a tolerance of opium in simple melancholia. While the depression lasts, it is taken with benefit to every function; and when the depression terminates, its use can be abandoned without inconvenience. Its great value has, I venture to think, been demonstrated to you during your studies here. Out of a number of cases that have passed under your observation in which opium has been obviously advantageous, let me recall only one, that of Hannah T., admitted on the 20th of last March. This woman was thirty years of age, married, and the mother of five children, the youngest of whom was two years old. She became insane from the fright occasioned by her house being set on fire, and had been low-spirited for six months prior to her reception here. She had become gradually worse, and a fortnight before her admission had cut her throat, inflicting a severe wound, which she afterwards attempted to tear open. When she came under our care, she was deeply and vaguely despondent, and was weak, emaciated, and bloodless, with a wound on the throat opening into the trachea, a soft systolic murmur at the base of the heart, and menorrhagia, which had been going on for fourteen days. She was at once ordered wine, extra diet, and the citrate of iron and quinine. This treatment was continued until April 9th, when, no improvement being perceptible, tincture of opium was prescribed in ten-minim doses three times a day. From that hour, improvement was inaugurated, composure was obtained, appetite returned, the tongue cleaned, and weight increased. She was convalescent in three weeks, and was discharged recovered on the 22nd of May.

CASES OF INTERMENSTRUAL OR INTERMEDIATE DYSMENORRHOEA.*

By WILLIAM O. PRIESTLEY, M.D.,
Consulting-Physician to King's College Hospital.

THE subject of dysmenorrhœa has received much attention from those who study and write concerning the diseases of women, and several varieties of painful menstruation have been described in accordance with the pathological views which have been taken of the causes. Thus, in the various text-books, we find descriptions of *congestive* dysmenorrhœa, of *membranous* dysmenorrhœa, *mechanical*, *ovarian*, and *neuralgic* dysmenorrhœa.

In women who are the subjects of difficult and painful menstruation, the suffering is commonly experienced at the time of the catamenial period, and the description of the symptoms of dysmenorrhœa is ordinarily limited to the duration of the menstrual flow, including the day or two which may precede or follow its advent. From time to time, however, I have met with cases of a more obscure kind, where the chief suffering is remote from the actual menstrual period—coming on, nevertheless, with almost the same regularity as the catamenial discharge, and depending, as I believe, on organic changes associated with derangement of the menstrual function.

My experience leads me to infer that such cases as I am about to describe are not uncommon, and probably other practitioners have observed like instances. Hitherto, however, I have seen no record of precisely similar symptoms, and I therefore present the cases to the Society, as a fragmentary contribution to the study of some of the more obscure forms of pain experienced by women in connection with derangements in the sexual organs. The following are selected from others as typical cases, and yet as possessing some diversities both as to the symptoms, and as to the anatomical conditions as ascertained by examination.

CASE I (from notes taken by Mr. Vachell, Resident-Accoucheur).—E. W., aged 33, was admitted into King's College Hospital on January 6th, 1870. The woman had been married eighteen years, but had borne no children. For nine months previous to admission, she noticed that the catamenial discharge had become scanty, and in the intervals she had leucorrhœa. Some time previously to this, she began to suffer pain in the intermediate period of menstruation. The pain had been but slight at first, but had gradually grown more severe, and at length she was compelled to keep her bed two or three days in each successive month. She described the pain as invariably coming on ten days before the regular monthly period. It often came on suddenly, beginning in the back, and, shooting round the right iliac fossa to the groin, it passed down the right thigh. The attacks were commonly paroxysmal, exacerbations of acute pain alternating with irregular intervals of less suffering. At no time during the seizure, however, was there complete absence of discomfort, and the patient referred the centre of greatest pain to a point above the right groin, and midway between the sym-

