

placing the patient under chloroform, I find that owing to the smallness of the urethra my smallest lithotrite cannot be passed, or owing to the large size of the stone or its extreme hardness, litholapaxy be contra-indicated. Since I commenced the operation in boys in February last, I have had several cases of stone in boys upon whom I have had to perform lateral lithotomy owing to the impossibility of passing my smallest lithotrite (No. 7), and two cases (already mentioned) in which after commencing the crushing operation I had to abandon it for lithotomy.

Since the publication of Dr. Keegan's 58 cases of litholapaxy in boys, nine successful cases of the operation have been recorded in England, and these, together with my 13 consecutive successful cases, make a total of 70 with one death or a mortality at 1.42 per cent. The one solitary death, which occurred in Dr. Keegan's practice, took place after three attempts had been made to crush and remove the foreign body in the bladder. The nucleus in this case was a long piece of "tilli" stalk, and as Dr. Keegan very rightly remarks this death "should not be considered as militating against the performance of litholapaxy in male children."

Both Keegan and Walsham advocate the use of small aspirators when operating on boys, to avoid the risk of over distension or rupture of the bladder. In all the 13 cases above recorded, a full sized aspirator was used, for the simple reason that I had no small one. Beyond the fact that, previous to commencing the operation, I was careful to ascertain the exact amount of water the bladder contained (which, of course, must be regulated by the size of the child one has to deal with), I cannot say that I took any special precautions to work the aspirator more gently than in the case of an adult. I am not aware of any injury to the bladder of a child during litholapaxy, by over distension, having been recorded, and am inclined to think the danger of such an injury is somewhat theoretical.

(To be concluded.)

ON THE TREATMENT OF CARBUNCLE BY SCRAPING.

By J. O'BRIEN, M.D., F.R.C.S.E.

IN India, in Bengal at any rate, owing to the prevalence of various forms of cachexia and the generally spare diet of the people, carbuncle is of frequent occurrence. The treatment of this disease up to a recent date has been, I think, decidedly unsatisfactory. I have, in my own limited experience, met with a few fatal cases in which life would, in all probability, have been saved by the adoption of a more rational and active mode of treatment in the early stages of

the malady. In dealing with this, as with most other forms of disease, medical men are guided by the beacon of authority: usually a safe and steady light, illuminating their path, often dark and devious in the combat with disease. Few men have the courage or sagacity to strike out a new line of treatment even when old methods are disappointing. Poultices and other soothing and emollient applications, the time-honored crucial incision and partial destruction by some form of cautery have been the methods in vogue for the treatment of carbuncle probably from the days of Hippocrates. I regret that I do not possess the works of this early master of our art for reference on the subject.

Up to a late date most surgeons have adopted the crucial incision as affording the best prospect of cure. It relieves tension, eases pain, and affords a ready means of escape of the imprisoned slough. But there are grave objections to it: in the first place, it gives rise to considerable hæmorrhage, profuse indeed in the case of large carbuncles; secondly, it increases the risk of pyæmia; and a third objection is, that it stops just a step short of what is required for cure. To cure the disease, the slough should be removed at the time of making the incision; but, according to the recognized practice, it was allowed to separate slowly and spontaneously. The proceeding reminds one of the operation of lithotripsy in its early days. The stone was then crushed and allowed to escape as best it could. By the improved method of litholapaxy or lithotripsy at one sitting, the stone is crushed and evacuated at once. In like manner, by the new plan of dealing with carbuncles, we can at once, or very quickly, get rid of the slough, which may be regarded as the centre and nucleus of the disease.

Here it will perhaps be interesting to glance briefly at the treatment recommended for carbuncle—the local treatment, for the constitutional is everywhere the same—in some of our approved Surgical text books. In an edition of Syme's Principles of Surgery, bearing date 1863, we find the following advice:—

"The treatment of all degrees of this affection should be conducted on the same principles. The first of these is to relieve tension, bleed from the part, and afford free vent to the confined matter by making a free crucial incision completely through the integuments to the full extent of the disease; the next is to promote the cleaning of the cavity by applying soft poultices; and the third is to correct the predisposing state of the system which has induced the morbid action by a soothing diet."

