divided. In Fig. 2 the present condition of the hand is seen. Flexion and extension are fully and freely performed.

Through the kindness of Mr. W. Adams I am able to present a figure of the worst case of phalangeal contraction with which I am acquainted, none of my own cases having reached the degree of severity shown in Fig. 4. The hand is that of a naval officer who distinguished himself in the search for Sir John Franklin. The contraction affected the thumb, index, ring, and little finger, and had begun twenty-five years before. At the time of the operation, which was performed by Mr. Adams five years ago, the patient was 64 years old. The result is seen in Fig. 5, and the condition there shown has been maintained to the present day. The deviation of the ring and little fingers to the inner side, which is often present after the correction of this deformity, is well shown, as well as the marked improvement in the position of the thumb. It will be seen that the index is not completely straight. The movements of the fingers are still quite free and perfect.

Fig. 5.—The right hand of the naval officer after the subcutaneous operation by Mr. W. Adams.

To obtain such results, which are the ordinary results of the subcutaneous operation, it is necessary to observe the difference in the after-treatment between the palmar and phalangeal cases. The palmar can be treated throughout with the ordinary soft metal splint, bent to the fingers and gradually extended. The phalangeal cases, however, are best treated by aid of a dorsal splint with rack and pinion movement over the finger-joints. The apparatus is depicted in Eulenburg's paper in 1864, and in a much improved form in Mr. W. Adams's book on this subject (p. 60). It is quite possible to obtain complete success, even in severe cases, by using the simple metal splint on the palm, but not without much diligence and constant attention on the part of the surgeon.

In all cases extension should not be made at once or pain is produced. After division of the bands and straightening of the fingers they should be allowed to resume their flexed position before the soft metal splint is adapted. Extension, whatever apparatus is used, should not be begun till four or more days have elapsed, and should be continued for a week or more after full extension of the fingers has been accomplished.¹¹ The best knife is that extremely fine instrument designed by Mr. Adams for the purpose, which leaves a wound $\frac{1}{4}$ of an inch long.

The common advice in books on surgery is to use the subcutaneous operation in slight cases and the open operation in severe ones. Looking to the cases adduced in this paper, I submit that this advice might well be reversed, and that the open treatment

should be confined to palmar cases, if, indeed, there is ever any justification for recommending the open operation.

With the exceptions and with the precautions above alluded to, the subcutaneous operation may be trusted to be successful. No matter how far advanced in life the patient may be, nor how severe the contraction, he may be promised complete restoration of function without pain, without danger, and without one hour in bed. As Dr. Abbe says, "this operation leaves nothing to be desired." Like the operation of Medea, it makes the hand young again, but, like hers, it will fail, if practised by an inattentive or an indifferent performer.

ON SUBCUTICULAR SUTURE.¹

By KENDAL FRANKS, F.R.C.S.I.,

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In these days when the surgeon's knife is much more frequently demanded than formerly, it is often necessary, in the more exposed parts of the body, to leave as little trace of its use afterwards as possible. This is especially desirable in operation wounds about the face or neck of the fairer sex, for in them we cannot hope, nor is it desirable, that as youth passes into the fuller development of maturity, the growth of hirsute appendages will eventually conceal the mark which the operator has been obliged to make. Much has been gained in this direction by the introduction of antiseptics in surgery, by means of which we can in general ensure an immediate union of the wound's edges. We thus substitute for the cicatrix, often thick and wrinkled, of a wound that has healed by granulation, the delicate, pliant and frequently almost unnoticeable scar which we seek to obtain in union by the first intention.

