painful to the touch. An indistinct feeling of fluctuation could be elicited. *Per vaginam*, the cervix uteri was near the right pelvic wall. The body of the uterus was felt in front on the right side; it was not enlarged. Neither the right nor the left ovary was felt, and no portion of the abdominal tumour could be felt in the pelvis.

Diagnosis.—From the clinical history and physical signs I came to the conclusion that the tumour was ovarian and was probably a dermoid.

Fig. 1.—A, Lesser sac; B, stomach; C, colon; D, duodenum; E, lappet of omentum.

On passing my hand into the pelvis I discovered that the uterus and ovaries were normal, and that the tumour had not originated in the pelvis. The lower part of the tumour was coursed from side to side by a free lappet of omentum about an inch and a half in width and this lappet partially covered the transverse colon. On raising the lappet I found the transverse colon was so incorporated with the tumour that the muscular coat of the colon was spread out digitately on the tumour. I incised the thinned omental covering of the tumour from below upwards—in a vertical central direction—and freed the tumour as far as possible by enucleation from its omental capsule. I then found that the stomach was so intimately incorporated with the hydatid cyst that the muscular fibres of that viscus were also spread out digitately on the tumour. The transverse colon with the lappet of omentum was stripped from the hydatid and thereafter the stomach was similarly dealt with. The cyst was then found to have a neck about $2\frac{1}{2}$ in. wide and 3 in. long springing from the region of the crura of the diaphragm. The neck had to be dissected out and the fibrous and muscular tissue incorporated with it was ligatured piecemeal and cut, and thus the neck was freed. It was the anterior wall of the stomach which was incorporated with the cyst, and when the two were separated the anterior surface of the stomach was almost completely deprived of its peritoneal covering and the muscular coat was ragged and bulged here and there somewhat irregularly. Fortunately I was able to reclothe the anterior surface of the stomach with a peritoneal flap of attenuated omentum which had been stripped from the right half of the tumour. In like manner I was able to reclothe partially the bared transverse colon by a flap of peritoneum from the left half of the

Operation.

With the idea of removing the tumour intact because of its probable dermoid nature I made a long central incision, but this eventually had to be extended almost to the ensiform cartilage. On opening the abdominal cavity the tumour was found to be concealed by stomach omentum and transverse colon.

Fig. 2.—A, Seat of attachment of stomach; B, seat of attachment of transverse colon; E, lappet of omentum.

tumour, and in this process the colon was drawn close up to the greater curvature of the stomach.

The tumour contained purulent fluid and daughter cysts, and the parent sac was so loose that it escaped with the fluid when the tumour was cut into. There was nothing about the clinical history to indicate when suppuration of the hydatid took place, and the patient's temperature, both when she was admitted into the hospital and when she was seen by Drs. Townley and Kimbell, was normal.

Sections of the cyst wall showed it to be composed of fibrous tissue arranged chiefly in regular layers with muscular tissue in places. The inner layer of the cyst was constituted of small round cells.

The patient suffered greatly from shock, but convalesced without an untoward symptom.

DYSpareunia AND ITS SURGICAL TREATMENT.

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I had been in practice a number of years before it occurred to me that dyspareunia was other than a quite infrequent and unimportant symptom. Two facts help to explain how this opinion is likely to be held by a junior practitioner. The first is the insignificant space given to the subject in gynaecological textbooks. Less than one page out of the more than 1,700 in Kelly and Noble's *System* is devoted to it, and in some quite considerable textbooks "Dyspareunia" is not even mentioned in the index. The second fact is, that pain on coitus is not a symptom which the average woman finds it easy to confess to, as is evidenced by the fact that in quite a number of the cases which I propose to describe presently the symptoms first complained of have been other than dyspareunia even when that was practically the only condition which was making life miserable.

Experience has forced upon me the knowledge (1) that quite a number of women suffer more or less severe pain during coitus; (2) that this condition underlies many a case of otherwise unaccountable neurosis; and (3) that it nearly always depends on some pathological lesion which, if properly diagnosed and treated, can generally be cured.

The number of lesions capable of producing dyspareunia is legion; my intention is to describe a few typical cases, each of which illustrates some practical point either in diagnosis or in treatment.

(a) The cause may be at the vaginal entrance.

CASE I.—Unruptured Hymen.

