estimated at 4,000,000, or 21 per square mile. Its length is about 500 miles, and its breadth 300.

Climatically, as well as politically, it may be divided into three parts: Burmah proper, occupying the valley of the Irawady, and its branches the Kienn and Myt rivers; from the British border, 18° 50', to 24° 30' N. at Bhamo, on China border, North Burmah, beyond this point, is occupied by the wild Kakyciens or Simfa. This part, which is little known, is hemmed in on all sides by mountains, and is so extremely unhealthy that, in my time, a sentence of banishment to Mongoung, a town in this region, in latitude 25° 30' N., was looked upon by the Burmese officials as equivalent to death. Besides the above, there is, in addition, the hilly country to the south-east, extending from the twentieth to twenty-fourth parallel north, occupied by the tributary Shan States, North Burmah and the Shan States are exceedingly hot and unhealthy in the wet season. During winter, the air is keen, necessitating, even as one approaches Bhamo, the use of warm clothing, and rendering pleasant at night the grateful influence of the bivouac-fire. The Shan country, situated, as it is, on western slopes of the mountains, cannot be otherwise, especially in spring and summer, than exceedingly feverish and unhealthy.

We will now direct attention more especially to Burmah proper, occupying the valley of the Irawady from Thart Myo to Bhamo, as it is here that the capital, Mandalay, in latitude 22°, and nearly all the towns of importance are situated. It is to this region, also, that the military operations will probably be confined. This being so, it is satisfactory to know that it is the most healthy, as it is the driest part of the country. In speaking of India, we pointed out the effects of the Western Ghats in obstructing rain-clouds, and thereby lessening, so materially the amount of precipitation on their eastern declivities and the central plateau beyond. Here, in like manner, does the Aracan Yoma range of mountains, and also the Pegu Yoma range, to a considerable extent lessen the rainfall, particularly in the western and central parts of Irawady basin. As the clouds, however, approach the range forming the eastern watershed of the Irawady, the rainfall must necessarily be great; as, owing to the superior height of this range, the state of affairs is somewhat analogous to that which presents itself in Assam, where, as stated, fifty feet have sometimes been registered. The influence of these mountain-ranges, though of no great elevation, has such an influence that, were the central portion of Upper Burmah a plateau, instead of a low river-valley, the climate would be excellent; even as it is, they exercise considerable influence on the rainfall of the district. Thus, while in the sea-coast districts of Tenasserim and Pegu, the precipitation varies from 200 to 120 inches, and the air throughout the year is saturated with moisture, owing, in part, no doubt, to evaporation from the numerous river-deltas, in Mandalay, in the interior, and in the same latitude as Calcutta in Bengal, it does not exceed fifty inches—a fact clearly illustrated by the production of rice, and the effect of the atmosphere on books, boots, and clothes. In Lower Burmah, rice is grown and exported in large quantities, while about Mandalay the yield is not sufficient to supply the wants of the indigenous population. Neither is our wearing apparel injuriously affected. There are three seasons: the cold, extending from November till February; the hot, from February till the end of May; and the wet, or rather wet-hot season, till the end of October. In Upper Burmah, the cold season is fairly agreeable to Europeans, and becomes more so the higher we proceed up the river. The noon-day sun is powerful still, but the mornings and evenings are cool, bracing, and pleasant. Thus there are great diurnal variations, far greater than in sea-coast districts, and necessitating great precaution to protect the internal viscera, already enfeebled from prolonged exposure to heat, against the changes above referred to.

The hot and rainy seasons are, however, hotter, and the air more still, in Upper Burmah than in the coast-districts, owing to absence of the land- and sea-breezes, the formation of the valley, and the diminished amount of rainfall. In Mandalay I have myself often, even at night in the house, seen the glass stand at 108° Fahr., and found it necessary to lie in the passage between two doors to get a little air. In estimating the effect of the climate of the Upper Irawady Valley, even in its broadest and healthiest parts, it must be remembered that this river in its upper reaches is a mighty stream, being probably two miles wide at Bhamo, and of great volume and rapidity, even as it issues through its mountain-barriers. To this cause, and to the heavy rains at its head waters, are due the annual inundations, which, commencing about June, continue during their increase, culmination, and decline, for the latter part of the summer, the departing waters leaving behind them, owing to the action of the sun on the cracking mud, a state of affairs more injurious to health than that which appertains during the inundations themselves.

