come in the admirable instrument recently constructed and exhibited by Dr. Marcet.

With regard to the question of whether a further "extension of the disease takes place with extreme rapidity in the dilated, and therefore not quite healthy, lung", my experience differs from the writer's, though the length of time that the Davos treatment has been in use precludes our speaking too confidently of permanent arrest of disease by this method; yet, out of the twenty-two cases given in my table, I could instance several of the early ones who passed the two last severe winters in England without any return of pulmonary symptoms, and entirely without any extension of the disease. Most of them remain under observation, and appear to stand the fitful changes of this variable climate remarkably well. The expansion of the chest has been noted by many others besides myself, and was found by Dr. Ruedi to occur at Davos in 90 per cent. of the patients; and the remarkable fact is, that its occurrence coincides with a diminution in the rate of respiration and with an increase of their depth.

This dilatation is not always permanent, but sometimes is reduced on returning to lower levels; and I saw a curious instance of this in a gentleman, a native of Denver, U.S.A. (5,200 feet), the circumference of whose chest, after a residence of two months on the shores of the Lake of Geneva (1200 feet), diminished one inch, though he increased in weight. The fact of the enlarged thoraces of the inhabitants of various mountain ranges, such as the Andes, and Himalayas, has been proved by numerous competent observers; and, this last autumn, some measurements I made of the Chamonix guides confirmed it entirely.

The antiseptic qualities of high altitudes are doubtless of great value, and go far towards reducing the discharge from the ulcers and abscesses present in tuberculous lungs; but we must remember that these qualities are not the sole property of high altitudes. They are possessed by very cold climates, at high or low levels, as in the Arctic regions, in parts of Canada and Russia; and in very dry inland ones, as in the Egyptian Desert; or, again, in the ocean. But, diminished atmospheric pressure is peculiar to high altitudes; and it is to this we must look for the explanation of the remarkable changes in the thorax and its contents.

Having thus stated my views on this subject, I will close by a few words on the kind of cases of phthisis which do best at high altitudes. Ordinary chronic tubercular disease, provided the mischief be limited to the upper lobe of one lung, the constitutional powers be good, and pyrexia be absent, is well suited; the question of consolidation or excavation not being of much importance if the lesion be limited and a large respiratory surface be not involved. To this it may be objected that this is just the class of phthisis which does well anywhere, in hot or in cold climates; and that, in selecting this form, I simply select the most favourable cases. I admit this, but then I expect greater results from high altitude treatment than I have ever found arise from other climatic treatment. My experience leads me to conclude that one, or at most two, winters will cause an entire arrest of the above form of consumptive disease, and that the patient will be able afterwards to resume active life in England. Another class is hæmorrhagic phthisis, which gives remarkably good results at Davos. A third is phthisis originating in pneumonia or pleuropneumonia, provided only one lung be attacked, and only part of this not undergoing fibrosis.

The cases in which mountain treatment is contraindicated are: all forms of phthisis, acute or chronic, accompanied by pyrexia; also all cases of either advanced or of extensive tubercular disease, the objection being that such patients have neither the power of circulation to resist the cold, nor the amount of lung-surface necessary to aerate the blood in the rarefied atmosphere; also cases of phthisis in which catarrhal symptoms are the chief feature. These often improve greatly in general health at Davos, but the cough, instead of diminishing, increases; and in one of my patients of this class, catarrh of the larynx, causing obstinate aphonia, came on, this symptom subsiding later on during the hot weather in England. Such patients flourish in moist warmth, and are therefore more fitted for sea-voyages, or for Madeira; and the dictum of Biermer—the south heals catarrh, but the Alpine climate improves the constitution—has amply been borne out by my experience. It is the cold that affects this class of patients unfavourably; and it is possible that, where warmth is combined with altitude, as in the South African health-resorts or in the Andean, such as Quito or Santa Fé di Bogota, they may thrive.

