Art. 7.—Diseases of the Rectum. A brief Review of their Symptomatology and Physical Diagnosis.

BY REUBEN A. VANCE, M. D., Gallipolis, Ohio.

President of the Ohio Valley Medical Association; Member of the Medical Society of the County of New York, etc, etc.

No I.

If we judge diseases by the pain, discomfort and interference with the duties of life which they cause, diseases of the terminal orifice of the large intestine and of the rectum will occupy no secondary station. The most common of all diseases, their sympathetic complications are not less important than the derangements of structure, function and sensibility which they produce in the rectal, anal and contiguous textures. One of the inevitable results of civilization, diseases of the rectum and anus are very common at all ages and in both sexes, yet they seem to afflict with greatest intensity those classes of the community whose lives are most sedentary, and whose habits are least calculated to counteract the baneful influence of their occupations and pursuits. Yet common as these diseases are, and much as are almost all classes of civilized communities predisposed to their development, still there are none which yield more readily to proper, and in the majority of instances to simple treatment when resorted to early in the course of the affection. Nevertheless Mr. Lizars, in his "System of Surgery" takes occasion to say: "diseases of the rectum are very common, very numerous and important; still, however, they are but little understood;" and Dr. Bodenhamer, in his "Physical Exploration of the Rectum," published in 1870, states that such was the abject ignorance on some of these subjects, that an able writer in the "London Medico-Chirurgical Review," not many years since, wrote as follows: "Beyond the treatment of Fistula in Ano and Hæmorrhoids, the surgery of the rectum is a sort of land of the Cimmerians, where quacks alone can breathe, and where humbug darkens the air."

However true the observation of the reviewer may have been at the time he gave it utterance, the day of its truthfulness has long

since passed by. The same method of physical exploration which threw open the wide field to be observed with the ophthalmoscope, yielded fruits scarcely less brilliant, if less dwelt upon, in other departments of practical medicine. Diseases of the posterior nares, the larynx, the trachea, the œsophagus and the ears, all profited by it. But it was not so much the fact that new and more exact methods of physical diagnosis were at the command of the surgeon, that in late years has led to the rapid development of, and great advance in the surgery of the rectum and anus, as it was the consciousness of the profession that for puerile and discreditable reasons this wide, fruitful and important field had been most shamefully neglected. Forgetting the fact that it is at once the privilege and the duty of the medical man to afford relief to suffering humanity, it matters not who it is that suffers, or from what the suffering proceeds, there was a time when a patient suffering from disease in these parts, would have sought assistance in vain, in the higher ranks of educated physicians. In all probability the charlatan was the only one to manifest interest in his afflictions—to offer him relief from his sufferings—and not infrequently both were aggravated by the blundering ignorance of his adviser. We inherit as a legacy from those times that caution which would prevent the surgeon curing an ulcer of the rectum lest the patient suffer because the discharge was checked; which would bid the sufferer from fistula to continue in torment lest his lungs become implicated when the sinus was closed; and which would advise inaction and a patient contentment with present evils in the case of one whose life was rendered disagreeable and almost useless by bleeding hæmorrhoids, for fear, as they express it "the system having become habituated to the discharge it would be perilous to check it."

Urgent as are the symptoms and distressing as are the disorders which implicate the rectum and its terminal orifice, it is to be questioned if the sympathetic derangements which follow in their wake, and to which they give origin are not more painful and important. Literally, no organ of the body is beyond the range of their influence—none, which at times does not sympathize in their derangements. The spinal cord and brain are very commonly implicated—through the reflex function of the former, most of the results just alluded to are consumated. It is through the nerve centers of the spinal cord that the bladder, the uterus and ovaries in the female,

the spermatic vesicles, prostate gland, urethra and testes in the male, are affected. To reflex influence through the supreme nerve centers are to be ascribed those curious mental symptoms which give affections of the anus and rectum their importance as causative agents in the production of intellectual aberration. In many cases the starting point of the chain of pathological links which connect disorders of the reproductive organs with mental derangement is to be found in a primary, often neglected disease of the rectum and anus, to which the symptoms of disorder of the testes—the so-called "spermatorrhœa"—are secondary phenomena. Quite as commonly is it the fact that the primary complaint is located in the rectum in many of the most inveterate cases of dysmenorrhœa. Were we to abstract from the classes of vesical, urethral, uterine, ovarian and testicular diseases, those due in reality to disease located in the rectum and anus, and to which the former are secondary, it is probable that more than half the whole of those very numerous disorders would have to be charged to the account of the latter. It is certain that the incurability of some would find an explanation in the fact that heretofore they have not been ascribed to the proper cause.

A more than passing glance at the broad expanse of sympathetic affections which follow in the wake of diseases of these organs cannot be had at present. Did time permit, and were this the occasion, much could be said of the functions of the rectum—the indifference to its welfare—which is the origin of so very many of these complaints. Not only does ignorance and neglect cause many of these diseases, but a mistaken sense of modesty and an adherence to popular prejudices, prevents many a sufferer from profiting by the relief at the command of the surgeon. It not unfrequently happens that a patient whose pains and aches spring from disease of the rectum is sufficiently quick to bring forward the sympathetic affection from which he suffers, but unless asked, will not allude to the rectal derangement. Sometimes the excuse is, that they are aware how very common diseases of those organs are, and that they are loath to magnify a trifling ill into a complaint of the first importance. Under these circumstances, a patient will submit to almost anything calculated to relieve the vesical spasm from which he suffers, but will listen incredulously when told that his bladder symptoms are secondary to disease of the rectum, and will get no better until the lesion of the latter is cured. Especially

does this scepticism exist among patients in whom the nervous system has become exhausted and unstrung from long continued suffering—in whom mental and physical energy are things of the past, with whom life is but a weary existence—a class of patients with which the writer has had much to do.

It was my fortune to meet with many members of the class just alluded to, early in my professional life. Some, I could not induce to dismiss the idea of incurable nervous disease, which had taken possession of their minds—with others, I was more fortunate. To the favorable results which followed local treatment in the latter cases, I am indebted for the unusual advantages I enjoyed of observing in a few years, a very large number of cases representing almost every variety of disease which attacks the rectum and contiguous structures. Some of my first patients were intelligent gentlemen who had been treated by prominent members of the profession in this country, and abroad. One man had spent five years in an earnest endeavor to be rid of an ulcer on the posterior surface of the rectum, just above the internal sphincter; he was a person of considerable natural wit, and had made a study of the character and procedures of the various medical gentlemen he had consulted, and under whose care he had been in New York, London, Paris and Edinburgh. His record of the opinions he had received, and the procedures that had been advised was in the highest degree interesting. To say the least, it demonstrated great uniformity of judgment as to the remedial agents to be employed—unfortunately, the one course always resulted negatively, it mattered not who advised it. In others, the secondary changes in the prostate and about the neck of the bladder had engendered that distressing state in which morbid fears of serious derangement of the sexual function are entertained. It has more than once befallen me to see this unnatural mental state gradually subside and ultimately disappear, with the diminution and final removal of a source of rectal irritation. Having had occasion recently to review the notes of my cases, the idea occurred to me that had I had some one to suggest to me ten years ago, that which my experience during that time has convinced me is reliable and valuable, some of my unsuccessful cases would have been differently treated, and that course of procedure which I was ultimately led to adopt, and which resulted satisfactorily, would not have been preceded by months and months of disappointing expedients. Be-

lieving that there may be those in the ranks of the profession to whom my experience will be of value, I have determined to embody it in a few short articles relating mainly to my own expedients, trusting that my contributions to this department of practical medicine will be taken in the spirit in which they are offered—with an earnest desire that they may be interesting and serviceable to those who have such cases to treat.

The fact so well expressed by Mr. Ashton—that few classes of disease exemplify the necessity of a wide and mature consideration more than those implicating the rectum either primarily or secondarily, for the same symptoms will often be found existing under the opposite conditions of cause and effect—is one that should ever be borne in mind when inquiring into the details of a case. The facts narrated in the patient's history must be held subject to such modification as the more exact information elicited by physical examination may require. Yet the importance of a correct history must not be under-estimated. The bearing upon diagnosis of circumstances relating to the manner in which the disease first manifested itself, the symptom first apparent, and the order of those developed subsequently are all very important in determining the essential facts connected with the affection, although an ocular inspection of the part may be necessary for the recognition of the latter. The history of disorders to be treated of directly, and the questions relative to their differential diagnosis, will illustrate the value of the facts to which allusion has been made much more forcibly than anything that can be said at present.

Symptoms of Disease of the Rectum.—Disease of the terminal orifice of the large intestine and of the rectum is characterized by pain, discharge, deranged functional activity on the part of the bowels, and in certain cases by protrusion beyond the sphincters of prolapsed tissues, either healthy in structure and only more or less modified by position, or morbid growths, the result of prior disease, to which the prolapse is a secondary phenomenon. The symptoms can be readily and conveniently elicited from a patient by a few inquiries bearing upon each of these four heads. While leading questions are always to be avoided, care should be exercised to see that no point is passed over without thorough investigation. Proceeding in order, and directing attention first of all to pain we will find that the symptoms can be arranged as follows :

Pain.—Pain to a greater or less extent exists in almost every

case—in some cases in which the cutaneous structures about the anus are more implicated than the mucous, connective or muscular tissues of the rectum, an almost unbearable pruritus overshadows all other sensations. The absence of pain, however, during the early stages of any affection implicating these parts—especially if there is freedom from distressing itching at the same time while purulent discharge and functional derangement are present—should lead to a very thorough inquiry into the condition of the structures within and above the sphincters. When this symptom is complained of, its character as to persistence, remission or intermission should be noted, and its relation to the functional activity of the bowels established. It is important to know whether it precedes, follows, or is developed by movement of the bowels, how long it continues and if in either event there is a period during which the patient is entirely free from suffering.

Discharge.—The quantity and character of the discharge, its date of development and place in the succession of symptoms complained of, should be carefully ascertained. It will sometimes happen that the clinical history of a case is characterized by the occurrence of a serous discharge, soon assuming a purulent form, which is not infrequently tinged with blood. Again, sanguineous discharges occasionally initiate a disease during the subsequent course of which the flow becomes purulent and finally may assume a serous character. The variation the discharge undergoes at the time the patient comes under treatment—the influence from day to day of sleep and wakefulness, of rest and activity—is very interesting and instructive. Patients often ask relief from what they call "morning diarrhœa," and there is great uniformity in the complaints detailed by this class of sufferers. They are tormented by urgent calls to the water-closet immediately upon arising, and frequently as many as a half dozen visits must be made before relief is experienced. In some cases three or four calls to stool while dressing; great pain is experienced; the motions are small but not of a healthy fecal character—quite often it is only blood and pus that is passed. Again, the substance voided looks like the white of egg. These patients quite commonly experience a number of hours of comparative ease and freedom from pain, discharge and tenesmus, when once the accumulations of the night have been passed. Other forms of rectal disease seem to require the stimulus of bodily exercise before the serous transudations, so

commonly their accompaniment, become troublesome. With such the discharge is most profuse during the hours in which the patients are most actively engaged—generally during the latter part of the day.

Derangement of the Bowels.—The connection is very close between the symptoms under the last head and some of those pertaining to derangement of the bowels. Thus, it frequently happens that the diarrhœa characteristic of some forms of rectal disease belongs fully as much to the foregoing subdivision of symptoms, as to this one, and that the sanguineous and purulent discharges are more indicative of the nature of the disease than is any inference to be drawn from the nature of the functional irregularity of the intestines. Diarrhœa even of the simplest character becomes of grave import when observed in connection with attacks of constipation, and is an exceedingly significant symptom when developed in patients known to have suffered from inflammation of the rectum, ulcer, abscess, hæmorrhoids in which secondary inflammation of the submucous connective tissue has resulted in the formation of pus, or even of inflammatory thickening, or fistula in ano. When incontinence of wind or feces is suffered from at the same time, and the serous discharge characteristic of the previous attacks of diarrhœa is succeeded by a continuous dribbling of pus and blood, the indications are very strong of a dangerous lesion of the rectum—one that the patient can no longer neglect without peril. In other cases the pain developed by defecation has more to do with the derangement of the bowels than the disease of the rectum. This is especially true of irritable ulcers of the rectum, formerly known as *anal fissures*. In this disease the pain caused by defecation is so severe that notwithstanding the fact that by delaying the act they only postpone and render more severe the inevitable agony, yet patients will put off to the last minute the evacuation of their bowels, and almost starve themselves in their anxiety to eat only sufficient food to sustain life, in order that the bulk of their passages may be reduced to the least possible degree. Whenever any lesion in the vicinity of the rectum so impinges upon its cavity as to diminish its caliber, much the same symptoms, so far as the functional activity, of the bowels is concerned, will be developed as when inflammatory or other pathological exudates interferes with its functional dilatation—in both cases the evidences of stricture of the rectum will become apparent. In other cases, re-

flex contraction of the sphincter will be attended with similar clinical characters—cases in which the primary irritation is as commonly to be found in hyperæsthesia of the prostatic urethra, as in the mucous lining of the lower part of the rectum. The follicles in the folds of the mucous membrane just within the grasp of the sphincter, when diseased, operate upon the muscular structures of the lower part of the intestine in the same way, and when ulcerated, are the cause of a peculiar form of uncontrollable, expulsive diarrhœa, in which the discharges are principally pus, mingled with a thick viscid mucus. The effect upon the bowels of an advanced stricture, whether of inflammatory or cancerous origin, is hardly worth dwelling upon at present—the remedies at the command of the surgeon will be enumerated when treating of stricture of the rectum, and any further reference to the symptoms of that complaint can be dispensed with for the present.

Protrusions at the Anus.—If the symptoms under the last subdivision were closely connected with those that preceded it, those which belong in the present class are similarly related to the signs which are revealed by physical exploration. While the history of the case will furnish the surgeon with the data necessary to discriminate between the different diseases attended by protrusion, yet he will be dependent on physical examination for all the facts relative to the condition of the parts in a given case. The mucous membrane of the rectum not unfrequently protrudes—the muscular coat sometimes accompanies it. Beside cases of prolapsus recti, hæmorrhoidal tumors prôtrude at the anus. The size and appearance of the tumor in such cases depends on the length of time the disease has been in existence, and the care taken to return the parts when protruded. It will rarely happen that a polypus becomes troublesome from its disposition to pass beyond the sphincter, but such cases are seen occasionally. When any part of the rectal tissues have been protruded for a length of time, they undergo change, the investing membrane loses the character of mucous tissue, and in a measure, assumes the appearance and characteristics of the surrounding skin. If the sphincters have not lost their power, the protruded parts will suffer from compression. But as the muscular tissue in the lower part of the large intestine, when continuously distended by hæmorrhoidal tumors, relaxes and becomes atonied, it will be found that the evils which result from compression of the sphincter are rarely important except in com-

paratively recent cases. In the majority of cases, the history which the patient details will enable the practitioner to determine with a very great degree of certainty the nature of the protrusion—whether prolapse of the coats of the rectum, hæmorrhoidal tumors or polypoid growths--but as a physical exploration is necessary to determine the nature of the treatment indicated, and as one glance at the part will at once settle questions which it is very difficult to express in words, but which it is highly important should be answered in every instance, any further consideration of the nature of these protrusions can be deferred until their tactile and visual characters come up for discussion under the head of the methods of physical exploration—a subject at once to be entered upon.

Physical Exploration of the Rectum:—It is desirable that the foregoing review of the symptoms which attend diseases of the rectum should be supplemented by a short account of the methods of physical investigation to which the surgeon can resort. The eye and finger of the latter appreciates the change which disease induces in these tissues, and the best methods of physical exploration are those which, with the least pain and inconvenience to the patient, give the examiner the most thorough visual and tactile acquaintance with the pathological state of the parts. In the immense majority of cases, the surgeon needs no other means of exploration than that supplied by his own educated sense of touch—digital examination furnishing him with all the data necessary for an accurate diagnosis of the state of the rectum and its surrounding structures. When it is desirable to add to the evidence furnished by the sense of touch, that which visual inspection supplies, one of the numerous forms of anal specula may be employed. The probe and the exploring needle are invaluable in certain cases—the former for investigating and it may be discovering sinuses, and the latter for determining the nature and contents of doubtful enlargements. In some cases hæmorrhoids are complicated with abscess—the abscess terminating in fistula. When the connective tissue about the lower third of the rectum has been the seat of inflammatory changes resulting in suppuration, the discharge of the pus, and the establishment of a fistula may not be followed by the subsidence of the thickening which has encroached upon the calibre of the rectum, and prevents its ready dilatation during defecation. One can readily see how essential it is in such a case to follow the symptoms with accuracy, but above all, to study in detail every

phase presented upon the most careful and pains taking physical examination. In cases of this nature—or in cases of any kind in which the diagnosis is at all difficult, or the symptoms obscure—anæsthetics should be administered, and after forcibly dilating the sphincters, Sims' speculum should be employed. By so doing the rectum can be readily and thoroughly investigated, and the condition of all its parts determined with an accuracy that can rarely be attained with any other organ. The importance of digital and ocular exploration is so great that it may be profitable to review with more detail, the methods just alluded to, and also to describe the maneuver for forcibly dilating the anal sphincters—the value of which as a diagnostic measure is quite trivial, compared with its importance as a preliminary step in cases where operations have to be performed upon the rectum.

Digital examination deservedly ranks among the most highly prized of the means of physical exploration to which the practitioner can resort. The fact that it is a measure the application of which requires no instrumental aid, and the maneuver, is one always available, are circumstances which not only add to its value, but are inducements to the surgeon to make use of it in every case. The sense of touch occasionally reveals important indications in cases where deep-seated abscesses about the rectum are to be suspected; in others, digital examination of the parts about the anus furnish unmistakable evidences of the existence of fistula. Combined with ocular inspection, digital examination suffices for the recognition of all forms of disease in the rectum and adjacent parts which are susceptible of diagnosis. If the former is limited to such view of the parts as can be obtained without the aid of the speculum, the combination of the two methods will still prove sufficient for the recognition of all but an extremely small minority of cases. Thus, in the immense majority of cases of fistula in ano, they are all that the surgeon requires in order to determine the situation and relations of both the internal and external orifices. The sense of touch will mark out the fistulous track and determine the internal opening with just as much accuracy as the eye of the observer will locate the external orifice. In like manner, the site of a fissure, and its prolongation up the rectum can be recognized by the touch of a trained finger. The secondary contraction of the sphincters sometimes renders even a digital examination a matter of difficulty in the latter class of cases and makes a specu-

lar examination a painful and arduous task. Under such circumstances, the finger of the surgeon can detect the fissure by the crevice-like feel it yields, without it being necessary to pass the pulp beyond the tightly drawn ring of the firmly contracted muscles. The position of the fissure having been determined, it will be in the power of the surgeon to ascertain its length, depth and general character, by pinching up, pulling down, and as much as possible, everting the mucous membrane in which the slit is situated, and subjecting the same to visual inspection. In cases where the boggy feel of the parts over one ischio-rectal fossa inclines the surgeon to diagnosticate the existence of an abscess, nothing will cast so much light upon the real state of affairs as a digital exploration of the rectum, which by the recognition of fluctuation, may at once settle the character of the case. To call the peculiar sensation appreciated by the finger in these cases "fluctuation" is a misuse of terms—the sensation is *sui generis* and must be felt to be known, but once felt, it is never forgotten. The same is true to a certain extent, of the characters of the various ulcers which the finger can be taught to recognize in the rectum. A knowledge of the forms assumed by different lesions of an ulcerative nature in the various zones of the rectum within the reach of the finger aids materially in diagnosis. A great deal of truth can be roughly expressed in regard to rectal pathology by stating that, as ulcers invade the mucous membrane of the lower part of the large intestine, they lose their vertical form and slit-like character, and assume an oval shape and rounded outline the further they are removed from its terminal orifice, and the deeper they are situated in the cavity of the pelvis. Thus, the fissure-like form of the ulcer of the rectum is characterized by spasmodic contraction of the sphincters and a peculiar gnawing intolerable pain—the disease commonly called "Fissure of the Anus"—illustrates the shape of ulcers near the orifice of the rectum; a form approximating an oval shape distinguishes ulcers between the external and internal sphincters; while the rounded outline and perpendicular walls of ulcers above the internal sphincter, ren lers lesions of this character in the latter situation much the same as those of a similar nature in other parts of the body. As a general rule, the excavations in the walls of the rectum caused by these ulcers can be readily recognized. The encroachments upon the calibre of the intestinal canal—whether due to simple inflammatory thickening or the result of the infiltra-

tion of adjacent structures with carcinomatous material—when, as is usually the case, they are situated sufficiently near the outlet of the intestine to be within the reach of the finger, present problems which the diagnostic skill of the practitioner must solve. So long as the tube remains freely pervious, the symptoms of stricture may be slight, and considerable experience in the surgical diseases of the rectum and anus is requisite to enable the physician to determine the existence of that disease, even when the symptoms beccome fully developed. A digital examination reveals more or less thickening about the rectum, with a diminution in the calibre of the tube. The character and position of the thickening differs in different cases, and the extent to which the intestinal canal is encroached upon, varies widely. The existence of ulceration and its effect upon the diameter of the intestine, when developed in the strictured portion, are very important circumstances. A digital examination is often the only method of learning the caliber of the rectum, the extent to which the surrounding connective tissue has been thickened, the presence or absence of pus in the meshes of the latter, or the development of extensive ulcerative changes on the mucous surface of the former. In many cases, the educated finger will distinguish the hæmorrhoidal tumor, the mucous investment of which is a highly granular, deeply congested membrane, resting upon a thickened stroma of connective tissue in which the arterioles are very numerous and widely dilated, from that hæmorrhoidal enlargement in which the investing membrane if anything, is even less vascular than the surrounding mucous membrane, while the sub-mucous cellular tissue is hypertrophied, infiltrated and thickened, the venous trunks dilated and varicose and matted together with an exceedingly dense mass of fibrous tissue. As a general rule the former is felt by the finger inserted in the rectum as a thickening in the wall of the intestine, while the latter conveys the impression of an independent body imbedded in the soft structures by the side of the canal, yet in many instances, the tactile phenomena so far as size, form and position of the hæmorrhoidal masses are concerned, are exactly alike, and the diagnosis rests upon the appreciation, by the practitioner, of those obscure sensations connected with the consistence and resistence of the morbid growth—phenomena, a knowledge of which can only be acquired by experience. Occasionally both forms of hæmorrhoidal tumor may coexist with a hypertrophied

mass of connective tissue which, from the traction made upon it during the performance of the physiological offices of the parts, has been gradually separated from the surrounding structures, and, as it, together with the mucous membrane investing it, and the bloodvessels supplying it, has become more and more isolated, the vascularity of its periphery has become less and less. The original mass is connected with the wall of the rectum by a neck, and the whole structure has assumed a club-like shape. These polypoid growths are by no means uncommon, and the surgeon is occasionally called upon to diagnosticate between them and deep hæmorrhoidal masses. Even in cases where, from laxity of the sphincter, the morbid growths upon the lining membrane of the terminal portion of the large intestine seem to be habitually protruded, the careful practitioner will not consider a case treated with due care, until an injection has been administered, the bowels evacuated, and a digital examination instituted at this time, when it is possible to determine with great accuracy, the presence or absence of polypus, stricture, hæmorrhoids, fissure, fistulæ or ulcer.

