual health.

Correspondence.

"Audi alteram partem."

SPECIALISTS AND SPECIALISM.

To the Editor of THE LANCET.

SIR,—The position occupied by Sir Henry Thompson at a recent meeting of the Medical and Chirurgical Society, when he presented in abstract five hundred cases of stone in the adult male, treated by himself, is worthy of the highest admiration and congratulation. But it is very significant that, with the exception of Mr. Cadge, of Norwich, who can also be warmly congratulated on his large and successful experience of lithotripsy and lithotomy, no general hospital surgeon present (and there were a great many) spoke from a large personal experience. How is this circumstance to be explained? The answer was given by Mr. Cadge when he alluded to the "division of labour," otherwise *specialism*. Sir Henry Thompson has, from circumstances over which he had, as it were, no control, been forced of late years to limit his practice to a department.

Now, since it is admitted that the future of lithotripsy depends upon the early detection of the stone, in order that it may be disposed of in from two to four sittings—a condition upon which Sir Henry laid great stress,—it is most undesirable that a very large number of stone cases drift into the hands of one surgeon, or into a single institution where there are no pupils, if recurring generations of students are to be efficiently educated. If many of the special hospitals, which cannot be regarded in the light of educational establishments in a broad sense, continue to exist, the large general hospitals will be starved, and a race of half-educated practitioners will arise, to the manifest injury of society.

Since the charitable public cannot be taught discrimination, the profession must endeavour to limit the abuse of specialism. To this end, students past and present must be loyal to their Alma Mater, and should do their utmost to send their poorer patients to the hospital to which they themselves have been educated, or, at any rate, to a general hospital.

Also, I suggest, in order that students may have the opportunity of seeing a fair sprinkling of all classes of disease and of accident, each member of the staff of a general hospital, in addition to his ordinary work, be credited with a department. In this way, the whole range of medicine and surgery would be practised in accordance with the public

leaning towards specialism, while the physicians and surgeons would not be mere specialists.

As an apposite illustration of the practical application of experience acquired in a general hospital to a (so called) special case, I will draw attention to a patient presented by Mr. Lund, of Manchester, at a late meeting of the Medical Society of London. The lad had been the subject of severe talipes equino-varus. Mr. Lund had, as surgeon to the Manchester Infirmary, seen how useful a foot may result after the removal of the astragalus consequent on injury. He adapted the knowledge thus gained to the special malformation, and removed the astragalus from both feet, with the most gratifying result.

With the one exception of ophthalmology, specialism is opposed to the true interests of the public.

I am, Sir, yours, &c.,

Queen Anne-street, Cavendish-square.

C. F. MAUNDER.

"DISTOMA CONJUNCTUM."

To the Editor of THE LANCET.

SIR,—A few weeks ago I had the pleasure of communicating to you my second "find" of the *Distoma Sinense* (McConnell) in the liver of a deceased Chinaman. I have now to announce the interesting fact that I have lately met with the *Distoma conjunctum* again. I believe this to be only the second case on record of the presence of this fluke in the human liver. Discovered by Professor Cobbold in 1858 in the liver of the American red fox, the *D. conjunctum* was unknown as a human parasite until I published the first case in 1876¹, and the present instance is therefore, as I have said, the second case on record.

The subject was (as in the first case) a Mahomedan male, Bhanoo, aged 24, a boatman by occupation. He was admitted into the Medical College Hospital, suffering from dysentery, on Jan. 23rd, 1878. The disease was of about two months' duration. The patient was much emaciated and anæmic. At first the stools were scanty, and passed with the usual gripping and straining. Latterly, they became more frequent and serous in character, were evacuated without pain, and often involuntarily. There was no hepatic or splenic enlargement, and no pain or uneasiness in the region of the liver. No symptoms, in fact, apart from the bowel complication, which could direct attention to the liver as being the seat of any special disorder. Various remedies were employed for the relief of the dysentery, but unavailing, and the patient died exhausted on Feb. 20th.

On the 21st I made a post-mortem examination, eighteen hours after death. The whole of the large intestine was found darkly pigmented, and covered with innumerable small ulcers, specially thickly distributed in the sigmoid flexure, the submucous tissues in this part being also hypertrophied. The liver was small (weighing 28 oz.), its capsule thickened; on section dark and greasy; a good deal of fluid blood in the large portal and hepatic veins; the lobular structure moderately distinct. Bile-ducts dilated, filled with thick yellow bile, and containing numerous *Distomata conjuncta* (over a dozen were removed on pressure and dissection). The gall-bladder contained much deep orange-yellow-coloured bile, and two *distomata* were found suspended in the same (none in the scanty secretions of the bowel). The flukes were all dead. The lungs were hypostatically congested, but nothing else remarkable in any other organ of the body.

I have only to remark, first, that these fresh *distomata* are—as noticed in my first case—somewhat larger than the original entozoon discovered by Cobbold, being fully $\frac{3}{8}$ " in length, and several $\frac{1}{2}$ ", as against $\frac{1}{4}$ ", the average size of the latter; otherwise they are quite identical. Secondly, that Mahomedans, especially of the lower class, are, as a rule, much more unwholesome and uncleanly feeders than Hindoos, and are much less restricted in this respect by caste or religious scruples.

I am, Sir, yours obediently,

J. F. P. MCCONNELL,

Professor of Pathology and Resident Physician,
Medical College Hospital, Calcutta.

Calcutta, March 1st, 1878.

¹ THE LANCET, vol. i. 1876, p. 343.