In conclusion, what are patients to do when the snow melting necessitates their quitting Davos, which is generally the case at the end of March or the beginning of April? It is the custom to send them to Baden-Baden, or to one of the towns on the north-eastern bank of the Lake of Geneva, there to remain either till the summer commences in England or till the valley of Davos is free from snow. I do not hold

with this practice at all, for I think it undesirable to place patients who have been undergoing a strictly bracing climatic treatment, under conditions which are more or less relaxing, such as at Baden-Baden, with its cauldron of hot springs, or on the banks of a lake, where moisture must be abundant in the atmosphere. The descent from an altitude of 5,000 feet should be made gradually, for fear of inducing hæmoptysis, which, though rare at Davos, occurs sometimes in patients after quitting it. The route to be followed is the Landwasser road to Thusis and Coire, and a halt of fourteen days should be made at the former place, which, standing at a height of 2,448 feet at the mouth of the Via Mala, and provided with fair hotels, is a good intermediate station. The next halt should be at Berne (1,765 feet) for a week, and the patient can then return slowly to England, reaching this country in the beginning of May, where, with a well braced system and with improved powers of taking exercise, he or she will not fear, but rather approve of our cold winds. This plan I have tried for now two seasons, and have found it fairly successful, and would recommend it to other physicians.

CASE OF MULTIPLE EXOSTOSES.*

By G. E. SHUTTLEWORTH, B.A., M.D.,
Medical Superintendent of the Royal Albert Asylum, Lancaster.

A. B., an imbecile boy aged 13, for several years past an inmate of the Royal Albert Asylum, has at least sixty growths from, and enlargements of, bones in different parts of his body. His general health is good; his physical development moderate (height, 4 ft. 6 in.; weight, 72 lbs.), and his mental condition is that of idiocy of the milder type. The skull displays no marked external peculiarity; it is fairly symmetrical, and measures twenty-one inches in its greatest circumference. The features are regular, and the bones of the face appear normal; but the eyes are somewhat prominent. The thorax is of normal contour and capacity. On the second, third, fifth, seventh, and ninth ribs of the right side, and on the second, third, sixth, and seventh ribs of the left side, there are palpable nodules near the junction of the bone with the cartilages. The sternum and spine appear to be unaffected. The pelvis displays posteriorly on each side an exostosis; that on the right side, of the size of a filbert, being near the posterior superior iliac spine, that on the left being smaller and lower in its position. The bones of the extremities are so studded with exostoses that they will be best described under a tabular form, as follows:

RIGHT SIDE.		LEFT SIDE.	
<i>Clavicle:</i>			
1. Small nodule, sternal end.		1. Larger nodule, sternal end.	
<i>Scapula:</i>			
1. Growth (two inches across) from superior angle, filling up part of supraspinous fossa.		1. Three nodules on spine.	
2. Three nodules along vertebral border.		2. Nodule in infraspinous fossa.	
3. Massive exostosis in subscapular fossa, causing outward projection of scapula.		3. Thickening of inferior angle.	
		4. Nodule in subscapular fossa, projecting scapula, but less than on right side.	
<i>Humerus:</i>			
1. Exostosis (size of walnut) on external border (upper third).		1. Series of coalesced exostoses on external border (upper third).	
2. Smaller nodule attached to internal border.		2. Nodule (size of small orange) projecting into axilla.	
3. Small nodule projecting into axilla.		3. Exostoses on each side of bicipital groove.	
<i>Radius and Ulna:</i>			
1. Head of radius enlarged.		1. Head of radius enlarged.	
2. Nodule lower end of radius.		2. Mass of coalesced exostoses at lower ends of bones, projecting on radial side.	
3. Nodule lower end of ulna.			
<i>Metacarpal Bones:</i>			
1. Small nodules at end of each bone.		1. Corresponding exostoses.	
2. Nodules on dorsal surfaces of first and middle metacarpal bones.			
<i>Phalanges:</i>			
1. Small nodules on dorsal surfaces of first phalanges.		1. Corresponding exostoses.	
2. Small nodules on dorsal surfaces of second phalanges.		2. Corresponding exostoses.	