physis pubis and the anterior superior spine of the ilium. Three or four days before the commencement of the catamenial flow, the pain habitually passed away, and during the period there was no inconvenience. On the day of her admission, which was a week before she expected her usual attack of pain, it was remarked that there was tenderness on pressure in the right ovarian region, but no swelling could be felt by external examination. By the vagina, however, a hardish elastic tumour, of the size of a large walnut, could be felt in the direction of the right broad ligament. It could be palpated between one hand placed externally and the finger of the other in the vagina, and was smooth in outline, but apparently adherent to the right border of the womb. The patient remained fairly well until January 14th, when the old pain came on as usual. During the night, she had three sharp paroxysms; and on the 15th, the pain was so considerable, that a sixth of a grain of morphia was given by hypodermic injection. This gave speedy relief to the more acute pain, but entire freedom from suffering did not occur until the 19th, five days after its commencement; and in the meantime, belladonna liniment, chloroform, and other soothing measures were employed. The period came on on the 24th, and passed over painlessly. Subsequently, small doses of perchloride of mercury with bark were given, in the hope of lessening the swelling, which, from its position, was believed to be a small ovarian tumour adherent to the uterus. The patient left the hospital "somewhat improved."

CASE II.—February 16th, 1871: Mrs. C. A., aged 38, has been a widow six years, and had one child eight years ago. She states that she had an operation for some form of fistula in the vagina before her marriage, but since then she has had no serious illness. She seeks advice for violent pain which comes on habitually about fourteen days before the menstrual period, and disappears as soon as the catamenia begin to flow. The pain comes on in spasms, and begins above the right groin, but extends eventually across the hypogastrium to the other side. The catamenial discharge is habitually scanty, but the periods are regular. When the pain is present, the bladder is irritable, and there is much flatulence in the intestines. She is doubtful when she first experienced this discomfort, but the pain has notably increased during the last few months, and she is quite invalided when it is present. During the three or four days of the period, and for a week or ten days after its cessation, she is quite free from pain; but at the end of this time, "it begins to gather up again," as she expresses it, and now the antecedent attack of suffering comes as regularly as the period.

No information is gained by external palpation, but by the vagina a nodular swelling is found on the right border of the uterus, which seems as large as a Tangerine orange, and extends somewhat behind the womb. It seems, indeed, to lap round the womb, and to be inseparable from it. There is a deep groove or sulcus between the two at the lower margin, which suggests the possibility of the tumour being a retroflexed uterus, but the sound passes the normal length forward, and thus away from the swelling. It is not possible to say absolutely whether the tumour be of ovarian or uterine origin, but a certain elasticity on pressure suggests that it is a large adherent ovary.

CASE III.—July 21st, 1871: Mrs. B., aged 29, had been married eight years and a half, and had two children. The last child was born six years ago, and she had not since been pregnant. After her last confinement, she was seriously ill, and had, she says, "puerperal peritonitis and blood-poisoning." After this attack of illness, the catamenia were irregular in their occurrence for a time. Now the periods were regular, but anticipated the termination of the lunar month by about three days. She complained of pain which came on causelessly, and in severe paroxysms, about a fortnight before each menstrual period. She first began to suffer in this way about a year after her confinement, and she had continued to do so more or less since. There were two severe attacks in December and the early part of January. There was a degree of uncertainty in the occurrence of the attacks, and sometimes a month passed over without one. The pain came on above the left groin, and was followed by pain and tenderness over the whole abdomen. When the attack was severe, she could not bear the least pressure on the hypogastrium; and although she had sometimes tried to obtain relief by lying on her face in bed, she had soon found the position intolerable. The less severe attacks had seemed to be relieved by a purge. The pain was described as paroxysmal, coming on in fits, and alternating with intervals of comparative ease. There was a notable increase in the severity of the paroxysms the nearer the approach of the period, but generally the day before the catamenia appeared her suffering ceased. Last time, however, the pain continued into the period, and was relieved by the discharge. When the sanguineous discharge was fully established, the relief was very marked, but there was a sense of soreness over the abdomen long after the pain had subsided. The

* Read before the Royal Medical and Chirurgical Society.

quantity of the catamenial discharge was commonly about normal, and no shreds or membranes have been observed to come away with it.