In the neck, for instance, when such a wound is small, and lies in a natural fold of the skin, the scar itself requires no concealment, for it would pass unobserved were it not that on both sides of it small points are most distinguishable, red at first and eventually white, which mark the points at which sutures have been inserted. I have frequently endeavoured to avoid these marks by employing strips of sticking plaster to keep the edges of the wound apposed instead of resorting to stitches, but I was obliged to abandon this method on account of the difficulty of ensuring a perfectly aseptic condition of the parts; because when dry no sticking plaster is reliable, and if it is rendered aseptic by immersion in an antiseptic solution its sticking properties are destroyed. And thus we run the danger either of not keeping the edges of the wound properly apposed, or by allowing the wound to become septic to delay union, in either of which cases the wound must heal by granulation, and the defacement caused by the scar becomes worse than that which would be due to the suture points. These considerations induced me to seek for some other plan which would insure union by first intention, and would at the same time abolish the evidences of the needle. I believe these points are gained by the use of a subcuticular suture. A fine curved needle is required, one of Hagedorn's needles I prefer, and very fine catgut. The suture must be a continuous one. The needle is inserted horizontally, that is parallel to the surface of the skin, at the cut edge of the wound, not vertically to it, and at a distance from the cut edge, as in the ordinary suture. The method of inserting the suture is as follows:—

I begin at a point about quarter of an inch from the upper angle of the wound. The needle is passed horizontally underneath the epidermis of the skin into the cutis vera and emerges again from the cutis vera at the angle of the wound itself. It is then passed in a similar manner into the cutis vera alone of the opposite side of the wound, beginning at the extreme angle and emerging at a point a quarter of an inch from it. The catgut is drawn through so as to leave just enough at the first point of entrance to enable it to be tied to the portion of the suture which holds the needle. This forms a standing point. The needle is again inserted horizontally into the true skin, beginning immediately below the first point of entrance and comes out again a quarter of an inch lower down; it is then passed similarly into the other edge of the wound, at a point corresponding exactly to the last point of emergence on the opposite side, being brought out again quarter of an inch lower down.

¹ Read in the Section of Surgery at the Annual Meeting of the British Medical Association held in Leeds.

¹¹ Adams, *loc. cit.*, 59.

This method is continued until the lower angle of the wound is reached.

It will thus be seen, as in this model which I have here, that the suture, before it is tightened, has the appearance of a ladder, the visible portions of the suture forming as it were the rungs; and if the suture has been properly inserted, these rungs will all be parallel. Now, when the suture is tightened, in the same way as we draw tight the lace of a shoe, you will see that the edges of the wound come accurately together, without the suture being visible or a single needle point appearing. The suture, you will observe, gives the wound a very slightly wavy appearance, which however eventually disappears. A knot may now be placed on the free end of the catgut and the rest cut off. I have used this suture for several years, and my colleagues in the Adelaide Hospital have adopted it, and we are all satisfied with the results. It is certainly a little more difficult and a little more tedious than the ordinary suture, and therefore we do not employ it for wounds in the covered parts of the body, but in the exposed parts, and chiefly in the neck, it undoubtedly reduces the ultimate mark to a minimum.

Fig. 1.

Fig. 2.

Fig. 1.—Needle in position, showing how the first suture is inserted. The dotted line shows the portion of the needle beneath the cuticle.

Fig. 2.—Shows the appearance of the wound, when the whole of the continuous suture is inserted, before it is tightened. The dotted lines show the portion of the suture beneath the cuticle.

There is one class of cases in which I look upon this suture as of the greatest value, namely, in the removal of scrofulous glands from the neck. Especially is this the case with girls; but it is also most desirable in boys who desire to enter the army, where the regulations of the service prevent their adopting those means of concealment with which Nature would provide them, and where the presence of an unsightly scar would arouse the suspicions of the medical examiner to the point of rejecting the candidate.

A very great and salutary impetus was given to the more radical treatment of these affections by Dr. Clifford Allbutt and Mr. Pridgin Teale, of this town of Leeds, and I have over and over again seen the excellent results to be obtained by the early opening and complete scooping out of suppurating scrofulous glands as advocated by them; but I believe that even more rapid and better results will be gained in those cases which we can approach even at an earlier stage, before the cheesy centres in the glands have broken down into abscesses, and before the capsule of the glands has contracted adhesions to the surrounding tissues, while the gland is still hard and movable, then, through a small incision, perhaps an inch long, or an inch and a half, the gland can be easily enucleated, like the walnut out of its shell, and the resulting wound kept together by a subcuticular suture will leave a cicatrix, which even a close scrutiny will only just detect.

