than during all the rest of his labours before the introduction of the method. In an article on the treatment of compound fractures, Professor Dennis, of New York, has compiled further evidence in this same direction. In the Pennsylvania Hospital, between the years 1839 and 1851, there were treated 116 cases of compound fracture of the leg and thigh; excluding those cases requiring amputation, there were 51 deaths, a mortality of 45 per cent. In the New York Hospital, during the same period, there were treated 126 cases of compound fracture of the leg and thigh; excluding amputations, there were 61 deaths, a mortality of 48 per cent. From 1860 to 1876 there were reported from the surgical clinics of Vienna and Zürich by Billroth 180 cases of compound fractures; excluding amputations, there was a mortality of 41 per cent. from septic disease. In the Obuchow Hospital Reports of St. Petersburg, 106 cases of compound fracture gave a mortality of 68 per cent. In Guy's Hospital, from 1841 to 1861, there were reported 208 cases of compound fracture, with 50 deaths, a mortality of 26 per cent. After the introduction of antiseptics, this death-rate immediately fell to 4 per cent. from an average of 40 to 50 per cent.; and in this article of Dr. Dennis, in which he reports 516 cases of compound fractures, there was no record of death from septic trouble in any fracture of the extremities, which was the class of injuries included in the above statements.

Mr. Tait endeavours to break the chain of reasoning by saying: 1, that the germs are everywhere and cannot be got rid of—a misstatement—and 2, that the presence or absence of sepsis depends on the presence or absence of “pabulum,” that is, dead organic matter, blood clot, serum, etc. It has been one of the axioms of antiseptic surgery from the beginning that scrupulous attention should be paid to hæmostasis and to drainage. No one has taught this more earnestly than Lister and his followers, and Tait's adoption of it as his “view” is evidence of his ignorance of the work of others. To be sure he says that Keberlé first taught him drainage in 1875, and gives due and deserved credit to Chassaignac for his work in this direction, but English and American surgeons have employed drainage fully and carefully since the early part of this century, and Syme in 1826 made the importance of providing a free escape for the discharges from wounds the subject of one of his most important papers. It is easy to say that if you have nothing to decompose there will be no decomposition, for that is what it amounts to. “Get out all decomposable matter,” he says, “and you can let the germs in freely,” but in practical surgery this is by no means always possible. Mr. Tait deals habitually with a membrane, the peritoneum, which has a remarkable power of self-protection. Microbes gaining access to the abdominal cavity are exposed to destruction either by the serum which it copiously exudes, or by a possible phagocytic action of its enormous numbers of endothelial cells, or by both.

Mr. Tait's remarks against dosage are further evidences of his want of acquaintance with Listerian work and teachings. He says: “With the Listerians one germ is as good as a thousand.” I suppose it is safe to class Mr. Watson Cheyne, whom I have just quoted, as a “Listerian.” In Mr. Cheyne's lectures on “Suppuration and Septic Diseases”⁴ he not only asserted, but proved experimentally, that the number of bacteria introduced modified greatly the intensity of the symptoms and even the character of the disease. Similar observations have been made by Passet,⁵ Pawlowsky,⁶ and others, and are as well known as any in connection with antiseptic surgery.

It is evident that what is original in Mr. Tait's “hypothesis” is not true, and that what is true in it is not original.

The Prevailing Antiseptic Methods.—It seems apparent, at any rate, that Mr. Tait is not a safe or reliable authority on the general subject of surgical antiseptics, but towards the end of his paper he ventures on a specific fling at Lister's last surgical dressing. The most obvious advantages of the double or mixed cyanide of mercury and zinc are—first, that it is non-volatile; next, that it almost entirely unirritating; thirdly, that it is insoluble in water and only soluble in 3,000 parts of blood serum; and, finally, that, while it possesses but little germicidal value, its inhibiting power is so high

that a 1 in 1,200 solution is sufficient to keep animal fluids permanently free from putrefaction. This combination of qualities is possessed by no other of the antiseptics which have been mentioned, and its deficiency in germicidal power is easily remedied by including in the manufacture of the gauze dressings which are impregnated with this material a small percentage (1 in 4,000) of sublimate, enough to be germicidal, but too weak to be markedly irritating.

[Dr. White showed a table of 195 cases treated since beginning the use of cyanide gauze, that is, from September, 1889, to December, 1890.] Of the five deaths in this list, two were due to pre-existent and chronic disease; the other three were abdominal cases, operated on with the patients almost *in extremis*, with swollen bellies, intestinal paresis, and in one case with suppurative peritonitis. In the whole list there have not been six freely suppurating cases, and there have been no cases of septic trouble and no deaths from any form of blood poisoning. The majority of these cases have been observed from beginning to end by sections of the University class, and have been under the daily care of my residents at the University Hospital. Upon others I have operated in private.