It not infrequently happens that careful digital examination results in convincing the surgeon that *an ocular inspection* of the deeper parts is necessary. If disease is located near the anus, and occupies but a small area, recourse can be had to one of the ordinary anal specula, one of the best, if not the very best of which is known as Ferguson's speculum—an instrument which readily admits the finger and can be introduced with but little annoyance to the patient. An opening extends from base to apex along the side of this speculum, and when in the rectum, the instrument can be slowly revolved, thus bringing each section of the walls of the intestine opposite the opening, and subjecting, them in turn to the eye of the surgeon. In this way a view can be had of the lining membrane of the rectum near its outlet. The aid thus furnished, however, does not always suffice even for diagnostic purposes, and when an operation is demanded the deficiencies of this method become strikingly apparent. In such cases the plan introduced by Dr. Marion Sims and which is known by his name, can be resorted to. The sphincter ani muscles are powerful, and their guard over the outlet of the intestine is jealously maintained. In order to secure the full benefit of this method, these muscles must either be paralyzed by forcible distention, or their functional activity must be overcome by profound anæsthesia. The latter generally suffices

for all diagnostic purposes. The position in which the patient is placed is also an important circumstance in facilitating a view of the lower bowel. The table on which the patient reclines should be of proper height, the direct rays of the sun, or reflected light from some source of artificial illumination, should fall obliquely on the patient, when the latter, under the full influence of the anæsthetic, is placed in position for examination. The patient should be placed in the prone position with elevated hips and outspread arms, so that the intestines shall gravitate towards the diaphragm; the speculum then being inserted the surgeon will find that as the air, under the influence of atmospheric pressure, enters the rectum and distends the cavity, an excellent view of the whole internal surface of the rectum as high up as near its termination in the sigmoid flexure of the colon may be obtained. After he has made a few explorations, the surgeon will endorse Van Buren's suggestion, that the chair employed for uterine examinations where the pelvis can be elevated or depressed at will, is admirably adapted for this purpose; for by proper management of the light, its rays may be thrown to the bottom of the cavity presented by the bowel, and the pressure of air pumped in and out by the diaphragm keeps the walls of the gut distended and in full view.

Anæsthesia, position and Sims' speculum are of the first importance in the diagnosis of diseases of the rectum and anus. The very rare cases in which these measures fail to afford a satisfactory view of the internal aspect of the lower bowel, occur in patients in whom the opening into the rectum has either become so contracted from organic disease as not to permit the necessary amount of dilatation, or the disorder is of the nature to produce so violent a spasm of the anal sphincters, as to prevent introduction of the speculum. In the latter class, spasm of the sphincters occasionally persists while the patient is under the influence of ether—profound anæsthesia being necessary in order for the surgeon to make a digital examination. In the former, the existence of organic disease with contraction of the canal at the outlet of the intestine, makes the question of ocular examination of the internal surface of the rectum one of such grave operative procedure, that explorations as an aid to diagnosis are not resorted to until they have become necessary for the relief of the patient. The number of patients in whom it is necessary to overcome the resistance offered by the sphincter muscles is—as has just been said—not large. Yet there

is a class of patients who are always in haste when they consult their medical adviser, and consequently, the surgeon is not infrequenly called upon to perform whatever operation may be necessary, as well as to determine the character of the case the first day he sees the patient. It would be well for the practitioner in all such cases *to suspend the muscular activity of the sphincters by forcible dilatation* and before determining upon any operative procedure, to give the rectum a most thorough inspection. Anæsthesia is of course necessary. When this course has been pursued it will occasionally happen that a number of polypoid growths will be found in a case that seemed to be one of simple fissure of the anus; extensive syphilitic ulcerations will be revealed, where before there was seemingly nothing more than an eroded and irritable internal hæmorrhoid, with such violent spasm of the sphincters as to render digital exploration painful and unsatisfactory; while the more satisfactory view that can then be had of the internal surface of the rectum, and the number of unsuspected pathological processes revealed by it, will be such as to make the surgeon anxious to avail himself of the greater command over the site of disease, which it confers upon him in every case in which he is compelled to operate on parts situated within the grasp of the sphincters. The ease with which the muscular fibres can be placed at rest by this maneuver of forcible dilatation is another recommendation in its favor. Although very numerous mechanical appliances are made for the surgeon's use when this operation is to be performed—instruments, all of which are formed after the design of those anal specula, the blades of which are designed to separate by means of screw-power—still my preferences are decidedly in favor of the plan I was taught many years since by Van Buren. This consists in introducing both thumbs well beyond the external sphincter back to back; then taking a purchase from the buttocks with the outspread fingers, carry the thumbs forcibly apart until their palmar surfaces are arrested by the ischial tuberosities. The atony of the sphincter muscles thus induced not only affords the surgeon free and ready access to the internal parts, but, when the mucous membrane has been irritated by either operative measures or the maneuvers essential for diagnosis, the great pain which is otherwise liable to occur from the spasmodic contraction of the intact muscle is saved the patient.

The foregoing brief outline of the symptomatology and physical

diagnosis of rectal and anal diseases will be supplemented by more complete details of the signs and symptoms of the different affections which will be the subject of succeeding articles. It may not be amiss to state also, that the standpoint of therapeutics taken is one that inclines more to medicine, than to surgery—that is to say, in questions of treatment the resources of rational medication will be more dwelt upon than those of operative surgery, it matters not how much the procedures of the latter may transcend those of the former in brilliancy and expedition.

Art. 8.—Functions of the Spleen.

BY S. C. WEDDINGTON, M. D., JONESBORO, IND.

Physiologists tell us that all vertebrate animals have spleens, but why all should have, or why even any should have such an organ seems to be a mystery. The existence and some of the characteristics of the spleen have been known from time immemorial; and the name has descended to us unchanged from the Greeks. But, though its existence has long been known, and its structure has been minutely examined and described by Malpighi, Köllicker, Sanders, Wharton Jones, Remak, Leydig, Huxley, Gray and others; and, although much has been learned in relation to the functions of other viscera, we are yet materially in the dark in regard to the functions and office of the spleen. In fact we seem almost to have concluded that it is superfluous if not useless.

Prof. Dalton would seem to think, judging from the late edition of his work, either, that he knows but little about it, or that there is but little about it worth knowing.

It is unnecessary to repeat the wild fancies in which some have indulged in regard to its functions. The tendency has been, either to allow it no office at all, or to assign to it too many offices. Prof. Flint seems to agree with what he states to be the prevalent opinion among physioligists, namely: that the spleen modifies the condition or constituents of the blood; but he does not determine how this is accomplished or in what the modification consists. Prof. Carpenter seems to incline to the opinion that the spleen serves as a divertic-

Art. 5.—Diseases of the Rectum. Fissure of the Anus, or, Irritable Ulcer of the Rectum.

BY REUBEN A. VANCE, M. D., Gallipolis, Ohio.

President of the Ohio Valley Medical Association; Member of the Medical Society of the County of New York, etc., etc.

No. II.

This affection is of as much interest to the physician and physiologist as to the surgeon; it occupies a peculiar position in the history of surgery, and many a bitter war of words has been waged concerning its morbid anatomy and true pathological character. Referring those curious in such matters to Dr. Bodenhamer's work on "Anal Fissure," where they will find as exhaustive a discussion of the subject as the English language possesses, the present article will be limited to a consideration of practical points of more immediate interest to the practitioner.

In order that some of the phenomena attendant on this lesion may be correctly appreciated, certain anatomical points must be borne in mind. These pertain mainly to the disposition of those external longitudinal fibres of the rectum which pass under the lower margin of that organ, and are reflected on its inner surface; to the office of the loose cellular tissue which intervenes between the mucous and muscular coats at the lower fourth of the rectum; and to the manner in which these structures behave during the functional activity of the part. The muscular structure of the rectum consists of a layer of internal fibres which circle around the intestine, and a layer of external fibres which run in the direction of its length. As the lower end of the bowel is approached the circular fibres become thicker and stronger, and just above the external sphincter muscle, their volume is so great that they are distinguished from the surrounding parts by a special name—the internal sphincter. With the longitudinal fibres which are situated externally it is quite different—they do not all end at the same point. Many of them are blended with the levator ani, others perforate the external sphincter and are attached by means of fibrous prolongations to the integument about the anus, while some are connected with the membranous center of the perineum.

Careful examination however, will show that many of the longitudinal fibres which pass along the external surface of the rectum near its lower part, after investing the internal sphincter, curve under the ring formed by the inferior border of that structure and pass upward and inward to be inserted into the fibrous substratum of the mucous membrane of the lower fourth of that organ. In this situation the fibrous tissue by which the lining membrane is united to the subjacent muscular coat is loose, and the membrane, when the canal is empty, is thrown into a great number of irregular folds. It requires but a slight acquaintance with the physiology of the part in order to understand the phenomena of eversion of the mucous membrane, which occurs during the process of defecation. The longitudinal fibres which curve around the internal sphincter, ascend on the anterior surface of the inner muscular layer, and are attached to the sub-mucous tissues of the rectum, contract during defecation. The first effect of the tension so excited is to draw down and then protrude and evert the mucous membrane of the lower end of the alimentary canal. When the fecal matter is discharged the protruded parts are promptly retracted by the natural contractility of the adjacent structures, but more especially by the action of the levator muscles. Consequently, the mucous membrane of the lower part of the rectum during defecation, moves freely over the subjacent tissues; the part investing the internal and external sphincters is especially prone to change position during the functional activity of the organ; and ocular inspection demonstrates the fact that these movements may be from side to side during dilatation of the sphincters, as well as in the line of the long axis of the intestine when the mucous membrane is first everted and then retracted with the commencement and conclusion of the physiological process of defecation. The great importance of these anatomical facts will become apparent, when the severe and almost unbearable character of the pain developed by movement of the bowels in patients suffering from fissure of the anus is compared with the slight and seemingly unimportant lesion of the mucous membrane to which it owes its origin.

A series of longitudinal folds, or columns, characterizes the mucous membrane of the lower part of the rectum. Just within the anal orifice where the compression exerted by the sphincters of the canal is greatest, these columns are most marked; between the adjacent columns are sulci, the lower parts of which are brought to-

gether and enclosed by semi-lunar shaped folds of mucous membrane—above the internal sphincter these columns gradually fade away and merge into the ordinary flaccid coating of the surrounding parts. An erosion of the mucous membrane at any point between the muco-cutaneous line which marks the junction of the common integument and the lining membrane of the rectum, and the upper border of the internal sphincter, is almost invariably attended by the muscular spasm and excruciating pain which make up the clinical characters of the affection now under consideration, and which is indifferently styled fissure of the anus, or irritable ulcer of the rectum. The extent of the area in which a solution of continuity is prone to assume the special characters just noted, and the different anatomical structures located there, explain not only why observers attach different names to the lesion, but furnish reasons for the varying appearance of the fissure, or ulcer, in the peculiarities of the tissues in which it is located. Dismissing for the present any further reference to the structure of the part affected, a glance at the following clinical phenomena will furnish a brief outline of this affection in a mild and uncomplicated form. During the winter of 1867—8 my services were sought by a young medical student who at that time was taking a course of private instruction in Auscultation and Percussion under my guidance. He stated that about two weeks prior to our first conversation on the subject, he noticed that defecation was painful and that his bowels, usually very regular in their action, had been much confined of late—in fact, that he had suffered more or less from constipation ever since lectures commenced in the fall. The pain was sharp and decided; it was located at one point on the posterior wall of the rectum and seemed to be immediately within the anal orifice. In his description of the sufferings he had endured, he was explicit in stating that his attention was first drawn to the part by pain suddenly developed in a circumscribed locality during the act of defecation and that his motions were unusually irritating that day owing to the fact that his bowels had not moved during the preceding forty-eight hours. That evening he took a mercurial, following it next morning with a dose of an ounce of Rochelle salts.

The watery and profuse stool thus excited was not free from pain, but his suffering was much less than it had been the day before. His bowels did not again move for three days—when they did, he experienced pain in the same region as before but it was a

pain far more severe in character. In addition he noticed that the conclusion of the act of defecation was not the signal for the cessation of pain, as had been the case on the two occasions when pain was developed by the evacuation of his bowels, but that an uneasy sensation which he compared to the pain of an irritable tooth persisted for at least half an hour afterwards. From this time until he consulted me, his bowels remained irregular; when they moved of their own volition, the passages were firm, and the pain thus excited lasted long after the completion of the act; when, as the result of medicine, the dejections were liquid and free, the same sort of pain was induced, but its development was different—instead of coming on suddenly and with great severity, as in the first instance, often there was nothing more than a mere sensation of uneasiness about the rectum, while the feces were being voided, and it was not until some time after defecation was concluded that the pain attained its greatest intensity. The appearance of the young gentleman strongly corroborated his statement that the pain he had endured during the preceding fortnight had impaired his general health, for the fresh rosy look he presented when I first met him but a month or two before, had in a great measure disappeared and his face now was sallow and wan, and his whole bearing that of one worn out by mental and bodily suffering. In the condition he then was it needed no argument to convince him of the necessity of a rectal examination, and accordingly an appointment was made for him to come to my room in Bellevue Hospital on the ensuing Sunday morning for that purpose, he to prepare himself by thoroughly emptying the lower bowel with an enema late Saturday night, At the appointed time he made his appearance. The movement provoked by the enema had induced a more than usually severe paroxysm, and the effects of the pain, combined with the apprehension he felt concerning the result of the examination to be made the following day, had greatly depressed his spirits and deprived him of all refreshing rest during the night. The sphincters were found so tightly contracted that the mucous lining of the bowel was utterly invisible, and no effort on the part of the patient relaxed them sufficiently to enable any of the internal tissues to protrude when forced bearing down movements were made. The attempt to separate the parts with the fingers and thus expose the mucous lining of the anal orifice proving fruitless, digital exploration was tried. The external sphincter felt to the finger as firm and tense as a tightly drawn

cord; the pain caused by the pressure of the finger was so great that this method of investigation had to be abandoned. A teaspoonful of chloroform was then sprinkled on a handkerchief and the patient directed to inhale the vapor. In a very short time—only a moment or so—the anal sphincters relaxed, it became possible to evert the edges of the anus, and expose the lining membrane of the rectum. The structures on both sides of the anus and in front were healthy—the lower part of the rectal mucous membrane in these situations to the extent of from three-quarters of an inch to an inch above the anal margin was free from lesion of any kind. On the posterior wall of the rectum, at a point from a half to three-quarters of an inch above the muco-cutaneous line which marks the junction of the skin and the lining membrane of the bowels was located the cause of all the troubles from which the patient suffered —a lesion which, when the fingers of the observer were placed so as to cause the posterior wall of the rectum to project, without subjecting it to distension, presented the appearance of a simple fissure embedded in the loose folds of the mucous membrane adjacent, but which, when the cavity of the anus was distended, assumed the shape of an oval ulcer. A little gentle manipulation of the parts revealed the fact that it was in the power of the observer by varying the degree of force with which the anal orifice was distended, to make the lesion assume all the distinguishing characteristics of either a vertical, slit-like fissure, or an oval, almost circular ulcer. When the parts were relaxed and no more traction made on the adjacent tissues than was necessary to expose the fissure, the relation of the latter to surrounding structures could be readily determined. The lesion primarily had been located in a sulcus between two adjoining columns of the rectum; immediately beneath its lower extremity was one of the sinuses, with its internal investment of the semi-lunar flap of mucous membrane already described; the projecting edges and receding cavity of this slit-like lesion were, after all, simply accidental arrangements of flaccid structures compelled, by contraction of the sphincters, to assume that position in which they occupied the least space. In order that no unsuspected morbid condition should escape observation, but more especially, that no polypus should be overlooked—a complication of causes of this character that is liable to escape detection from the facility with which its free extremity glides along in front of the exploring finger—more chloroform was administered, the re-

sistance of the sphincters was overcome by forcible dilatation and, by the aid of a Sim's speculum, a careful visual inspection was made of the whole lower part of the rectum. The fissure was found to penetrate the mucous membrane and sub-mucous tissues, when grasped between the fingers and compressed in different directions, it felt as if its edges were agglutinated to the muscular walls of the rectum. The edges were not thickened—on the contrary they felt soft, and the bottom of the fissure was red and not unhealthy in appearance—yet at this point, the loose lining of the anal canal was firmly cemented to the surrounding muscular structures. No trace of disease was perceptible in the little sinus at the lower and external part of the sulcus in which the fissure was located. In fact, with the exception of this apparently insignificant fissure which had caused the welding together of the mucous and muscular coats of the rectum at its circumference, all the tissues of this organ presented a natural and healthy appearance.

The history of this patient and the structural changes revealed by an examination of his rectum are typical of the early stages and milder forms of this disease. Coming under treatment, as he did, before secondary changes in the surrounding tissues had manifested themselves, and at a time when no complications had developed, his case is interesting in many respects. In view of these facts I have determined to make the few but essential points which this history furnishes, the outline on which my remarks relative to fissure of the anus shall be based.

In the first place it is interesting to observe the length of time which elapsed after pain or uneasiness in the anal orifice was noticed, before the peculiar pain characteristic of anal fissure came on. Careful inquiry in a number of patients who came under my observation very shortly after the disease developed itself, resulted negatively; either they had utterly neglected noticing, or the vague undefined idea which even very intelligent people entertain relative to the function of defecation rendered their statement of no value so far as the object of my inquiry was concerned. From a few, more definite information could be obtained. When the lesion was located in the sulci between the columns of the rectum, the pain that laterally grew so harrassing, developed soon after the first symptom of uneasiness at the anal outlet was felt. One or two cases presenting the small, deep, round ulcer characteristic of this disease when the sinus at the bottom of the sulcus was its site,

were sure that they had a long period of trifling and vexatious pain in the fundament before the peculiar pain that subsequent experience led them to associate with anal fissure was noticed. In others suffering from the oval ulcer that forms when the mucous membrane over the upper portion of one of the columns is the site of the lesion, there was no uniformity in regard to the development of the characteristic pain, except when the date of the latter was coeval with the first appearance of spasm of the sphincters. One patient detailed a period of several months of uneasiness and often of positive suffering from pain deep in the anus, that came on when the bowels began to move, continued during the time they were being evacuated, and ceased when defecation was completed, which was brought to a sudden close by a sharp pain one morning at the water closet which was so severe as to cause anal spasm. After this attack, the peculiar pain of anal fissure was developed whenever the bowels moved. In others, the character of pain developed at first was maintained throughout the whole course of the lesion—in such, however, the pain was very severe from the first.

Cases in which the pain assumed the special features characteristic of anal fissure as soon as developed, were rare. The history of by far the greater proportion of cases of anal fissure, show that at first the pain was much milder than it finally became—that primarily, the symptoms were such as one would anticipate when the mucous membrane, or muco-cutaneous folds at or within the anal orifice had just been torn. Thus, the suddenly developed smarting and burning coming on during the act of defecation, complained of by the patient whose history has been detailed—a pain not at all out of proportion to the gravity of the lesion which excites it—is one of the most common phenomena of the disease. Equally characteristic of anal fissure is it for this original smarting and burning pain sooner or later, to lose those qualities, and assume others of an entirely different nature. Our patient complained more of a change in the duration, intensity and manner of development of the pain, than of a modification in its character. But sooner or later they all combine, and had it not been the good fortune of this young gentleman to have the disease checked early in its course, he would probably have suffered as severely as any of the other unfortunates similarly affected. As a general rule the pain and smarting which characterizes the disease, in its earliest

stage, is succeeded by a burning, boring or lancinating pain to which an excrutiating aching and throbbing is added at a later period. Occasional paroxysms of spasmodic contraction of the levator ani and the sphincters, add greatly to the patient's suffering. This violent, lancinating, throbbing and aching pain, combined with excruciating suffering induced by the attendant spasm of the anal muscles, constitutes the "characteristic pain" of fissure of the anus.

The history just detailed presents the phenomena of anal fissure in their simplest form. It occasionally happens that patients afflicted with this disease, whose sufferings extend over years, complain simply of pain in the rectum with spasm of the anal muscles, and in whose cases the most careful and painstaking examination reveals nothing but an ulcer, or fissure, such as was found in the case of the medical student. Yet these cases are not common—the rule is, that as time passes, some complication develops. But it is to none of the complicating lesions that anal fissure, or irritable ulcer of the rectum owes its pathological individuality—the pain and spasm secondary to a lesion of the mucous membrane lining the terminal orifice of the large intestine constitute the essential clinical phenomena of the complaint, and whatever additional symptoms may be complained of are due to complicating, or intercurrent affections. This primary lesion of the mucous membrane may be situated at any point between the upper border of the internal sphincter, and the line at the outlet of the anus which marks the junction of the skin and lining membrane of the rectum. In exceptional cases it may attack either side, or the perineal wall of the rectum, but in the immense majority of instances the coccygeal aspect of the intestine is the site of the lesion. Its appearance varies with the part in which it is located. When the folds between the columns of the rectum are attacked, a fissure-like form is necessarily assumed from the fact that the pressure of the enveloping sphincter compels the sides of the lesion to approximate, if not come in direct contact with each other. If the observer dilates the part, the fissure will assume more or less of a circular form. The appearance of the bottom of the sore varies with its duration—in old and deep fissures the muscular coat becomes visible. Generally the walls are flexible, and the lesion superficial, prior to the advent of spasm in the anal muscles and the development of the characteristic pain of the affection; but afterwards the edges become thickened, the bottom looks gray and the circumference of the sore seems

fastened to the subjacent tissues. When the sinuses at the base of the inter-columnar sulci are attacked, an examination, after the development of pain and spasm, will reveal a deep circular ulcer which appears to penetrate the lining membrane as if the part had been cut out with a punch. Above the sinuses and sulci at the point where the columns expand, a lesion of this character presents an oval outline. That peculiarity in the pathological anatomy of the structures in this region, which was noticed in the preceding paper, in virtue of which the further from the anal orifice an ulcer is located, the more it tends to assume a circular form, is especially noticeable in the class of cases now under consideration. The careful observer will also find his attention drawn to another fact which seems to be a corollary to the foregoing, and that is, that in the region designated as the site of anal fissures or irritable ulcers of the rectum, the higher the lesion is situated and the more nearly circular its form, the less intense is the spasm of the anal muscles and the less characteristic is the pain which defecation excites.

