

recapitulate the arguments in support of them. The following rules for the prophylaxis of cancer might, therefore, be laid down safely, because even if they did not gain the end immediately desired they would attain others scarcely less valuable, just as the sons in the fable, though with all their digging they found no buried gold in the field bequeathed to them, yet gained health and rich crops.

1. Chronic inflammations, suppurations, and especially ulcerations, should not be neglected or allowed to drift. Still better, commencing troubles of the kind should be treated promptly and not allowed to become chronic. With regard to ulcerations, especially of the alimentary canal, and with regard, also, to suppurations, especially of the breast, it is to be remembered that the cicatrices left by their cure are liable to become the seat of malignant infection. It is therefore doubly desirable to cure such ulcerations and suppurations in their earliest stage, so that little or no cicatricial tissue may remain and in cases where the arguments for and against the removal, as opposed to the simple healing of an ulcer, are otherwise evenly balanced, the indication to remove a place especially liable to cancer should prompt one to excision.

2. Well-known sources of irritation of mucous membranes and of skin should be avoided—e.g., smoking when any trace of soreness is discovered in the mouth, on the tongue, or on the lips, and the habitual use of strong condiments and spices. Workers in special trades, such as chimney-sweeping, should lose no time in having the smallest cutaneous rashes or other trouble promptly cured. Among milk-products cheese is itself an irritant to mucous membranes. Some syphilitics with a tendency to ulceration of the tongue notice that a fresh attack frequently follows eating cheese.

3. A woman should allow nothing to come in contact with her nipples except smooth, clean linen, cotton, or silk, and the soap and warm water with which she washes herself. After being washed the nipples should be gently and thoroughly dried. She should not touch them with her hands or fingers at all. During lactation the nipple should be cleaned and gently dried after each act of suckling and then protected with a dry and clean covering. The nipple should not be merely withdrawn from the infant's mouth and pushed back under the mother's clothes. If wool be worn it should be sterilised by heat.

4. Whoever takes as food uncooked and unsterilised milk, butter, and cheese should recognise that he does so at the risk of introducing into his system the germs of disease, and that among these disease essences, so to call them, may be that of carcinoma.

Before any reader condemns me for publishing the above hypotheses without having submitted them to experimental proof he should bear in mind that much time and probably the coöperation of many observers would be required for such a work. Moreover, antiseptic surgery was at first based on hypotheses which were not only then unproved but which even to some extent—e.g., in the amount of blame attached to the air—were erroneous.

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A CASE OF SPONTANEOUS GANGRENE IN AN INFANT.

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On March 25th, 1901, a vigorous primipara was delivered of a full-term living male child. He was to all appearances in perfect health, though a little thin, and took the breast well. About April 7th he had thrush, from which he made a satisfactory recovery. On the 10th the child was noticed to be pœvish and had lost flesh. He would not take the breast, but beyond this nothing amiss could be discovered and his temperature was normal. The umbilicus was perfectly healed. On the morning of the 11th a small vesicle was noticed in the centre of the back in the lower lumbar region, and when first seen in the evening this had become a small pustule, not larger than a hempseed, with a slightly raised, rather dusky red area of the size of a florin surrounding it. Careful inquiry failed to elicit any history of traumatism. By the following morning the pustule had burst, leaving a small circular ulcer, and the red area had spread considerably upwards but not so much downwards.

In the evening the redness round the ulcer had become of a deep mulberry colour, which was unaltered by pressure. The red zone had increased and in addition the umbilicus and some of the finger-tips presented small red excoriated areas. During the night the ulcer discharged a considerable quantity of thin, slightly sanguineous, odourless serum. On the morning of the 13th the almost black area extended from one inch round the seat of the original pustule. The surrounding dusky area had reached half way up the shoulder blades and the circulation in it was extremely slow. By the evening the inner darker area was three inches in diameter, the skin commencing to peel off in the centre. The child had been very fretful all day, but had taken his food. The outer dusky area now reached to the upper level of the scapula. On the morning of the 14th a photograph of the child was taken. It showed a dark irregular patch of considerable extent at the site of the original lesion where the skin was actually sloughing. From this extended a black and dark purplish area upwards to the scapulæ, outwards to the flanks, and downwards over the sacrum, gradually shading off to lighter dusky red to involve the neck, the posterior portions of the shoulders, the outer portions of the chest and abdomen, the whole of the buttocks, and the outer part of the thighs. The photograph showed the lighter unaffected skin of the upper arm and lower portion of the thigh towards the knee, but it failed to portray the variety in colour and the gradually shading of the skin involved in the affection. The superficial abdominal veins were of a light claret colour and the abdominal viscera showed as a dusky background to the dull, lifeless-looking, inelastic pallid skin of the abdominal walls. The child gradually sank and died the same evening. Throughout the whole duration of the case the temperature never rose above normal and at death the red excoriated areas on the fingers and at the umbilicus had not become deeper in colour and had only increased very slightly in extent. No post-mortem examination was permitted.