Thus the period from the advent of the rainy season to the fall of the river, and for some time after, is exceedingly unhealthy for Europeans in Mandalay, and other low-lying places in the valley. The rains coming on after the great heats of March and April, find the system in a state favourably suited to the production of a disease of the abdominal viscera. In the capital, in June, dysentery may be said to be epidemic among the natives, while, in those parts of the city subject to inundation, it largely prevails, after the fall of the waters.

During two months, in my house situated in the compound of the British Residency, the water around and under it was between four and five feet deep. The houses are all built on piles, and constructed of boards and bamboo-matting. Thus they afford perfect perfusion of air, and are well adapted to maintain the health of the natives, as they would, perhaps, also that of Europeans if situated beyond the reach of inundation, and had they foundations properly drained and concreted.

The prevailing diseases among Europeans, contracted in the capital and other well cleared towns on the river, are dysentery, fluxes, and acute hepatitis. Fevers, so prevalent and virulent in the remote villages and amongst those engaged in the occupations of forestry or mining, rarely originate in the capital; at least, those which came under my notice occurred in the outlying parts of the country. As regards the prevailing diseases—dysentery, hepatic affections, fluxes, and fevers—although I have no statistics to offer, I may say, as the result of my own experience, from considerable practice amongst the Europeans of all nationalities, as well as the Chinese and river-population of the Irawady-flotilla, that the Anglo-Saxons, or, to speak more correctly, the British and Germans, were more predisposed to hepatic diseases and fluxes than the French or Italians, and the Chinese Eurasians less so than either. Fevers, on the contrary, seemed to attack all with equal impartiality, the only predisposing qualification being that of newness to the feverish district.

In my time, out of three medical men, one of whom only (myself) was in active practice, one succumbed to hepatic abscess, one to fever, and the third (the writer) was placed *hors de combat* from abscess of the liver following dysentery, and brought on from a chill caught in the discharge of the duties of his profession.

As regards the seafaring population, climatic disease was essentially rare among the superior and well fed European sailors, while of frequent occurrence among the common sailors, natives of India.

Of six young Frenchmen, missionaries, who arrived brimful of health, and went into remote stations, after three years' residence, but one remained in the country; the rest either died or went home. The Chinese also suffered much from these affections; thus, by far the worst and most pernicious fevers I have ever seen occurred among the Chinese Mohammedan refugees, brought on from exposure, during their flight overland from the frontier of Yunnan to Mandalay.

A word in conclusion with reference to the probable dangers to the expedition now about to ascend the river. If completed before the advent of the hot season, no disease beyond that incidental to all military operations in tropical countries need be apprehended. Should it be extended into the hot season, and particularly if guerilla operations be necessary, many cases of sunstroke may be feared; while if the wet season sees it still incomplete, dysentery, fevers, and hepatic affections will cause many deaths and much invaliding. Small-pox also, owing to the absence of vaccination and the practice of the vicious system of inoculation, is an exceedingly prevalent disease, and may give rise to much suffering among susceptible Europeans exposed to its contagion. Much more might be written on this subject; but, owing to the great pressure always existing for space in the columns of the BRITISH MEDICAL JOURNAL, I now finish up with the hope that what I have said may enable my brethren to obtain some slight idea of the climate of Burmah.

A CASE OF STONE IN THE BLADDER OPERATED UPON A SECOND TIME.

By CHARLES WILLIAMS, F.R.C.S. Ed.,
Surgeon to the Norfolk and Norwich Hospital.

On February 9th, 1879, I was requested by Mr. Morton, of Aylsham, to visit with him the gentleman on whom I had performed lithotomy in July, 1876. I found him suffering from symptoms indicative of stone in the bladder. He was micturating eight or ten times during the night, and much more frequently during the day; he could not ride in a vehicle without experiencing excessive pain in the bladder; the stream of urine often stopped abruptly whilst he was passing it,

and there was an aching pain in the glans penis. He had passed no blood; the urine contained small pieces of mucus, otherwise it was clear and healthy. His tongue was clean. The bowels were regular; he had a good appetite, and, indeed, looked as if he were in excellent health. On sounding his bladder, a stone was readily detected. He was then in his seventy-fourth year.