The state of the sphincters is an important element in the case. They were found firmly contracted in the patient whose history has been related, and any attempt to pass the outlet they guarded provoked violent pain. This rigid condition of the muscles comes on after the characteristic pain has been developed and appears to be a constant phenomenon, persisting without intermission from day to day and week to week, during the subsequent progress of the disease. The connection between the firmly contracted muscles investing the anal outlet and the lesion which occupies the lining membrane of that part, has been the source of many of the misconceptions and erroneous conclusions which can be traced in the history of the surgery of the rectum and anus. Without entering upon the questions in dispute it will suffice to say, that modern physiology finds a ready and satisfactory explanation, not only of the constant tonic contraction but of the occasional paroxysms of spasm of these muscles, in the varying degrees of irritation to which the afferent nerves that originate at the site of the ulcer, or fissure are subjected. The impression communicated to the peripheral distribution of the sensitive nerves is transmitted to the spinal centers where, in accordance with the primary laws of reflex action, a motor impulse is generated and the muscular tissue in the neighborhood of the source of irritation is caused to contract. The state of the lesion has an important influence on the

character of the reaction. When the ulcer or fissure is recent, the secondary contraction is very slight; when inflammation has agglutinated the parts, the embedded nerve filaments become so irritable that the slightest contact suffices to induce a spasmodic contraction and bring on a paroxysm of the pain peculiar to anal fissure.

When a lesion of the lining membrane of the rectum in the area between the upper border of the internal sphincter and the margin of the integument has assumed the characters of an irritable ulcer—that is, provokes persistent contraction of the sphincters and excites the pain already described as characteristic of the affection, whenever the bowels move—the subsequent history of the disorder, is but one recital after another of paroxysms of pain so severe as to absorb the whole attention of the sufferer. As has already been stated, the first time the patient has spasm of the anal mucles, the pain generally assumes the characters that are peculiar to the complaint, and persistent contraction of the sphincters becomes a constant phenomenon. It then generally happens—as was the case with the medical student—that the sufferer endeavors to alleviate the pain accompanying defecation by using cathartics, but, unfortunately, little if any relief is experienced. For a time some alleviation may be noticed, but the rule is that the pain becomes more and more harrassing, after its first advent. Unless the patient is fortunate enough to secure good surgical treatment—and the great majority do absolutely nothing but resort to empirical remedies—the pain is either relieved by the employment of morphia, or the patient contracts the pernicious habit of eating but little solid food, and then permitting his bowels to go without evacuation for three, four, or even ten days. In either case, the subsequent course of the disease is much aggravated. In both, constipation of a peculiarly disagreeable kind is induced, and occasionally, mechanical means may have to be employed to empty the distended lower bowel. The pain may remain in abeyance at first, in these cases when defecation is thus postponed, but in a few weeks—that is, after one or two hardened passages have been experienced—the suffering is not only more intense than ever, but the local sore becomes so irritated that even the slightest discharge of wind, coughing, or even a sudden step, suffices to bring on a violent exacerbation. In others, who, at the cost of great agony, keep their bowels acting daily, the irritating character of the evacuated matters so affects the lesion at the anal orifice that pain is

induced by other causes than defecation. These patients are then reduced to a most deplorable pass, and when they come under the observation of a physician it is generally with the fixed belief that they are suffering from cancerous disease of the bowel. The length of time a patient will remain in a condition in which the evacuation of the bowels will cause such agony as has been alluded to, is not the least peculiar feature of these cases—the duration of even the simple, uncomplicated form of the complaint such as has been described, varies with the age and sex of the patient, and the occurrence or non-occurrence of complicating or sympathetic affections. Judging from the patients who have come under my own observation, I should say that there seems no limit to the time patients will continue to endure the agony incident to simple fissure when, besides the contraction of the anal sphincters, there are no other phenomena than the lesion of the mucous membrane and the pain when the part is disturbed by defecation or otherwise. After a certain time they learn those articles of diet which make their evacuation most bland, and acquire those habits which give them least pain. Some men who now suffer from the disease, to my certain knowledge, have had it ten years; others who are now well, have told me of twelve and even fifteen years suffering. When the disease develops in those who are so situated in life as not to be dependent on their daily exertions for their livelihood, and in whom it has not advanced beyond the form described, it seems to cause a morbid fear lest, in endeavoring to cure it, they make their complaint worse; so, year after year, they go on suffering until some intercurrent affection cuts short their life, or some change of fortune compels them to seek relief at the hand of the surgeon.

An attentive examination of the recorded observations of those who have devoted time to the study of diseases of the lower bowel and its terminal orifice, reveals the fact that anal fissure may occur at any period of life. Some observers have been led to believe—from the peculiar character of their personal experience—that certain periods of life, and certain occupations, exempt from this disease. Dr. Bushe, thought infants were never troubled with this complaint—other authorities have imagined that the life of a Western backwoodsman was such that the disease could not develop among that class of men; yet anal fissure is not a rare disease among very young children, and occasionally develops even in the infant, while the experience of Western surgeons is directly

contrary to the view that one who lives the hardy life of a frontiersman is necessarily exempt from this complaint. Certain occupations predispose to it. Thus, those who pursue sedentary callings, and remain in doors the greater part of the time, are particularly prone to it. The process of the parturition occasionally causes it—for this reason, doubtless, it is so common in women. The habits of the female sex predispose to all forms of disease of the rectum, and when their proverbial carelessness in reference to the action of their bowels is borne in mind, the only wonder is that they are not more subject to this complaint than they are. Any calling which renders those following it irregular in their habits, so far as the proper attention to their bowels is concerned, may become a predisposing cause of this disease. It not infrequently happens that the first symptom of anal fissure is excited by the unusually free and energetic movements caused by an irritating cathartic. I have lately had my attention drawn to the frequency with which all forms of disease of the rectum occur among men who work on coal boats, are much of the time in the wet, and who, in other respects, are confined to the routine of a life on the river. Here want of that walking exercise which seems best calculated to preserve the healthy state of the bowels, induces constipation, to be in turn followed by the train of local evils which result from the constant use of purgatives. Another point relative to the causation of diseases of the rectum is exemplified by the history of cases of anal fissure—not only may any calling which tends to induce irregularity of the bowels act as a predisposing cause of these affections, but the habit of irritating the lining membrane of the alimentary canal and provoking excessive evacuations of the glandular secretions that empty into the intestines, is one of the most efficient methods of inducing diseases at their terminal orifice. The imperfectly elaborated fluids thus forced into the intestines act as a drastic cathartic, and are especially prone to provoke erosions of the mucous membrane at the anal outlet—fully as much so, as are masses of hardened feces, in constipation liable by mechanical violence, to tear the delicate structures at that point.

The fact that patients, suffering from anal fissure in its simple form, are not disposed to avail themselves of medical treatment, has already been alluded to, and that fact is one reason why physicians so seldom have an opportunity of observing uncomplicated cases. The early date at which morbid changes of a different

character develop around the site of the primary lesion, but more especially, the insiduous manner in which secondary and sympathetic complaints occur and disguise the primary disorder, are other reasons for the infrequency with which this disease is encountered by surgeons. Yet, in the immense majority of cases in which pain developed by the act of defecation, or coming on soon after the bowels have moved, is a distressing symptom, an examination of the anal outlet will reveal the presence of an anal fissure. The lesion will occupy some point in the area so frequently described as the haunt of this disease, and in simple cases, will present the appearances which have been detailed. An examination in these cases is not readily accomplished for the contraction of the sphincters prevents an easy dilatation of the intestinal orifice, and—as in the case which has been related—may necessitate the employment of an anæsthetic. If the patient reclines in a semi-prone position with the chest and face to the bed and the thighs flexed and directed to the left, an inspection of the anal orifice can be made without the assistance of a third person. The patient should lift the left buttock with his left hand, and, while the surgeon separates the folds about the anus, can materially assist the examiner by making forcible bearing-down movements. It not infrequently happens, even in the simple form of the disease, that no part of the mucous membrane can be rendered apparent without the use of an anæsthetic, and in such patients I have been in the habit of pouring a little chloroform on a handkerchief and letting them inhale the vapor. Very generally the result is to suspend the contraction of the sphincter long before the patient comes under the influence of the chloroform—in other words, in these patients the first and only evidence of the use of a small amount of chloroform may be the relaxation of a previously contracted sphincter. The movements of the surgeon should then be guided by the condition revealed by inspection of the lining membrane of the rectum. In uncomplicated cases, nothing further may be required. If other changes have developed, they must determine the measures to be resorted to. In simple cases no further manipulation of the part is required.

The pain and muscular contraction of the anal outlet having been explained by the discovery of a lesion in the mucous membrane of the part, the appearance of the latter should be carefully studied. When the lesion is located in one of the inter-columnar folds, is

superficial in extent and not attached to the subjacent tissues about the edges, the pain accompanying defecation will be comparatively mild, and no other movement of the rectum will cause pain but that which attends evacuation of the bowels. Constipation, or the use of a drastic purgative may, in a day, cause an alteration in the character and intensity of the pain, and in the shape and appearance of the lesion. In these cases the pain assumes the features already alluded to as characteristic of the lesion and the fissure becomes thickened at the edges, and appears agglutinated to the muscular walls beneath. The phenomena of anal eversion, described when speaking of the anatomical features of the part, are attended by traction upon and violent compression of the inflamed part; the base of the fissure or ulcer is stretched, and the walls are widely separated. The very severity of these manipulations, in some cases suffices to annul all pain for the time being, but very shortly after the structures are at rest, the pain comes on, gradually grows more and more severe, until it ultimately assumes an almost unbearable form. Between the suffering experienced in the latter class of cases, and that in those where there is but a slight degree of burning, due to a recent rupture of the lining membrane of the anus, there exist cases in which all degrees of uneasiness and pain are complained of.

The treatment adopted in the case of the medical student was much modified by the mechanical distension to which the anal sphincters were subjected while the patient was under the influence of chloroform. As a general rule, it can safely be said that no such measures as were resorted to in his case are either indicated, or necessary in the mild forms of the disease — in cases where the fissure or ulcer is the only lesion, and where pain on defecation and persistent contraction of the sphincters are the only symptoms. But in this case there were other circumstances to be considered— it was very essential that the young man should be cured at the earliest moment possible, and in the meantime, it was very desirable that no measure be adopted which would prevent his daily attendance upon the lectures at the college. The resistance of the sphincters was accordingly overcome by forcible distension — a measure which operates to check the violence of reflex contractions — and an enema containing a half ounce of the Tinct. of Rhatany to four ounces of water was ordered injected into the lower bowel morning and evening. In addition, a candle, the external surface

of which was marked with slight longitudinal furrows, was thickly covered with a mixture of equal parts of mercurial ointment, and oxide of zinc ointment—the latter containing five grains of Ext. of Belladonna to each ounce—was directed to be passed into the rectum, and allowed to remain there fifteen minutes, every night. Under this treatment the young gentleman steadily improved. His bowels were rendered regular and soluble by the enemata; the pain grew less and less after each motion for the first three days, after which it ceased entirely; while his general health grew rapidly better from the first commencement of treatment. The site of the fissure was covered with fresh cicatrical tissue of a bluish cast, the succeeding Sunday, and on the sixteenth day after the operation, no trace of the fissure was discernable.

The peculiar anatomical features which distinguish lesions of an ulcerative nature at the anal outlet, as a general rule, require that special measures should be adopted in their treatment. This is so true for complicated cases—the ones which most commonly come under observation—that the fact that in uncomplicated cases simpler measures, judiciously employed, prove equally efficacious is in danger of being entirely overlooked. In the immense majority of cases, if the same care was taken of the freshly eroded or ruptured part as is employed when a lesion is mechanically caused in the treatment of other diseases of the rectum and anus, the one would recover as easily and satisfactorily as the other. In both instances there is a mechanical rupture of the lining membrane of the part: in the one case, the bowels are kept confined for a time, and then judiciously opened, thus permitting repair to ensue before the part is irritated; while in the other, if any measure is adopted it generally takes the form of a dose of cathartic medicine, the effect of which is to deluge the fresh surfaces of the anal wound with the vitiated, ill-formed and extremely irritating secretions from the whole tract of the alimentary canal. In these cases, the use of Rhatany as a topical remedy certainly merits the high encomiums pronounced upon it by Trousseau. When the circumstances of the patient are such that he must move about, a cure will be materially accelerated by employing forcible dilatation of the anal sphincters, and then making use of enemata twice a day, adding to each one from a drachm to an ounce of the Tinct. of Rhatany. I have seen great benefit accrue from the exhibition of a grain of the aqueous extract of opium after each meal, for the first three days. This

acts so as to produce constipation and give the part rest. On the fourth day, the morning enema should contain from one to two ounces of cod-liver oil; it should be retained as long as possible, and before breakfast, the patient should take internally equal parts of castor and olive oils—an ounce of each. These substances will cause a profuse, bland and painless evacuation of the bowels. Should there be any pain, the site of the lesion may be thoroughly covered with an ointment similar to the one described a few moments ago—one that is very useful in these affections, and the formula for which is as follows:

℞	Extract. Belladonnæ	grs. v.
	Cerat. Simplic.	ʒi.
	Misce, et adde	
	Unguent. Hydrarg.	ʒi.

M.

These measures generally suffice to relieve pure and uncomplicated cases of a mild form. When they fail, the reason will most probably be found in the existence of some complicating lesion. Occasionally, a secondary complaint will so completely overshadow the seemingly trifling primary lesion of the rectum, that no attention will be paid to the disturbance in that organ.

The complications of fissure of the anus are quite numerous. One of the most common is a slight circumscribed swelling of the skin at the anal outlet which, in those cases where the lesion is located in the lower part of its favorite area, is an infallible mark of the presence of the fissure and is the external limit of the submucous swelling and inflammatory effusion it has excited. This infiltrated and hypertrophied tab of skin often causes pain and uneasiness, and obstinately refuses to yield to any therapeutic measures which do not cure the fissure. Just beneath this cutaneous prominence, and occupying the inferior extremity of the fissure, are a number of elongated, fungiform papillae—outgrowths from the deeper layers of the muco-cutaneous folds near the margin of the anus, which have been stimulated to unhealthy growth by the irritation of the fissure. These minute polypoid masses have occasionally been confounded with a less frequent but far more important complication, that of the growth of a polypus from the anterior wall of the rectum above the internal sphincter. This polypus is suspended by its neck, and rests commonly between the folds that bound the fissure and is immediately in contact with its free surface. It not

infrequently happens that internal hæmorrhoids, when large and swollen, furnish a site for a fissure or ulcer between their opposed sides. Such cases are obscure—it is hard to tell, from the symptoms alone, whether the fissure complicates the hæmorrhoids, or the hæmorrhoids the fissure. It has not seldom occurred to me to have hæmorrhoidal tumors of no small size develop on each side of a fissure, in patients under treatment for the latter; while cases of hæmorrhoids, the course of which has been complicated by the occurrence of a fissure, have been far from uncommon.

Fissure of the anus is an affection peculiarly prone to excite secondary and sympathetic complaints in neighboring organs. Diseases of the bladder, urethra and testicles in the male, and of the uterus, ovaries and vagina in the female, are exceedingly often excited by fissure of the anus. Excrutiating neuralgic pains in the extremities have been provoked by this lesion, and several cases in which there was paralysis of the lower extremities, secondary to this affection, have come under my observation. The power which diseases of the rectum exercise over neighboring organs could be well illustrated by a series of cases which at different times have been under my care, but a consideration of which will have to be postponed until such time as an entire article can be devoted to its illustration.

A case of anal fissure, whether attended or not by any of the above enumerated complications can always be cured by surgical treatment. This is an exceedingly satisfactory thought, especially when the fact is borne in mind that there is no lesion to which the human frame is subject, in which the suffering may be greater, or more out of proportion to the apparent gravity of the primary pathological change. In order to accomplish this result, a number of surgical measures may be resorted to. Some of these are now but rarely used, while others are constantly resorted to. There is no uniform plan of treatment for cases of this disease, any more than there is for any other ill on the catalogue of human miseries —the circumstances of each individual patient require study, the peculiarities of constitution, habit, age, etc., render each case unlike all other instances of the same complaint that ever came under the practitioner's observation, it matters not how extensive and varied his experience may have been. There are certain indications for treatment which uniformly present themselves, however, in every case of anal fissure, and unless the surgeon complies with their re-

quirements, all his remedial measures will be fruitless. In what has been detailed relative to the anatomical configuration of the parts, the movements of these structures in the physiological function of defecation and the changes which ensue when the edges of the fissure become cemented as it were to the contractile tissues which form the muscular investment of the lower part of the large intestine, will be found an explanation of the nature and character of the pain induced by evacuation of the bowels and a reason why the lesion rarely, if ever, recovers without such aid as a surgeon can afford. The powers of Nature do not suffice to protect the ulcer from contact with substances which either bruise it mechanically or irritate it chemically, the functional activity of the part serves to keep the diseased site in a state of morbid irritability, while the constant stretching to which it is subjected daily, breaks up every attempt at repair as soon as made. The indications for treatment in the case of an ulcer, or fissure in this locality are just the same as if it existed in any other part of the body, and can all be included under one or the other of the following heads:

1st, All complications must be removed; 2nd, All irritation must be allayed; 3rd, The part must be put at rest; and 4th, Its reparative power must be stimulated to healthy activity.

In some cases the practitioner can comply with every one of these indications and cure his patient without resorting to that therapeutical agent which seems inseparably connected with the popular idea of surgery and surgical measures — the knife. Rest and freedom from irritating contact alone, sometimes suffices to cause a cure. In fact, that measure which will put the parts about the site of the lesion at rest, and shield the surface of the fissure or ulcer from chemical and mechanical irritation, will prove sufficient to effect a cure in very many cases. There are very few means at the command of the surgeon which will do this. The mechanical dilatation of the sphincters which was described in the February number of this Journal comes as near fulfilling the three indications last enumerated in the above table as any one device that the practitioner can resort to. The modification of Roux's operation so generally advised in the special works on the Surgery of the Rectum and Anus, is another, and very valuable expedient. The lining membrane of the anal outlet should be rendered tense, either by the introduction of a speculum, or the aid of an assistant, and while the parts are tightly drawn, the sharp, keen edge of a bistoury

should be made to pass through the swollen and infiltrated edges of the lesion, cutting freely into the base of the fissure or ulcer, and severing such of the muscular fibres as are directly in contact with its base. When so limited in extent, this operation is not a painful one. It hardly deserves to be called an operation, and does not justify the employment of an anæsthetic, unless there are complications in the case which need attention at the same time. Should there be polypoid excresences at the lower part of the fissure, or an infiltrated and hypertrophied tab of skin, which require removal, a patient would do well to choose the modified operation just described. He can then take an anæsthetic and while unconscious not only have the mucous membrane above and below the lesion as well as the tissues at its base severed at one movement of the knife, but the scissors can be brought into requisition, and the outgrowths which complicate the fissure can be snipped off, for once and all. Before such an operation is performed, the patient should have his bowels thoroughly emptied. This should be attended to the day before, and on the morning of the operation, the lower bowel should be washed out with an enema of cold water. Immediately after the operation, the bowels, should be locked up with opium, and the patient required to keep his bed for at least three days. In many cases the bed is so irksome, that the surgeon will have to compromise on an equal period of seclusion, the patient to pass most of the time on the sofa. No local application is necessary—the part should be kept quiet, and enough opium taken to render the bowels torpid for the time mentioned. At the expiration of three days, the patient should take a large dose of castor oil, and at the same time, use an enema to which olive, cod-liver, or castor oil has been added. The object of the latter is to soften the feculent matter, and to lubricate the parts over which it is to pass. After one copious and painless passage has been produced there is no more trouble—the ulcer has profited by its period of rest and freedom from irritation, and healed up. One very powerful agent in producing this result is the stimulus communicated to the diseased structures by the knife—that influence which Hunter denominated the "stimulus of the knife" and the efficacy of which is so strikingly displayed in ulcers of the leg, which, after years of inaction, take on healthy reparative action and get well as soon as one or two superficial and slight cuts have been made through their edges and base.

In other cases, if the complications are not important enough to

demand removal, or special surgical treatment of their own, the ulcer can be treated on the same general principles just detailed, except that the parts about the lesion will be placed at rest by mechanically dilating the sphincters of the anus. The patient should be placed under the influence of an anæsthetic, the thumbs of the surgeon—with their palmer surfaces outwards—are to be inserted into the rectum, the fingers take firm purchase over the buttocks, and the parts gradually but thoroughly stretched until the thumbs are brought in contact with opposite tuber ischii. The effect of this violent tension is such that the muscular fibres of the external sphincter are temporarily rendered paretic, thus abolishing reflex contraction for the time being. Not only that, the thickened and agglutinated submucous tissues about the site of the fissure are torn from one another, and an increased amount of healthy blood is demanded in that situation to heal the wounds of the part. If the same after treatment is adopted in this case as was recommended in the last, the fissure will heal as readily in the one, as in other. A number of days of absolute rest is imperative in both instances, and neither measure will cure anal fissure without the bowels are at once rendered constipated, and so kept for at least three days. The necessity for the exercise of the utmost care in rendering the first few dejections soft and unirritating, I trust, is sufficiently obvious.

When mechanical dilatation has overcome the contractile power of the sphincter, a careful examination of the surface of the fissure will occasionally reveal one or two points which are so irritable that touching them ever so gently, causes excructiating pain to the patient. In such cases, fuming nitric acid applied directly to the tender points—the structures about having been carefully prepared to resist the action of the acid by being covered with oil—will at once destroy this unnatural irritability. A solution of carbonate of soda must be kept at hand whenever acid is used on any part of the body, so that the acid may be neutralized and rendered painless the moment it accomplishes the end for which it is employed. These tender points seem to be exposed nerves.

Patients often apply for relief from the agonies which this affection induces, who are unwilling to submit to either of the two plans that have been detailed for securing rest to the part, and anxiously ask if there is no other method by which they can be cured. In subsequent papers, the subject will be considered in connection with

other affections which complicate it, or in relation to the quite numerous disorders that are secondary to it, and more time will be devoted to an inquiry into many similar questions than can be given to it now. But the question as to the curability of anal fissure without a resort to the knife, or the employment of mechanical dilatation, is readily answered. If there are no serious complications —fistula, abscess, hæmorrhoids, polypus or anal vegetations — and the external sphincter is not hypertrophied, a judicious employment of those measures which serve to fulfill the indications which anal fissure presents will, sooner or latter, be followed by an amelioration, and then a cure of this troublesome and horridly painful complaint. But if the external sphincter is hypertrophied, local applications will simply serve to excite reflex contraction, and the patient will finally learn that before any measure can do him good, some method must be resorted to which will temporarily overcome the contractility of his external sphincter muscle. In brief, so far as the latter class of cases is concerned, no plan of treatment will do any good which is not preceded by mechanical dilatation of the parts about the anus, or the use of the knife to such an extent as will serve to free the thickened and inflamed edges of the fissure or ulcer of the mucous membrane from the hypertrophied muscular fibres which grasp and irritate them at the terminal orifice of the large intestine.

ERRATA.

April 6, 1877.

Editor of Lancet and Observer:

Please correct the following errors that occurred in my last article—March number of the Lancet. For "affections" first page read affliction, for "disease" same page read disuse. The following sentence second page, "acting upon the supposition that she was to believe that it had been revealed in a dream." Should read, acting upon this supposition she was led to believe that it had been revealed in a dream.

Respectfully Yours,

W. H. DEWITT.

Art. 4.—Diseases of the Rectum. Ulceration of the Rectum.