The absence of traumatism or of any previous disease or cachexia points to the above case as one of spontaneous gangrene. According to Keating¹ gangrene in infants, excluding noma and cancrum oris, occurs either spontaneously or as a concomitant or sequel to various diseases, such as pemphigus, syphilis, varicella, measles, erysipelas, &c. The spontaneous form is stated to occur at any age up to late childhood and although sometimes affecting children to all appearances perfectly healthy is more usual in those suffering from debility or cachexia. It may attack any portion of the body, the onset being severe with raised temperature, becoming depressed as the disease advances. It may be symmetrical or commence synchronously at several different foci, or as in the above-narrated case start from one isolated spot. The prognosis is very grave. The only suggested cause is spasm of the arterioles of the affected area, and it appears doubtful as to whether this be of central or of peripheral origin, though changes in the spinal cord have been described in some cases wherein the disease has been symmetrical. The cause of the cases following the diseases above enumerated is suggested as a local infection by the microbes of the disease in the presence of a lowered vitality of the subject.

The literature relating to the disease is scanty and after careful search I have been able to find records of four cases only which bear a resemblance to the one I have detailed. Reed² describes a case of gangrene of the leg, thigh, and foot in an infant 14 days old, commencing below and outside the knee, without any evidence of injury; no embolism or thrombosis of the femoral artery was found at the post-mortem examination. From the description it is probable that the case was not seen till the gangrene was well-established and there is no evidence as to how the disease began or advanced in its earlier stages. Manley³ describes an ante-partum gangrene of the legs and thighs in a child living at birth and surviving for 24 hours after, but unfortunately there was no post-mortem examination of this case, in which the skin was actually peeling from the buttocks when the child was born. Norman³ records a case of idiopathic gangrenous erysipelas in which the initial lesion was a blister resembling a burn on the left forearm and from which the arm, chest, and greater portion of the back were all involved in a gangrenous process within three days. And, lastly, the *Medical Press and*

¹ Encyclopedia of Diseases of Children, vol. ii., Part I.

² Brit. Med. Jour., vol. i., 1881, p. 639.

³ THE LANCET, Dec. 15th, 1888, p. 1173.

*Circular*⁴ gives an account of a case exhibiting numerous foci of invasion, commencing as small papules, followed by blisters, and resulting in ulcerations reaching the diameter of half-a-crown, the duration of the case being 11 days from commencement to a fatal termination.

The case I have described appears worthy of record from its apparent rarity, from the absence of any severe initial symptoms, the fact that the temperature was never raised above normal, and from the extreme rapidity with which so large an area of skin was involved, the whole duration from commencement to the fatal issue being only three and a half days.

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HOSPITAL CAMP SANITATION IN SOUTH AFRICA.

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IN my experience as civil surgeon on the staff of two of the large general hospitals in South Africa I was much impressed with the large amount of sickness prevalent among the orderlies on the hospital staff. As these men are to some extent trained to recognition of the risks of infection and to methods of cleanliness and disinfection one would not expect a very large incidence of disease among them in spite of their exposure to so many risks. They have also, at least in my experience, availed themselves of the advantages of inoculation against enteric fever in a much greater proportion than the ordinary soldier, so that if this has been a benefit it ought to have helped towards reducing disease in their ranks. I have no figures to quote from, but I know that at Estcourt during the first few months of the work of No. 7 General Hospital the nursing of the sick was hampered greatly by the amount of sickness prevalent among the orderlies. To such an extent was this so that in the first four months about one-third of the orderlies who were originally attached to the hospital staff had passed through the wards; most of them had enteric fever, a smaller number suffering from dysentery or diarrhoea of a dysenteric type. At Newcastle (No. 14 General Hospital) there was also a considerable amount of sickness among the orderlies. At first it was not so marked as at Estcourt, but it should be pointed out that the proportion of fever cases in the wards was much smaller here and the disease apparently was of a milder type. At Estcourt the cases were practically all enteric fever and there was a fairly large proportion of severe cases.

