The group of cases recorded in Table No. III is extremely valuable. I know of no other excisions of the elbow for disease since the antiseptic method of wound treatment has been in common use in which the end results have been studied in such detail excepting those reported from this same hospital in 1877. The propriety of excision of the bones of the elbow in a young adult with caries of that joint, may by some be called in question, but by none if the results shown here are considered.

Each of these eight cases was over eleven years of age. Four were men and four women. The caries had lasted in each case for one or more months. All were treated to a complete excision. The length of time which has elapsed since the operation was one year in two cases, four years in two cases, and in the remaining four cases three, seven, eight and nine years, respectively. In all the cases the details of the present condition are given, and it will be seen that a useful joint with motion in every case exists.

Disease (tubercular caries) of the elbow-joint usually runs a very slow course, lasting for two, three or more years, and the usefulness of the arm at the end of this time is often greatly impaired because of ankylosis of the joint.

These cases speak eloquently for an early and complete excision with removal of all the diseased bone. Contrary to recent advice that "in excision for elbow disease, as a rule, ankylosis is aimed at as the best possible result, so that passive motion is not to be considered,"² I believe that these cases demonstrate, as far as it is possible for them to, the possibility and desirability of obtaining a movable joint.

In a previous study of chronic disease in another joint in children³ it was shown that partial operations upon carious bone at the ankle and tarsus are not attended with as satisfactory results as are thorough removals of all the diseased foci.

The anatomical arrangements in the foot are such that infection is invited from bone to bone and joint to joint, of the tarsus, and complete removal of the disease without the removal of an entire bone, is almost impossible. Whereas at the elbow there is greater certainty of complete removal of the disease because of the ease with which it can be made accessible. In all these cases a complete excision was done with no recurrence of the disease.

The cases tabulated in Tables IV, V, VI and VII, are the remainder of the unpublished cases excised at the hospital. The end results could not be traced. They are published that they may be recorded in all the details accessible, and with the hope that they may be suggestive to any interested in a study of excision of this joint.

These tables, together with the published cases previously mentioned, make a complete report of the excisions of this joint done at the Massachusetts General Hospital from the opening of its records to the year 1888.

CENSUS OF INDIA.—The returns of the census in India, which are just completed, show the population of the Indian Empire to be 285,000,000, being an increase of fully 30,000,000 since 1881.

¹ Bradford and Lovett: *Orthopædic Surgery*, New York, 1890, p. 440.
² A report of eighteen cases of chronic disease of the ankle and tarsus. *Boston Medical and Surgical Journal*, January 30, and February 6, 1890.

SOME FORMS OF AMENORRHOEA AND THEIR TREATMENT.¹

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AMENORRHOEA is like other disorders of menstruation merely a symptom of some pathological condition. Yet more than other abnormalities like dysmenorrhœa and menorrhagia, it has a right to be considered a definite disease. In the first place its causes are not so evident nor so easily discovered. Until our knowledge of the relation of menstruation to ovulation is greater than we at present possess, a large proportion of the cases of absence of menstruation which we meet will be inexplicable. If we believe that menstruation presupposes ovulation then our cases will be accounted for in one way: if we accept the theory that the two processes are independent of each other, we shall explain them in another way.

In the second place in very many of the cases of amenorrhœa which we are called upon to treat, the absence of this function is the sole symptom. It is not one of a group which taken together in their just proportion enable us to find the determining cause. It is very often entirely unassociated with any local pathological condition which can be appreciated by even the most educated touch.

Therefore, it is worth our study, and we shall make greater progress in our knowledge of it, if we study it as an entity at the same time realizing that it is but a symptom of some pathological conditions which are yet obscure, but which closer observation and more extended research will enable us to solve.

What has just been said is pre-eminently true of so-called "primitive" amenorrhœa, by which is meant a condition where the function has never been established, in contradistinction to "acquired" amenorrhœa where after the establishment of the function and its continuance for a longer or shorter time, it ceases. These latter cases are more apt to be associated with other definite symptoms which afford a clue to their true cause.

A girl may be said to have amenorrhœa when she has reached the age of sixteen or seventeen without the establishment of the function. The average age of the appearance of menstruation in this climate and among the population of our cities and large towns being at about thirteen and a half or fourteen years, a margin of two to three years should be allowed for individual variation. Beyond that age, especially if the girl be otherwise fully developed, the absence of the catamenia should be regarded as abnormal. That does not, as will later on appear, imply that the patient needs treatment.

The non-appearance of menstruation is, especially among the lower classes, looked upon with alarm. The popular idea is that it will lead to consumption. With this idea many such cases will be brought to the notice of the physician. There is some excuse for this opinion on the part of the unscientific laity, inasmuch as the majority of girls who reach the age of seventeen without menstruation are then anæmic, and apt to show functional disorders of heart or stomach. An additional reason is found in the fact that in the late stages of phthisis menstruation does cease, and the illogical inference is drawn that amenorrhœa stands in some causative relation to consumption.

¹ Read before the Boston Society for Medical Observation, January, 1891.