BY REUBEN A. VANCE, M. D., Gallipolis, Ohio.

President of the Ohio Valley Medical Association; Member of the Medical Society of the County of New York, etc, etc.

No. III.

The form of disease of the terminal portion of the large intestine which was the subject of the preceding paper of this series, is one that is very common and very painful, but fortunately, it is one that can be readily relieved when properly treated. At the present time, also, anal fissure is an affection better known and less neglected than heretofore. The form of rectal ulceration now to be considered, however, is one but little known. In the early part of its course it causes but little pain and scarcely any inconvenience—in fact, its symptoms are such that, in very many cases, the medical adviser may be led astray when consulted, and the patient remain a long time without suspecting that his rectum is the source of the distress which he has been led to ascribe to his "digestion," his "liver," or his "bowels." I have known cases in which, when the local lesion was revealed, it had progressed so far as to render medical treatment of little or no avail without the adoption of measures the patients would not submit to. The latter naturally enough could not help thinking that when they had been on their feet daily, pursuing their occupations in some instances without interruption through the whole course of the disease—and although suffering more or less annoyance all the time, yet never the subject of severe distress—that such measures as would compel them to remain in-doors for weeks, or months, and submit to painful operations with the knife, were certainly uncalled for, and much more serious than their case required. When such patients pass from the hands of the surgeon who has carefully examined the part at fault, and given an opinion based upon personal experience with similar cases, they occasionally fall into the hands of practitioners whose experience—while embracing many with somewhat similar symptoms—does not include a single well defined case of rectal ulceration. "Chronic diarrhœa," I well remember, was the diagnosis of a physician of

good repute in New York in the case of one of my earliest and warmest friends in that city, who had suffered for more than two years with this disease. The subsequent development of what the patient thought were external hæmorrhoids led him to consult a surgeon; the latter insisted on an examination, and thus revealed the true nature of the case. But the physician under whose care he had been for so many months was not satisfied; another surgeon was consulted and another examination made. This resulted in confirming the diagnosis of the surgeon who made the previous examination. The well known surgeon who took part in the last consultation related to me afterwards the fact that this was the second case of severe ulceration of the rectum he had known the same medical gentleman to call "diarrhœa"—in the other, the diagnosis was made and adhered to, although the patient had just received the opinion of a very competent surgeon, based on physical exploration, to the effect that his trouble was a serious ulceration deep in the rectum. The consequences of the time lost, the false hopes engendered and the dissipation of confidence in professional ability are unknown in the last case; in that of my friend they were very distressing—he declined to undergo an operation, made use of palliative measures only, and in less than two years, was cut off by an intercurrent affection!

The following case represents so fully the more common phenomena of the complaint—and, moreover, is so clear concerning what in many patients is very obscure—that I have thought it worth detailing in full. The patient was a young lady, seventeen years of age, a resident of Brooklyn, in whom the morbid state of the rectum seemed to owe its origin to the influence of a violent cathartic, administered to relieve constipation of several days duration. The young lady was of a healthy habit, not subject to constipation, and ascribed the attack that seemed to cause the disease of the rectum to the very defective arrangements for responding to the calls of nature which existed at the house where she was boarding. She had been under my care for a number of months, suffering from chorea, and was convalescing rapidly, when, in compliance with my suggestion, she went to a small town on Long Island for change of air and scene. It was here that she unfortunately permitted herself to neglect the evacuation of her bowels, on account of the miserable arrangement of the conveniences of the establishment, which necessitated a disagreeable publicity whenever that

function was performed. To relieve the headache, depression of spirits and loss of appetite from which she immediately began to complain, her hostess persuaded her to take three compound cathartic pills, on retiring. That night she was greatly nauseated; after suffering somewhat from pain in her stomach, her bowels moved violently and spasmodically. Her evacuations were very profuse —she strained almost incessantly. The tenesmus and tormina did not subside for several hours, after which she was greatly prostrated. She was compelled to keep her bed the two days next ensuing, and when I saw her on the third day, the lady with whom she stopped informed me that her last few passages were serous and bloody. In a few days however, under a course of tonic treatment she seemed to recover her usual state of health; her evacuations presented nothing worthy of attention, and it was not until sometime in September—nearly eight weeks subsequently—when I saw her again. The story she told was something like this:—Immediately after she got up, and was able to be around, her bowels had a tendency to move several times a day, especially in the morning. It often happened that she was compelled to use the chamber before she was through dressing in the morning, and if she had moved around much the preceding day, she would have to get up during the night for the same purpose. If she walked far in day time, she was conscious of an accumulation of fluid in the lower bowel which would be discharged involuntarily, if not evacuated as soon as noticed. In the latter case a thin, somewhat viscid and very offensive fluid was passed, not amounting to more than a tablespoonful in quantity. In the morning the quantity was larger, it was darker in color, and of the consistency of the white of an unboiled egg. More or less pain was seated deep between her hips, her bladder had lately become irritable, the small of her back was very weak and the seat of a distressing sensation such as she had never experienced before. When I explained to her parents the significance of these symptoms, and the probable nature of the case, they were anxious that such measures should be adopted as would spare their daughter the necessity of undergoing a physical exploration of the rectum. I accordingly laid out a plan of treatment based on the supposition of ulceration of the rectum, but the woman whose duty it was to administer the enema at night—which was one of the measures prescribed—blundered so sadly in the management of the old-fashioned pewter "squirt-gun" syringe she saw fit to use, instead

of the india-rubber apparatus ordered, that I was sent for, in haste, early the next morning. The patient was in bed when I arrived and said that her nurse had hurt her very much the night before; that she had passed a little blood in consequence; but that her principal distress was the pain that had been brought on by the violent contact of the enema-pipe with the parts deep in her bowels. I at once proceeded to make a physical examination. At the posterior margin of the anus there were two shining thickened folds of skin, such as can frequently be observed about the anal margin in cases of cancer of the rectum; the sphincters admitted one finger without exciting much pain, and just above the internal sphincter, on the posterior wall of the rectum, could be felt a large rough, irregular depression, bounded below and on each side by a thickened, indurated rim, but extending upwards further than the finger could reach. The next day I employed a speculum and discovered that the lesion was oval in outline and extended more than two inches on the posterior wall; its lower border was fully three-quarters of an inch above the upper margin of the internal sphincter; and transversely it measured about an inch from edge to edge. The bottom of the ulcer presented one or two elevated points which were red, and near its borders there were stripes of red, but in general it was brown in color and presented a sloughy appearance. The base of the ulcer was hard and resisting—contrasting markedly with adjacent healthy tissues—the edges above and on each side seemed excavated, and the general look it presented was much like the dirty, lardaceous, glistening aspect occasionally seen in neglected ulcers due to varicose veins of the leg.

The date of the development of the ulceration, and its apparent cause are not always so clearly to be distinguished, as the foregoing history would denote. Occasionally, no cause can be discovered. Thus, a young gentleman came to me in 1872, saying that he had consulted a number of medical men relative to the nature of his disease, but he was not yet satisfied that an accurate insight into it had been obtained by any of them. He was very hypochondriacal, and furthermore, with the exception of a care-worn look, did not present the appearance of a man who had any serious organic disease. He alluded to a "dysenteric discharge" and a serous diarrhœa, and spoke of their alternating sometimes in twenty-four hours, but my attention would not have been called to his rectum, had he not mentioned the name of a professional friend who, he said, was cer-

tain that his disease was cancer of that organ. The closest inquiry failed to reveal any cause for the lesion, or to furnish any data from which the date of development could be ascertained, yet there was a large and rather deep ulcer, with everted, angry looking edges and a hard brown base, occupying the posterior surface of the rectum just above the internal sphincter.

In treating of the peculiar characters of anal fissure, the anatomical structure of the surrounding parts was dwelt upon, and the former were found to depend, in great measure, upon the manner in which the flaccid mucous and sub-mucous tissues of the anal outlet were embraced and compressed by the contractile substance of the sphincter ani. The alternate contraction and dilatation of the parts about the site of disease exerted a deleterious influence on the fissure, and gave rise to the inflammatory thickening which agglutinated the underlying structures. When the parts above the muscular ring at the terminal orifice of the large intestine are the seat of chronic ulcerative changes, the circulatory apparatus of the part is found to conduce to such a state of chronic venous congestion that the indolent nature of the ulcer is readily explained, This peculiarity of structure is a factor of the first importance when an attempt is made to estimate the influence of the various causes which combine in producing chronic ulceration of the rectum.

Cases in which the history points to a mode of origin in every essential respect similar to that detailed in the account of the young lady, are by no means rare. A careful investigation, in a number of my own patients, convinced me of this fact; while the account given of their cases by others, suffering from this complaint, rendered me quite certain that this method of originating the disease is much more common than is generally believed. The relaxed state of the lining membrane of the rectum which attends constipation is very easily demonstrated by a physical exploration of the part. When the bowels are regular in their action, and the daily evacuation takes place always at a certain time, the rectum is empty at all times, except during the few moments that precede a call to the closet at the regular hour. From the termination of the sigmoid flexure, at the junction of the descending colon with the rectum, to the sphincters of the anus, the walls of the rectum are as thoroughly in apposition as the walls of the œsophagus. The relaxation of the circular bands of muscular fibre at the lower part of the sigmoid flexure occurs whenever the regular time for empty-

ing the bowels comes round; and this intestinal movement corresponds with the sensation which the person knows is the signal for defecation. The fecal matter passes from the sigmoid flexure into the upper part of the rectum, and, if the sensation then developed is heeded, and the person retires to the water-closet, the bowels are regularly evacuated. But this physiological warning is not an imimperative command—it is still within the power of the person to resist this call. As a general rule, a neglect to respond to this intimation is followed by a subsidence of the uneasy sensation, and the act of defecation can be postponed for from an hour to a day. In such case, the relaxation of the fibres at the sigmoid flexure and distension of the rectum are followed by an anti-peristaltic contraction in the walls of the latter; the rectum expels its contents into the colon and the fibres at the sigmoid flexure again contract. As a consequence of habitual neglect and irregularity, the rectum does not empty itself as at first, and the lower part of its canal becomes a reservoir for fecal accumulations. Thus, in such cases, instead of this organ remaining empty and collapsed, like the œsophagus, its canal furnishes lodgment to masses of excrementitious matter which should be evacuated. The evils induced are not confined to the organ at fault. The whole pelvic circulation may be deranged; external hæmorrhoids are developed, and internal growths made to bleed; while the secondary derangements in adjacent organs may be excited which will remain long after the removal of the local accumulation. One very common result, especially in cases where the patient has been of a regular habit of body, is for the unusual distension of the muscular walls to result in atony to such a degree that the whole coating of the intestine in the affected part hangs loose and flaccid. In such cases, the rectum is rarely completely emptied—as a rule, sufficient material remains to distend the loose, bag-like structures above the sphincters. Furthermore, the mucous membrane, and probably, all the submucous structures are deeply congested, and after an attack of constipation, quite a length of time must elapse before these tissues return to a perfectly natural state. One can readily comprehend the effect of a drastic cathartic in cases of this nature and the only wonder is, that more damage is not done than is ever heard of. The explanation of this exemption from almost inevitable evil seems to be due to the fact that a patient in whom the rectal walls have been distended and congested by constipation, suffers so much from the action of a cathartic that the

recumbent posture has to be assumed—a position favorable for the relief of the structures endangered. Otherwise, the lax, loose structures of the rectal walls, when relieved from distension, fall within the grasp of the anal sphincters, where they are violently compressed and it may be strangulated. These tissues are already infiltrated from prolonged venous congestion, and their condition is such that even a mild degree of mechanical irritation is prone to excite violent reaction. The fact so generally noticed in cases of rectal ulceration in which the patient has remembered the symptomatic phenomena, and can recall them in the order originally developed, that more or less hæmorrhage, together with deep seated pain in the rectum, were the result of the violent catharsis which followed the exhibition of remedies to relieve constipation, can be explained by supposing that the sphincters have inflicted more or less damage upon the relaxed, infiltrated and congested coating of the terminal portion of the large intestine. The number of these cases in which careful investigation will reveal the fact that such phenomena were among the earliest symptoms noticed, is quite surprising. Yet there are cases, as is illustrated by the history of the young gentleman whose case has been detailed, in which such symptoms are never noticed. The conditions which favor the development of this class of phenomena will be further treated of when the morbid anatomy of the lesion is discussed.

Whatever the cause, the symptoms of this form of chronic ulceration of the rectum are very characteristic. So closely allied and so marked and decided, indeed, are the symptomatic phenomena of this disease, that there is little danger of a mistake as to the nature of the complaint, provided the physician has ever before met with the disease in his practice, and the patient is ordinarily explicit in detailing his symptoms. The sub-mucous tract of connective tissue in the whole extent of the rectum, is deeply congested, the minute glands opening into that canal have the amount of their secretion vastly augmented, and the quantity of fluid poured into this part of the alimentary canal is so much in excess of that secreted in health, that much of it has to be discharged *per anum*. Part of this liquid furnishes the discharges which, from the time of their occurrence, are called "morning diarrhœa." This diarrhœa can scarcely be mistaken by one familiar with the phenomena of this form of ulceration. It is developed very soon after the inital symptoms of the complaint—the spasmodic diarrhœa and hæmor-

rhagic discharges, which, together with pain deep in the pelvis, succeed a period of intestinal atony and inactivity: phenomena such as are presented in the history of the case of the young lady, herewith detailed—and may continue during the whole of the disease. At first, this symptom occurs only in the morning and may prove troublesome only at that time. The amount discharged is then very small; as a general rule it is colorless, like the unboiled white of an egg, but less consistent. From the first, this liquid has an unpleasant, earthy odor and contains a very large quantity of calcareous matter in solution. The discharges contain not only the glandular secretion from the mucous lining of the intestine—augmented and altered, as already stated, by hyperæmia of the submucous tissues in which the glands are imbedded—but its volume is increased by the fluid which flows from the surface of the ulcer. Under the microscope, a drop of the mixed fluids reveals an immense number of lymphoid corpuscles which are not generally present in the discharges evacuated in the morning—those succeeding subsequent fecal discharges contain them in abundance. The character of this diarrhœa varies with the lapse of time. At first, occurring only in the morning, and presenting the characters described, it gradually assumes a more decided phase. The materials voided often resemble coffee-grounds, both in color and consistency—occasionally they are of a decidedly puriform character, The urgent desire to go to stool, so strongly marked on first arising in the morning, is but little relieved by what is passed. A burning and uncomfortable feeling, approaching actual pain, follows the movement of the bowels; tenesmus often accompanies it; and nothing furnishes relief to the constant sensation of rectal fulness which continually urges the patient to renewed efforts to secure a satisfactory evacuation of his bowels. The influence of the hot fluids taken with the first meal in the morning are often most satisfactory; frequently they induce a somewhat copious passage of thin colorless discharge, after which, relief is experienced. This result, so satisfactory at the time, and so much desired by the patient, seems to be due to the unloading of the congested mucous membrane of the part—the serous transudation which then occurs seems to be followed by contraction of the previously dilated vessels, thus relieving the hyperæmia of the parts, and dissipating the distressing tenesmus. In the early stages of the complaint, this relief lasts the whole day. It is at this period of the disease that so many mistakes in diagnosis

are made. As has been so well stated by Allingham, the occurrence of griping pain and flatulent distension, renders the supposition that the case is simply one of diarrhœa of a dysenteric character a very excusable error. A careful analysis of the symptoms, provided they are detailed accurately and fully, will however, render such a supposition very unlikely, and with a patient of ordinary intelligence, an error in diagnosis is not commonly made.

The longer the duration of the disease, the greater the distress it occasions. A stinging, burning pain remains after each movement of the bowels, and the evacuation immediately after breakfast which was generally attended with relief during the early stages of the disease, no longer produces that effect. The tenesmus characteristic of the first motions in the morning, now remains all day; the quantity voided at each action is not increased, but the continuous sensation as if a foreign body were located in the lower part of the rectum makes the patient seek relief at the water-closet much more frequently than at first. A constant pain in the lower part of the bowel is another symptom developed after the ulcer has lasted some months, and with this pain is generally associated a localized site of soreness high up on the posterior wall of the rectum. The diarrhœa loses that peculiar character from which the name of "morning diarrhœa" was derived, and occurs as frequently in the latter as the fore-part of the day. Pains starting from the sore spot in the rectum shoot up into the small of the back and from thence radiate round the waist and down the thighs and legs; occasionally, severe throbbing pain is experienced in the rectum; the agony may become so severe as to cause the patient to take his bed and seek relief from narcotics. In such cases when the patient is careful and observing, the period of relief which occurs in from one to four days is accompanied by a puriform discharge from the rectum — a small abscess has formed in the walls of the intestine, run its course, and evacuated its contents without surgical interference. Late in the progress of the case, attacks of constipation are observed to alternate with paroxysms of profuse diarrhœa; the former will often occur in connection with the development of a small abscess, and the latter commence with the appearance of the pus which marks its rupture. The discharges in such cases are profuse, and consist of fluid fecal matter—a careful physical exploration should then be made, for such symptoms are indicative of an organic contraction in the calibre of the canal.

Physical exploration in any form of rectal disease rarely fails to reveal interesting anatomical appearances. The structures about the anal outlet merit careful study, and when such is bestowed upon them, the peculiarities of structure and function accumulated in that region will be found to repay the labor necessary to comprehend them. In order to construct a mechanical device by which fluids and materials of a consistency but little more dense than fluids could be retained in the intestinal canal without, at the same time interrupting the steady flow of the circulating blood through all parts of the mechanism, the intricate system of sphincters and valves is arranged in the rectum with an accuracy and neatness that naught but the most careful study will enable the observer to appreciate. Justice could not be done to the various plans employed to avoid compressing the blood-channels at those points where the muscular sphincters must exert compression in order to close the outlet of the rectum, were all the space at our disposal devoted to that purpose—this, however, will be alluded to again when the subject of hæmorrhoids comes up for consideration. The veins are not provided with valves; the whole weight of the column of blood from the anus to the liver falls on those canals. This peculiarity in structure renders the walls of the rectum especially liable to congestion at all times—particularly so, in cases where there is a lesion located in one part of its course. When great care is taken to preserve the healthy normal activity of the bowels, the rectum is free from congestion; its walls, below the junction of its upper part with the sigmoid flexure are contracted, empty and in close apposition. It is only when constipation, long neglected, pemits the rectum to become a reservoir for fecal accumulations, thus distending its coats, atonying its muscular tissues, and rendering its walls congested and its veins varicose, that the lower part of the intestinal canal fails properly to perform its functions and becomes so favorite a site for disease. In cases of this kind, a brisk cathartic may empty the large intestine and induce disease of the lining membrane by permitting the relaxed and congested tissues to fall within the grasp of the sphincters, where they are so violently compressed as to destroy their structural integrity. It is in this manner, as has already been stated, that ulceration of the rectum is most frequently excited. When once an ulcer has been developed, it, of itself, tends to derange the local circulation, and by the demands made upon neighboring blood-vessels, to keep up more or less congestion. Healthy

repair is prevented in the varicose tissues within the rectum by many of the circumstances which render ulcers of the leg, in individuals suffering from varicose veins of the lower extremities, so tedious and persistent. It may be a misuse of the term to apply the designation "varicose" to the veins which return to the portal circulation, yet, as a matter of fact, the tissues from which these vessels convey the circulating fluid are placed in even worse circumstances than are those structures of the leg, the venous emunctories of which have become tortuous and dilated. The "varicose ulcer" of the leg derives its individuality from the disturbance in the nutrition of the part in which it is situated—in like manner, nutritive derangements in the walls of the rectum induce the peculiar ulcer of that part, now under consideration. The distance from the heart at which the varicose ulcer of the extremity is located, together with the disturbance in the return of blood from the structural changes in the veins, are supposed to be the main agents in developing the peculiar characteristics of that lesion. In the somewhat similar affection of the rectum, in addition to the very marked congestion of surrounding structures, there is the very important fact that the blood which circulates through the hæmorrhoidal veins not only arises from a capillary circulation on its peripheral aspect, but empties into a capillary network in the liver, before it reaches the venous reservoir of the heart. In the leg, the local congestion is favored by the distance from the heart at which the lesion is located, and the defective character of the channels though which the blood must return, hyperæmia is favored by the relaxed state of surrounding parts, by the demand for blood make by the ulcerated surface and by the fact that the power of the heart is reduced to a minimum by the capillary network which exists at the peripheral and central ends of the hæmorrhoidal circulation. The surface of the ulcer is constantly irritated by the presence of acrid rectal secretions; the tissue changes induced, are of an unhealthy character, and readily explain the sloughy appearance generally presented by such lesions. The thickened and infiltrated margins are extremely prone to break down in abscesses, sub-mucous swelling is thus excited, and in some cases, these changes are attended by symptoms of stricture of the rectum. It occasionally happens that patients who have suffered for a long time with this form of ulcerative disease, are suddenly seized with chill, fever and diaphoresis, followed by all the phenomena of hectic fever. The resem-

blance such cases present to a not infrequent form of combined pulmonary and rectal disease may render the diagnosis obscure, but a careful exploration of the latter organ will reveal extensive suppuration in the parts about the lower half of the rectum. Following certain of these abscesses are different forms of rectal and anal fistulæ. External swellings such as were noticed in the case of the young lady, are hypertrophied and infiltrated flaps of skin. In some cases, as the disease progresses, the ulcer may extend almost around the rectum, and the organ assumes the character of an inflexible tube, through which the intestinal discharges trickle without interruption, In such patients, the sub-mucous tissues from the upper part of the ulcer, to the anal outlet, are thickened and hardened; there is gradual loss of the contractile power of the rectum and the immobility of that organ converts this part of the intestinal canal into a passive tube, through which, if fluids, the feces trickle, while if solid, they stick fast, and remain until dislodged and pushed through by fresh formations from above. The thickening and infiltration of the mucous, muscular and connective tissues, due to the attempts at repair, gradually encroaches more and more upon the canal, and narrows the outlet of the rectum. All control over the sphincters is lost—their tissue gradually undergoes fatty substitution, and during the last stages of the disease, no muscular fibre may remain about the anal outlet. In the majority of cases however, some intercurrent affection ends the patients life before the local changes become so far advanced.