The professor speaks with no uncertain voice, and the advice which he gives is that which has been pursued by most surgeons up to the present time. The poultices have been largely discarded since the discoveries of Sir Joseph

Lister have been made known and antiseptic dressings have been employed instead.

In Holmes' system of Surgery (1871), Mr. Thomas Smith writes somewhat doubtfully of the value of incision. He says: "In reviewing the methods of treatment, we believe that by incision has the advantage of very generally affording complete relief from pain; that it arrests the further extensions of the inflammation is less certain, and we doubt if the final cure is at all expedited." Again—"The treatment by incision has the disadvantage of causing hæmorrhage and it may be of exposing the patient's life to increased risk from pyæmia." The change of ground of medical opinion in the course of 18 years is here well shown. Professor Syme teaches that it is beneficial to "bleed from the part," Mr. T. Smith, adopting later views, regards the hæmorrhage as a serious disadvantage.

Turning next to Byrant's Surgery, Edition of 1879, we find that this surgeon is opposed to incisions. He makes the following remarks on the treatment of carbuncle:—"In former days the one form of local treatment, that every surgeon followed, was that of the crucial incision, the knife being passed freely through the tissues to the base of the inflammatory effusion; the object of this was to give room to the slough to separate and come away. In modern times the value of this practice has been much questioned, for it was too often found to be followed by loss of blood where blood was much needed; nor has it been thought that the incision did much to hasten the progress of the case or the separation of the slough. The treatment I prefer and have adopted for many years has been that by caustic, and the more I see of it the better I like it." The caustic recommended is caustic potash which may be used "either by rubbing the centre of the carbuncle until an eschar is formed, or by puncturing with a scalpel and inserting the stick or a small piece the size of a pea well into the diseased tissues." By this practice the slough is said to be cast off more readily than when incisions are made or the case left to nature.

This practice has not, however, been received with much favor. Few surgeons speak well of it. Mr. Page, of St. Mary's Hospital, who has been instrumental in introducing the new plan of treatment by scraping "hopes to be preserved" from ever employing it. I tried it myself in one case. It was that of a fat, flabby, diabetic Bengali gentleman, who had an enormous carbuncle in an advanced stage covering the whole occiput and back of the neck. Dreading the hæmorrhage which would have been severe from cutting through such a mass. I used the caustic in small pieces as recommended above, but the patient died of septicæmia. But even if the practice

were an approved one it would often not be feasible in out stations and small dispensaries in India owing to the deliquescent nature of the caustic and the difficulty of keeping it solid for any length of time.

In the more recent work, Erichsen's Surgery, Edition of 1884, edited by Marcus Beck, we do not find much in the way of an advance. Under the head of local treatment he says that in the very early stages of a carbuncle its progress may be arrested by destroying it with a point of potassa cum calce. "If it has attained a somewhat larger size, though still small, it may be covered with a piece of soap plaster spread on leather having a hole cut in the centre through which pus and sloughy matters may be discharged." When the carbuncle is of larger size the question of incision will arise, and this, he thinks, should be determined by the amount of tension existing in and around the carbuncle. "Should the parts be soft, relaxed, and comparatively painless, no advantage can result from incision; but, on the other hand, if the tension be considerable, the agony great, and the constitutional disturbance dependent on both proportionately intense, nothing gives such immediate relief, local and constitutional, as early and free incision." He then describes the subcutaneous and crucial method of incision and adds, "pyæmia is so frequent a cause of death in bad cases of carbuncle, that it becomes very important to prevent putrefaction in the sloughs." He accordingly enjoins the use of antiseptics and, instead of the usual linseed poultice, recommends a thick layer of boracic lint moistened with a concentrated solution of boracic acid.