When such a case presents itself, there are a few leading questions which will determine our course of conduct in regard to it. First, does the patient complain of symptoms directly referable to absence of menstruation? Are such general symptoms present, as rush of blood to the head, persistent headache, palpitation of the heart, dizziness, frequent nose bleed, etc? or local symptoms of periodical attacks of pain in the lower abdomen, leucorrhœa, painful swelling of the breasts, and disturbances of micturition? If not, and the patient is robust, has a good color, and is well-developed, no treatment need be instituted, the assurance being given that in time the function will become established.

If, however, the patient is evidently suffering in consequence of its non-appearance, treatment is indicated. In the majority of such cases general measures are sufficient, and any local interference, even an examination should be avoided. If there have been for some months distinctly marked molimina, the question of a possible atresia should be settled, but the examination to determine this point need be very slight. It is sufficient to slightly separate the labia until the hymen becomes visible. Usually any abnormality can readily be seen, but if any doubt exists, the handle of a cotton stick, which is a little smaller than a lead pencil, can be passed into the vagina without pain or the slightest violence to the hymenal ring.

As regards general treatment, the main reliance is in my opinion, to be placed on iron. Easy assimilation and absence of constipating effects should govern us in the choice of the form of iron to be used. Except for these subordinate advantages no one preparation of iron has, as far as my experience goes, any special advantage over another in stimulating the function of menstruation.

Other drugs have acquired a reputation as emmenagogues, such as permanganate of potash and binoxide of manganese, but they have probably no direct effect on the uterus or ovaries, and their value as a tonic is less than that of iron.

It is unnecessary to more than allude to the importance of observing the laws of hygiene, moderate exercise, good food, avoidance of excitement, and regulation of digestion.

Where such general measures as the above fail, some local treatment may be advisable, and on the border line between them lies electricity. This agent has been used for a long time, and as a means of stimulating the activity of the pelvic organs where more direct treatment is inadvisable, has no equal. Of the two principal kinds of electricity galvanism or faradization, the latter has, in my experience, proved the most efficacious. It may be applied from the abdomen through to the back, placing the abdominal pole, which may be indifferently either positive or negative, alternately over each ovary, or over the uterus itself. Where there is no objection to treatment per vaginam, a much more direct and efficacious application may be made by placing one pole on the cervix and the other on the abdomen over the uterus.

The causes of acquired amenorrhœa are often obscure, and even where the cause is known the explanation of its mode of action is still more difficult.

The most common cause of amenorrhœa is pregnancy, yet in the present state of our knowledge of the physiology of ovulation and menstruation, who will attempt to explain the cessation of the catamenia

during that process? Does ovulation cease, or does it persist, while the ova, unable to reach the uterine cavity, perish in the tube? Does menstruation cease because no ova are ripened, or because the ova not gaining an entrance to the uterus, there is no exfoliation of the outer layers of the mucous membrane, accompanying death and expulsion of the blighted ova?

The same problems, only without the mechanical explanation which exists in the case of pregnancy present themselves for solution in amenorrhœa from other causes.

A few cases of amenorrhœa present themselves where a mental shock seems to be the determining cause.

A writer in a late number of the *British Medical Journal* calls attention to this subject, and cites a number of cases bearing on this point. While in a certain proportion of his cases some other explanation might be given, yet in all of them the shock seems to have had some influence. I have seen two or three examples of this. In one there was amenorrhœa for a number of months following the loss of the patient's two only children of diphtheria. In another, some family disgrace, the nature of which I did not learn, was followed by complete cessation of the catamenia for over two years. In the latter case there was atrophy of the uterus, it measuring only two inches in depth, and although after two months of treatment by electricity, the menstruation has not appeared, the uterine cavity has increased half an inch in depth, and there have been very decided menstrual molimina.

Persistent amenorrhœa sometimes follows confinement even though the woman does not nurse her child. Here the pathological condition seems to be superinvolution, as in the cases that I have seen, there has invariably been found a small thin uterus.

I have lately had under treatment a patient who has not menstruated for fifteen months following her last confinement, though she did not nurse, and no new pregnancy had supervened.

We are all familiar with that form of amenorrhœa which occurs, especially in our emigrant population, from the change of climate. That the sea voyage is not the prime factor is shown by the fact that a similar cessation not infrequently occurs in young women from Canada and the Provinces who come to the States by land. I am inclined to think to some extent the changed mode of life, better food, less outdoor exercise and our better heated houses may account for it.

There is at times a direct connection between amenorrhœa and obesity. Analogous facts are the tendency of women to put on flesh after the menopause, and after the artificial menopause following the removal of the ovaries by laparotomy, observations which hold true of the lower animals as well. It is not easy in all cases to trace the exact sequence of events, but it seems probable that more often the amenorrhœa is the cause of the obesity, than the reverse. Measures directed to reducing the fat have usually proved futile, and have not resulted in a re-establishment of the function. (This being the fact, we must look for some underlying cause for the scanty or suspended menstruation, and I must confess to complete failures in the cases which I have observed. The usual history in such cases is a gradual diminution in the amount of the flow, after a time ceasing altogether, and a progressive increase in weight.)