The situation of the lesion is generally on the posterior wall of the rectum. In two cases only have I known the anterior wall the only part affected—in one case, there were two distinct ulcers, one occupying the part of the anterior wall of the rectum which corresponds with the *bas fond* of the bladder, and the other, the usual situation just above the internal sphincter on the posterior wall. The impression conveyed to the exploring finger, is very characteristic. The parts on the posterior wall, immediately above the internal sphincter, may preserve the soft, resilient feeling of health, and when they do, the contrast which the base of the ulcer yields is very striking. The latter feels hard, irregular—often, slightly nodulated. The edges are elevated, and the boundary between the hard resisting impression conveyed to the finger by the ulcer, and the soft, resilient touch of the surrounding healthy tissues, is very striking. To the eye, the parts about the ulcer seem hyperæmic,

the edges are elevated and excavated, while the bottom of the ulcer is generally red, mottled with gray. The existence of more are less infiltration in the neighboring tissues will vary, of course, with the duration of the disease. When the latter is brief and the ulcer small, the amount of congestion is slight, and the appearance presented by the ulcer itself such as indicate only a lesion of short duration. The intensity of the ulceration varies in different cases from the extremely mild form just indicated, to the very extensive impairment of tissue such as occurs when the whole circumference of the rectum is involved. In this connection it is worthy of remark that any patient presenting the swollen tabs of skin noticed in one of the foregoing cases will be found to have some lesion of the structures of the rectum. They may exist in fissure of the anus —in such cases the inflammatory process extends directly from the hypertrophied fold of skin to the thickened layer of sub-mucous tissue in which the fissure is embedded. In ulceration of the rectum they are swollen and painful, tender on pressure, shiny, and covered with a thin ichorous discharge, of most offensive odor.

The treatment in cases of this disease will vary with the character of the patients constitution, and the condition of the local lesion. In the young lady whose case was detailed first, the plan adopted was something like the following: The nature of the case and its obstinate character were fully explained to the patient, in order that she might be the more willing to do what was required of her. Her diet was to be bland and unirritating—chops, steaks, milk and eggs, with potatoes were the main items. She was directed, also, to take a tablespoonful of cod-liver oil after each meal, and a goblet of claret wine was to be substituted for tea or coffee whenever she ate. In lieu of the exercise she was in the habit of taking daily, carriage driving was ordered. At 8 p. m. the rectum was to be washed out with care, and its walls subjected to the action of luke warm water to which tincture of the chloride of iron had been added in the proportion of a drachm of the latter to a pint of the former. A double tube, terminating in a bulb-shaped expansion with one tube ending at the top of the bulb, and the other communicating with a series of openings just behind the bulb—the whole being arranged with the idea of distending the flaccid walls of the rectum by means of the liquid thrown out through the opening on the top, so that a small amount would remain above the bulb, even after it began to return around this part, and find its way

out through the openings communicating with the second tube—was the appliance I had constructed for the purpose of irrigating the rectum. This apparatus was connected with an ordinary india-rubber enema (Davidson's) syringe. By means of it, the rectum could be subjected to the action of the water, to which tincture of iron had been added, for half an hour every evening. Nearly ten days elapsed after this course of treatment was entered upon, before I saw this young lady again. An examination revealed the ulcer less than one third the size it was when first seen; its surface was red with healthy granulations; the walls of the rectum were tense and natural in appearance. The discharge, in the morning, was very slight, and not at all offensive. Absence from the city prevented my visiting her again and about two months after the last examination she called at my office at 124 East 27th St., in New York City to announce her complete recovery, She was under my professional care for choreic trouble for more than a year subsequently, but I had no occasion to repeat the physical exploration, as she never complained of either pain or discharge. She abandoned the injections after using them regularly for eight weeks.

In the general review of the symptomatology of diseases of the rectum which appeared in the February number of the LANCET I alluded to the case of a gentleman who had spent five years in an earnest endeavor to be rid of an ulcer on the posterior wall of the rectum, who had sought relief in Europe, and who, in his various journeys, had made the acquaintance of very many others afflicted as he was. He had undergone almost every form of local medication, even to having the edges and base of the ulcer freely slit open by a New York surgeon. When his case was undertaken it was with no very strong hope of being able to afford relief, much less effect a cure. My patient was but little more sanguine than myself, and had it not been for other influences, I doubt if he would have followed the course of treatment I suggested. This was in 1869. Having carefully investigated the lesion, I saw Mr. Ford, the Instrument Maker to Bellevue Hospital and had the apparatus made which was subsequently used on the young lady. This instrument, by the way, is a simple modification of the well-known O'Bierne's tube and possesses few, if any advantages over the latter. The train of ideas which led to the course of treatment adopted was very simple. On examination I found a thickened and infiltrated base to an ulcer of a circular form at least an inch and a quarter in

diameter situated on the posterior wall of the rectum immediately above the remains of the internal sphincter—for the latter had been cut twice, and but little power of contraction remained. The surrounding tissues were deeply congested; the bottom of the ulcer was sloughy, and presented just that appearance which was James R. Wood's signal for the local application of liquor ferri persulphatis. In my inability to do anything else which had not already been thoroughly tried, I determined to make use of a weak solution of the liquor ferri persulphatis, and to persist in its use for a length of time. The patient readily acquiesced in the restricted diet on which I placed him—eggs, milk, meat and potatoes, with very little bread, no tea, coffee or tobacco—and accordingly on the following day, made use of an enema of a pint of warm water to which half an ounce of the Liq. Ferri Persulph. had been added. The bulb of the apparatus was inserted just beyond the internal sphincter, and by the aid of the Davidson syringe to which it was connected, the water was slowly thrown into the rectum. More than three ounces were thrown through the bulb before any returned. For more than half an hour the tissues of the lower bowel were subjected to the action of the water. The next morning there was a very decided diminution in the quantity of the matter discharged. That afternoon my patient was very enthusiastic, and made the application in my presence, expressing the confident hope that at last he was to be cured. One fact was very apparent—the fluid returned from the rectum when less than an ounce had been injected, while the day before, more than three ounces were lodged in the relaxed cavity before a drop came back. At the end of a week, a physical exploration was made, and the ulcer found smaller and healthy in appearance. From that time forward, the progress of the case was satisfactory in every respect. Before the lesion had healed completely, two other cases of this disease were under my care, undergoing the same plan of treatment—both friends of the first patient. But four months elapsed from the commencement of treatment until this gentleman was discharged, cured.

The fact that no two cases respond equally well to the same course of treatment is well illustrated in this affection. Of the three cases which came under my care in 1869, the first recovered entirely, one was materially improved, and doubtless would have been cured had he followed the course prescribed, while the other resisted the plan adopted, an abscess formed, and the aspect of the lesion

changed completely. The bearing of syphilis on the prognosis and treatment of this affection is most important—I have since had reason to know that in cases of constitutional taint, no plan of treatment will prove successful which does not recognize the specific element and embrace measures to remove it. When the ulcer is of a purely local origin, and when the changes in neighboring tissues are not very extensive, the prognosis is best, and remedies calculated to keep the bowels open, to invigorate the system, combined with local applications such as irrigating the site of the ulcer with stimulating lotions, will generally result in a cure. In cases where the local lesion is very extensive, even without constitutional taint the prognosis is bad. In one patient of 54 who came under my observation in 1873, with great thickening of the intestinal walls, deep sloughing ulceration, complicated with stricture and fistulæ. it was hard to see how the prognosis could have been worse. Children, however, manage to recover from a degree of ulceration that would seem to be inevitably fatal in an adult—in such cases, the local application of a dilute solution of the tincture of the chloride of iron acts very kindly and promptly. The value of the different preparations of iron in cases of rectal ulceration when locally applied is very great. A course of treatment to be successful in these cases must embrace freedom from active muscular exercise. The solubility of the bowels must also be carefully attained while the passages must be kept perfectly free from irritating substances. No aloes shonld be given, and no vegetables allowed. The task of keeping the bowels open, under these circumstances is a very difficult one. So far as my experience goes castor oil is the best cathartic to use in this affection, but I now employ cod liver oil in every case and find that it not only keeps the bowels free, but that its nourishing properties are not less valuable to the system than its demulcent qualities are to the diseased tissues at the lower part of the large intestine.

men, need watching, warning and chastening lest we depart from the straight and narrow path that leads to the highest professional aims. The "Code of Ethics" evidently wishes to perfect in us a brotherhood of high aims. If any of us considers its edicts as hard to bear, let him examine the foundation of the edict, take a broad and honorable view of its operation, and then make out a complaint which he can demonstrate to be a just one. If he cannot demonstrate that his complaint is a just one and still intentionally violates the edict he thinks he cannot obey, let him accept his position as a quack, an outlaw, an outcast from the BROTHERHOOD OF HIGH AIMS, and go where his "unshackled feet" can tread any path he chooses and he can still be unwhipt of justice as administered by "the Code."

Art. 4.—Diseases of the Rectum. Villous Tumors of the Rectum.

BY REUBEN A. VANCE, M. D., Gallipolis, Ohio,

Vice President of the Gallia County, Ohio, Medical Society; Member of the Medical Society of the County of New York, etc, etc.

No. IV.

It is now nearly a year since a patient came under my observation suffering from a peculiar bleeding growth of the rectum, which protruded from the anus, and an account of the case will serve to introduce what I shall have to say in reference to villous degeneration of the lower part of the large intestine. The following history was prepared for the Gallia County Medical Society, before which body it was presented January 3rd, 1877.

The patient, a man in his 34th year, is a resident of Kanawha County, W. Va., by occupation a coal boatman, and during August 1876, he consulted me for the relief of what he called "bleeding piles." On examination I found the posterior surface of the rectum, just above the internal sphincter, the seat of a papillated growth, the separate projections of which could be easily felt with the finger. The tumor occupied the canal of the rectum; it was circular in

form, an inch and three-quarters in diameter and projected nearly an inch and a half above the surface of the mucous membrane to which it was directly attached, there being no pedicle, or neck. The vascular tufts which formed the free surface of the growth bled when touched; the sphincters were somewhat atonied, and the tumor protruded and bled profusely whenever the patient attempted any violent muscular exertion. When *in situ* the lower border of the internal sphincter corresponded with the lower edge of the growth, while the sponge-like mass of the latter could be easily felt by the exploring finger, filling and distending the pouch-like dilatation of the rectum, behind the trigone of the bladder. The patient said that for more than two years he had been suffering from rectal hæmorrhages, together with a profuse, gelatinous, offensive discharge. The bleeding preceded the "running;" had been slight at first, but as time passed the hæmorrhages became more frequent and profuse, until, when I saw him in the summer of 1876, more or less blood was lost every day, while the mucous flow from the growth and the irritated membrane adjacent, was very copious and exhausting. Early in January 1876—shortly after New Year's day of that year—he first noticed a protrusion. When, on this occasion, "the body came down"—as he called it—there was a violent hæmorrhage, together with pain, prostration, and a tendency to syncope. Finally he was able to return the part without assistance, and for two days, remained in bed. From this time he always lost more or less blood when his bowels moved, and the protrusion of the parts, slight at first, gradually became more extensive. The latter trouble soon became so annoying that in the course of two or three months he was compelled to lay flat on his face and elevate his hips, in order to obtain relief. This measure never failed to cause the tumor to recede within the rectum, and shortly before he came under my care, he was compelled to resort to this maneuver three or four times during the day. This postural treatment was his own device, and for several months before he was operated upon, he rarely touched the growth, but depended entirely upon the influence which he found could be exercised over it, by elevating the parts. Notwithstanding all his care the constant sensation as if there was a foreign body in the rectum would occasionally lead to violent expulsive efforts—at such times hæmorrhage would occur. When he came under my care he was very anæmic; the prolabia were pale; a venous hum was audible in the neck, and a bellow's

mumur attended the first sound of the heart. Astringents were used by enema, but they only benefited the hæmorrhage temporarily. The pulse was 88 — 93 per minute, the impulse, short and sharp, the volume, large but soft, and a peculiar thrilling character could be recognized by the finger of the observer. He was ordered to take a teaspoonful of the following mixture, in a wine-glassful of water, before each meal:

℞	Strychniæ Sulphatis,	grs. j,
	Ferri et Quiniæ Citratis.	ʒij,
	Solve, et adde	
	Infus. Quassiæ,	℥vj.

M.

In addition, he was instructed to take from an ounce, to an ounce and a half of cod-liver oil, combined with an equal quantity of olive oil, after each meal, while his food was to consist mainly of meat and milk with bread, but no vegetables. If the bowels moved more than twice, daily, the olive oil was to be suspended for twenty-four hours, and then resumed. With these instructions he returned home in August, intending to come back for further treatment as soon as the weather grew cooler.

Early in October, 1876, he again presented himself. A decided improvement was noticeable in his physical condition — his color was better, and he reported that while at home his appetite was good, and his health better than for two years. The oil kept his bowels freely open, and the daily hæmorrhage had been smaller in quantity than for months before. Finding that his physical condition warranted the step, and that he was anxious to have it done, I at once prepared to operate. Accordingly on the morning of Oct. 5th, the bowels having been thoroughly emptied the night before, I exposed the diseased part by the aid of a stimulating enema, and pierced the base of the growth with a large, slightly curved needle, armed with a double ligature. Three other double ligatures were passed in the same way. Commencing with the threads which enclosed the largest mass of the growth, gentle compression was made, in order to observe the effect of a gradual interruption of the circulation through the tumor, and then the ligatures were drawn tightly, and tied. When the four ligatures were secured it was noticable that they compressed the part of the growth which was situated on a plane beneath the level of the surrounding mucous membrane. No endeavor was made to remove any portion of the

villous prolongations of the tumor, but after the ligatures were tightened, their loose ends were removed and the whole projecting mass was returned within the cavity of the rectum. The patient was directed to remain quietly in bed, and an opiate was administered to keep the bowels at rest. The operation was conducted without anæsthetics, did not seem to cause any great amount of pain, and was not followed by severe inflammatory fever during the sloughing of the ligated tissues. For ten days the patient remained in-doors; on the seventh day after the operation (Oct. 12th) the ligature enclosing the smallest part of the tumor came away; on the ninth day (Oct. 14th) all dropped off but one; and on the eleventh day (Oct. 16th) that separated. The discharge from the rectum was quite free and extremely offensive on the third day after the operation; on the seventh, (Oct. 12th) a large, sloughy and badly smelling mass was voided; after that, the quantity voided daily became much less. On the 17th of October, twelve days after the operation, I made a careful digital examination. There had not been a drop of blood lost since the operation, and for five days the discharge had steadily diminished, while its odor grew less and less offensive. At the time of the examination there was a slight serous discharge from the rectum; the bowels had moved but twice since the 5th, and then only as the effect of medicine administered the night of the 15th. When the finger was introduced, a smooth, healthy, granulating surface occupied the site of the tumor, and a mass of inflammatory exudation could be felt behind the rectum. The patient was very anxious to return home, and left on the evening of Oct. 20th, promising to use the cod-liver oil and olive oil as before, in quantities to keep his bowels free. On the 25th of Nov., between five and six weeks subsequently, I again saw him, and repeated the digital examination. The cicatrix of the wound was thickened and indurated, but the swelling behind the rectum had diminished greatly. While at home this time, the bowel protruded whenever he passed his motions, and could be replaced only after tedious manipulation. When returned, it readily became everted. There is but little contraction of the sphincter when the exploring finger is introduced into the rectum. An impromptu rectal bougie (a candle) was advised. He remained in town a fortnight in order that hypodermic injections of strychnia might be administered daily for the relief of the atony of the sphincters. Ten injections in all were given; the first few, the one-hundredth of a

grain in strength—the last six, each containing the thirtieth of a grain; and the effect was all that could have been desired. The everted and prolapsed mucous membrane returned within the bowel; the internal sphincter gave evidence of returning functional power; and when the patient went home December 9th, there was no longer incontinency of either wind or feces—symptoms that distressed him greatly but two weeks before. Between Christmas and New Year, I again saw and examined this patient. There was no longer any induration perceptible to the touch; the sphincters possessed full power; and the site of the former tumor was suple and healthy. No pain was complained of; every function was properly performed; and so far as the rectum was concerned, the man was in perfect health. My thanks are due to Dr. Frederick A. Cromley, of this city, for valuable assistance in the management of this case.

The phenomena presented by this patient forcibly reminded me of the details of another case of somewhat similar character, which came under my observation in the following manner: Shortly after the Bureau for the Relief of the Out-Door Poor was established at Bellevue Hospital, about ten years ago, Dr. Leroy M. Yale, now a Lecturer in Bellevue Hospital Medical College, was appointed Examining Physician for the different Hospitals under the care of the Commissioners of Public Charities and Correction, of New York City. It was this gentleman's duty to examine and allot the immense number of patients who daily made application for Hospital treatment, to the institution best suited for the care of the individual cases. Dr. Yale was called out of the city for a number of weeks, and while performing this duty for him, during his absence, my attention was called to a patient suffering from disease of the rectum, who had obtained a Hospital permit from the Commissioners, and desired admission into Bellevue. The history he gave told of hæmorrhages, recurring daily for seven months, a constant viscid, fœtid discharge from the rectum, with gradual exhaustion. He was originally a stout, hearty, middle-aged laborer, but when he applied for admission, was pale, much emaciated and with scarcely sufficient strength to walk into the examining room. The tumor was attached to the posterior part of the rectum; it protruded considerably when the patient was erect, and did not disappear when he assumed the recumbent posture; the discharge was very offensive; the growth was of a dark red color and split up readily into a great number of thin, independent layers which bled excessively

when handled. The lobulated character of the mass was very apparent. The patient was assigned to Charity Hospital, on Blackwell's Island, but not caring to go to that institution, left the examining room with his friends, and I never heard of him again.

In Mr. Quain's work on Diseases of the Rectum is related the following case:

"A lady, aged 68 years, who commonly had good health though not a robust person, began to suffer inconvenience in the lower bowel about seven years before she came under my care, and for the last two years she was in constant uneasiness or pain. I found that with every fæcal evacuation and even with the escape of flatus, a tumor was protruded from the bowel. The descent of the tumor was attended with a discharge of slimy mucous, and the loss of blood to a considerable amount. The mass was replaced each time by a servant. The patient had become much enfeebled, and her face and lips and tongue were blanched, doubtless on account of the long-continued losses of blood.

"The tumor, when partially prolapsed, was found to be a large pulpy mass, separable into several loosely connected lobes, consisting of pencil-like processes, the whole surface being covered over with blood and mucous. The connection with the bowel was nearly three inches from its orifice and towards its back part The pedicle was about two inches broad. I removed the growth, guarding against hæmorrhage with a ligature. On one occasion, about three weeks from the operation, there was a discharge of blood with the fæcal evacuation. But there was no return of the hæmorrhage, and with the exception mentioned, the patient did well uninterruptedly. Now, after the elapse of more than eighteen months from the removal of the morbid mass, this lady is free from inconvenience of any kind in the bowel, as well as from any indication of the disease.*"

Mr. Allingham refers to the above case in his work, and incidentally mentions it as the only one which had fallen under Mr. Quain's observation†. He also alludes to three examples of the growth which he had personally examined—two in his own practice, and one in St. Mark's Hospital, under the care of his colleague, Mr. Gowland. He says that the leading symptoms are the descent of a tumor, on the bowels acting, or on moving about, and an abundant discharge of glairy mucus "resembling the albu-

* QUAIN, *The Diseases of the Rectum*, Second Edition, N. Y., 1855.

† ALLINGHAM, *Fistula, Hæmorrhoids, etc.*, Phila. American Reprint of Second Edition, 1873, p. 258.

men of an unboiled egg." The last was the most prominent symptom in one of his cases, and in the patient of Mr. Gowlland—even when the tumors were not protruding this fluid poured freely from the anal orifice. Although Mr. Allingham detected a large artery entering the tumor in one patient, yet in neither of his cases was blood lost to any extent, and in neither was any great amount of pain complained of. Both patients were women, one 59, and the other, 62 years of age. The following is his description of the tumor:

"The tumor consists of a lobulated, pulpy mass, with long villous-like processes studding its surface; it resembles exactly—though the villi are much larger—the growth of the same name found in the bladder. It is attached to the bowel by a stem, broad rather than round, and this appears to me to be more like an elongation or dragging down of the mucous and sub-mucous tissue of the bowel, than a development. The peduncle may be two or three inches in length; in my patients it was attached to the perineal surface of the bowel. When this is the case, it is a practical point worth remembering that it is possible that a pouch of peritoneum may be dragged down by a tumor into the pedicle, and if it were tied close to its origin from the bowel, that membrane might be included in the ligature."

Mr. Syme details the history of two patients upon whom he operated for soft, vascular and bleeding polypi, which were evidently cases of this disease.* In one patient, the tumor was the size of an orange and had bled so profusely as to cause almost fatal exhaustion—in this case he excised the growth. In the other, in which the disease was recognized by the great hemorrhage it caused, the tumor was ligated within the rectum.

The following is an account of the appearance presented by the growth which Mr. Quain removed from the patient whose history has already been detailed:

"The tumor was about five inches long by two in breadth. It was composed of elongated slender processes hanging loosely together upon a basis of white fibrous tissue. The processes resembled villi, but on a colossal scale, and were a little enlarged at the ends—club-shaped. They were highly vascular; arteries were detected even in the most minute; and it was observed by Dr. Jenner that each was covered with a delicate basement membrane, over

* SYME, *Diseases of the Rectum*, Second Edition.

which was a layer of columnar epithelium. The broad characteristics of the growth seemed to me, to be the being formed of elongated processes—villi (whence the distinctive name?); the want of solidity or firmness—from the small amount of connective tissue; the extreme vascularity, and the slight restraint to the escape of blood, on account, apparently, of the coats of the vessels being extremely thin and but slightly protected from without. When placed in spirit for preservation, the elongated mass, besides undergoing the usual change of color, owing to the escape of blood, shrank into a rounded body the size of an orange, the villous processes, at the same time, shrinking in proportion."*

Mr. Quain also considered the question of malignant character of the growth—for there could be no doubt but what it was of the same character as those formations in the bladder to which Rokitansky applied the name "villous cancer"—but, from his personal acquaintance with these tumors of the bladder and rectum, could entertain no other opinion than that they were benign. In this, he is warmly seconded by Mr. Allingham who does not consider these growths connected in any way with cancer.

Mr. Curling refers to the case at St. Mark's Hospital, under the care of Mr. Gowlland, and says that it was the largest tumor of the kind he ever saw.† From his reference to the case, it appears that the patient was a middle-aged man; that the tumor was successfully removed by operation; and that the specimen can be found in the London Hospital Museum. Dr. A. Clark examined it microscopically and described it as a dense outgrowth of areolar tissue, permeated by blood-vessels, which assume a papillary form, the papillæ being flattened and curled so as to represent hollow cylinders clothed with layers of epithelium—the free layers being cylindrical. Mr. Curling also considers the villous tumor as an innocent growth, and one not apt to return after complete removal.

In the description of Mr. Quain's case. I have quoted from the second edition of his treatise on "The Diseases of the Rectum" which bears the imprint of Samuel S., and William Wood, of New York—the only edition to which I have access. Judging from the following, taken from the chapter on villous tumors at the eighty-fifth page of the American reprint of the fourth edition of Mr.

* QUAIN, l. c.

† CURLING, *Diseases of the Rectum*, Fourth Edition, Philadelphia, 1876.

Curling's "Observations on the Diseases of the Rectum," there is, evidently, some other publication by Mr. Quain, which I have not seen:

"It has been particularly described by Mr. Quain under the name of a "Peculiar Bleeding Tumor of the Rectum," but as it closely resembles the outgrowths found in the bladder, usually called *villous*, I prefer the latter term. Mr. Quain met with it in two cases in females, one middle-aged, and the other, sixty-eight."