Considering that pyæmia and septicæmia have been so generally recognized as the cause of death in cases of carbuncle and that these evils were acknowledged to be due to the retention and putrefaction of the slough, it would appear strange that no surgeon up to quite a recent date should have proposed the simple expedient of early and complete removal of the slough. What more obvious plan of preventing putrefaction in the slough than to remove it bodily? The truth would seem to be that the new method of treatment by scraping and removal of the slough is but another fruit of the prolific tree of antiseptic surgery. In the old days when a poultice or some greasy ointment was to be his dressing there was but little to encourage a surgeon to enterprise in dealing with large carbuncles; now that he can with certainty count on an aseptic surface when the sloughs have been removed, their removal follows as a matter of course.

For my knowledge of the new method of treatment by scraping and removal of the sloughs, I am indebted to an article in the *British Medical Journal* of 24th March last, viz., "A clini-

cal lecture on the treatment of carbuncle by scraping by H. W. Page, Surgeon to St. Mary's Hospital," and to some remarks on the subject by Mr. Edmund Owen with regard to a case of "extensive carbuncle treated by erosion" in the same number of the journal. It is probable, as Mr. Page observes, that this mode of treatment has already occurred to, and been practised by other surgeons, but, if so, no account of their practice would appear to have been placed before the profession. The first notice that occurs in an English journal is in "*The Liverpool Medico-Chirurgical Journal* for January 1887," viz., an article "on scraping in Surgery" by Mr. Teale, of Leeds. From this paper Mr. Page quotes a short extract which I reproduce here for the benefit of those readers of the *Indian Medical Gazette*, who do not subscribe to the *British Medical Journal*. It contains practically the pith of the matter.

"*Carbuncle*.—Probably in no disease involving severe pain, and occasionally threatening life, is treatment by scraping more conspicuously of value than in carbuncle. A central crucial incision of moderate size with vigorous scraping in every direction in which the scraper can penetrate into the half-dead tissue will cleanse the diseased mass of much of the half-dead putrefying poisonous material. The main attack should be supplemented by smaller crucial incisions and scrapings in the contiguous carbuncular skin and by numerous small incisions or lancet punctures into any neighbouring skin which, though not carbuncular, is oedematous, infiltrated by the spreading poison and already half condemned to a destructive career. Having rid the mass, as far as possible, of all diseased, decaying, infecting material, the resulting cavities and crevices should be well soaked either with pure carbolic acid carefully used so as not to scald the skin, or perhaps more advantageously with glycerine acid, carbolic, so that every crevice where half-dead tissue remains may be soaked and penetrated. Finally, the raw surface is well charged with iodoform and dressed with salicylic acid or some such absorbent, antiseptic material. The result is cessation of pain and feverishness, restoration of normal temperature, and a rapid establishment of comfort, convalescence and healing."

As carbuncle would appear to have been unusually prevalent in Bengal during the hot weather and rains this year (1888), I have enjoyed unusual opportunities of testing the efficacy of this mode of treatment. Over 20 cases have received treatment at my hands; some were in an advanced stage and of extreme severity from neglect, others I saw in an earlier stage when they were comparatively small. In all I employed the treatment described above with some slight modifications, and in every case it was followed by a rapid cure—that is rapid

compared with the results of other plans of treatment. The carbuncle ceased to spread, pain and fever were diminished, and the sore quickly took on a healthy healing action. From my experience of this treatment I should say the earlier a carbuncle is attacked the better. I have this year aborted several in their initial stage by a free crucial incision through the brawny tissues, then scooping out the softened sloughy contents, and afterwards saturating the cavity thoroughly with strong carbolic acid. In this way what manifestly have proved a large spreading carbuncle has been converted into a small clean sore with soft edges. Regarding the affection as a purely local malady, I have no hesitation in saying that it may be at once checked in its destructive course and converted into a harmless readily healing sore by the vigorous use of the treatment detailed above. In some of my cases the carbuncular inflammation showed a tendency to spread in some particular direction after the first incision and application of the acid, but this tendency was readily checked by a subsequent free application of the acid to the threatened tissues and a supplementary incision if necessary. The part played by micro-organisms in causing the spread of carbuncular inflammation has not been fully worked out by any surgeon as far as I am aware. That they do play a most important part in this direction cannot, I think, be doubted.

