Some experiments which I performed in 1850, with Dr. Glover, may assist in clearing up this difficulty. Conia given to frogs by the mouth, or inserted beneath the skin of the leg, produced (besides speedy local paralysis in the latter instance) general flaccidity and prostration, terminating in the total abolition of consciousness in from twenty minutes to an hour. The heart, however, continued to beat for three or four hours afterwards. A little of the poison was next applied to the outer surface of the ventricle. Immediately the heart began to contract and extend itself longitudinally with more vigour than before; but, in the course of a minute, the ventricle grew paler, exhibited furrows and prominences on its surface, and beat very slowly. In other experiments, an aperture was made at the apex of the ventricle (an operation which does not much interfere with the heart's action in these animals), and a small quantity of conia was thrown into the cavity through a glass tube. The ventricle instantly contracted to its utmost limit, and refused any longer to receive the blood from the auricles, which continued to beat as before. Usually, it stopped altogether, but once it renewed its pulsations in a quarter of an hour, and continued them for several minutes. And it is worthy of particular mention, that the same phenomena occurred, whether the organ remained *in situ*, or was separated from its attachments, and laid on the table—a remark which also applies to the bowels, which contract under the stimulus of conia and other irritants, whether in or out of the body.

With these facts before us, I think there can be no difficulty in admitting the perfect accuracy of the above observation with respect to the rapidity of death in the dog—an animal to which an interruption of the heart's action would be immediately fatal. The poison acted neither directly nor indirectly through the medium of the nerves; but, in its character as a local stimulant, roused the independent irritability of the muscular structure of the heart, producing an abnormal state of contraction, and preventing it from carrying on the circulation. Such appears to be the true explanation of a fact which, with more of the like nature, has occasioned no slight perplexity to physiologists engaged in investigating the theory of the action of medicines. How far it is calculated to answer the purpose of the *experimentum crucis* which the author of the *Treatise on Poisons* considers necessary to decide between the doctrines of sympathy and absorption, this is not the proper place to inquire; but I may be permitted to observe, that, as their respective advocates derive their conclusions from a variety of unconnected sources, it is not easy to imagine any single experiment which is capable of meeting the whole of the arguments on either side.

Having begun with a quotation, I may appropriately finish with another: "Nil tamen quod temerarium foret audebo; sed omnia et in brutis et in me experiar, antequam ea homini ægrotanti præbuero."—(Störck.)

Bernard Street, Russell Square, June 1853.

PATHOLOGY AND TREATMENT OF CHRONIC INDURATION OF THE MAMMA.

By JOHN BIRKETT, F.R.C.S. Eng., and Assistant-Surgeon to Guy's Hospital.

[Read before the Harveian Society of London.]

THE morbid condition of the mammary gland, to which I am about to direct the attention of the Harveian Society this evening, has been almost entirely overlooked by writers upon the pathology of the breast. The nearest approach to anything of the kind is at the termination of a paper by M. J. A. Giraldès, entitled "*Quelques Considérations sur l'Anatomie Chirurgicale de la Région Mammaire*". (*Mém. de la Soc. de Chir. de Paris*, tome ii., pp. 205 to 207). Professor Syme also gives a short notice of the disease in his "*Principles of Surgery*".

Anatomy of a Healthy Mamma. If the healthy mam-

mary gland of a woman, who has not recently suckled, be examined, it exhibits to the unassisted eye a remarkably opaque white homogenous surface where cut. With very attentive examination, and by allowing the light to fall upon a section at certain angles, the surface appears undulating, and minute irregularities are perceptible. To the touch, it is unyielding and tough; and, occasionally, small irregularities are recognizable. In such a gland, which may be regarded as the type of the normal condition of the organ when in a *passive* condition, the terminal cæci, the secreting portion of the gland, are with very great difficulty detected by microscopic investigation. The object, however prepared, exhibits nothing but a fibre tissue; the fibres being chiefly of the filamentous and double outlined varieties.