The entire number of recorded cases is very small. Ascribing two cases to Mr. Quain, two to Mr. Syme, two to Mr. Allingham, and including the case of Mr. Gowlland which is alluded to by both Mr. Allingham and Mr. Curling, there are only seven examples of this affection referred to in the standard works on diseases of the rectum, in the English language. In fact, several special treatises do not mention the disease at all.

The small number of these cases, as well as the meagerness of the history of some of them, renders any analysis of the phenomena presented utterly useless. Villous growths are not limited, however, to any particular part of the anal outlet, but seem to develop, indifferently, from any portion of the mucous lining of the lower fourth of the rectum. In Paget's Surgical Pathology can be found an exposition of the views of Rokitansky which will furnish the best illustration of the morbid anatomy of villous tumors, accessible to English readers, with which the writer is acquainted.

In reference to the details of treatment in my own case, there is one point about which I wish to say a few words. This relates to the procedure resorted to for the purpose of restoring power to the atonied sphincters. In April 1870, I published an article in the *Journal of Psychological Medicine* on "The Treatment of Paralysis by Means of Hypodermic Injections of Strychnia," and in October, 1871, the *Medical World* contained a description of a new instrument for the injection of strychnia, from my pen, which formed part of a communication on the subject of the "Prevention of Abscesses in Hypodermic Medication." The references made to the early history of this method led to an investigation of this subject, so far as the employment of remedies sub-cutaneously in the United States was concerned, and the conclusion at which I arrived was substantially that which appears in the last edition of Dr. Bartholow's *Manual of Hypodermic Medication* — that is, that as early as 1839, two physicians to the New York City Dispensary

(one of whom is the present President of the Faculty of the Bellevue Hospital Medical College, Professor Isaac E. Taylor, M. D., the distinguished Obstetric Physician to Bellevue Hospital and Emeritus Professor of Obstetrics and Diseases of Women in the College connected with that Hospital) were in the habit of treating cases of neuralgia and paralysis by piercing the skin with a lancet and then injecting solutions of morphia and strychnia under the integument with an Anel's Syringe. In a note from Dr. Taylor, written in 1870, I was furnished with the details of a case of paraphlegia, which was successfully treated in this manner, and, if I mistake not, with an account of a case of prolapsus recti, in which power was restored to the atonied sphincters by strychnia used in the same way. These cases were treated four years, at least, before Wood's first experiments (1843) and sixteen years prior to his first publication (1855). The first published observations upon the sub-cutaneous employment of strychnia in cases of diseases of the rectum relate to the cure of a case of prolapse of the rectum by M. Foucher, at the Foundling Hospital of Paris, in 1859, and appeared in the *Revue de Ther. et Jour. de Med. et Chir. Pratique*, August, 1860. The value of this method in the treatment of patients in whom the anal sphincters have lost power is well illustrated by the result in the case I have detailed. I shall have occasion to refer to this subject again and will dwell upon it at greater length when I review the therapeutical measures which can be resorted to for the relief of prolapse of the rectum.

There can be but little doubt but what the ligature is better than the knife in the removal of growths of this character from the rectum. The complete control which can be maintained over the flow of blood, at all times, much more than counter-balances the benefits which accrue from the rapidity and completeness of the excision. Yet there are cases in which it is necessary to depart from the general custom and resort to the knife—one of Mr. Syme's patients seems to have been a case in point. The patient had lost so much blood that he was on the verge of death from exhaustion, and, as the tumor was the size of an orange, there was very little chance of a favorable issue, had the tedious and exhausting operation of a ligature been resorted to.

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sale," or promiscuous prescribing of remedies, when their use is not required—is what I wish to impress upon your minds as reprehensible in the highest degree. It is often a very nice question to decide, just where to give and when to withhold medicines, and he who is most competent to carry into practice these nice discriminations, approaches nearest to the ideal of what constitutes the true physician.

Will *we* then, as members of the great medical profession in this enlightened nineteenth century, accept as *settled facts*, the positions taken by some of the profoundest thinkers in the medical world to-day—namely: that most if not all diseases are "self-limiting" in their action on the human economy, and require but *little medication*—or will we still hug to our bosoms, more closely than ever, the long since "exploded theories of the past."

Art. 6.—Diseases of the Rectum. Degeneration of the Anal Sacculi.

By REUBEN A. VANCE, M. D., Gallipolis, Ohio,

Vice President of the Gallia County, Ohio, Medical Society; Member of the Medical Society of the County of New York, etc, etc.

No. V.

In the anatomical remarks which introduced the subject of Fissure of the Anus, reference was made to the sacs which exist at the lower parts of the sulci, that are to be found between the adjoining columns, at the termination of the rectum. These columns were said to be most distinct just within the anal orifice, where the compression exerted by the sphincters was greatest. In number, these columns vary in different individuals—occasionally not more than from four to seven are apparent, but generally there are from nine to thirteen to be counted. If the observer will trace carefully the course of the sulci to be found between the projections of the mucous membrane, he will find that they end inferiorly in lacunæ, which are located immediately below the lower margin of the in-

ternal sphincter. At this point membranous folds of a semi-lunar form can be seen, the number of which will correspond with that of the grooves themselves, which close the sulci internally and convert the depressions between the columns of Morgagni—as these projections on the inner aspect of the rectum are called—into lacunæ, which are from two to seven lines in depth. The mouths of these little pit-like cavities are on the same level, and in health, their orifices can be traced easily around the anus. These little sacculi contain mucus, which exudes when pressure is made in their neighborhood. So far as the personal observations of the writer extend, no amount of distension of the rectal outlet suffices to obliterate the columns of Morgagni,—the fibres from the external longitudinal layer of muscular tissues of the rectum, which curve around the inferior margin of the internal sphincter, and ascend on the inner aspect of that muscle before attaching themselves to the mucous membrane, contributing to the stability of these structures—yet even a slight amount of dilatation of the anal outlet suffices to empty the sacculi which fringe the anus. It occasionally happens, in cases of acute congestion of these parts, in patients suffering from hæmorrhoidal growths, that the hyperæmia stimulates glandular action to such a degree, that the secretion from these sacculi becomes a very striking phenomenon. The flow of mucus, which, in chronic cases, marks the subsidence of inflammatory action when prompt measures have checked the progress of an intercurrent attack of hæmorrhoidal congestion, and prevented suppuration, has its origin in the stimulus that has been communicated to the glandular structures of the anal sacculi. Without entering upon a discussion of the physiological office of these organs, it will suffice to say that, from the nature of the secretion, the time and circumstances most favorable for its discharge, and the situation of the lacunæ themselves, the inference is almost irrisistable that the office performed by the fluid they produce is a mechanical one, and that it serves to lubricate the anal orifice, and facilitate the discharge of such matters as are evacuated through the anal outlet.

These minute sacculi are not infrequently the subject of disease. The distinguished Dr. Physick, of Philadelphia, devoted great attention in his medical lectures to the affection which implicates these little sacs—the pathological character of which he was the first to recognize and describe,—but with the exception of Coates' article on the *anus* in Hays' Cyclopœdia of Practical Medicine and

Surgery, and a chapter in Gibson's Surgery, there has been very little written on this particular complaint. In order to define with clearness the clinical characters of the affection, I will detail the history of several of the patients who have come under my care at different times, suffering from this form of disease of the rectum.

The following are the essential points in the history of the case of a gentleman who came under my care in 1871: The patient was a clergyman by profession, and had a church in a small city, not far from New York, until a few months before consulting me, when failing health compelled him to resign his charge. In 1863 he suffered from the cerebral and mental derangements incident to over-work, but after rest, foreign travel and mental relaxation, continued for a length of time, he seemed to recover completely. This relief continued for two years after his return to the pulpit—he then became conscious of what he called vague neuralgic pains, all over his body. If he exposed himself too much to the sun, he would be prostrated for several hours with severe pain over his eyes; if he walked more than usual, the pain would be in his back and legs—he was quite sure that at first the pain always attacked the part that had been most exposed. From the very beginning, one of his most distressing symptoms was a severe itching of, and occasionally a sharp pain in the fundament. His bowels, previously rather hard to move, became free, but each passage was succeeded by a dull aching in the anus, and a feeling of profound depression. One pleasant day, after walking more than usual, he returned feeling chafed. A hot hip-bath gave him temporary relief, and after drying the parts carefully, he dusted the nates with rice-powder. An hour or so subsequently, itching came on, and although he resorted to all sorts of remedies, nothing gave more than temporary relief. This was in August, 1869. When he came under my observation in March, 1871, he said that during the intervening period he had suffered untold agony from itching and pain in the anus. It seemed, he said, as if all the vague, fleeting pains he had suffered from before, had located themselves in the terminal portion of his alimentary canal, and were in a state of constant activity. When I asked him if there was any period of the twenty-four hours during which he was free from these troubles, he at first answered there was not, but immediately qualified his reply by saying that there were hours each day when he was worse, but none during which he was entirely free from irritation. When warm in bed at night, his

symptoms were aggravated—it was not until completely worn out with the irritation, and exhausted by fruitless efforts at relief, that he would fall asleep. His bowels would move a dozen times a day were he to permit it—he restrained them all he could and by this very effort he thought he contributed to the morbid mental and physical condition from which he suffered. If he allowed his bowels to run off, he would have a number of teasing, painful evacuations, and each motion would be followed by an increase in the sensation of heat and burning in the rectum, which tormented him, until sharp, shooting pains, starting from the fundament and darting down both legs, would come on, and compel him to resort to an opiate for the relief of his "diarrhœa." There never had been any injury to the part, careful inquiry failed to reveal anything like the characteristic pain of anal fissure, there was no evidence of spasm of the sphincters, and no history of either hæmorrhage or hæmorrhoids. About six months before I saw him, and at a time when there was considerable irritation of the anus, induced by scratching, he had a severe attack of retention of urine, with evident spasm of the urethra. Unless he lived upon the blandest diet, and regulated the action of his bowels with great care, he was liable to sudden, spasmodic evacuations of the contents of the large intestine. This symptom compelled him to resign his charge, for his power of retaining the contents of his rectum finally became so insecure, that it was not safe for him to enter the pulpit.

Inspection revealed a thickened state of the cutaneous folds which arise from the verge of the anus and lose themselves in the adjacent integument, but there were none of the circumscribed elevations of the skin, with thickening of the sub-cutaneous structures, which characterize the more common forms of external hæmorrhoids. The little gullies between these folds were deeper and more moist than natural; the skin was red and seemed to have been greatly irritated by scratching. Pressure near the anal verge caused a slight amount of viscid secretion to exude from the anus. When the patient exerted himself to "bear down," the parts about the anus were rendered quite moist by a free flow of liquid from the rectal cavity, and the mucous membrane at the back part of the anal outlet rolled out in a mass the size of a small chestnut. This protrusion of the lining membrane of the rectum resembled, in appearance, a large internal hæmorrhoid, but on close inspection, its mucous investment was found to differ widely from that which

covers that variety of rectal growth. Again, when pressure was made on this protrusion there was an increase in the quantity of of moisture which bedewed the parts, and—when the latter flowed freely—the former was markedly diminished in size. But little reristance was made by the sphincters to the entrance of a finger into the rectum. When the enlargement at the back part of the anus was grasped between the finger in the rectum and the thumb of the same hand, its attachment by one side to the adjacent structures was rendered apparent. Pressing the point of the thumb firmly against the most dependant portion of the enlargement, caused a free gush of thick mucus, and made the growth collapse. Rubbing together the thickened walls of the evacuated cyst, showed that their internal surfaces were rough and irregular, while forcible traction brought into view the swollen mouth of the short infiltrated canal which led from the sulcus between the two adjacent columns of the rectum, into the enlarged cyst that occupied the site of a former sacculus. Bending a probe properly, its point was passed along the sulcus, through the canal and into the cyst. The impression communicated to the sense of touch, by rubbing the walls of the evacuated cyst together, was directly at variance with that derived from the exploration of its cavity with a probe. The idea of thickness and roughness given by the former, was shown by the latter not to exist, at least, in the inner wall. Not only was the probe felt readily when in the cyst, but the parietes of the latter were found thin and semi-transparent. Passing the probe into the cyst gave rise to no great irritation. The circumference of the anus, on its inner aspect, was carefully explored with the probe, bent like a hook, but only one other sacculus was found enlarged. This was situated to the right side of the anus; the probe sank to the depth of three-quarters of an inch; and externally, its site was rendered apparent by an enlargement, perceptible to the touch, which felt as if a foreign body, the shape of a grain of corn, was under the mucous membrane. When the probe was passed, a slight amount of mucus exuded, and the point of the former could be felt immediately beneath the lining membrane of the part. The patient complained more of pain when probing the small sac, than when exploring the larger one.

My attention was at one time called to the case of a young girl of twelve years, who, for years, had suffered from accumulations of the thread-worm (*oxyuris vermicularis*) in the lower part of her

rectum and who, although some time had elapsed since the last appearance of her former troubles, had continued to suffer from the distressing itching which was originally supposed to be due to aggregations of the parascites. The paroxysms of itching had been almost intolerable from the first, but of late there had been added to her previous symptoms of rectal irritation a sharp, lancinating pain that came on when the itching was most intense, and which would shoot up the spine and down the thighs with lightning-like rapidity. If I remember correctly, this peculiar pain had not been in existence more than two months, when the case was referred to me for examination. All sorts of local applications had been advised to allay the itching, and prevent the mechanical irritation to which she resorted for relief. I was informed by the patient's sister that the unfortunate girl would scream at night, whenever the shooting-pains came on; and that they had noticed that the latter were much less likely to develop when the patient was able to control herself sufficiently to resist the temptation to scratch the part. A careful inquiry was instituted, and all the facts bearing upon the history and character of the complaint were obtained from the patient and her friends. There was nothing ascertained relative to disease of the rectum, further than what has already been detailed. Her bowels were regular, and their daily action seemed to soothe the irritation about the anus. She never had any symptoms of acute articular rheumatism, or of chorea; the sensibility of the integument of the lower extremities to impressions of contact, tickling, pain and temperature was normal, and equal on the two sides, while her ability to stand and walk with her eyes closed was unimpaired—in short, there were no symptoms except those already related, and no other organ than the rectum appeared to be at fault. An examination revealed great irritation of the parts at the anal outlet. There was an increase in the secretion of the glandular structures in the neighboring tissues; the naturally thin, delicate and elastic structures about the anus were unnaturally hot, thick and leather-like to the touch. The follicles from which sprang the hairs at the verge of the anus were enlarged, and the individual hairs felt as if embedded in a hard, shot-like mass. When any part of the fundament was touched, the rectal orifice contracted spasmodically, and the anus, instead of its natural excavated appearance, looked like a nipple-shaped projection on a flat surface. The spasm soon ceased, however, and the real outline of the anus became

apparent. The opening into the rectum, instead of its normal circular form, with radiating folds of skin centering at that point, presented a semi-lunar outline, the two horns of the half-moon shaped orifice being directed to the right, and partially embracing a circular projection the size of the end of the little finger, which appeared to arise from the mucous membrane of the lower part of the intestine, just above its junction with the integument. When the sphincters contracted, a portion of this enlargement was apparent, but it was only when the part was quiet, and the margin of the anus dilated, that a good view could be obtained. The sphincters were not hypertrophied, and the finger in the rectum failed to discover any morbid change in the walls of that organ. By pressing the enlargement at the anal outlet, between the exploring finger and the thumb of the same hand, a little viscid fluid could be made to emerge from the anus, and the projection became decidedly smaller. By carefully exploring the sulci between the columns of the rectum with a curved probe, I succeeded in introducing the point of the latter into the cyst, and was enabled to evacuate the greater portion of its contents. The internal wall of the sac was then found to be thin, but there was a very decided impression of roughness and irregularity, communicated by its lining membrane, when the probe was moved about in its cavity. None of the other sacculi were diseased. Careful inquiry was made in reference to any peculiarity in the action of the bowels, but none could be elicited. Her sister informed me that of late there had been a tendency to involuntary evacuation of the contents of the bladder, and that this symptom was much worse during warm weather.

The peculiar pains occasionally met with in these cases—pains which, as we shall see hereafter, are not limited to patients suffering from degeneration of the anal sacculi—have not infrequently led to a total misconception of the character of the patient's disease. A striking illustration of this fact was the account given of his own case by a gentlemen who consulted me in 1870. Living in Elizabeth, New Jersey, and transacting business in Murray Street, New York City, he was compelled to catch certain trains, daily. In order to do so, everything not necessary in a business point of view, was compelled to conform to this requirement. He thus got to neglecting his bowels, to eating in undue haste, and to reading his daily paper on the train. According to his own version of the matter, he was a person always "anxious about himself," and con-

sequently, after such habits had grown upon him for a length of time and he found that he could not read without glasses, that his food did not digest and that his bowels were developing a tendency to constipation, he became very much alarmed, and devoted a day or two to the task of consulting a number of physicians. One of his intimate friends, a New York merchant, residing in Elizabeth, had been recently prostrated with disease of the spinal cord, and this circumstance had a certain influence over him, for he consulted several of the physicians who had been called to see his friend. The sufferings of the latter may unconsciously have given color to some of the symptoms of the former. Thus, at the time I saw him, his greatest suffering was caused by pain in the small of his back, together with a difficulty in urinating. The former was almost constant—his intervals of greatest ease were immediately after evacuating the contents of the bladder; while the latter came on during micturition, and consisted of a sharp pain which started from the base of the bladder, and passed to the head of the penis, in one direction, and up the spine, around the waist and down the lower extremities, in the other. A constant distressing sense of uneasiness, more than actual pain, had been located in the small of his back for many months, but he had paid little attention to it, until the trouble with his bladder and the peculiar pain just alluded to, were developed. The latter came on suddenly. Immediately after his friend's attack of paraplegia he had remained with him a number of nights, and his wife finding that he was somewhat disturbed by his friend's misfortune, thought to cheer him up by inviting a number of their acquaintances to an informal dinner-party, on the thirty-ninth anniversary of his birth-day. This came early in June, 1870. The gentleman enjoyed the festivities greatly, and ate and drank much more than was his general habit. About three o'clock, the following morning, he was aroused by an urgent desire to urinate. When his bladder was nearly empty, he was seized with a sharp pain behind the pubes, which in a moment passed from that point to the head of his penis, and thence radiated up his spine and down his legs. After he was helped to bed, he vomited freely, and gradually grew easier. When the physician arrived who had been summoned when he was first attacked, he found the patient warm in bed and easy in every respect, save a most distressing itching at the anus. This symptom had been a troublesome feature in his case ever since he began to suffer with

constipation. I saw the patient in August and then learned that pain in the back had become an almost constant feature of the case, and that during micturition, it was aggravated by the pain which radiated from the bladder to the penis, spine and limbs. The itching of the anus, the patient said, although very troublesome, and at times almost excrutiatingly severe, was as nothing to him compared with the symptoms which he felt sure were but the fore-runners of paralysis of the lower extremities. He had consulted several medical men before I saw him. By one gentleman he had been sent to a surgeon, and the latter explored his urethra and bladder, and assured him he had neither stricture nor stone. The frequency with which he was asked in reference to the existence of a sensation such as would be produced by a band around the waist, turned his thoughts in that direction, and, as he told me in response to the same question, he was not certain but what there was some such feeling. Careful investigation failed to reveal any impairment, of motorial or sensorial power in any portion of the frame; he denied having had either syphilis or rheumatism; and gave no history of any genito-urinary disorder. Having explained to the patient the necessity of an investigation into the state of the prostate gland, I prepared to make an examination *per rectum*. When the arrangements for the latter were completed, an inspection was made of the anal region. The integument about the anus was in that condition which continued mechanical irritation always excites—it was red, infiltrated and moist. Separating, carefully, the margin of the opening into the rectum, and, when the spasm of the sphincters had somewhat subsided, directing the patient to make forcible "bearing-down" efforts, a very peculiar state of the parts just within the line which joins the integument and mucous membrane became apparent. This was a ring of spherical projections that extended around the inner aspect of the anal orifice, and at a certain point in the dilatation of the latter, this aggregation of nodules seemed to fill completely the opening leading into the rectum. A thorough investigation revealed the fact that of the eleven sacculi to be found between the columns of Morgagni, eight were in a state of disease—the diseased sacs were enlarged and more or less distended with viscid secretion. Several of the diseased sacculi looked like small, ripe grapes, and before the sinuses leading to them were probed, they felt like large shot embedded in the tissues. After probing two of the cysts,

and evacuating their contents, the patient cried out that he was going to have a paroxysm of pain, and at his request, was assisted to a sofa. The pain was apparently very severe; it came first in the body of the penis, soon implicating the head of that organ, and then passing to the small of the back, and down the thighs and legs. He was in pain between three and four minutes; when he announced that he was getting easier, his body became covered with a cold, profuse perspiration, and he began to scratch the anal region most furiously. One singular point connected with this feature of the case was, that the patient did not seem to want to pass water, although he was frequently spoken to in regard to vomiting.

I shall have occasion to refer to this case again, when treating of the influence of local disorders of the parts about the outlet of the rectum in simulating the phenomena of disease in other, and it may be distant, parts of the organism. It is of especial interest at present as an illustration of the fact that the symptoms which ordinarily are indicative of the existence of a particular disease, may be completely overshadowed by reflex phenomena, and that too, at a time when there are no other physical evidences of local disease than those which spring from degeneration of the sacculi of the rectum.

The symptoms indicative of this form of disease are not pathognomonic. One case—the last one detailed—is, as has just been stated, an illustration of the fact that there may be no special feature in the symptoms presented by a case in which degeneration of the sacculi is the only local disorder that can be recognized by the most thorough investigation. Yet, in uncomplicated cases, it is rarely that the complaints of the patient are not a clue to the condition which excites them. Pain in the fundament and itching of the anus have been present in every case of this disease that has passed under my observation. In the great majority of cases both the pain and the itching possess special characteristics; the former differs as much from that excited by fissure of the anus as it does from the pulsating pain incident to phlegmonous inflammation of the adjacent parts; while the itching of the anal region, which is so common and so troublesome an accompaniment of diseases of the terminal orifice of the large intestine, is so frequently due to degenerative disease of the minute sacculi at the anal orifice, that the latter should always be looked for when the former is com-

plained of. In uncomplicated cases of this disease—that is, cases in which the hypertrophied sacculi are not the seat of secondary ulcerative changes, and in which the neighboring tissues have not broken down into fissures, etc.,—the symptoms enumerated may so alternate as to lead the sufferer to believe that the pain is the cause of the itching. I have met with cases in which the disease has been called neuralgia of the anus, or rectum, and where the history of the case would lead one unfamiliar with such cases to believe that such a diagnosis was justified by the facts to be elicited. Yet it required naught but a simple inspection of the part to display the distended, hypertrophied sacculi. Cases in which pain is the sole symptom present, must be very rare, yet there are many patients who have sufficient self-control to prevent scratching, in whom the annoyance caused by this form of irritation is very slight—these are the cases of simple "neuralgia" of the rectum, or anus, that a physical exploration shows to be due to disease of these sacculi. The influence of digestive disorders, by interfering with the portal circulation, as well as by the acrid change they induce in the matters voided, is an important factor in the production of all forms of disease of the large intestine and its terminal orifice, but especially in the development of this insiduous form of local trouble. In tracing the history of patients suffering from it, we generally find some complication developing, thus merging the previously indefinite symptoms of degenerative disease into the sharply defined and very characteristic phenomena of fistula in ano, or fissure of the anus.