On making a vaginal examination, the fundus uteri was found somewhat heavier than usual, and partially retroflexed. In the direction of the left broad ligament there were traces of old thickening and density of tissue, such as are frequently found after attacks of local peritonitis or cellulitis in the pelvis. There was no indication of ovarian enlargement or other morbid growth.

This patient was partially relieved by taking sulphuric ether with compound tincture of camphor, and using warm hip-baths during the occurrence of the pain. At other times, she took the iodide of iron, and applied tincture of iodine externally. The most notable improvement was produced by a course of baths at Kreuznach during the summer. After this, she expressed herself better than for years; two intervals were passed entirely free from the old pain, and the thickening in the left broad ligament had all but disappeared.

CASE IV.—The subject of Case IV was the wife of a medical friend, who had been married some years, and had borne no children. She complained of severe pain in the left ovarian region, which came on every month, and invariably midway in the interval of the menstrual periods. The pain continued for four or five days, and then subsided spontaneously. The pain had been present some years—certainly since she was eighteen years of age, and was of a dull, aching character, producing much disquiet from the fear engendered of uterine disease. The catamenial discharge was habitually somewhat scanty, but regular in its recurrence, and the period itself was not generally painful. A curious point observed was, that when abroad, menstruation was suspended, and the pain then was always worse than when the catamenia were regular. In this case there was no appreciable change in the structure of the uterus, but there was slight tenderness in the position of the left ovary, and some indistinct thickening about it, as ascertained by vaginal examination. There was no history of a previous inflammatory attack.

Here iron and quinine were given, because the pain was regarded as neuralgic in character, and a course of chalybeate waters at Spa in Belgium produced for a time considerable improvement.

It will be observed that the prominent feature in all these cases was the supervention of severe pain in the intermenstrual period, the pain bearing a definite relation to the occurrence of the catamenial flow. It will be further observed that the anatomical conditions, as ascertained by external and internal examination, were not always the same; for, while in two some form of tumour or swelling was present, probably formed by enlargement of the ovary, in the other two there was nothing beyond some thickening to be detected in the ovarian region. The position of the pain and the regularity of its recurrence evidently point to some disturbance in the process of ovulation going on in the ovary. I have, however, looked over the recorded researches of Bischoff, Coste, and Pouchet, without finding anything very distinctly to account for the occurrence of the pain at this period. What can be offered in the way of explanation must, therefore, be mainly conjecture, but a study of the functional changes, so far as they are known in connexion with the pathological condition, tends to throw some light on the subject.

It is sufficiently well-established that the function of menstruation is associated with, and dependent upon, what is termed "spontaneous ovulation." The commencement of the monthly discharge is coincident with the maturation of one or more ova in the ovaries. Whether there is an emission of ova, corresponding *always*, and *precisely* with the time of the period, is not yet determined. Various observers have, nevertheless, pointed out that towards the end of the menstrual interval a considerable amount of turgescence takes place in one or both ovaries, and a distinct prominence at one point, indicates the approaching dehiscence of the ovicel. This turgescence further continues throughout the menstrual period, lasts for a few days after its cessation, and then the vascular excitement subsides, leaving the organ for a limited time in comparative quiescence. In the *Philosophical Transactions*, Dr. Oldham has recorded the case of a woman whose ovaries had descended the inguinal canal, and were permanently lodged in the external labia. At intervals of about three weeks, one or both ovaries were observed to become painful and tumid; the swelling augmented for four days, remained stationary three days, and then gradually declined, the whole process occupying generally from ten to twelve days.

Unfortunately, we have no very accurate record of observations concerning the condition and progress of the Graafian vesicles during the menstrual intervals. There can be no doubt that follicles in various stages of maturity are present at this time in the stroma of the ovary, but at what date, in relation to menstruation, those which are to take part in the next period begin to shew special activity, or how early

they approach the indurium of the ovary with the object of passing through its structures, has not been ascertained.