Still there is a peculiar aspect about the tissues which at once strikes a practised observer, and which offers a remarkable contrast with the ordinary uniting or areolar tissue of other parts. There appear to be spaces or lacunæ between the fibres, in which a few scattered epithelium cells may be here and there discovered. After the examination of a very large number of mammary glands, at all periods of life and at very different intervals during pregnancy and lactation, as well as after the cessation of this function, I have no hesitation in stating that this organ, when in a *perfectly quiescent and unexcited condition*, exhibits in the slightest degree that is possible the essentials of a secreting organ. The only permanent structures appear to be the excretory ducts. The secreting portion undergoes a remarkable state of atrophy.

Anatomy of a Diseased Mamma. Under morbid action, however, and probably as the result of that remarkable sympathy existing between the several portions of the generative organs and their functions, great changes take place.

It is to the consideration of these phenomena that the following observations will be devoted.

The subject may be divided into;

- I. GENERAL INDURATION OF THE MAMMARY GLAND.
- II. LOBULAR INDURATION.

The morbid condition of the tissues composing the gland is identical in both these varieties, the only difference being that in the first form *all* the lobes constituting the breast are affected, whilst, in the second, one, two, three or more lobes are alone involved in the morbid action.

A breast thus diseased, when cut, exhibits to the unassisted eye a pinkish tint, its texture is close, but it does not appear of the same homogenous surface throughout. The section is sometimes smooth, but, in many cases, it is almost granular. To the touch, it is hard, quite incompressible, and with difficulty torn. Very often minute vesicular bodies are dispersed throughout the gland, or even small cysts may be discovered in several parts of it. These contain a serous fluid in one instance; and in another, a little mucoid, greasy material.

When examined with the assistance of the microscope, the fibre-element of the organ does not exhibit any appreciable change. I mean to imply by "fibre-element" the areolar or uniting tissue. The secreting portion of the gland-tissue, on the contrary, offers most striking deviations from a healthy condition. The acini, which are remarkably distinct and rigid, clearly exhibit, when torn up, the cæcal terminations of the ducts, closely packed together and opaque. Dilute acetic acid, being added to the preparation, often renders the observation of the object more satisfactory. These cæcal terminations of the ducts are crowded with epithelial cells, and they appear to be filled almost, if we may so say, to bursting point. Such, then, may be the morbid state of the gland-tissue of the entire breast, or of one or more of its lobes. The abnormal condition seems to depend upon an excited action in the terminal cæci, inducing an excessive production of epithelium which does not escape by the ducts. I have never been able to satisfy myself, from ocular demonstration, of the existence of any disease in the areolar tissue, but I think that further observation may prove that there is.

I. When the entire gland is involved, two very distinct conditions are exhibited by the mamma, regarded, that is, *en masse*. In one case the gland is small, the entire organ is closely fixed against the chest, the nipple looks more like a wart and the areola glands are very distinct. When grasped between the fingers from side to side it feels like a disc of condensed, rigid tissue, and it can be drawn forwards from the chest and the fingers placed behind its borders.

In the other case, the breast is remarkably large and pendulous; attached to the thorax by a rather narrow neck, it is of a flask-like or pear shape. When supported on the hand it is extremely heavy; and, when grasped, the lobes are distinctly perceptible, and the entire mass is very hard. The nipple is usually large, dark, and prominent, unless congenitally defective. The areola is expanded, of a dark brown tint, and the glands therein are generally well developed.

II. If lobular indurations exist, the affected breast is perhaps rather larger than the healthy one. In one, two, or more quarters of the breast, lumps or knots, or, as these indurations are often termed, "tumours", are easily felt, and, perhaps, even the entire organ is more firm than when in a healthy condition. But it is to the existence of one or more indurated lobes that I would especially direct attention, in order that this complaint may be duly recognized, and not mixed up, as it undoubtedly too often is, with real tumours of one kind or the other.

It should be carefully borne in mind that the disease which we are now describing is a morbid state of a part of the gland, not a new structure, or new growth, and consequently not a tumour in the modern and more correct acceptation of the term. It is, in truth, a disease of and not merely in the gland tissue. The importance of this consideration becomes at once apparent, when such cases as these come before us and demand surgical treatment.