* Read before the Lancashire and Cheshire Branch.

Femur:

1. Massive enlargement of bone for three inches above internal tuberosity.	1. Corresponding enlargement; projection on inner side more marked.
2. External tuberosity enlarged.	2. Exostosis projecting into popliteal space.

Tibia and Fibula:

1. Large exostosis below head of fibula.	1. Corresponding exostosis.
2. Large exostosis below head of tibia.	2. Corresponding exostosis.
3. Nodule two inches above external malleolus.	3. Exostosis two inches above ankle, involving both bones, and extending round to each side.
4. Nodule on internal malleolus.	4. Nodule one inch above internal malleolus

Metatarsal Bones:

1. Small nodules on dorsal aspects of second, fourth, and fifth metatarsal bones.	No corresponding exostoses.

It is to be noted that on the right side the exostoses limit the pronation of the forearm; and on the left side supination is impossible. The free extension of the knee-joint is also somewhat impeded by the neighbouring growths.

It may be remarked that whilst there is a general tendency to symmetry in the position of the exostoses, they do not correspond in size on either side of the body. Thus, both scapulæ have exostoses, but the right is considerably more enlarged than the left; whereas, as if to supplement the deficiency, the left humerus is much more enlarged than the right. No special correspondence, either with centres of ossification, or insertion of muscles, is traceable in the sites of the exostoses. In size, they vary from that of a small pea to that of a small orange; and in some situations large bony masses are formed by the coalescence of two or more exostoses.

The history of the case throws but little light on its etiology. There is no hereditary history of abnormal bony growths (such as have been observed in other instances);* and, so far as is known, the only family dyscrasie are acute rheumatism on the father's side, and rheumatic arthritis on the mother's. Though delivered with forceps, no symptoms of imbecility were observed till after an attack of pneumonia at one year of age; soon after which small exostoses on the left shoulder-blade and on the ribs were noticed for the first time. The knees were noticed to be "growing out" when the boy was two years old: at this time he had an attack of "brain-inflammation". The bony growth has been progressive from that time to the present, and treatment has been of no avail in checking it. There are no indications of syphilitic taint.

The relation of the osseous affection to the boy's mental imbecility is an interesting question. Although there is no obvious external deformity of the skull, it seems quite possible that (as in the analogous affection described under the name of osteitis deformans) concentric cranial hypertrophy may exist, and the due development of brain be thereby impeded.

GRAVIMETRY IN THE MORTUARY; OUGHTON'S NECROMETER, ETC.

By J. P. H. BOILEAU, M.D., Surgeon-Major,
Assistant-Professor of Pathology at Netley.

IN the last number of *Brain*, there is a short but valuable article by Mr. Bevan Lewis of the West Riding Asylum, on the Examination of Cerebral Structures. Having referred to the more important methods adopted for ascertaining the specific gravity of organs, he states that Mr. Stevenson (Philosophical Instrument Maker, 9, Forrest Road, Edinburgh) has devised a simple and most reliable apparatus for estimating at the same time both the bulk and the specific gravity of large irregular bodies, by displacement; and he points out the simplicity and value of the method, whereby the weight, the volume, and the specific gravity of the brain, *e.g.*, may be simultaneously obtained. The apparatus is figured.

For several years past, this method has been employed at the Royal Victoria Hospital at Netley, for determining such physical conditions; but the very suitable and convenient apparatus used is the invention, or design rather, of an officer in the Army Medical Department, Surgeon-Major Tyler Oughton. It is fully described and illustrated in the eighth volume of the *Army Medical Department Reports* (1869), pages 520 to 528.

* Case by Dr. Poore, *Lancet*, November 29th, 1873.