In the lack of more accurate information, it is not unreasonable to suppose that the preparation for an approaching period may commence in the ovary as early as ten or fourteen days before the period becomes due. The effect of the stimulus of the preceding ovulation having passed by, and a short interval of quietude having followed, new ova in their turn take up the chain of development, and in the fresh impetus to growth initiate a recurrence of vascular excitement.

The occurrence of such instances as those which I have described gives a strong colour to such a supposition. Under normal conditions, this commencement of a series of new ovular changes is not attended by any appreciable signs, but it may readily be surmised how special irritability or disease in the ovary may make this early stage just as difficult and painful as the later ones associated with the common forms of dysmenorrhoea. Hypertrophy of the substance of the ovary, or thickening of its coverings, will so interfere with the necessary physiological changes as to produce undue hyperæmia; or, perhaps, oppose resistance to the passage of ova towards the peritoneal surface, and so give pain. The obstacles being finally overcome, and the follicles having bored their way to the free surface of the ovary, the tension is relaxed, and hence the subsidence of pain before the appearance of the catamenia.

It is further probable that, without any very noticeable structural change, the mere performance of function at its commencement may produce suffering, the pain in these cases partaking of a neuralgic character. The reason why there is immunity from pain during some of the menstrual intervals probably is, that the other ovary is performing duty at those times, leaving the side affected at rest for one or more consecutive months. These reflections have suggested themselves to me in studying the class of cases I have detailed, and I shall be glad to hear further opinions on the subject.

The treatment of intermediate dysmenorrhoea would necessarily vary in accordance with the local condition as ascertained by examination.

In the cases of hypertrophy, or enlargement from any cause, and in patients where inflammatory exudation has bound down the ovary and thickened its coverings, occasional local depletion, a course of perchloride of mercury with bark; or the preparations of iodine and bromine may be useful, aided by a Kreuznach bath. Where there is an absence of such organic changes, and the case assumes rather the aspects of a neuralgic affection, the preparations of iron, quinine, zinc, and arsenic, aided in appropriate cases by chalybeate baths, and whatever else is indicated to improve the general health, afford most promise of curing the patient.

SANITARY IMPROVEMENT IN INDIA.*

By A. C. C. DE RENZY, Surgeon-Major, late Sanitary Commissioner in the Punjab.

THE progress of sanitary improvement in India is a subject which cannot fail ere long to attract much attention in this country. India has been brought, by recent improvements in locomotion, into practical contact with Europe; and the danger of the contagion current in India becoming current in this country has already assumed a tangible shape. No reasonable man can entertain a doubt that the existence of cholera in Europe is due to importation from India; and there is every reason to fear that, with further increased facilities of communication with the East, this unwelcome visitor will appear here more frequently than it has done hitherto. The progress of sanitary improvement is a question of vital importance for the Government and people of India. It would be impossible to give, within the short limits of a paper adapted to the present occasion, an adequate conception of the misery caused in India by the terrible pestilences to which the country is subject. Fever, small-pox, cholera, and dysentery and diarrhoea, are the great scourges of the country. Indian towns are unhealthy at all seasons, but at times pestilence appears with awfully terrible force, and literally slays the people by thousands. Owing to the absence of an accurate system of mortuary registration, it is impossible to give the death-rate with more than approximate correctness. It is certain that a large number of deaths are not registered at all. But the rates calculated on those registered present a melancholy picture of waste of human life. Thus, in the Punjab, the healthiest province in India, the mean death-rate of the towns having a population of 5,000 and upwards, calculated on the deaths actually registered, was 35 per 1,000 in 1869; in many towns it ranged from 40 to 70 per 1,000. The actual rates were, no doubt, much in excess of those figures. In the great city of Delhi,

* Read before the Public Medicine Section at the Annual Meeting of the British Medical Association in Birmingham, August 1872.