I have remarked that carbuncle, with suppurative diseases in general, is much commoner in the hot weather and rains than in the cold season in Bengal. I presume a similar state of things exists in other parts of India. This is, no doubt, due to the greater activity of pyogenic microbes at this time of the year. Most surgeons in Bengal are familiar with the numerous cases of furunculosis, abscess and carbuncle which occur at this season. A carbuncle like a boil probably owes its existence in persons predisposed to it to the lodgement in the hair follicles or sweat ducts of some form of micrococcus, which, by giving rise to irritation and inflammation, leads to the formation of a purulent centre, from which, in the case of carbuncle, the dense, brawny inflammation peculiar to the disease radiates. It is only on some such hypothesis that we can explain how the growth of a carbuncle can be arrested in its initial stage by the application of potassa cum calce as recommended by Erichsen, or how it can be aborted even when considerably advanced by the free application of strong carbolic acid to its sloughy centre, as later experience shows. Once the carbuncle has attained a large size, it is easy to understand how the sloughy pultaceous mass which forms its centre is, owing to free exposure to the air, rapidly converted into a huge colony of microbes

of sorts which by burrowing into the weakly resisting tissues and suffusing them with products of decomposition, cause their rapid death. This process combined with tension causes the extensive disorganization of tissue so frequently seen—*Vide infra* case II.

Case I.—A Hindu widow, aged 50, a strict ascetic, thin and anæmic, has a tense painful carbuncle, $4\frac{1}{2}$ inches in diameter, extending from edge of scalp to last cervical spine, of 15 days' standing. She is feverish, and has had little sleep for three nights. There are numerous small openings, through which pus is bubbling out, and a larger one, size of a rupee, in the centre where an inefficient incision had been made a few days previously. Chloroform not being at hand, I made a crucial incision without it right up to the margins of the redness. With the scoop of an ordinary director, I then rapidly scooped out the pultaceous slough and all broken down tissues from the interior of the carbuncle and thoroughly cleared out the cavity by scraping. By the time this was done, bleeding had practically ceased. I then mopped out the cavity with strong carbolic acid, washed away superfluous acid with water, dried the raw surface, sprinkled it freely with iodoform, and finally applied a thick dressing of sal alembroth wool with which the cavity also was loosely filled. The further progress of this case was one of rapid recovery. Pain ceased a few hours after the operation, fever vanished, the patient had a good night's rest, and in three weeks the sore had almost healed.

Case II. June 18th—I was called into the district to see a middle aged Bengali gentleman who had been suffering from carbuncle for 21 days. He was an obese but unhealthy looking individual; spleen enlarged, and urine said to contain a trace of sugar. There was a considerable amount of fever; temperature 102.5° in the evening; but tongue was moist and clean. He had had no good rest for some days, owing to the pain of carbuncle and constrained and fixed position of neck. The carbuncle was one of the largest I have ever seen. It occupied the whole of the back and sides of neck, extending from the superior curved line of the occipital bone down to the level of the 2nd dorsal vertebra, and laterally to the anterior border of the sterno mastoid muscles. Thick yellow pus welled up through numerous small apertures in its livid surface, and the skin was broken down in the centre, where an insufficient opening had been made by a medical practitioner about a week previously. Through the central opening the white sloughy mass forming the body of the carbuncle was visible. So great was the size of this carbuncle that I hesitated for a moment to make the necessary incisions and to deal with it radically. However, confiding in the new plan of treatment, I rapidly