On February 20th, with the help of Messrs. Morton, I performed lateral lithotomy along the line of cicatrix, which consisted of firm condensed tissue, and was hard to cut through. In dividing the prostate, about a dessert-spoonful of thick offensive pus escaped through the wound; this evidently had existed as an abscess, probably chronic, in the gland. A flattened oval calculus of uric acid, weighing three drachms, and a smaller one of oval shape, of similar material, weighing half a drachm, were removed; there were no facets on either stone. I could feel no enlargement of the prostate in the bladder. The part from which the middle lobe had been removed at the first operation was smooth and healthy, and was on a level with the floor of the bladder. The rectum was tucked up, in the form of a *cyl-de-sac*, to the inside of the tuber ischii; this was probably occasioned by the contraction of parts after the first lithotomy. It treated a difficulty in keeping clear of the rectum whilst making the deep incision; but, by a cautious use of the knife, the bowel escaped injury. Hemorrhage was very free from a deep vessel, which could not be tied. A tube was placed in the wound, and pieces of lint plugged around it; this had the effect of preventing any further bleeding.

The next day, the patient was easy; he had suffered no pain; the urine flowed freely through the tube, which was taken out the following morning. On the third day, the pieces of lint were removed; his temperature was 101°, and pulse 72.

On the fifth day, the bowels were opened for the first time; a small portion of feces came through the wound.

On the eighth day, his temperature was 99.8°; pulse 72. The wound looked sloughy. Fecal material occasionally passed through it; but, from this time, he steadily progressed to complete recovery, and the wound healed most perfectly.

REMARKS.—The above case presents many features of unusual character and interest; it forms a sequel to the notes of the case published in the BRITISH MEDICAL JOURNAL of June 15th, 1878. The first and most interesting point is the fact of the man's requiring lithotomy a second time. One might be tempted to think that a small calculus may have been overlooked at the first operation, not an uncommon circumstance in the hands of the best lithotomists; in this case, no stone or fragment of stone was left in the bladder. The accidental removal of the fibrous growth from the prostate in 1876 required a careful exploration of the interior of that cavity, in order that the amount of mischief which had resulted from the use of the forceps might be ascertained. My finger swept the floor of the bladder; and nothing in the form of a calculus, or piece of one, was to be felt. Again, for a period of one year, he suffered no bladder-irritation of any kind. He certainly would have done so had the smallest portion of stone been left in the vesical cavity. At the end of twelve months, symptoms of stone began to show themselves, slight at first, but more severe as time went on, until, in the end, they culminated in great distress, and a second operation was imperatively required.

The next point is the condition of the floor of the bladder. Two years and a half had elapsed since the part was removed, and no further growth from the prostate had taken place. The wound made by such removal had healed, and the floor of the bladder was soft, even, and natural. The giving way of the rectum on the fifth day was an awkward and annoying circumstance. I am not surprised at it when I consider how near the bowel the knife must have gone, in consequence of the attachment of the rectum to the cicatrix, and how thin was the barrier between the intestine and the wound. The necessity that existed for plugging the wound with lint to arrest deep hemorrhage, and keeping the bowels too long confined, contributed, I doubt not, to produce this result; however, the patient's excellent constitution bore him bravely through these troubles. The rectal wound closed, the external one healed, the parts around became firm and sound. He is at the present time in good health, and in his 80th year.

The systolic bruit was still to be heard, and the irregular, intermittent beats of his heart still existed; nevertheless, the patient inhaled chloroform with perfect freedom, and without indication of danger.