Age at which Induration occurs. This morbid condition of the gland tissue occurs in females between twenty-five and forty years of age. It is much more frequently met with in single than in married women, and in the sterile, rather than in those who are prolific and have suckled their children.

General Health, and especially the Catamenia. The general health is in most cases disturbed, but the functions of the generative organs manifest the greatest amount of derangement. The catamenia appear irregularly, sometimes they are scanty, in other cases too abundant. A total cessation of the menstrual discharge occasionally exists, and, if it should show itself, it is attended with intense pain and great constitutional disturbance. I have seen this disease in the right breast and not in the left, during the early months of pregnancy. The case occurred in a woman who married about thirty, and who, before this, had been always subject to considerable derangement of the catamenia, and sympathetic constitutional disturbance.

External appearance of the Breast. The local signs, as manifested by the aspect of the organ, are not very prominently marked. There is usually a somewhat tense, full appearance of the skin, with a rather conical outline in the region of the nipple and areola, when the whole organ is affected; and if one or more lobes only are diseased, slight irregularities or elevations may indicate their site. There is never any inflammatory redness present.

Manipular Indications. The chief manifestation from touch is extreme firmness of the substance of the breast, rather than hardness, together with its disc-like figure beneath the skin, to which it feels loosely attached, and the capability that exists of drawing it forwards *en masse* from its posterior connexions. Single lobes feel remarkably hard, which perhaps arises from a comparison of the softer parts of the breast; and, doubtless, by the sense of touch alone, they are scarcely distinguishable from genuine "tumours". But the remarkable and characteristic isolation observable in most cases of glandular mammary tumours is absent, for the induration in the cases under consideration blends with the surrounding gland tissue. From tubercles of carcinoma, the induration differs in being for

ever confined to the tissue of the gland itself; never, should the lump increase, does it involve or become adherent to the skin, nor does it influence the form and outline of the nipple during any period of its existence.

One or both Breasts affected. Both the mammae are sometimes affected with general or lobular induration, and at the same time. In the majority of cases, however, it is much more common to find that one alone has the priority; or that, as the one first affected resumes its normal state, the other assumes a morbid condition.

Sensations of the Patient. Women, the subject of this disease, are often compelled to endure great local suffering; and from this cause it has been no doubt generally regarded as a variety of the neuralgic affections of the breast. In some particulars, doubtless, these affections are closely allied; but as, in a practical point of view, the recognition of these indurations is so highly important, I do not consider that mere pain alone is sufficient to characterise the complaint. The pain is very often most intense; in some instances constant, in others intermittent; and it is usually most severe before the catamenial period. Pressure with the point of the finger over the intercostal foramina, through which issue the anterior cutaneous filaments of the intercostal nerves, causes great pain; and in lobular induration this is a very important point in establishing a correct diagnosis. The pain is not always confined to the mamma, but extends along the skin to the back, and along the inside of the arm.

Diagnosis. The facts before stated are sufficiently marked and peculiar to enable the surgeon to distinguish between this disease of the glandular tissue, and those tumours with which it is most likely to be confused; such as, for example, the "mammary glandular", the so-called "fibrous tumours", or "fibro-plastic", and "scirrhus". The first are not generally very painful, and if they should be, they are, at the same time, remarkably moveable and but loosely attached to the breast. The second but rarely occur in the mamma, and in the cases which I have seen they were painless. The last, in its early stage, is singularly free from pain, so much so, indeed, that this peculiarity is one of its most distinguishing features.

Prognosis. With sufficient evidence to determine that the disease under consideration is of no greater importance than would attach to induration of the gland tissue, a favourable prognosis may be unhesitatingly pronounced.