A woman aged 28 years, who had been married three years, was brought to me by her mother. She was languid, slept badly, had a capricious appetite, was morose and irritable. These symptoms began to be noticed some months after her marriage. I carefully overhauled her, but found no evidence of organic disease. She had some slight menstrual irregularity, and on vaginal examination I found that the hymen with difficulty permitted the passage of one finger. I did what a greater experience has convinced me to be a mistake—I asked for an interview with the husband. I have found that in many cases the husband is kept in ignorance of the true facts, and even where (as in this case) the husband knows the facts, he commonly has a notion that it is impossible to candidly discuss his sexual relations. As Stevenson has it in his article on Whitman, the Philistines have been too strong to allow the sanctity of fatherhood to be set beside the sanctity of motherhood, and among men "one of the most serious and interesting parts of life" is commonly "looked upon as ridiculous or shameful." I was given to understand that there was no difficulty with coitus. Fortunately the patient herself, after a little time, took her courage in both hands, and let me know that proper coitus had never taken place. Under ether the vaginal orifice and the vagina itself were freely stretched. Three months later the patient was pregnant, and her nervous symptoms had almost entirely disappeared.

CASE II.—Hymenal Fissure.

A young woman was taken ill during her honeymoon abroad and was told that she had kidney disease. (I believe that she had a mild attack of that far from uncommon honeymoon disease, an infection of the urinary tract due to colon bacilli being rubbed into the urethra.) When she got home I was asked to see her, nominally because of this urinary trouble, but I found that her real complaint was an agonizing dyspareunia. On examination I found one or two tiny but very sensitive hymenal

excoriations. No coitus was permitted for a week, during which time a daily sitz bath and boracic vaginal douches were given and the vulva was freely smeared with lanoline. When marital relations were resumed the patient was instructed to place a $\frac{1}{2}$ -gr. cocaine suppository in the mouth of the vagina a quarter of an hour before the act. As usual, vaginismus delayed convalescence, but in a few weeks the dyspareunia completely disappeared and the patient became pregnant.

Very rarely sensitive hymenal tags remain and require removal, but if dyspareunia persists in such cases after excoriation have healed it usually is because of vaginismus, and the latter condition demands treatment. The cause of dyspareunia may be an acquired stenosis of the vaginal orifice.

CASE III.—*Kraurosis Vulvae.*

The husband of a lady, aged 46, found on his return from a six months' tour abroad that coitus, previously normal, was not possible. On examining his wife I found the skin and mucous covering of the nymphæ thickened, inelastic, and quite white in colour. On introducing a finger into the vagina the margins of its orifice felt as if a tense cord had been purse-stringed round the vaginal entrance. It was a marked example of kraurosis vulvae in which the subcutaneous elastic tissue becomes absorbed, and the dyspareunia was produced by the attempt to distend the vaginal orifice. The patient was instructed always to bathe herself after passing urine, to keep the parts constantly lubricated with lanoline, and to use a cocaine suppository before attempting coitus. In a week or two intercourse became possible, although it was necessary to use care at the beginning of the act.

(b) The cause may be in the vagina.

CASE IV.—*Vaginismus.*

A lady, aged 25, was sent to me to have her appendix removed. On making a pelvic examination, I found that she had vaginismus—that is, when I attempted to introduce a finger into the vagina the parts were involuntarily drawn away and the thighs extended and pressed tightly together. The patient had been married two years. A few weeks after marriage she had consulted a doctor definitely about the fact that coitus was impossible. She was told that her ovaries were wrong and was advised to use a douche. She was no better, and several times during the next year she sought various advice—at least once from a consulting gynaecologist. The impression she got from these consultations was that the condition was due to the fact that she was neurotic and that nothing could be done for her. By this time she undoubtedly was neurotic, and she was for three months in a nursing home on Weir Mitchell treatment. She and her husband had concluded that it would never be possible for them to have normal marital relations, and it was only my accidental discovery of the vaginismus when she came to see me about having her appendix removed that led to her consulting me on the matter. Before removing the appendix, I examined her under chloroform, and found uterus and ovaries apparently normal. The vagina was narrow and its walls less elastic than normal, but they gradually yielded to digital dilatation, which was persisted in until the vagina admitted the "accoucheur's hand." When the patient had recovered from the appendicectomy I had considerable difficulty in persuading her to attempt marital intercourse owing to the pain and misery which had heretofore accompanied all attempts at coitus. However, at length the patient was induced to make the attempt. She was told to introduce first a large glycerine suppository (the so-called glycerine pessary), and then a $\frac{1}{2}$ -gr. cocaine suppository into the vagina. Fifteen minutes later coitus was attempted and found to be painless. Soon the cocaine was discarded, but lubrication with glycerine was found desirable for some months. Nine months after the operation the patient wrote to say that she was pregnant, and that she was happier and less nervy than she had been since before her marriage.