My attention was thus drawn to the general sanitary condition of the camps and to the precautions which were being taken to prevent the spread of contagion from patients to those whose duty it was to look after them and restore them to health. At No. 14 General Hospital at Newcastle printed rules were circulated among wardmasters and orderlies as to their duties with regard to the management of infectious cases, the treatment of excreta, &c. The following is a summary of the observances laid down for their guidance in these regulations and of the general methods employed. Kaffirs at both hospitals were employed as ground scavengers and kept the camp beautifully clean, picking up every scrap of paper, wood, and other refuse. These men, however, would have nothing to do with the handling of excreta, so that this was all dealt with by Indians specially employed for the purpose. It was very fortunate that these men were available, as our men were thus able to devote themselves entirely to their nursing duties. When an orderly had placed the night-stool, chamber-pot, or bed-pan containing an enteric or dysenteric stool outside the tent one of these ward Indians at once picked it up and carried it to the enteric fever enclosure where it was emptied into the excreta buckets. It was then washed out with 1 in 800 corrosive sublimate solution, some izal solution (1 in 20) was placed in it, and the utensil was at once returned to the ward. The excreta buckets were kept covered and when three-fourths full were taken to the incinerator, where the contents were boiled down to dryness, mixed with sawdust, and then burnt. The urine was supposed to be treated in

the same way, but I am afraid that careless orderlies were frequently in the habit of emptying urinals into slop-buckets, which were in turn emptied into separate sanitary handcarts (large zinc drums on wheels). It thus often escaped thorough disinfection.

The soiled linen was always removed in red handcarts from the wards, being first sprinkled with carbolic solution, 1 in 20; it was taken to the enteric fever enclosure, placed in boilers and boiled for 20 minutes, dried, and then taken to the foul linen store to be sent to the wash. All mattresses, pillows, and clothing that would have been destroyed by boiling were disinfected in Thresh's steam disinfector. Excreta and all linen from dysentery wards were treated in exactly the same way as if coming from an enteric fever ward. All bed-pans, night-stools, urinals, and slop-pails belonging to enteric fever wards were marked with the letter "E" in red paint and kept apart in every possible way from similar utensils in other parts of the hospital. They were always kept outside the wards at one particular corner of the tent or marquee. The Indians employed in this sanitary work were used only for removing excreta, slops, and rubbish from the wards, they were not employed on any ordinary fatigue work, such as carrying water, food, &c., or cleansing utensils for food or drink. They were on duty at all times, so that at night the removal of stools from the precincts of the wards was carried out as promptly as in the day. The enteric fever enclosure was in charge of a non-commissioned officer and he was responsible for the carrying out of all details in connexion with the work of disinfection. He was assisted in his work by one European and three Indians. The floor of this enclosure was of cement; it was cleaned daily and washed with sublimate solution 1 in 800. Every ward was supplied with a bottle of carbolic solution, 1 in 20, no special bottle was, however, provided and a brandy or other similar bottle was invariably used. This was dangerous, as the wards were not provided with any receptacle where it might be safely and conveniently kept. Orderlies were instructed after handling patients or infected articles and before meals to wash their hands in carbolic solution, 1 in 20, and to use a nail-brush. This order was almost invariably neglected; the deficiencies in basins, towels, and water undoubtedly discouraged the careful observance of this rule. Separate dinner tins and hot-water trays were kept for enteric fever wards and were all marked with the letter "E."

It will thus be seen that a fairly comprehensive scheme was arranged for the proper treatment and disposal of refuse and infected material and for the prevention as far as possible of the dissemination of disease. Many other points were neglected, and it is possible that a closer attention to detail would have improved upon the general results obtained. No general sanitary officer was appointed to exercise supervision over the details laid down in the scheme. This work was divided among the various civil surgeons and Royal Army Medical Corps subalterns, each one acting in turn as sanitary officer for one week; the work was certainly not done as thoroughly as would have been the case had it been the duty of one man to superintend closely all the details of sanitary work in the neighbourhood of the camp. The orderlies were very inexperienced in hospital work—the majority of them could not be made to understand the gravity of the risks they were running by carelessness with regard to personal cleanliness. They were being constantly changed from ward to ward, so that before a man had time to benefit by the instructions of the nurse and medical officer he was removed to non-fever wards and another novice supplied in his place. They were frequently put on night duty at the end of what was always a long and heavy day's work. This must have acted disadvantageously on their general health, increasing their risks of infection by lowering their resistance to disease. Orderlies, whose work lay entirely in non-fever wards during the day, or even in the office, would be sent into a fever ward for night duty. The disadvantages of such a proceeding to both orderly and patients are very obvious.

Great attention was paid to apparent cleanliness, to such an extent that hardly a straw or burnt match end could be seen in the neighbourhood of the camp; slop water that had been used for washing enteric fever patients was, however, frequently thrown out over the ground instead of being carried away. I have seen a trained nurse do this, and the orderlies frequently did it. It is a very difficult practice to detect and check. Convalescent patients and orderlies were

⁴ Medical Press and Circular, vol. ii., 1889.