The adoption of the subcuticular suture, as an adjunct to the early removal of scrofulous glands and other tumours from the

neck, together with the immediate union insured by aseptic surgery, will I believe prove an addition to the cosmeticism of surgery which many of the sufferers of both sexes will not despise.

ABSTRACT OF THE ERASMUS WILSON LECTURES ON THE RELATION OF MORPHOLOGY & PATHOLOGY.

Delivered at the Royal College of Surgeons of England.

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LECTURE III: THE MORPHOLOGY OF CANCER.

UNTIL recently the term cancer has been used, even by pathologists, in an indefinite sense. In clinical medicine and surgery it is still frequently employed to signify a malignant tumour. Throughout this lecture the term "cancer" will be used as synonymous with malignant adenoma. An adenoma is a neoplasm conforming in histological details to the type of a secreting gland. The less perfectly an adenoma mimics a gland the more likely is it to exhibit malignant properties, and come under the denomination cancer. Adenomata and cancers have a common feature in the possession of epithelium arranged in a definite manner. Epidermic appendages, whether hair, wool, bristles, feathers, glands, or teeth, are developed on the same principle, and what is equally remarkable, simple glands, hair, and teeth may form erratically under similar conditions, and the relationship between these structures and cancer is much closer than at first sight appears. In ovarian dermoids we sometimes find even in one square inch of tissue epithelial pearls, enamel organs, dentine papillae, sweat glands, hair germs, and epithelial ingrowths which may be called adenomata, cancers, or epithelial odontomes. Doubtless it sounds strange to say to say that teeth and cancer are related; it is nevertheless true.

In the second lecture I explained that certain aberrations of the enamel organs appear as tumours which, in structure, have been interpreted as adenomata, and as cancer until more exact researches showed their true nature. The relation of hair and cancer has long been indicated clinically in the tendency of hairy moles to become cancerous. This relationship has been further illustrated by the observations of M. Panas: he points out that cancer of the conjunctiva almost invariably occurs at the outer corneo-scleral margin, which is likewise a favourite situation for dermoid patches and pinguiculae.

In a general sense we may say that hairless patches are glandular, and glandular tracts hairless. Although hair and sebaceous glands are intimately associated, the smaller hairs have very large glands and the largest sebaceous glands occur in a hairless situation, for example, the nymphae.

Speaking generally, it may be said that exposure and irritation favour the development of hair, whilst seclusion promotes the formation of glands. Thus the nymphæ in the adult female are overlapped and obscured by the greater labia; they contain sebaceous glands of large size, but no hairs. Not infrequently the smaller labia elongate, and emerge from the protected position they usually occupy. The protruded portions become pigmented, the sebaceous glands on the exposed segments are small, and occasionally hairs will be found growing from them.

The relationship of glands to cancer is especially shown in the uterus, and it will be well to study it in the three sections: Fallopian tube, uterus, and cervix. Textbooks of histology—and, as a consequence, books on midwifery—describe these ducts as glandless. In 1888 I attempted to show that the so-called recesses of the tube are really glands. Subsequent investigations in the human female and extended inquiries into the character of the mucous membrane of the Fallopian tubes of other mammals have only served to support this opinion. The Fallopian tubes are not only glandular, but they may be the seat of adenomata arising in the glands, and may even become attacked primarily by cancer, as Doran has unequivocally demonstrated. In the cavity of the uterus the glands are more complex than in the tubes. An innocent adenoma of this part of the uterus has not yet been placed on record, but specimens have been described as adenoma from their histological characters, but they recurred