Dyspareunia associated with vaginismus is, in my experience, by far the most difficult condition to relieve, and I have never been able to cure a case in which it has persisted for several years. This is due to the fact that any attempt at coitus becomes so distressing that the very thought of it produces an unreasoning and overpowering dread and loathing. But if the patient seeks relief in the early days of her marriage and proper treatment is adopted and after-treatment persistently followed up, in most cases the result would be as satisfactory as in the case cited. The treatment includes: (1) Cure of any obvious pathological condition. (2) Forcible and very thorough stretching of the genital passage under full anaesthesia. I know of a number of cases in which gradual instrumental dilatation without anaesthesia has been perseveringly attempted, but they have every one been miserable failures. (3) Lubricating and anaesthetizing the vagina by glycerine and cocaine prior to coitus.

CASE V.—*Short Vagina.*

One of the few patients who have come to me specifically complaining of dyspareunia was a recently married, under-

sized girl aged 19, who suffered pain "inside" whenever coitus was attempted. I found the vagina unusually short and that she had pain when upward pressure was made on the somewhat long and conical uterine cervix. I operated, splitting the cervix up to the vaginal vault and fixing the two halves apart with sutures, so that they were flattened out against the vaginal roof. Less than eleven months later the patient was delivered of a full-time child.

(c) The cause may be above the vagina.

Many abnormal conditions of the uterus are associated with dyspareunia. Adhesions, displacements, fibroids, or inflammatory conditions which fix the uterus and help it to prolapse are liable to be associated with this symptom. Many gynaecologists teach that an uncomplicated retroflexion of the uterus which is not fixed by adhesions never produces symptoms. That many patients having this condition do not have symptoms I admit; there was some degree of prolapse along with retroflexion in the case I am about to relate, but, in my opinion, the symptoms were essentially due to the retro-displacement.

CASE VI.—*Retroflexed Uterus.*

A woman, aged 26, had had a child three years before I saw her. Coitus, previously normal, had ever since been painful, and the patient had gradually got into a highly neurotic state. Careful examination revealed nothing abnormal save a markedly retroflexed fundus uteri which was intensely tender on vaginal examination. I performed ventrifixation, and the patient made a good recovery. A series of misfortunes combined to prolong the patient's neurotic state; her child had a serious illness, her husband injured himself at his work, and the patient herself fell downstairs and bruised herself badly. I saw her, however, nine months after the operation. The dyspareunia was cured, she was three and a half months pregnant, and, although still nervous, she was much better than she had been.

As in retroflexion, so in prolapse of the ovary, I believe that most of the cases giving rise to symptoms are those accompanied by some uterine prolapse.

CASE VII.—*Prolapsed Ovary.*

A woman, aged 25, came complaining of bearing-down pain and leucorrhoea. The symptoms dated from an instrumental labour eighteen months previously. The vagina was slack, the cervix broad and eroded, the uterus lay rather low, and the right ovary was somewhat enlarged and very tender. On inquiring I found that coitus was so painful as to be impossible. I curetted the uterus, opened the abdomen, and removed the ovary (which was cystic but not adherent), and fixed up the uterus. Six years later her husband was killed at his work, but before that she had presented him with four children, and she was again pregnant at the time of the accident.

The following case illustrates the place which adhesions occupy in the causation of dyspareunia:

CASE VIII.—*Ovarian Cyst.*

A woman, aged 31, who had had three children, made a somewhat slow recovery from her last confinement three years ago, and had had abdominal pain which latterly had made her unfit for her household duties. Her doctor found an abdominal tumour and sent her to me. I removed a right ovarian cyst as big as a fetal head which was adherent to uterus, bowel, and abdominal wall. She came to report herself at the infirmary two months later, and in a burst of gratitude told me that her life had been completely altered by the operation. Dyspareunia (of which she had made no previous mention either to her doctor or to me) had been constant since her last confinement, when presumably the ovarian cyst became adherent. The idea of marital relations had become a nightmare to her, but the operation had made normal coitus possible.