The entire apparatus used by Mr. Oughton is comprised in a counter weighing machine and the "necrometer", which consists of a cylindrical metal vessel and a glass measure. The cylinders vary in size: one holding about six gallons is most frequently in requisition; its height is eighteen inches, and its diameter ten. Each cylinder has a stop-cock discharge-pipe at about the junction of its upper with its middle third, communicating with the interior by an open funnel or tube having its mouth horizontal. Mr. Oughton's cylinders are also provided with a second tap near the bottom. It is found to be a convenience sometimes in emptying them. The necrometer measures are of glass, having a diameter of from one to two inches, and a height of from eight to twelve. Each is graduated to measure cubic capacity in inches on one side, and to indicate the equivalent weight of distilled water on the other side. These indications were originally in drachms, but subsequently in grains, to correspond with the weights used in the machine.

The method of using the necrometer is thus described by Mr. Oughton: "Close the stop-cock and fill the cylinder with water until it rises above the aperture of the funnel. On allowing the water to escape through the tube, it will find the level of the aperture. The organ to be measured having been well washed, and weighed in the machine previously, is now introduced into the vessel after reclosing the stop-cock. Lastly, the water that has been displaced is allowed to escape through the tap to the level of the funnel-top, and is received into the glass measure. The bulk or volume of the immersed organ will be indicated by the measure, and likewise the weight of an equal volume of water. Divide the weight of the organ in air by the weight of the water of displacement, and the quotient will express its specific gravity."

When the organ is specifically lighter than water, *e.g.*, the healthy lung, Mr. Oughton makes use of a heavy solid, whose volume and equivalent weight of water have been already determined. This having been tied to the lung, so as to sink it, the volume and the water-weight of the two parts are ascertained according to the above plan; then the volume and water-weight of the added body are deducted from the totals, and the difference gives the volume and water-weight of the lung.

I have, however, adopted a simpler plan, using a "cage" of perforated zinc constructed of suitable dimensions, and having a cover easily fastened on. The cylinder having been filled as before to the level of the funnel-top, the stop-cock is closed. The empty covered cage is dropped into the water; it sinks and displaces a certain quantity, which is allowed to flow out through the stop-cock, and this is then closed. The cage is now raised, and the light viscus having been placed in it, lowered again into the water. It is clear that the further displacement which now takes place represents the volume of the viscus itself; and this, as well as the weight of an equivalent bulk of water, is indicated by the collecting glass measure.

In Mr. Stevenson's apparatus, according to the description and figure given in *Brain*, the organs or substances require to be depressed below the water-level by means of a brass contrivance. This can only be accounted for, in the case of a body specifically heavier than water, by the specific gravity of the latter having been raised by the addition which he makes to it of salt, or sulphate of magnesia. The simpler method is to use plain water.

Full information on the subject will be found in the *Army Medical Department Reports* for 1869.

HOSPITAL SUNDAY.—The annual general meeting of the constituents of the Hospital Sunday Fund is announced to be held at the Mansion House on Tuesday, December 20th, at 3 o'clock. The Rev. Canon Spence, Vicar of St. Pancras, has given notice of motion to alter the constitution of the fund so as to allow a grant of 4 per cent. of the collection each year to be expended in the purchase of surgical appliances, instead of 2 per cent. as heretofore.

ALLEGED DISCOVERY OF STILL-BORN CHILDREN.—At a recent meeting of the Burial Committee of the Hull Corporation the chairman reported that the men engaged in putting in order a disused burial ground in Castle-street had come upon a large number of bodies of still-born and other children buried about three or four inches below the surface. In all between twenty and thirty bodies had been found, some in boxes and some unenclosed. It was suggested that persons had got over the walls and buried the bodies; but the chairman said this could not have been so, as the bodies were laid in regular rows, and the only possible conclusion he could arrive at was that the late keeper of the ground had made interments for a consideration. Several of the bodies had been taken up and placed in the dead-house. It was resolved to communicate these facts to the Home Secretary.