Since the publication of this case in 1878, Mr. Reginald Harrison has recorded, in the sixty-fifth volume of the *Medical Chirurgica Transactio*, two cases of lithotomy in which tumours of the prostate were successfully removed. In one instance, the enlarged pro-

tion of the prostate seemed loose and disposed to come away; it was enucleated with the forefinger, and was about the size of a walnut, and analogous in structure to an adenoma of the breast; the patient made a good recovery. In the other case, a mass about the size of a hen's egg was shelled out, and was of similar structure to the above; this man recovered. The subject of recurrence of stone after lithotomy has been fully treated by me in *Holmes' System of Surgery*, vol. iv, second edition, 1870; and in the *Lancet*, May 18th, 1878; and will be again in a future communication.

A CASE OF PARTIAL LACERATION OF THE URETHRA SUCCESSFULLY TREATED BY CONTINUOUS DILATATION.

By D'ARCY POWER, M.A., M.B. Oxon., F.R.C.S. Eng.,
Curator of the Museum at St. Bartholomew's Hospital.

THE following case is one of interest, as it represents a type of injury which is usually attended with the most disastrous results to the patient, and in which the treatment is of little permanent benefit. The patient came under my care whilst acting as house-surgeon to Mr. Savory, but I have purposely delayed publishing an account of his injury in order to allow as long a time as possible to elapse, and to prove whether the benefit was in reality lasting, and not, as is too often the case, merely temporary.

S. Y., aged 23, a gasfitter on a railway, was admitted to Abernethy Ward, St. Bartholomew's Hospital, on March 20th, 1883, at 10 in the morning, with the following history. At 7 A.M., he had fallen astride the buffers from the top of a railway-carriage. After a few minutes' rest, he was able to walk home to breakfast, feeling a little pain in his hips. On trying to pass water, however, he experienced great pain in his perineum, and blood issued from his meatus. He therefore applied for relief at the hospital. On admission, his perineum and scrotum were bruised and cedematous. At 2 P.M., Mr. Savory introduced a No. 8 silver catheter, but, finding a slight resistance at the membranous part of the urethra, he immediately withdrew it. A good deal of blood followed the catheter. The patient was directed to hold his urine as long as possible. On the following day, blood-stained urine passed in a stream, though with pain and a sense of resistance to its flow. The patient only micturated once a day for the next week. On the sixth day after the injury, the urine ceased to contain blood, and the patient only felt pain when his bladder was full. On March 30th, ten days after his admission, a No. 8 silver catheter was passed into the bladder, and urine was drawn off. The patient was discharged on the same day. A fortnight later, the patient noticed that his urine began to pass in a smaller stream than before; and on April 22nd, this difficulty culminated in retention, a complication which the patient himself treated successfully by immersing his penis in hot water. On April 24th, the patient was readmitted to the hospital. At this date, a tight stricture was found in the membranous part of the urethra. A No. 2 silver catheter, however, was passed, and urine was drawn off, the instrument being allowed to remain in the bladder for five minutes. On April 27th, a No. 3 silver catheter was passed at 1.30 P.M., and retained in the bladder until 10 P.M. On May 1st, it was found that a No. 3 silver catheter would not pass, and a No. 2 could only be passed about a quarter of an inch into the stricture; it was left in this position about ten minutes.

On May 4th, a No. 2 could not be passed, nor could a No. 1 be introduced into the bladder; the urine, however, dribbled away.

On May 11th, after the patient had taken a warm bath, Mr. Savory passed a silver catheter, graduated from No. 1 to 3, into the bladder; there was no hemorrhage, but clear urine was drawn off. The catheter was retained for nineteen hours, during which time the patient passed a considerable quantity of blood-stained urine; his temperature fell to 97° Fahr. At the end of nineteen hours, the catheter was withdrawn, and was replaced five hours later, when it was retained in the bladder without pain for a further period of eight hours.

On May 18th, a No. 1 silver catheter was passed with ease, and was kept in situ for forty-four hours, when it was replaced by a No. 3, which, except for an interval of three hours, remained in the bladder for forty-eight hours, and was replaced by a No. 4 on May 22nd. On May 27th, a No. 10 silver was passed, and was retained until the following morning. The patient was taught to pass a No. 10 black rubber catheter on himself, and was discharged with directions to introduce it himself every night, and to come to the hospital once a week. He followed his orders implicitly, and I saw him from time