The part played by dyspareunia in the production of neurotic symptoms is shown in the following case:

CASE IX.—*Orario-Salpingitis.*

I was called early one morning to see Mrs. B., aged 35, a childless woman who had been married several years. She was in a condition of acute hysteria, made none the better by the brandy with which a kind neighbour had been plying her. The only symptom I could elicit was abdominal pain, and vaginal examination revealed a tender fixed mass on either side of the uterus. I gave her a sedative and learnt later that she was the subject of severe dyspareunia, and that the hysterical attack I had found her in had followed on a violent attempt at coitus made by her husband when he was far from sober. I removed a double pyosalpinx, and since then painless coitus has been possible.

Some of the worst cases of dyspareunia result from injuries sustained during labour. Here is a typical case:

CASE X.—*Parturition Trauma.*

Mrs. B. was married at 18; a child was born a year later. Instruments were used, and she made a slow recovery. She had persistent backache, leucorrhoea, dysmenorrhoea, pain on

defaecation, and dyspareunia. From being a bright girl she became peevish and despondent, she slept badly, her appetite failed, and she lost nearly 2 st. in weight. When she was sent to me I found the left side of the cervix split up to the vaginal roof, and a tense tender scar stretching from there across the left vaginal fornix. About this scar were fixed the uterus and the left appendages, and the whole mass was intensely tender. I operated on her, repairing the torn cervix, dividing the vaginal scar freely, and stitching the transverse incision across in the vertical direction, then opening the abdomen, freeing adhesions, removing the left appendages, and fixing the uterus to the anterior abdominal wall. She recovered well, and soon went to a convalescent home. Some weeks later her doctor again sent her to see me. She was still sleeping badly, and very easily got tired and worried. I found the pelvic organs in a very satisfactory condition, and was able to assure her that she ought soon to get rid of her neuroses. A course of nux vomica and bromide, continued for some weeks, helped towards this goal. Six months after her operation I again saw her, and hardly recognized her. She was fatter, brighter, and younger looking, was able to do her work with pleasure, and the pelvic symptoms had all gone.

Compare this with the case of a woman aged 44, on whom I did an operation for cystocele some months ago. Her one child was born seventeen years ago. The posterior vaginal wall and the perineum were torn, and a tense scar formed, which remained so tender that she was never able again to have intercourse with her husband. The falling birth-rate is not wholly due to the wilful practice of Malthusian methods. Efficient gynaecological treatment would enable not a few erstwhile sterile women to add their quota to the population.

These are a few of the many cases I have met with since I came to realize the frequency and importance of dyspareunia. I have to thank the physician whose clinical clerk I was some twenty years ago for impressing it upon me, with many an apt illustration, that in a considerable proportion of those bane of a practitioner's life—the "neurotic women"—careful search will discover a definite underlying pathological lesion. Dyspareunia is one among the multitude of these underlying conditions.

It does not require much imagination to understand how the prolonged mental and physical distress produced by this symptom, aggravated in many cases by the knowledge that the husband's affections are being thereby alienated, is likely to produce a morbid mentality. Says George Eliot in *Middlemarch*: "It is in the acts called trivialities that the seeds of joy are for ever wasted, until men and women look round with haggard faces . . . and say that earth bears no harvest of sweetness."

When the practitioner has realized that dyspareunia is no trivial condition, but one which may cast a deep cloud over a woman's whole married life, he will be much more likely to discover the cases in which it exists, and by adequate treatment to lift the cloud and earn the patient's undying gratitude.

THE IDENTITY OF *T. RHODESIENSE* WITH THE TRYPANOSOME OF THE SAME APPEARANCE FOUND IN GAME.

BY

WARRINGTON YORKE AND B. BLACKLOCK.

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At the beginning of 1912 Kinghorn and Yorke¹ published a paper announcing that a considerable proportion (16 per cent.) of the game in the Luangwa Valley of North-Eastern Rhodesia harboured the trypanosome which causes sleeping sickness in man. This discovery has since been confirmed by the Royal Society Commission,² who found that a similar percentage of the game in the proclaimed area of Nyasaland was infected with the human trypanosome. The German workers, notably Kleine and Eckard,³ Taute,⁴ and Fischer,⁵ although they agree that one of the trypanosomes found in game is very closely related to *T. rhodesiense*, both as regards its morphology and pathogenicity, hold that the parasites are not identical.