An interesting fact in the symptomatology of many cases of amenorrhœa from whatever cause, is the apparently vicarious character of leucorrhœa. I have several times been told that at regular intervals of time corresponding to what would be normal menstrual periods, there was an abundant leucorrhœal discharge lasting several days. I remember one case where this discharge was accompanied by pains which were perfectly characteristic of those usually accompanying the menstrual period. The usual symptoms are those we observe in connection with the menopause, disturbances of the circulation, being the most prominent. Headache, flushing of the face, palpitation of the heart, weight and pressure in the pelvic region, and a tendency to grow stout are the most common.

The treatment of acquired amenorrhœa does not differ essentially from that of the primitive form. The same rules hold for treatment by general measures alone, or by a combination of general and local. In the cases of amenorrhœa accompanied by atrophy, electricity would be the sheet anchor, and the faradic current which directly stimulates the muscular fibres of the uterus has been the most efficacious in my hands.

I have a very few times used a galvanic intra-uterine stem, but I never should resort to its use where it is possible to use the direct application of a strong current three or four times a week. The former is too mild and uncertain.

In the cases accompanied by obesity I should of course direct my efforts to reducing the fat as far as possible. I have never been able to carry out any elaborate course of treatment directed to this end, such as have been advocated in Germany by Oertel and Ebstein. These might prove more efficacious than my trials have been.

For the other varieties spoken of, general tonic treatment combined with local in suitable cases, will usually result in cure.

The cessation of menstruation is not in all cases an evil. On the contrary there are cases where its absence must be looked upon as a conservative provision of nature to prevent unnecessary waste. In anæmic subjects, and in persons recovering from long and debilitating sickness, it would be unwise to institute active treatment for bringing this function into activity, unless the direct results of its cessation in the form of pain or disturbances of the circulation outweigh in importance the bad effects of the loss of blood.

Just how far this principle may be carried is a little doubtful. Gehrung, of St. Louis, has at two recent meetings of the American Gynecological Society advocated stopping menstruation by therapeutical measures, first in cases of menorrhagia and metrorrhagia, then in cases of scanty menstruation, and paradoxical as it may seem in cases of amenorrhœa, that is, in such cases he does "his best to remove the disease or diseases upon which the amenorrhœa depends whether local or general, and as soon as the power to menstruate has returned, he uses the tampon to lessen or prevent the flow." His explanation is, that as temporary amenorrhœa occurs generally in anæmic or chlorotic individuals, it will easily be understood that the first step is to remove the cause, and the second to promote or render possible the convalescence.

These views of Dr. Gehrung are extreme, but their explanation is found in the fact that he considers bloody menstruation a pathological process. Those

of us who do not agree with this view, and I imagine that is the attitude of most of us, would hardly go so far as Dr. Gehrung, yet that the flow may be safely and wisely repressed or prevented in not a few cases, will, I think, be conceded by all. I have tried this method in some instances, using the tampon, and rest in bed if necessary, and have become satisfied that it may be of great value. While I have not had the brilliant results claimed for the method by Dr. Gehrung, yet I have, except in one case, had no unpleasant results, and have seen marked improvement follow it. In the case I speak of, the presence of the tampon at the time the catamenia were expected brought on such intense pelvic pain and headache that the tampon had to be removed, and menstruation allowed to begin, though after continuing for a day or two it was checked by a reapplication of the tampon with the happiest results.

The treatment of this subject in this brief paper has of necessity been such that its true character as a mere symptom of pathological conditions often obscure, has been thrown into the background. Progress in the true understanding of its real significance will alone enable us to be more successful in our therapeutical measures.

AMENORRHŒA: CLINICAL REPORT OF FOUR CASES SUCCESSFULLY TREATED BY GALVANISM.¹

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PRELIMINARY to the report of the cases presented this evening and to confine the discussion, I wish to state that the single subjective symptom of absence of menstrual flow, unaccompanied by physical change, has never seemed to me an indication for treatment. There is, however, one type of patients where various subjective symptoms, especially disturbances of the vasomotor system and other reflex phenomena are presented. Physical explanation, as by mal-development, displacement or recognizable abnormality in the uterus itself or its adnexa is lacking. The patients are strong, healthy-looking women, not the victims of anæmia or organic disease. When married they are sterile. The reflex nervous symptoms presented are akin to those accompanying the menopause. Cephalic pains, inaptitude for the usual employments, depression, perhaps, even tinged with melancholy, sleeplessness, and kindred disorders.

As regards the medical treatment of these cases, it may, regarding my own experience, be dismissed with a word — useless.

As regards the local treatment, whatever the means adopted, certain cases will be found entirely obstinate, others amenable at one time may fail at another, while a not inconsiderable number will always be affected by the method suggested in this paper, a method devoid of danger even should its good results not be manifested. Until I employed the galvanic current I had met with no success in the treatment of these cases by any local measure. Since adopting this, I feel a reasonable degree of confidence in assuring patients of relief to their subjective symptoms, although I cannot always promise the certain induction of the catamenial flow.

¹ Read before the Boston Society for Medical Observation, January, 1891.