Treatment. This disease is amenable to local, combined with general constitutional treatment; and this circumstance has, doubtless, afforded opportunities to boast of the successful removal or dispersion of tumours, termed "scirrhus", by local applications, the first of which is pressure. M. Récamier (*Recherches sur le Traitement du Cancer, par la Compression Méthodique, simple ou combinée*, 2 vols., 8vo. Paris, 1829), in a work of considerable size, is perhaps the warmest advocate for this mode of treating cancerous tumours; but it is very remarkable that almost the only cases stated to have been cured, bear internal evidence in the detail of having belonged to the class of diseases to which this section is devoted. Who, for example, in the present day, will believe that a tumour—or, to quote the very words of the author, "un engorgement jugé cancéreux par M. le prof. Dubois" (*op. cit.* t. i, Introd. p. xvi)—was cured by the application of methodical compression in twelve days? or, that the first case (*op. cit.* t. i, p. 19) related, was one of cancer, as well as the fifteenth and sixteenth? They were undoubtedly all cases of chronic induration, and as such were curable. M. Maisonneuve also (*Leçons Cliniques sur les Affections Cancéreuses*. Paris, 1852; pp. 27, 28) speaking of "tumeurs fibro-plastiques", writes "nous ne savons aucun moyen de reconnaître d'une manière précise la nature des tumeurs fibro-plastiques avant leur extirpation"; yet, on the next page, we find, "c'est ainsi que, sans l'influence de saignées locales ou générales fréquemment répétées, par l'emploi méthodique d'une compression régulière, nous avons vu disparaître quelquefois des tumeurs de cette nature développées dans la région mammaire."

The treatment here described, namely, leeches locally and frequently applied, and methodical compression, are of eminent service in restoring to a healthy condition the mammary gland-tissue when in a state of induration; and I must here confess, that after repeated and long continued trials, I have never yet succeeded in producing absorption of any tumour which exhibited to me unequivocal indications of being a new growth.

The constitutional treatment consists in the administration of such medicines as improve the general health, and by this means restore the generative organs to a healthy performance of their functions. Aperients, tonics, wholesome food, change of air, and bodily exercise, perhaps the use of the shower-bath, or sea-bathing, and the withdrawal from all circumstances tending to excitement of the nervous system, will be found of service. Liquor potassæ given internally is, sometimes, also useful.

The local treatment must be regulated by the condition of the individual. Occasionally, a few leeches afford almost immediate, although temporary, relief from the pain. The application of the extract of belladonna and soap cerate in equal parts spread upon lint, and supporting the gland with strips of plaister and a bandage, is also very useful. I have likewise known the placing a piece of thin gutta percha over the induration to lead to its absorption, as well as the application of the ceratum hydrargyri compositum spread upon lint. In some cases, the pain and sufferings are so intense, and they resist so obstinately all attempts to assuage them, that the patient is induced to submit to the removal of the breast. The operation has been performed under my observation in three or four instances, and success attended it.

I propose in a future communication to illustrate the preceding remarks by the detail of some cases.

Wellington Street, Southwark, June 1853.

CASES IN PRIVATE MIDWIFERY PRACTICE; WITH REMARKS.

By EDWARD L. FALLOON, Esq.

REPORTS of private midwifery practice are rarely submitted to the public. I have been induced to present the following tabular statement, after perusing an interesting paper on this subject from the pen of Dr. G. Hamilton, of Falkirk, in the *ASSOCIATION JOURNAL* for May 27th, p. 467. Up to this time, our statistical results have mainly rested on hospital experience; but, in order to establish a just comparison between public and private midwifery practice, authentic reports of the latter require to be greatly increased.

The following 310 cases are reported exactly as they occurred in uninterrupted succession. I regret to say that I have only been in the habit of keeping notes of my midwifery cases during the last few years, although previously, during dispensary practice in Ireland, as also during some voyages to Australia, in charge of large numbers of emigrants, under the auspices of the Colonial Land and Emigration Commissioners, I had much experience in this department, often under most trying circumstances. The only record that remains—and it is thankfully impressed upon my mind—is this, that I never yet have had a single death in my midwifery practice.