Owing to its practical importance the question has given rise to much discussion; those who are opposed to interference with the African fauna welcome the theory that the parasite found in the game is not the same as the human trypanosome. Much of the discussion is based on hypothesis and not on scientific observation, and is hence

of little value. The case of those who deny the identity of the two parasites has been stated recently by Kleine⁶ in a paper entitled "The Alleged Identity of *T. brucei* and *T. rhodesiense*." It is this paper that has called forth the present article, in which we propose first to review the evidence on which Kinghorn and Yorke concluded that the trypanosomes are identical; secondly, to examine the arguments advanced by Kleine and others who maintain that the parasites are different; and finally to consider certain additional facts which in our opinion support the view originally expressed by Kinghorn and Yorke.

The evidence of identity adduced by these workers was derived from studies of the morphology, pathogenicity, and the development of the two parasites in the tsetse fly. *T. rhodesiense*, the cause of sleeping sickness in South Central Africa belongs to the polymorphic group of trypanosomes—that is, it possesses long free flagellar forms, short aflagellar forms, and intermediate varieties. In this respect it resembles *T. gambiense*. Its claim to be considered a good species depends on the fact that in a certain proportion of the short forms the nucleus is situated at the posterior extremity,⁷ and this character has up to the present sufficed to distinguish it from *T. gambiense*. Recently, however, it has been shown that certain other species, such as *T. pecaui*,⁸ *T. brucei* of Uganda (*T. ugandae*),⁹ and *T. equi*,¹⁰ hitherto considered to be parasites peculiar to animals, also exhibit this phenomenon. All these belong to the polymorphic group of trypanosomes, and are morphologically indistinguishable from each other and from *T. rhodesiense*. Almost all authorities now agree that *T. pecaui* and *T. ugandae* (*T. brucei* of Uganda) are synonymous. This trypanosome appears to be widely distributed throughout tropical Africa in game and domestic stock, and is most probably the parasite found in game by Kinghorn and Yorke in Rhodesia. We wish to emphasize here that the names applied to the trypanosome found in man, and to that found in game, are merely of secondary importance. The fact that the parasite infecting human beings happens to have been called *T. rhodesiense*, whilst a similar flagellate existing in animals has been designated *T. pecaui*, *T. brucei*, or *T. ugandae*, does not of itself exclude the possibility of their being identical. The real point at issue is whether or not the trypanosome infecting man is the same as that found in game and domestic stock.

As already mentioned, Kinghorn and Yorke, as the result of an exhaustive examination of the human and game trypanosomes, found that they were morphologically identical. The virulence of the two strains was examined in a large number of laboratory animals, and the trypanosomes proved to be alike. Finally the life-cycle of the parasites in the tsetse was examined. In laboratory-bred *G. morsitans*, whether fed on sleeping sickness patients or on animals infected with the game strain, the development of the trypanosomes was similar. The parasites multiplied in the intestine, and after a latent period, the length of which varied inversely with the temperature to which the flies were exposed, the salivary glands became invaded and the flies infective.¹¹ These observations have been confirmed by the Royal Society Commission and others, and are now generally accepted.

Kleine, Taute, Fischer, and others, while agreeing that the human and game trypanosomes are indistinguishable when judged by the methods of examination mentioned above, for various reasons deny that they are identical. In the first place they state that Kinghorn and Yorke failed to observe the presence of the widely spread *T. brucei* in a heavily infected *morsitans* area. Such a statement as this is, of course, of no value as criticism. It is in itself an assumption that *T. brucei* is a parasite capable of being distinguished from *T. rhodesiense*.

Again, on epidemiological grounds, Kleine⁶ asserts that the parasites are undoubtedly different, because in certain *morsitans* areas the animal trypanosome (*T. ugandae* vel *T. brucei* of Uganda vel *T. pecaui*) is found in game and stock and in tsetse fly without cases of human trypanosomiasis occurring. Moreover, numerous Europeans have hunted in such areas and have not contracted sleeping

* We must draw attention to the observation of Bouet and Roubaud¹² on the development of *T. pecaui* in *Glossina*. These authors found that *T. pecaui* instead of invading the salivary glands completes its life-cycle in the proboscis. If this observation is confirmed, then *T. pecaui* cannot be held to be identical with *T. rhodesiense* nor with *T. ugandae*.