In the case first detailed will be found an illustration of a case of cystic degeneration of the rectum running a nearly typical course. The more usual course—the itching, as a symptom, proving more severe and intolerable than pain, pure and simple—is pursued by the symptoms most commonly present in this disease. When symptoms such as these go to the extent they did in this case, it really matters but little what they are called, for they are equally agonizing and exhausting. The influence of the excitation transmitted to those nerves of the rectal mucous membrane, which in health serve to convey to the proper nerve-centers the stimulus that excites those expulsive efforts which mechanically evacuate the bowels, is shown in the fact that this patient's bowels would move a dozen times a day unless he prevented it. Did he once yield to the desire which was constantly present, and endeavor to evacuate

the rectum as often as it felt full, his control over the evacuations would soon be lost, and he would have to resort to medical aid for relief. The altered nature of the pain is also characteristic, but especially so was the final form of diarrhœa that came on and compelled the clergyman to abandon his pulpit, in the case first detailed. The "explosive" and "spasmodic" features of that case are occasionally met with in the latter stages of this complaint in patients who have not suffered from those complications—such as fissure, ulcer and fistula—that compel the invalid to seek medical aid and submit to an examination. The change induced in the nerve filaments of the part, seems to be intermediate between the natural stimulus which excites contraction when the rectum is distended, and that pathological state that is present in cases when tormina and tenesmus are complained of, and is due to the unnatural degree of irritation to which the neighboring nervous tissues are subjected. The glandular structures about the anus are also unduly stimulated. The fluid retained within the sacculi that have became distended becomes, inspissated from the evaporation or absorption of the greater part of its watery constituents, while the increased flow from the healthy, but unduly stimulated glandular structures about the verge of the anus, is the source of the liquid which keeps the anal region continually moist.

The recognition of this form of disease of the rectum, depends upon the care with which a physical exploration is made. There are cases in which the presence of itching and pain, with a tendency to continually evacuate the contents of the rectum, occurring in patients who are free from the symptomatic phenomena that attend spasm of the sphincters and fissure of the anus, will suffice to excite a suspicion as to the presence of this morbid anatomical condition. Yet, even among those practitioners who have the largest experience in the treatment of diseases of this region of the body, such symptoms will do but little more than render a physical exploration imperative, ere a diagnosis will be hazarded. In making a physical examination, care must be taken not to irritate unduly, the integument of the anal region, for in almost every case the patient, in vain endeavors to allay the itching, has scratched the parts to such an extent that they are swollen and infiltrated and so irritable, that even the most gentle contact may excite a violent spasm in the sphincters of the anus. Thus, in one of the foregoing cases, the spasm of the sphincters caused the anus

to assume an appearance totally unlike anything the physician would expect to meet with in cases of this affection. By exercising care, and proceeding gently, no trouble need be experienced in securing a view of the region of the rectum in which cystic degeneration occurs. In the majority of cases the appearances are such, that, when once seen, no trouble will be experienced in recognizing similar cases when they present themselves. When disease implicates the sacculi, it may cause one or more of the sacs to assume the character of cysts—if the latter grow to any size, there are rarely more than two or three cysts present. On the other hand, however, if the morbid process runs its course without closing the sinus leading to the sulcus between adjoining columns of Morgagni, thus affording a free exit to the fluid secreted by the glands of the sac, the inflammation may extend from one to the other, until it ultimately implicates all these structures about the outlet of the rectum. In that case, they will all remain small, and feel like medium-sized shot embedded in the sub-mucous tissues of the anal region. The probe will readily enter the patulous orifices of the latter—in the former, the explorer may have to press hard upon the distended cyst before he can make the probe pass into the canal leading to its cavity. By manipulating carefully—alternately passing the point of the curved probe down the sulcus to the place where the opening leading into the cyst should be situated, and pressing firmly against the most dependent portion of the cyst, in order that some of the contents of the latter may be forced out, and thus reveal the position of its excretory duct—the examiner will succeed in passing the instrument into the cyst, and be able to explore the recesses of its cavity. The roughness of its internal surface and the thinness of its rectal wall are phenomena that will attract the attention of the observer.

Disease of the sacculi of the character now under consideration may manifest itself in one of two ways—there may be enlargement of one or more of the sacs, with retention and inspissation of their secreted fluids, or a greater number may inflame, but, owing to the free exit afforded their secretion, they neither grow so large as the former, nor, like them, do they present the characters of closed sacs. In both, the essential process seems to be a chronic inflammation—in the former, the closure of the external opening leads to dilatation of the cavity; in the latter, beyond a certain amount of enlargement due to the swelling of the glandular ele-

ments and submucous tissues, the force of the diseased action seems to expend itself upon the minute glands of the sacculi, which hypertrophy, degenerate and sometimes ulcerate. In the one case, there is more of a tendency to the formation of cysts; in the other, to glandular degeneration. As a general rule, the course pursued by the inflammatory process will be greatly modified by the amount of mechanical irritation the part is subjected to in the patient's endeavors to allay the intolerable itching by scratching.

The thickening of the integument of the anal region, and the subcutaneous infiltration—both due to the cause just mentioned—are the most common complications of this disease. It not infrequently happens that when there are two or more large-sized cysts distending the anal orifice, that the delicate muco-cutaneous folds between them becomes fissured, and in that case, to the pain and itching, the mucous flow and peculiar diarrhœa of cystic disease, are added the unmistakable pain and the spasmodically contracted sphincter of anal fissure. When there are a number of the sacs diseased, but none of them enlarged to any very great extent, it sometimes happens that ulceration of the bottom of the sac extends inwardly and destroys the internal wall. There is thus formed a small, round ulcer, which may not be attended with the symptomatic phenomena common to fissure of the anus. But the most frequent accompaniment of the second form of degenerative disease of the anal sacculi is a series of abscesses, which develop about the most dependent portions of the sacs, and which seem, in many cases, to be due to inflammation excited about the little pellets of excrementitious matter that are caught in the open mouths of the sacculi. The pain these abscesses excite is very sharp and exhausting. As a result of these abscesses, fistulæ are quite frequently developed.

When either form of degenerative disease of the anal sacculi develop in a person subject to attacks of external or internal piles, the hæmorrhoidal tendency is so stimulated that the patient is kept in almost constant agony. The cases in which suffering is borne longest without resort to medical aid, seems to be those in which there is no complication. In such patients, the amount of agony endured, and the length of time they will go without endeavoring to procure relief, is something quite remarkable.

The treatment, it is scarcely necessary to say, must vary with almost every patient. In the case of the clergyman whose history

is the first one detailed in this paper, it was very simple. When pressure was made on the enlargement at the back part of the anus, there was a free gush of thick, viscid mucus, and the cyst subsided, so that its collapsed walls could be rubbed, the one over the other. Pulling the parts as far through the ring of the sphincters as possible, the mouth of the canal running from the sulcus between adjacent columns of the rectum into the cyst was brought into view, and the point of a curved probe was passed into the latter. Pressing forcibly on the handle of the probe rendered the internal wall and bottom of the cyst prominent; a pair of sharp-pointed scissors was used to separate as much of the internal wall as possible from adjacent tissues; this having been done, and the smallest scissor-blade passed by the side of the probe, through the canal and into the inter-columnar sulcus, a single snip sufficed to open the whole of the cyst to the air. As soon as the spasm of the sphincters, which was excited by the last step of the operation, had subsided, the flaps of mucous membrane which formed the internal wall of the cyst, were seized with the forceps, and trimmed off with the scissors. In separating the parts which had converted the sulcus into a canal, the scissors impinged somewhat upon adjacent healthy structures, and a free flow of blood was the consequence. When the latter had been checked, the former external wall of the cyst was open for inspection—when the finger was placed on it, it felt as if studded with an immense number of minute grains of sand, and when rubbed with the point of a probe, it yielded a gritty sensation. Washing the remains of the cyst carefully, seemed to remove much of the roughness. More pain was complained of when the probe was passed into the second enlarged sac, at the right of the cyst, than was experienced when the inner wall of the latter was snipped off. After checking the bleeding from the large cyst, the bent probe was passed to the bottom of the second enlarged sac, a hole was cut in its internal wall large enough to admit the small blade of the scissors, and as the latter was advanced, the probe was withdrawn. When the point of the scissors-blade appeared above the margin of the internal lip of the sac, the handles were closed, and the internal wall was cut open from summit to base. Considerable pain was experienced by the patient at this time, but no blood was lost. The free edges of the separated folds of mucous membrane were removed, and were found quite thick, but not vascular. The inner aspect of the sac thus opened, was found

roughened, and like that of the cyst, apparently coated with calcareous matter. The point of a solid stick of nitrate of silver was rubbed over the exposed surface of the cyst, and immediately afterwards a saturated solution of common salt was painted over the part thus touched. The same course was pursued with the parts at the site of the inflamed sac—considerable pain, however, attended this application. The operation was so trivial, that I performed it in my private office the same morning the patient arrived in the city; no anæsthetics were employed, and after resting on my sofa until 4 P. M., he took the cars and returned to his home, seventy-five miles distant. I enjoined him to bathe the parts three times a day—morning, noon and night—in luke-warm water, to each ounce of which five drops of the tincture of the chloride of iron had been added; to take an ounce of cod-liver oil after each meal; and to make use of an emollient I provided him with. The latter was prepared as follows: To an ounce of pure, sweet cream, add enough oxide of zinc to form a thick paste—then add a fluid drachm of chloroform, and after working the whole quickly, put it in an open-mouthed bottle that can be stopped up tightly. A small quantity of this ointment was to be rubbed on the part whenever there was any itching, and at night it was to be placed at the side of the bed, and enough used to procure relief. It was eight days subsequently, when I next saw this patient. The point formerly occupied by the cyst, was the site of a small, circular abrasion, no larger than the uncut end of a lead pencil, from which a number of granulations were projecting; there were no traces of anything unnatural at the point where the small sac was situated. He said that for the first day or two there was a great deal of burning whenever he bathed the part, but that that subsided before a week elapsed; that the itching was severe for the first two days and nights, and the ointment only afforded relief momentarily, but after that, the itching disappeared completely. His bowels were regular from the time he commenced using the cod-liver oil. The abrasions about the anus were nearly well. A month subsequently he wrote me that he was entirely free from all disease of the rectum, and when I saw him in 1874, he still continued free from annoyance. The treatment adopted in the case of the girl was entirely local. The cyst at the verge of the anus on the right side was partially evacuated by firm pressure; a fold of its internal wall was caught with a pair of forceps and excised, when, after

forcing out a quantity of gritty, semi-solid material, the canal leading to the sulcus above, was slit up, the loose edges cut off, the whole surface washed and thoroughly cauterized with nitrate of silver. For some reason, the after treatment ordered was not followed. When the patient's bowels moved, next day, there was considerable pain, but after that, there was no more trouble. I saw the patient about six weeks after the operation, when she stated that she had not been so well for years. She also informed me that her father thought that there was no need of having a doctor after the operation was performed, and that motives of economy actuated him in the course he pursued. It was fortunate for the patient that her surgical malady was of the simple nature it chanced to be, for I believe the same course would have been pursued under all circumstances, without any regard whatever to the necessities of the case.

Two of these cases were examples of that form of degeneration of the anal sacculi in which the number of sacs diseased is small, but in which there is occlusion of the excretory duct, with retention of the glandular secretion and enlargement of the sacs affected. In such cases, the first and strongest indication is to destroy the cyst, and provide a ready exit for the material produced by the irritated glands opening into the cavity. No more effectual plan can be resorted to than the one employed in these cases. The internal wall of the cyst is thin, it contains no glandular tissue and does not seem to be coated with calcareous salts in the same manner as the external wall. By slitting it up, and cutting off the loose pieces, the cavity of the cyst is opened freely, its contents evacuated, and its morbidly changed external surface submitted to the stimulus arising from contact with the air, and neighboring structures. The solid stick of nitrate of silver is the most efficacious measure with which I am acquainted for the removal of calcareous incrustations. If used in connection with a solution of common salt, there is no danger of cauterizing too much.

So far as the morbid appearances are concerned, the last case detailed is a typical example of that form of degenerative disease of the anal sacculi in which there is implication of all, or almost all the sacs of the rectum, without retention of secretion and enlargement of the sacs. Instead of a few large cysts, there are a number of small sacs, which, together with a certain amount of submucous cellular tissue, is the seat of chronic inflammation. So

far as the influence exerted upon the nervous structures of adjacent parts is concerned, there is very little difference—the symptoms, reflex influences and secondary remote changes are strikingly alike in both forms of the disease. The treatment to be pursued is also essentially the same. It consists in the exposure to contact with adjacent structures of the parts behind the thin fold of mucous membrane which forms the internal wall of these crypts, or sacs. In the patient whose case was the last one detailed there were only three sacs which were not the seat of chronic inflammation—eight others were inflamed, thickened and hypertrophied. By taking hold of the fold of mucous membrane which forms the internal wall of the sac with a pair of forceps, and cutting out with a pair of scissors the part grasped, a number of indications for the cure of chronic inflammation were complied with. A portion of the morbidly modified tissues was removed, and the reparative process was initiated. Not only that—by depleting the vessels of the part, and stimulating nutrition in the locality where the materials for repair were vastly in excess of the power to employ them properly, a necessary and most beneficial process was inaugurated. In addition, the recesses opened by the incisions were freed from the irritating matters that had accumulated in them. The removal of all sources of irritation and the stimulus given to the reparative process were speedily followed by evidences of amendment. On the third day, the part was discharging freely—there had been no spasm of the sphincters, and no great amount of pain, as a result of the operation. No local applications were resorted to after this time, and, in fact, no measures, other than local ablutions and attention to the solubility of the bowels, were employed after the first day. So far as the lesion of the rectum was concerned, the patient's progress was speedy and satisfactory, and within a month from the date of the operation, that part had recovered entirely. His general health began to improve at the same time, and in the course of a few months, most of his distressing symptoms subsided. He then went abroad with the intention of remaining several years, and I have not since heard from him.

Ar. 7.—Diseases of the Rectum. Proctitis, or Inflammation of the Rectum.

BY REUBEN A. VANCE, M. D., Gallipolis, Ohio.

Vice President of the Gallia County, Ohio, Medical Society; Member of the Medical Society of the County of New York, etc., etc.

No. VI.

Although not a common affection, cases of proctitis, or inflammation of the rectum, are occasionally to be seen in the practice of every physician. Cases thus observed may be either acute or chronic in their course, primary or secondary in their origin, and simple or specific in their nature—consequently, the clinical character of each patient's history will vary with the complications developed during the progress of the case, the state of the sufferer's constitution, and the manner in which neighboring structures react to the irritation of the local lesion. Again, notwithstanding the number and importance of the cases in which the morbid process is due to erysipelatoid and dysenteric inflammation, yet proctitis, secondary to erysipelas and dysentery, will not be treated of in this connection. The same is true of that inflammation of the rectum, which is attended with the formation of pus in the sub-mucous cellular tissue near the anal orifice. Postponing the former until such time as justice can be done to the local complications of systemic diseases, and the latter, until abscesses of the rectum come up for treatment, attention at present will be drawn to such varieties of the disease only as the following cases illustrate:

(1) While attending to some medico-legal business in the New York City Court House, in April, 1870, a well-known judge, then on the bench, invited me into his private room for professional consultation. He informed me of a multitude of circumstances bearing indirectly on his mental and physical state, but it was not until almost every other subject had been exhausted, that he reached the important points in his present ailment. He said that he was then suffering from a boring pain in his sacrum, which occasionally shot down the back of the thighs; that his bowels moved ten or fifteen times a day, and without he was very watchful, they would discharge their contents involuntarily; and that for two

days he had experienced more or less trouble in voiding his urine. A few questions revealed the fact that the first symptom was experienced the preceding Sunday morning; that it came on as a sharp burning in the terminal orifice of the large intestine, while evacuating his bowels, persisted for a few hours in that form and then seemed to merge into a sensation of uneasiness, which lasted all the remainder of the day; and that on Monday morning, the attempt to evacuate his bowels brought on a sharp pain in the rectum; that with this pain, some change occurred in the bladder and urethra, which interrupted the previously free discharge of urine, and that during the whole of that day he was distressed not only by the pain and retention, but by a discharge of mucus from the rectum, which caused him to evacuate the large intestine every fifteen or twenty minutes. When warm in bed Tuesday night, he managed to empty his bladder without assistance and with no great pain. The secretion of rectal mucus continued free and was discharged involuntarily all through the night. During Wednesday he was much better; the pain in his sacrum and back was less intense, he could empty his bladder at will and had no trouble in retaining the mucus secreted by the lining membrane of the rectum. It was on Thursday morning that our conversation occurred, and in response to my inquiries, he stated that he had attended a well-appointed dinner late Saturday night and enjoyed himself greatly. Finally, in reply to an interrogatory to that effect, he enumerated the condiments and relishes he remembered partaking of, and among others, mentioned chillis, and said he had eaten a number of the latter—something he had never done before. Having had occasion to treat several patients suffering from catarrhal inflammation of the rectum, the result of a too free indulgence in this fiery condiment, I explained the nature of his trouble to my patient, and advised him to keep the recumbent posture as much as possible and, in the meantime, to live on a light diet and avoid all stimulants until his intestinal trouble subsided. I also advised him to wash out the rectum night and morning, with luke-warm enemata, and after his large intestine was thoroughly empty to throw into the rectum a half ounce of the following solution, to which an ounce of warm water had been added:

℞	Zinci Sulphat.,	℈ij.	
	Morphiæ Sulphat.,	grs. iv.	
	Infus. Krameriæ,	f ℥iv.	M.

(2) A gentleman from a western city, under my care a few months subsequently, while pursuing a course of treatment calculated to relieve the chronic cerebral congestion from which he suffered, imagined he was getting "bilious," and, on his own responsibility, took a large quantity of calomel one evening, following it next morning with a substantial dose of salts and senna. His bowels discharged so violently that day that he could not pay his regular visit to my office—late that night his daughter called and requested me to come at once to her father, as he was very sick. I found him very much prostrated and learned that his bowels had moved from fifteen to eighteen times since 9 o'clock in the morning. The last few evacuations were very painful; he was suffering from tormina and tenesmus, and complained bitterly of a sharp pain in front of the sacrum. Directing the patient to remain in bed and use a bed-pan, I ordered that each subsequent movement of the bowels should be followed by the injection of a starch enema, to which twenty drops of laudanum had been added. As he was very weak and nervous, a glass of champagne every two hours while awake, was also to be given him. When I called late the following afternoon I found that his condition was much the same as before. He was not so much prostrated and his evacuations were different in character, but the pain still continued; he was too weak to get up and he had to empty the large intestine once or twice every hour. He complained so much of the sensation as if a foreign body were in the anus that I made an examination of the part. The integument about the anus was very sensative, the sphincters were firmly contracted, while projecting from the anal orifice were prominent folds of mucous membrane. The latter were livid in color, dry to the touch, and exquisitely tender. There were no evidences of external hæmorrhoids apparent, and the patient denied ever before having any trouble with these parts. The calls to evacuate the bowels were sudden and imperious—when they did move, however, there was nothing but mucus passed. Much of the patient's suffering seemed to be due to spasm of the levator ani, which came on whenever these accumulations of rectal mucus were voided, and was much aggravated by the enema that followed each passage. He had not been able to pass water for twenty-four hours. There seemed to be no febrile reaction; the abdomen was not tender upon pressure; and the patient, when not suffering pain, manifested a disposition to eat as heartily as in health.

Finding that the enemata ordered had not produced the effect desired, they were suspended. The urine drawn from the bladder was natural in every respect — the catheter was admitted into the bladder readily, and caused no pain when its point was moved around freely in the cavity of that viscus. Directing the diet of the patient to be limited to beef tea and milk and lime water, the nurse was strictly enjoined to see that he did not move from the bed on any pretence. In place of the starch and laudanum enemata, the nurse was ordered to inject into the rectum an ounce of warm milk, to which a grain of the aqueous extract of opium, dissolved in about a fluid drachm of water, had been added. If the rectum was too irritable to retain the enema but expelled it at once, another injection was to be administered—if that too, came away, nothing more was to be done until the next movement of the bowels, when the same course was to be pursued as before. At 1 P. M., the following day, I again saw the patient. He was then fully under the influence of the narcotic, and I was informed he had had but four passages and five injections since my last visit. When I called the succeeding day, I found my patient entirely free from pain, and learned that but one enema had been administered during the preceding twenty-four hours. The sensitiveness of the parts about the anus had passed away, the projecting folds of mucous membrane were no longer visible, and with the exception of an unusual degree of irritability on the part of the sphincters, there was nothing unusual to be noted about the anal region.