In the published details of hospital and private midwifery practice, I am sorry to find that the old proverb of "doctors differing" comes true. Take the use of the forceps, for instance. Dr. Hamilton, of Falkirk, used them 41 times in 300 cases, occurring, too, "among a generally robust and healthy population", or less than 1 in 7; according to my table, 1 in 53; in Mr. Crosse's practice (of Norwich), 1 in 16; Dr. Merriman, 1 in 98; Dr. J. Clarke, 1 in 295; Ramsbotham, 1 in 729; Collins, 1 in 684: so that Dr. Hamilton enjoys an unenviable notoriety in this respect. Notwithstanding, his mortality-table is not high,

being 1 in 20 among mothers delivered by the forceps, while the children thus delivered were all living. Still, so far as my own experience goes, I think such frequent use of the forceps cannot be defended; nor, on the other hand, can I understand how some men pass a life-time in midwifery practice without ever using them at all. The last case of this kind I had was a woman aged 42. It was her first confinement. The mother and the child are living, and in health.

There are notes in my case-book, appended to some of the cases, which, though conveying nothing novel to men of my own standing, are yet eminently practical to the generation of surgeons arising around us. Medical men in general practice, like myself, are seldom able or inclined to write for publication; and perhaps they do not sufficiently estimate the value of their every-day experience to young beginners. A tersely told practical fact, read in a weekly journal, makes, I am convinced, far more impression than if it had been perused in an elementary work.

CASE I. INCISION OF RIGID OS UTERI. A primipara, aged 33. This was a most tedious labour, occasioned by uterine rigidity, which defied all efforts to overcome it. I remained with the patient for two days and two nights, and administered chloroform freely during most of the time. I resorted to venesection, injections, fomentations, manual dilatation, and nauseating remedies, without obtaining any progress, although the pains were strong throughout this treatment. It occurred to me that, as a breach of continuity was inevitable, it would make very little difference whether it was produced by the natural efforts or by mechanical means. Acting on this view of the case, and without any authority, I took a probe-pointed bistoury, and made it like a hernia knife; and with this I incised the uterus. In an hour, all was safely over.

I was not aware till lately that the practice which I adopted has been recommended by high authority. Two cases are reported, and the practice discussed, by Mr. Houghton, in the *Dublin Quarterly Journal*. Among its advocates are to be found the eminent names of Murphy, Lever, T. Smith, and E. Kennedy. I have since attended the same woman, when her labour was as remarkable for its rapidity as the former was for its tediousness. In a similar difficulty, I should have no hesitation in adopting a similar course.

CASE II. TWINS: NINTH PREGNANCY. The placenta was detached at the commencement of labour. Copious flooding occurred whilst the uterus was dilating. I ruptured the membranes, when the head of the first child descended with the face towards the pubis; it was born dead, and with great difficulty. The membranes of the second descended soon afterwards, in consequence of a dose of ergot previously administered, in anticipation of flooding. Both hands presented. I succeeded in replacing one hand, and bringing the head over the brim of the pelvis (as the uterus was acting too violently to turn). It descended with one arm, face presenting; and, as the fœtus was dead, I evacuated the cranium, and brought it down with the crotchet, without much force. The placenta of the last followed immediately, and the other came away soon after, without inordinate flooding. This woman is again pregnant.

CASE III. TWINS: PLACENTA PRÆVIA: TWELFTH PREGNANCY. This case was somewhat similar to the above; but the practice was different. My notes only state, that the placenta presented, that I turned both children, and that there was hæmorrhage, both before and after delivery, to an alarming extent. This woman is again pregnant.

CASE IV. INTERNAL HÆMORRHAGE. This case answers in all respects to that published by Mr. George King, of Bath, in the *ASSOCIATION JOURNAL* for January 14th, p. 38. Everything is of value that throws light on these most fearful cases. I do not know anything more perplexing than to see a woman fainting and yawning, shivering and sinking, at the commencement of her labour, when you cannot detect any external cause. In this case, there had not been any hæmorrhage previously. She was supported with cordials, and pains encouraged, till the child was born