made a free crucial cut about 6 inches each way under chloroform. There was smart hæmorrhage for a moment, but I quickly got my hand in beneath the skin flaps and broke down all dissepiments and divisions that existed and quickly scooped out the whole of the sloughy contents of the cavity with a few circular sweeps of the hand. I found that the sloughing process had extended deeply into the muscular tissues, large shreds of which came away as I cleared out the *débris*. By this time bleeding had practically ceased. In fact, it is surprising how quickly bleeding ceases when the body of the carbuncle is scooped. This, no doubt, is due to the interruption of the vascular connection between the skin and deeper parts. With the index finger I then carefully searched round the bottom of the crater, if I may so call it, for pockets and diverticula of suppuration. I found a few and laid the skin open with scissors down to them. In this way the primary crucial cut was supplemented by three lesser incisions. I then treated the raw surface, as in the previous case, *viz.*, first touched it with strong (crystal) carbolic acid, then washed and dried it, and afterwards dressed it with iodoform and sal alembroth wool. The edges of the large flaps had to be pared off with scissors, as they were bound to die.

I saw this patient five days later. He was, contrary to my expectation, doing remarkably well. Pain and fever had ceased, the appetite was good, and he enjoyed sound rest at night. The bottom of the cavity which was now clean and free from sloughs presented a neat dissection of the muscles of the neck. The cervical portion of the trapezins was totally destroyed on both sides; only a few shreds adhering to the occiput remained. The splenius and a portion of the complexus were also destroyed on the right side, exposing the trachelo-mastoid. The splenius was intact on the left side. The sterno mastoid and levator anguli scapulæ were exposed on both sides.

I now found that another carbuncle had begun to form on left side of back over the lower ribs. It was about 2" in diameter and pus welled up through a few small openings. I laid this carbuncle open by a crucial cut up to the margins of the redness, then scraped out its interior with the scoop of a director, and applied acid and dressings as above. The further progress of this case was one of uninterrupted recovery. The small carbuncle healed quickly, and by 19th August, when I last heard of the case, the larger cavity had practically closed in. After the sal alembroth wool had been used for about a fortnight, symptoms of mercurial poisoning began to appear, *viz.*, salivation and tenderness of gums. Salicylic wool was substituted for it, and a few doses of sulphate of magnesia administered. From my experience

of this case, I would not advise the use of perchloride washes or dressings to such large raw surfaces. Carbolic or boric lotion and dressings may be used instead. I have given this case, *in extenso*, as it appears to me to afford a typical illustration of the efficacy of the new system of treatment. I did not use a sharp spoon in this case, owing to the enormous size of the carbuncle. My fingers formed a most efficient and appropriate scoop. To have worked the sharp spoon in the deeper planes of the cervical muscles would probably have added considerably to the amount of hæmorrhage.

Case III.—A badly nourished, weakly, cachectic Bengali of 50, was admitted into the Municipal Hospital on 30th June. He was suffering from a large carbuncle of 20 days' standing on back and sides of neck. It extended from the occipital protuberance to vertebra prominens and on the right side towards the root of the neck it reached almost to the clavicle. There was continued fever; the tongue was dry, and the patient was greatly prostrated by his sufferings. The carbuncle was sloughy and boggy in the centre. I laid it open immediately under chloroform by a crucial incision about 5" each way, and then thoroughly scraped out the cavity with a sharp spoon. The sloughing process had not passed beneath the dense fascia covering the posterior cervical muscles. A pocket of suppuration was found at the root of the neck extending towards the right. The skin covering it was divided with scissors. The cavity was treated precisely as in the previous cases, save that the loose plugging was of salicylic instead of sal alembroth wool, and the whole was covered with an absorbent pad of saw dust impregnated with perchloride solution (gr. 1 ad. ʒi). For a few days the carbuncular inflammation manifested a tendency to spread upwards towards the scalp, but this was stopped by raising the flaps and touching the threatened parts with phenol. In a few days the patient's condition was one of ease and comfort. He was discharged cured on 16th August.