I am glad to be able to give this positive testimony in favour of the latest Listerian method, which, while it may not be permanent (as there are yet many opportunities for improvement before the ideal dressing is reached), is obviously undeserving the epithets of “deadly and dangerous,” applied to it by Mr. Tait, without, I will venture to say, his having taken the trouble to watch its effect in a single instance, to calculate the quantity of cyanide in a single dressing, to consider the improbability of absorption, or indeed to give the matter any serious consideration whatever.

It cannot be disputed that in the light of modern science the operator has a twofold duty, namely, to prevent the entrance of living pathogenic microbes into the wound, and at the same time to preserve the vitality of the tissues themselves. We have abundant reason to believe in a general antagonism between the body cells and the micro-organisms of disease, and it follows that the theoretical propriety of non-interference with these tissues cannot be doubted, and Lister plainly admitted and accepted this new view when he said that the floating particles of the air having been shown to be less harmful than was supposed, we may possibly dispense with antiseptic washing and irrigation, “provided always that we can trust ourselves and our assistants to avoid the introduction into the wound of septic defilement from other than atmospheric sources.”

When this method is adopted it is evident that all strong antiseptic solutions which might compromise the vitality of the tissues must be discarded; instruments, silk, ligatures, sponges, etc., must be sterilised by heat, hands must be washed clean in sterilised water (after previous chemical disinfection), and the same is true of the skin over the field of operation. If antiseptic solutions are used at all they must be very feeble—1 to 60 carbolic for instruments (after previous sterilisation by heat), 1 to 10,000 sublimate for sponges, etc.

In the meantime, however, while waiting for further improvement in this direction, I have felt and still feel that it is safer in a large general clinic to depend upon full antiseptics rather than upon asepsis.

NOTES ON THE APPEARANCE OF CERTAIN SPOROZOÏD BODIES IN THE PROTOPLASM OF AN “ORIENTAL SORE.”

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THE appearance of Dr. Russell's interesting article upon the results of his investigations into the nature of what he considers to be a characteristic organism of cancer prompts me to call attention to the fact that very similar bodies have been discovered in the peculiar ulcer known as “Oriental sore,” “Delhi boil,” or “Multan sore,” etc. In an early issue of the *Scientific Memoirs of Medical Officers of the Army of India*, published at Calcutta in 1885, I think, there appeared a very clear and able article on the presence of peculiar para-

⁴ BRITISH MEDICAL JOURNAL, March, 1888.

⁵ *Monatshfte f. prakt. Dermatol.*, B. vi, No. 10, 1887.

⁶ *Centralblatt f. Chirurgie*, No. 48, 1887.

sitic organisms in a specimen of Delhi boil by Dr. D. D. Cunningham, in which similar bodies were fully described as have been found by Dr. Russell in cancerous growths.

Dr. Cunningham in that paper suggested that these peculiar bodies were of a mycetozoic nature, and probably zoocysts or sporocysts of a monadinic organism. About the same time that Dr. Cunningham's paper appeared, I myself, as well as the late Surgeon-Major Shirley Deakin, of the Indian Medical Service, found similar bodies in other specimens of the

Fig. 1.

Fig. 2.

Oriental sore. In 1886 I had peculiarly favourable opportunities of seeing many of these sores, owing to the large numbers of individuals who returned invalided with them from Sibi, Rindli, and other parts of Scinde, consequent on the concentration of men and stores on that frontier at the time of the Russian scare of 1885. My sections made of them at that time simply confirmed and amplified the preliminary notes made by Dr. Cunningham. In conjunction with Dr.

Fig. 3.

Deakin, specimens and drawings of these bodies were prepared by me, together with an exhaustive article on them and their apparent part in the etiology of the Oriental sore, and intended for publication and illustration in the *Indian Medical Journal*, of which the late Dr. Deakin was editor. Owing partly to difficulties in getting lithographs satisfactorily produced, and then subsequently owing to Service exigencies, repeated transfers of the editor to remote stations on the frontier, followed by the outbreak of the Hazara campaign,

repeated delays prevented the appearance of our conjoint paper. Just when we were arranging to send the whole subject matter to England for publication, Dr. Deakin contracted enteric fever, and died in 1889. Since then I have been unable to again collect the data and specimens (being in England), or replace them or the manuscript which has become mislaid or lost among the late Dr. Deakin's papers.

Fig. 4.

The fact is beyond dispute that certain bodies staining readily with gentian violet and fuchsin are constantly present in Oriental sores and the adjacent lymphatics. The descriptions given by Dr. Russell of those found by him in cancers agree most closely with those seen by myself in the neoplasm of the oriental sore, which in many of its characters resembles the epitheliomata.

The attached drawings were made by me from fresh specimens in 1886-87, and are imperfect duplicates of some sent with the original paper, now lost and referred to above.

Fig. 5.—Section through an Oriental sore. The remains of a sweat gland are visible, and some swollen cells of the rete Malpighii. The greater part of the field is occupied by round cells. At *a*, a protoplasmic substance is present, slightly stained with fuchsin, apparently occupying lymph channels. At *b*, are certain multinuclear bodies stained with gentian violet. These are the spore-like bodies alluded to in the text.

