be removed. The risk entailed by operation can be reduced very materially by first relieving the toxic symptoms by connecting the divided ileum with the sigmoid or rectum, and later, when the general condition of the patient has improved in consequence of this procedure, the large bowel can be excised if the symptoms demand it. I do not pretend that removal of the large bowel is not a very serious operation in certain circumstances. Indeed, in many of these patients any serious operation must be regarded as being dangerous to life, the danger varying chiefly with the degree of toxicity. I may say that in these and similar cases the risk can be very materially reduced by the subcutaneous injection of a large quantity of normal saline solution immediately before the operation. By this means the patient appears to suffer a minimum of shock from the extensive operative procedure, and vomiting either does not follow it, or should it do so, it is trivial in character. In these cases the absence of vomiting is a matter of very great importance. It was very frequent and severe after my earlier excisions of the large intestine, and was the cause of more than one fatal result. Besides the distress and depressing influence it exerted on the patient, the constantly recurring strain on a long wound was very liable to render it insecure or to determine the development of a septic infection in it, which would probably not have occurred had the recently incised structures been kept at rest. The risk of an infection starting in the peritoneal cavity appears to be very small. The mode in which the subcutaneous transfusion of normal saline, employed immediately before the operation, acts has been very clearly demonstrated by Dr. Crile's most interesting and valuable researches on the production of shock, of which America must be very justly proud.

HYPERTROPHIC OSTEO-ARTHROPATHY OF HANDS WITHOUT VISCERAL OR CONSTITUTIONAL DISEASE.

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J. L., the subject of the deformity illustrated by the accompanying photographs is a man, aged 47, one of a family of fifteen. One brother was born with two toes fused on one foot, the other foot normal. There is no history of any other abnormality in the family. The parents were not related in any way. The father was a very big, strong man, and is said to have been "double jointed" in the hands. He was a smith. J. L. was born with hands apparently natural, except that the middle finger of the right hand was crooked at the top joint. At 2 years of age this and the index finger of that hand, and the same two of the left hand, began to grow out of proportion to the general rate of growth, and the enlargement was most marked from the eighth to the fourteenth year of age. From the sixteenth year of age they have not hypertrophied further, but only taken part in the general growth.

The only movement now possible is at the metacarpophalangeal joint of the deformed fingers (the other fingers and thumbs having normal movement), all the other interphalangeal joints are ankylosed. At most of these joints (see photographs) there are large craggy nodosities, which feel cartilaginous, and over the dorsal surface of the

metacarpophalangeal joints of the first and second fingers of the left hand and middle one of the right are to be felt movable bodies, evidently cartilaginous, of $\frac{1}{2}$ in. to $\frac{3}{4}$ in. diameter, and one or two smaller pieces like "melon seed bodies." The enlarged fingers are transparent-looking at the more distal portions, and traversed by fine pink-coloured venules. The palms, especially the left, have huge pachydermatous pads, well seen in the photograph; the smaller pad next the thumb can be picked up, and has a thick, broad pedicle. The man generally carries his hands in his pockets. He is a boot finisher by trade, and says he can make a good living by it when work is plentiful. He has refused any operative interference.

BIOTRIPSIS, OR LIFE-WEAR: TROPHIC CHANGES IN OLD AGE.

[WITH SPECIAL PLATE.]

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THE appearance of the skin in an old person varies in different parts of the body. In this article I propose to call attention to the skin which has been subjected to the greatest exposure of the wear and tear of life. Dr. Head and Mr. Sherren have alluded to them¹; but, although I cannot find definite reference to them as a whole, there can be no doubt that the appearances are not described now for the first time. The changes in the greatly exposed skin are so marked that I think the general condition deserves a term to itself, and I propose "biotripsis" (life-wear), and to speak of a process of biotriptic changes. The condition is important from another point of view, for on the parts where it is most marked there is prone to occur papillomata and cancer.² Hence, if it could be shown that biotriptic changes are related to neurotrophic changes, the demonstration would support the two theories:

1. That a neurotrophic disturbance is concerned either directly or indirectly with the genesis of cancer.
2. That a neurotrophic influence bears upon the direction and limitation of the spread of cancer.

The biotriptic changes are observed most commonly upon the backs of the hands, the temples, and the foreheads of old people, but I have seen some of the changes upon the lower lips, cheeks, forearms, and occasionally elsewhere. The skin becomes shiny, smooth, thin, inelastic, pigmented, and apparently scarred, although the last cannot be explained by solutions of continuity of which there is no history.

The skin which shows the changes to best advantage is that which covers the second metacarpal bone and its immediate neighbourhood. The coloured plate which accompanies this article reproduces the most marked state in which I have seen this condition. It shows the backs of the hands of an old woman, aged 72. She did not complain of her hands, and had noticed nothing peculiar about them until she found I took an interest in them. She has never suffered from "chapped hands," nor has there been a solution of the skin's continuity. For the main part of her life she has been the wife of an agricultural labourer, and her duties have been domestic and household. I showed these hands to a distinguished

HYPERTROPHIC OSTEO-ARTHROPATHY OF HANDS.

surgeon, and the first thing he did was to ask her, "How did you do this?"

The skin is shiny, smooth, inelastic. The subcutaneous