Case IV.—This patient might be said to be suffering from the carbuncular diathesis. Last year (1887) he had a carbuncle of medium size on right side of back. He now (June 20th, 1888) presented himself at the Municipal Hospital with no less than three carbuncles, *viz.*, one on back between scapula $4\frac{1}{2}'' \times 4\frac{1}{2}''$, one over left scapula about 2" in diameter, and one over triceps on the back of left arm about the same size. The patient is a tall, anæmic and very unhealthy looking Hindu, but fairly stout, age 48.

I at once laid open all three carbuncles without chloroform, scooped out their softening contents, and applied phenol. As this man was not a resident of Burdwan, I had much trouble in persuading him to stay to have the sores

properly dressed. He disappeared after a couple of days, and returned again on 3rd July, with a new carbuncle forming on back of neck. The three carbuncles that I had laid open were doing well, the two smaller ones nearly healed, the edges of the large one quite soft and healthy, granulation progressing in the inside. The new carbuncle was extremely tense and painful, oval in shape, long axis extending up from last cervical spine to close to the edge of scalp. There were a few openings in the lower part discharging pus. Though this carbuncle was decidedly "unripe," I thought it best to lay it open at once. I accordingly made a crucial incision about 3" \times 3" down to the deep fascia of the neck, and with a sharp spoon vigorously scraped away all tissue that appeared to be breaking down. I then applied phenol. Fever and pain were much lessened by the operation, but the carbuncle still manifested a tendency to spread upwards. After four days I had to extend the incision to the scalp and to remove shreds of the deep ligamentous structures of the neck, which had necrosed in this direction. The advantages of early incision are, I think, well shown in this case. Notwithstanding my first incision and application of phenol, the disease continued to spread in a direction in which, I expect, the tissues had at an early period lost their vitality; but here the destructive process went on, so to say, before our eyes. There was no tension, no burrowing of pus, no danger of septicæmia. The discharges they formed were absorbed by the antiseptic dressings. In fact, the patient was very little ill, and walked every day to the hospital to have the carbuncles dressed. This patient with the help of iron tonics and a generous diet made an excellent recovery, and left for his home on 12th August.

Case V.—A thin spare Hindu, age 62, has been suffering for carbuncle on left side of abdomen for 12 days. It is about 5" in diameter, and occupies the space between the costal arch on left side and the mesial line of abdomen, extending downwards to level of umbilicus. There are numerous openings in the livid surface, through which pus is welling up. There is a good deal of fever, and the patient has had no rest for some days. Native treatment, such as poultices of *neem* leaves and of linseed, has been employed so far. Chloroform not being at hand, I had to incise and scoop out the contents of this carbuncle without it. I made a crucial cut about $3\frac{1}{2}''$ each way, and then using my finger instead of the sharp spoon, I readily emptied the cavity. I then pared off the suppurating angles of the skin flaps, applied phenol and dressings as in the preceding cases. The patient made a rapid recovery. Pain and fever ceased after the operation; there was sound sleep at night, and by the 5th day, the wound was quite clean and the edges soft.

Case VI.—A withered unhealthy-looking old woman, of about 55, came to hospital on 20th September, with an unripe carbuncle on nape of neck, about 3"×3". There were a few small apertures in the middle, through which pus was discharging. There was great tension and pain, and it was obviously a carbuncle that would advance to a large size if not actively dealt with. I incised it at once without chloroform right up to the margins of the redness, scraped out the softening contents, and saturated the cavity with phenol. Antiseptic dressings were applied, as in the previous cases. This carbuncle was 'aborted,' so to say, by this treatment. It ceased to spread, edges became soft, pain and fever vanished, and the woman attended every day to have the sore dressed. When I saw her last on 10th October, she was nearly well.