They, though incomplete, sufficiently explain the nature of the bodies mentioned. These in size varied from 12μ to 6μ ; the outline of some was smooth, while of others it was irregular. I have always regarded them as sporozoa, and in 1887 went so far as to suggest to my fellow worker the name *sporozoa furunculosa* to indicate their peculiar pathological influence in tropical climates, where they are probably parasitic in man and animals, giving rise by irritation to processes of excessive hypertrophy in the host tissues. I once found similar bodies in an ulcer on a dog's back in India. It has been suggested that the real and true home of these bodies is in stagnant or impure water. Both Dr. Shirley Deakin and myself made repeated efforts to trace their life history, but

failed. Under low powers, these bodies appear to be homogeneous, but when highly magnified are seen to be granular or to contain numbers of minute sporelike bodies. Either grouped or in individuals, these bodies seemed to be surrounded by a more or less clear space. Whether actually so, or really due to the fact that their surrounding medium will not stain, is uncertain. I am myself inclined to the latter view, and that the apparently clear space is nothing but a transparent and degenerated state of the cells in which they have taken up their abode. Those further interested in this matter I would refer to Dr. Cunningham's paper, which is the ablest and clearest account of the modern pathology of these sores yet published.

DUPUYTREN'S CONTRACTION OF THE PALMAR FASCIA TREATED BY HYPNOTISM.

By GEO. C. KINGSBURY, M.A., M.D.,
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CASES of Dupuytren's contraction of the palmar fascia, of greater or lesser severity, are very common, but there is as yet no unanimity amongst surgeons as to the best mode of treatment. On one point only is there complete accord, that is, to quote Erichsen, "the treatment is purely operative." Possibly this want of agreement in the profession is the reason why so many patients are willing to put up with the deformity rather than submit to operative interference.

Professor Langhans, as a result of careful microscopic investigation, maintains that the trouble is due to neoplastic or inflammatory changes, partly in the palmar aponeurosis, partly in the neighbouring tissues, including the coats of the arteries and also the capillaries, about which a subendothelial granular adventitia has formed. Dupuytren considered the contraction to be due to fibrous prolongations of the palmar fascia, passing from its lower aspect to the sides of the fingers. Goyraud, on the other hand, regards these fibrous bands as ligamentous structures, extending from the anterior inferior aspect of the palmar fascia to the sheaths of the flexor tendons, and considers them due to a hypertrophied condition of the subcutaneous filaments of fibro-cellular tissue which are normally present.

Amongst the operations recommended are: Goyraud's, which consists in exposing the contracting bands by means of longitudinal incisions, and then dividing them in several places; Kocher's, in which total extirpation of the thickened and shortened palmar fascia, with its extensions, after longitudinal incisions of the skin, is performed; Busch's, which consists of dissecting the contracted fascia from the flexor sheaths by a V-shaped flap, the apex of which points to the wrist; the fingers are then extended and the flap attached to the incision, the result being a Y-shaped cicatrix; lastly, there are the subcutaneous methods, (1) by simple division of the fascia, (2) by Adams's method of multiple division.

Anyone interested in the results of the various operations should consult Mr. Adams's papers or Mr. Macready's.¹ Also Mr. Noble Smith's record of seventy cases, published in 1885. Such a perusal will, I think, lead to the conclusion that the method adopted by Mr. Adams is the most satisfactory and generally applicable. The after-treatment consists in mechanical extension, kept up for some weeks day and night, but continued at night for several months.

There are difficulties in the way of all operative treatment; thus the methods of open incision sometimes leave the hand worse than before, whilst the subcutaneous operation requires the greatest dexterity, and even when this is present accidents may mar the result of the operation, as in the case of Dr. Myrtle, of Harrogate (so ably described by himself),² where rupture of the integument, together with serious symptoms arising from prolonged inhalation of ether, rendered it impossible to complete the operation.

The case which I am about to record is interesting, inasmuch as I believe it is the first of its kind which has been published.

E. A., aged 45, a barber by trade, had suffered from a gradually increasing contraction of the palmar fascia in both hands, the right having been more or less affected for twelve years, and the left for eight years. He attributed the ailment to the cramped position of his fingers in shaving and haircutting, but it is interesting to note that his father had for years suffered from phalangeal contraction of the ring and little fingers of both hands. The patient was also subject to subacute rheu-

Fig. 1.—Photograph showing the palmar aspect of the hands and the fibrous bands as they appeared before treatment.

matism, but otherwise healthy. About a year ago both hands became so painful that he was wholly unable to continue his work, and had to dispose of his business. Since then the contraction had remained about the same, but the pain continued very severe, and effort to do any work brought on most

Fig. 2.—Photograph showing condition of hands ten days after treatment. The top of the little finger of the left hand was cut off in a machine accident many years ago.

acute paroxysms. If he grasped anything round, such as a broom handle, the fingers became cramped, and he had to put them in hot water to free them.

The photograph, Fig. 1, shows the condition of his

¹ BRITISH MEDICAL JOURNAL, February 22nd, 1890.

² BRITISH MEDICAL JOURNAL, January 14th, 1882.