It is unnecessary to give further illustrations. Other cases would be simply repetitions of the foregoing. I trust that the new method of treatment will be extensively employed. I regret that I had no diabetic cases to deal with. In all my cases, save No. 2, the urine was free from sugar. I have, no doubt, however, that even in the case of diabetics, the new method of treatment would prove most valuable, especially if employed early. My last words on the subject are—the earlier a carbuncle is dealt with, the better.

NOTES ON THE EVOLUTION OF DISEASE.

BY WILLIAM H. PEARSE, M. D., EDIN.

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(Concluded from page 293.)

I PROCEED now to consider the Table in detail: and first, *Diarrhœa*: As in the records of three other Coolie Emigrant Ships,* so in

* BOWEL-COMPLAINTS.

Ship "Alnwick Castle."	Ship "Arabia."	Ship "Oasis."
1st week 36	67	22
2nd " 54	38	20
3rd " 27	15	34
4th " 23	19	20
Total for 1st month ... 140	139	96
5th week 21	12	15
6th " 11	25	9
7th " 21	13	7
8th " 27	38	4
Total for 2nd month ... 80	88	35
9th week 11	15	5
10th " 17	10	11
11th " 11	1	5
12th " 5	0	8
Total for 3rd month ... 44	26	29

the Ship *Liverpool*, diarrhœa shewed on the first change from the land to the sea. Increase of bowel-complaints, during a voyage, will happen, mostly with access of cooler weather; and less often, on passing into warmer latitudes. My Journal of Ship *Alnwick Castle* says:—"14° S. L.—W. L.; more diarrhœa and dysentery this week than formerly: weather now warm, noon temp. 75°: some change in the systems of the people in passing into the tropics, from the Cape latitudes, from cold to warm."†

Type of Diarrhœa.—I have made *post mortems* of Natives, in whom the whole length of the large intestine, at its mesenteric attachment, was thickened into a fibrous band, the result of the healing of a vast series of former ulcers: in fact, we see Natives endure long-continued and repeated attacks of bowel-complaints. On the other hand, there is a type of case, which ends fatally from very slight and short-continued diarrhœa. I quote from my Medical Journals, made in the vivid presence of the phenomena: Ship *Oasis*, November 6th, 1865, off Cape-land; temperature 9 P.M. 74°, "increase of diarrhœa ... the pulse goes slow, soft, and low; the expression of countenance, anxious, fixed, and apathetic: *all life and vigour gone*. This expression of countenance, in Natives of the feeble sort, is of deep import in their nature. They are of this *course*, that life ceases in them most easily, the pulse gradually sinks; there is even no engorgement of the lungs in these cases....the diarrhœa, of these Natives, and cholera, are much *one* in their mode of death... of one course or form....the diarrhœa of these people is (often) a fever....their *Tup* (intermittent fever) is the first complaint with them, both in the subsequent diarrhœa (often): and in their bronchial attacks." My Journal of the Ship *Liverpool* records, 16° S. L., 80° E. L., noon temperature 79°, "the diarrhœa of the Native is not the actual disease: he dies at, say, 25 years. The few loose motions a day, during the last few days of life, are not the disease; he is wholly as a leaf; the drooping and yellowness are not a disease; he is *wholly* dying; this common diarrhœa in the weak Native, is a secondary fact of small import..... Davydeen, male, aged 17, flesh flabby, soft; skin rough; has mucous diarrhœa.....his diarrhœa involves the entire system.....it is not the diarrhœa which exhausts, but the diarrhœa is one link in the previous chain of gradual (accruing) weakness.....the young equally as the old, pass to this state of anæmic

† The mere temperature, as shewn by the thermometer, is far from a safe guide as to warmth and cold, as felt by the body. I have felt, and the coolies have felt, the weather chilling and cold, in the Bay of Bengal, with the thermometer over 80°.