(3) Inflammation of the rectum as a consequence of fecal accumulations, is familiar to every practitioner of experience. One of the first cases of this nature that came under my observation, was that of a young woman who, in 1868, after several weeks sojourn in the convalescent wards of Bellevue Hospital, was transferred to the uterine department in order that she might undergo an examination. This was in April, 1868, and Dr. Isaac E. Taylor was the Visiting Physician then in charge of the Obstetrical and Uterine Wards. She had been there but a day or two when I was summoned to her one night and learned that the nurse had found her in great agony on the floor of the water-closet, and had carried her to bed. She was only partially conscious, with a cold, clammy skin and a rapid, feeble pulse, when I saw her. When she revived enough to talk, she told me that her bowels had been torpid for a long time, and that during the previous month they had not aver-

aged a movement once a week, although during the last fortnight her appetite had been unusually good, and she had eaten freely and with relish. Her bowels had rumbled and pained her to an unusual degree all the previous day—about 9 P. M., she experienced a sudden and imperative call to the water-closet, but when she got there, she did nothing but strain violently and ineffectually. It seemed as if there was something in her bowel too large to pass through the outlet, and after striving in every possible way to relieve herself, she became faint, and was compelled to call for assistance. While relating the foregoing account, she was seized with violent expulsive pains, over which she seemed to have no control. She held her breath and clutched spasmodically at everything within her reach; the perspiration stood on her face in great beads, and her whole appearance was strikingly like that of a woman in the second stage of labor. Hastily making a tactile examination, I found the anal orifice distended to an enormous extent, while partially protruding through it there could be felt a smooth, round object, which was incompressible by any force that my finger could exercise upon it. When the woman's pain subsided a little, the projection receded somewhat, and a great quantity of rectal and anal mucus flowed out from between the lining membrane of the intestine and the substance which occupied its canal. Carefully forcing one finger behind this ball of excrement, while the fore-finger of the other hand was inserted in the vagina, the circular form of the substance could be determind beyond a doubt. When the next pain came on, and the circular mass was projected partially beyond the circle of the sphincters, I made an attempt to break up the mass with the handle of a heavy iron spoon. When the two were brought forcibly together, the former would yield a semi-metalic sound that was very peculiar. The slightest traction of, or pressure on the mass of feces caused an increase of the patient's bearing-down pains. Cautiously inserting the handle of a large iron spoon between the rectal walls and the fecal mass, and carrying it far enough into the bowel to obtain a firm hold on the latter, the handle of a second spoon was used to break up the mass of excrementitious matter. The ease with which this was effected when the ball was brought into contact with the two spoon-handles was in striking contrast with the waste of power before, when it was impossible to retain the fecal mass in one position. The quantity of hardened feces it was necessary to

remove before the natural powers of the patient could be brought into effective operation was something wonderful. Finally there came a gush of fluid—the further evacuation of the retained matters was accomplished without assistance. The amount of material voided and its odor can only be appreciated by those who have had personal experience with similar cases. When the discharges ceased, the patient was utterly exhausted. An examination made after the patient had been changed and washed, revealed complete atony of the sphincter—an adult hand could have been inserted into the rectum without much trouble. The mucous lining of the organ protruded in large folds, which were œdematous and livid. A careful examination failed to reveal any rupture of the mucous membrane. Finding that no fluid could be retained in the rectum, four grains of the aqueous extract of opium was mixed with an ounce of simple cerate and rubbed into the mucous membrane of the rectum, after which a T bandage was applied, and the patient left for the night with instructions for her to have a tablespoonful of whiskey in water, every hour while awake. In the morning she was weak and irritable, and complained greatly of pain at the outlet of the intestinal canal. She said the lower bowel felt as if stuffed with hay, while its lining membrane was thick, hot and heavy. Later in the day, she complained of a throbbing in front of the sacrum, and a sensation as if a hard substance distended the anus. Several times during the night she had experienced an urgent desire to evacuate the bowels—the anal orifice did not contract at such times—however, nothing passed from her that she could observe, but she noticed on such occasions that the lower part of the rectum was violently retracted. About daylight she found that there was a free flow of mucus from the anus. On exposing the part and carefully noting its appearance before subjecting it to any irritation, the mucous membrane could be seen rolled out of the anus and forming a large prominence. The mucus, which was discharged in abundance, was thin and watery, and possessed a pungent, earthy odor. When the point of a finger was placed on the everted rectal mucous membrane, the levator ani contracted spasmodically, and the lower part of the rectum was drawn up toward the cavity of the pelvis. The finger could be gently passed between swollen and œdematous folds of the lining membrane of the rectum and carried its full length into the cavity of that intestine without meeting the resist-

ance which in health is exercised by the sphincters of the anus. The patient was ordered a diet of milk and eggs, and the local application of opium and cerate was continued. On the second day thereafter the rectal discharge had assumed a yellow, puriform character, but the protruded mucous membrane began to subside, and the sphincters gave evidence of returning power. Five days after the removal of the fecal mass no mucous membrane was to be seen beyond the ring of the sphincter, the pain and uneasiness about the rectum had almost completely disappeared and the discharge was retained in the lower bowel by the activity of the sphincter. Local applications were discontinued and a tonic mixture, containing small doses of aloes and nux vomica substituted. On the seventh day her bowels moved freely, the effect of the medicine commenced two days before. From this time the patient was actively engaged assisting in the care of the ward, and when, during the latter part of the month, she was examined by Dr. Taylor, there were no apparent evidences of recent inflammation of the rectum except a slight thickening of the submucous cellular tissue and a little congestion of the lining membrane of that organ.

(4) Injuries of the rectum are to be ranked among the rarer causes of proctitis. In 1868, an awkward nurse, while administering an enema to a convalescent patient in one of the surgical wards under my care in Bellevue Hospital, inflicted such violence on the mucous membrane of the rectum as to cause acute inflammation of the part. Two hours after the injection the patient was in such agony as to require the administration of an anodyne. An examination at that time failed to reveal any of the phenomena so generally present in cases that have existed for a length of time. The sphincters were firmly contracted; the integument around the margins of the anus was quite irritable; yet there were no projecting folds of mucous membrane; no evidences of either external or internal hæmorrhoids; and no discharge, of any kind, from the lining membrane of the rectum. The patient complained so bitterly when any attempt was made to obtain a view of the parts within the sphincters, that a thorough examination was not made. A suppository, containing two grains of the aqueous extract of opium, was administered, and the patient directed to remain in bed. About fifteen hours subsequently I was again called to prescribe for this patient. He was feverish and flighty, with coated

tongue, tympanitic bowels and great thirst. He had eaten nothing during the day; his bowels had not moved for four days, and no urine had been passed since early morning. Percussion over the lower part of the abdomen demonstrated slight distension of the bladder. The patient was annoyed by an almost constant sensation in his large intestine as if his bowels were going to move, and he was continually calling for the close-stool, although his passages were exceedingly small, and consisted of nothing but mucus. A hypodermic injection of one-third of a grain of morphia was administered, and the patient ordered to be supplied with a bed-pan. During the remainder of the night, the patient rested well; in the morning, there was a free discharge of a muco-purulent fluid from the rectal mucous membrane, which, at intervals, was voided involuntarily; the patient did not seem to suffer much, but his febrile symptoms still persisted. On examination, a large, œdematous swelling could be seen encircling the anal orifice; the mucous membrane of the lower part of the rectum protruded freely; while the whole perineal region seemed unusually hot and tumid. The sphincters were contracted, but their resistance to the exploring finger was not great. Late in the afternoon of the second day, this patient's bowels moved spontaneously, discharging a quantity of hardened feces at first, and then a large amount of bilious matter, which seemed to greatly irritate his rectum. In the evening there was a marked increase in the quanity of muco-purulent matter voided, and also, of the suffering experienced by the patient. Suppositories of cocoa-butter and the aqueous extract of opium were directed to be administered, the rectum having been first carefully washed out with luke-warm water. The latter proved so agreeable to the patient that a double catheter was inserted into the rectum—a bed-pan being used to prevent soiling the bedding—and the inflamed walls of that organ were subjected to the action of the water for twenty minutes. There was a decided improvement observable in the patient next morning; his fever was broken, the discharge from the rectum was less, the swelling of the anus had diminished markedly, while the mucous membrane of the rectum no longer protruded and there was much less pain in that organ than heretofore. The rectum was directed to be washed out as on the previous evening, but a solution of sulphate of zinc was added to the water used until the latter contained three grains of the sulphate to the ounce of fluid. After the injection the patient

complained of spasm of the levator ani muscle; the catheter had to be used for the first time this (the third) morning. A suppository, containing two grains of opium, was placed in the rectum immediately after the urine was drawn. The patient improved so markedly during the day that no local measures were employed the succeeding night; in the afternoon and evening the discharge was slight and readily retained, the mucous membrane kept its place, and no difficulty was experienced in emptying the bladder. That evening his bowels acted naturally; the passages were soft, and caused but little irritation and pain. On the fourth day the patient was convalescent. The use of astringent enemata was directed to be continued until all discharge from the rectum ceased. This patient's condition when examined some months subsequently, will be referred to hereafter.

(5) In this connection the following circumstances are not devoid of interest: In the spring of 1872 I had occasion to visit a well-known summer resort not far from the city, several weeks prior to the opening of the "Season." Nevertheless there were quite a number of visitors on the ground even thus early, and the proprietor of the principal hotel complained that the unexpected influx of boarders had seriously delayed certain necessary repairs and improvements then in progress. While waiting to keep the engagement that had brought me there, an acquaintance, a gentleman from the city who, with his family, was stopping at the hotel, requested me to visit his wife, then confined her to room with diarrhœa. I did so, and was informed by the lady that she came to the Lake perfectly well a fortnight before, but that a week afterwards, her present illness declared itself. One night she retired with a smarting, burning, unpleasant feeling in her lower bowel; before midnight this had changed to a very decided pain, which extended all through the pelvis; and when her husband came to bed she had him prepare and administer to her a "diarrhœa powder," such as her family physician always supplied them with in the summer before leaving town. The account she gave of the phenomena and progress of her case subsequently, was very clear and specific. This pain returned worse than ever next day, but it at no time extended above the region of the rectum; occasionally there was spasmodic retraction of the anus, with acute agony—at such times a slight amount of fluid would escape involuntarily from the lower bowel. Her most distressing symptom was the incessant throbbing of the

rectum, which persisted day and night. It seemed to her as if that part of her intestinal canal were filled with some fluid almost scalding hot, and she was continually tempted to make forcible bearing down movements for the purpose of ejecting it. Still she had no heat of skin, no anorexia -- in short, no febrile symptoms. Her bowels moved twice or thrice daily, and the motions were of a feculent character. There seemed to be a very free secretion of rectal mucus, which, together with a certain amount of offensive, purulent matter, collected in the terminal portion of the alimentary canal without any evidence of its presence, until all of a sudden the patient would experience an instantaneous demand to evacuate the contents of the large intestine. Generally, reflex contraction of the muscular walls of the intestine and the abdomen followed this sensation so quickly, that the contents of the rectum were voided involuntarily and unconsciously. It was owing to this fact, more than to anything else, that she remained in her own room and kept her bed. Her appetite was natural—she experienced no unusual longing for any particular article of food, and had no trouble in regulating her diet. When this lady concluded detailing her own symptoms, she said that she was not the only one of the family thus affected—that her sister, a young lady of eighteen, had been attacked three days before, and her daughter, a girl of eleven, began to complain that very morning. My interview was brought to a close by the arrival of a message which called me to the presence of one of the parties I originally came there to see. By the merest chance I learned that the reason I had been kept waiting was their absence from the hotel, visiting the house of a friend who had a summer residence in the mountains several miles distant; that the repairs then in progress compelled the ladies of the hotel to use a privy attached to one of the gardener's houses, which was so foul and filthy that any reasonable inconvenience was preferable to being compelled to put foot inside its precints; and that in consequence of this state of affairs, they daily drove to the house of their acquaintance, and spent several hours on his premises. Before returning to the chamber of the lady whose case has just been detailed, I made inquiry, and learned more of the character of the vault to which the ladies of the hotel were compelled to repair. The house to which it was attached was a small cottage; the privy itself consisted of a ten foot vault, tightly enclosed above and walled with brick, which was ventilated by

means of two small holes, not six inches square, cut on opposite sides of the six by six (feet) out-building that surmounted this cistern-like excavation, filled to over-flowing with reeking human excrement. This building was kept locked, when not occupied, but as there were more than thirty persons in the hotel whose only convenience it was, it was not empty much of the time. When I again spoke with the lady, I inquired relative to the effect of remaining in the poisonous atmosphere of the privy, but could elicit no fact of importance. Subsequently, however, the connection between the fœtid exhalations of this out-house and the inflammation of the rectal mucous membrane, not only in the three cases to which I have alluded, but in two other ladies boarding at the hotel, was established beyond a doubt. In one of the latter, I was informed, the symptoms of proctitis subsided when the young lady went to the city and remained at home four days. Returning on a Friday, and remaining at the hotel until Tuesday, the disease came on again. Her father then hired a cottage and removed her to it—in a week she was well, and remained well during the remainder of the season. In another case, the patient recovered without medical treatment, by ceasing her visits to the privy. When the improvements in process of construction at the time I visited the hotel were completed, all the cases in the hotel recovered, and no new ones were developed. The proprietor of the hotel had the old privy removed and the vault covered with earth early in the "season."

(6) Cases such as the following can be adduced by almost every practitioner: A young servant girl, after spending Christmas eve in a warm room, and dancing excessively, was conveyed to her employer's house in a close carriage by her escort, but the door being fastened she met with some unexpected delay in getting in, and for more than half an hour she stood on the cold stone step exposed to a bitter driving east wind. When finally admitted, she was thoroughly chilled, and, although she at once went to bed, it was a long time before she fell asleep, on account of the cold. The next morning she felt sore across the small of her back, was feverish, and when the air struck her, the cold chills would run up her spine. She also suffered from a violent pulsating pain in the fundament; sitting was very painful; and the attempt to pass water brought on a series of agonizing spasms in the muscles of the perinæum. She grew worse all that day; at night she was

extremely restless and somewhat delirious—on the 27th of December her employer had her removed from his house and that afternoon she was admitted to Ward 18, Bellevue Hospital. When I saw her late that evening she complained of pain in and spasmodic contraction of the lower bowel, and the structures adjacent to its outlet. There were occasional involuntary discharges from the rectum, and the liquid passed was a thin, colorless, but offensive fluid, evidently the secretion from the glandular structures at the lower end of the alimentary canal. Touching the anal region caused the patient great pain and was followed by firm retraction of the anus. The sphincters were contracted so strongly that it was impossible to make a digital examination of the rectum. The patient's bowels were free; each day she passed a number of feculent motions; her tongue was coated, pulse rapid, and other febrile symptoms well marked. No urine had been voided for forty-eight hours, and when the catheter passed, the contents of the bladder were ammoniacal and fœtid. The treatment ordered consisted mainly in the local application of opium suppositories, with such cooling drinks as the patient craved. On the morning of the 28th the nurse was ordered to wash out the patient's rectum with a solution of sulphate of zinc, of the strength of one grain to the ounce of water, and in doing so, she was directed to use a double catheter, the end of which was to be inserted beyond the ring formed by the contracted sphincter, thus permitting the walls of the rectum to be subjected continuously to the action of this lotion for a length of time. Quite an amount of excrementitious material was dislodged from the rectal walls by this means. During the afternoon the discharge assumed a purulent character; the pain began to subside, and the patient voided urine naturally. Following the injection of a solution in the evening, similar to the one employed in the morning, there was a sudden protrusion of a number of red and infiltrated folds of rectal mucous membrane which the nurse was unable to return. When I saw the patient an hour or so subsequently, she was in great pain. It seemed that the efforts made to return the protruded folds excited spasm of the sphincters, and interrupted the circulation through these prolapsed tissues. The parts were deeply congested, dry and almost strangulated when I first saw them. Enveloping the structures in an oiled rag, the patient was placed in the knee-breast position necessary for a uterine examination, according to Sims' method, when a few careful

manipulatory efforts caused all the protruded parts to return into the cavity of the rectum. A suppository (2 grains of aqueous extract of opium with cocao-butter) was administered, and the patient left for the night. The subsequent progress of the patient was uninterrupted—she recovered quickly and satisfactorily. About the middle of January, 1869, she was discharged, entirely well, apparently, although she occasionally complained of a distressing sensation in the rectum, just as if there were some foreign body occupying the cavity of that organ.

The number of causative influences which operate in the production of proctitis has been greatly curtailed by the omission, so far as the purposes of this review are concerned, of a variety of different forms of that disease. Erysipelas, dysentery, syphilis and acute phlegmon are active agents in generating inflammation of the rectum, yet we have nothing to do with their influence in that direction at present. Glancing at the extensive field from which the preceding cases were taken, it is readily apparent that the influences which excited the inflammatory process can be isolated in each instance. Dividing the ætiological field into predisposing and exciting causes, and considering the latter first, it is evident, so far as the foregoing cases are concerned, that the manner in which the exciting causes exerted their influence, furnishes a basis for their useful subdivision. Thus, in the first three cases, the morbific agents acted from within, while in the last three, on the contrary, the pathological influence came from without. In the first subdivision, inflammation of the rectum was excited by irritating ingesta, morbid secretions and excretions, and the irritation developed around an accumulation of fæces in the intestines; in the second, the proctitis was due to injuries inflicted upon the rectal mucous membrane, to the exposure of that structure to the foul exhalations arising from a filthy privy vault, and to the influence of cold and wet on a patient at a time when she was warm and perspiring. While exemplifying in the manner indicated the protency of these two classes of exciting causes, these cases are noteworthy on account of the slight influence exercised by those circumstances generally included among the predisposing causes. It is very easy to adduce cases in which age, sex and occupation, maladies of adjacent parts and other diseases of the rectum—in short, those habits, customs and physical conditions which cause a flow of blood to the rectum—are powerful agents in determining

the character, duration and result of the diseases of that organ. Yet, if the aim of the observer is to determine the influence of certain given agents, he must select examples which are as free as possible from the action of predisposing causes. A brief review of the different causes operative in the production of inflammation of the rectum will illustrate this fact:

CAUSES OF PROCTITIS.

I. *Predisposing*: —

1. Age.
2. Sex.
3. Occupation.
4. Disease of adjacent structures.
5. Other diseases of the rectum.

II. *Exciting*: —

Acting from within.
1. Irritating ingesta.
2. Morbid secretions and excretions.
3. Intestinal accumulations.

Acting from without.
1. Injuries.
2. Foul exhalations.
3. Exposure to wet and cold.

The manner in which the predisposing causes operate is self-evident, and needs no illustration. The same can be said of most of the exciting causes. The influence of foul exhalations on the mucous membrane of the large intestine is a question deserving of more attention than has yet been paid to it. It is a well known fact that there is a species of what is generally denominated "dysentery" developed in many little villages during the summer months, which is very prone to attack strangers, especially visitors that remain there only during the warm weather. In a number of instances I know that the disease was nothing but an acute or subacute form of inflammation of the mucous membrane of the rectum, apparently due to the foul emanations from neglected privy vaults. Those who live the year through exposed to this miasm seem to get acclimated; only those suffer who have not previously been subjected to any such pathological influence.

The symptoms due to inflammation of the rectal mucous membrane are not numerous. Pain along the track of the intestine, a sensation as if a foreign body were distending the anal canal, firm contraction of the sphincters of the anus, occasional paroxysms of

spasmodic retraction on the part of the levator ani, retention of urine, a tendency to diarrhœa, together with the constant secretion of mucus by the lining membrane of the rectum, and the occasional involuntary discharge of the latter, are the more important ones. The pain experienced varies greatly in intensity. In some cases there is hardly a sensation of uneasiness; in others, the agony is almost unbearable. In the early stages of the affection, pain is limited to the region of the terminal portion of the large intestine, but, as the inflammatory process extends, the pain radiates in different directions. In some patients, it shoots round the waist, and runs down the lower extremities; in others, it radiates upwards, and may extend over the head or pass down the arms. A disagreeable sensation in front of the rectum characterizes the progress of most cases: one of the earliest and most trustworthy indications of amendment consists in a diminution in the intensity of this pain. In many instances, the development of pain in the rectum is succeeded by a tendency to diarrhœa. The evacuations may be small and unsatisfactory, or large and feculent—in either case, the frequency of the patient's passages at first, is greatly under the control of his will. Finally, the material discharged becomes muco-purulent, and the motions involuntary. If the latter are frequent, the patient soon suffers from tormina and tenesmus, and is greatly annoyed by a sensation as if the rectum were distended by some foreign object. Spasm of the sphincters is a painful and annoying symptom—if there is protrusion of the swollen and infiltrated lining membrane of the lower part of the large intestine, spasm of the sphincters may cause strangulation of the protruded part. Without promptness in relieving the latter, sloughing of the compressed tissues speedily ensues. The irritation of the orifice of the intestine provokes involuntary retraction of the levator ani, and causes great agony. The contraction of the muscular tissues about the origin of the urethra and neck of the bladder, which causes retention of urine is due to the same cause. The painless retention of the mucus secreted by the inflamed structures and its sudden and forcible discharge, almost without warning to the patient, are other examples of reflex action. The firm contraction of the sphincters does not relax; consequently, the liquid evacuated is forced through the anal canal in a stream no larger than a knitting needle. The power that accomplishes this, seems to be furnished by the contraction of the upper portion of the rectum—a region but poorly

supplied with sensitive nerves, a circumstance that doubtless accounts for the unconscious nature of the act.

The cases detailed were selected on account of their freedom from complicating phenomena, and, for this very reason, they cannot be claimed as perfect representations of proctitis as it comes under the observation of the practitioner. In the majority of instances the course the surgeon adopts, in selecting his therapeutical measures, will be governed by the indications afforded, especially in regard to complications. The formation of abscesses or fissures, the development of hæmorrhoidal tumors or prolapse of the lining membrane of the rectum, develop pathological indications which the cautious surgeon will endeavor at once to meet. In treating these complicating phenomena, no other measures will be necessary than such as will be described in due time when treating those abnormal conditions as primary pathological states—a duty which will be performed on a future occasion.

The diagnosis of proctitis will require but few words. To one at all familiar with the pathological anatomy of the rectum, the recognition of inflammation of its lining membrane is easy. In many cases, the symptoms alone will suffice for a diagnosis. The history of most cases of this affection furnishes a series of symptoms that are quite characteristic. In those few instances in which this is not true, recourse must be had to a physical exploration. The necessary details of the latter have already been recounted sufficiently in preceding articles. To one familiar with the morbid anatomy of this organ a glance at the mucous membrane of the rectum will at once settle the diagnosis. This tissue is infiltrated and swollen. In cases such as have been detailed in this connection, the swelling is due to serous effusion. The lining membrane is thrown into folds, and where the latter are thickest, the serous effusion is greatest. In cases where protrusion takes place, there has doubtless been extensive effusion, separating the muscular walls and stimulating their contractility. The mucous membrane, which at first was livid from great congestion, with more or less interruption of the local circulation, assumes a peculiar appearance to which no description can do justice. Around the verge of the anus, especially just beyond the junction of the skin and mucous membrane and beneath the delicate integument of the perineum, the blood vessels are markedly distended. In many cases there is swelling of the thickened tabs of skin in the vicinity, with œdem-

atous infiltration of the cutaneous folds extending toward the anal orifice. This appearance was described at some length, when treating of ulcer of the rectum, and is a condition common to a number of different affections of that organ.

Uncomplicated cases of proctitis being rare, it is but seldom that a uniform plan of treatment can be persisted in through a series of cases. The indications to be complied with in an ordinary case of rectal inflammation, are to relieve pain and subdue local irritation. Both can, in a measure, be met by the internal administration of opium—the local exhibition of that drug in a bland and easily absorbed form, however, fulfills the indications far more thoroughly. In cases in which the secretion from the lining membrane of the rectum is profuse, astringents may be required. It quite frequently happens that the course of treatment adopted in the commencement of the patient's illness has to be modified by the development of complications. The formation of abscesses will require one class of measures—prolapsus of the rectal mucous membrane and strangulation of the protruded part, demands another series. When external hæmorrhoids form, or internal piles become sphacilated as a consequence of inflammation in the surrounding parts, the use of the enema pipe must be dispensed with. In the first case, the patient's sensations must be consulted, and warm or cold applications employed according to his wish. It is often impossible to say which one will afford relief, and both must be tried before the question can be considered settled. Perhaps the result will be contrary to the patient's preconceptions—it has not infrequently happened that patients under my care, suffering from extravasated blood in the delicate tissues about the anus, have besought the nurse to apply cold applications externally and when in due time their wish has been complied with, the pain induced has been so great as to make them cry out in agony. Sometimes, again, warm applications fail to give the relief that attends the use of ice and ice-water. It is owing to this experience that the writer prefers to be guided by the patient's feelings, rather than by his own preconceptions. When the site of large, hard, venous hæmorrhoids becomes covered with gangrenous tissues—a change similar to what ensues when piles of that nature are purposly strangulated with a ligature—it is better not to use the enema pipe, rather than to have it employed by unskillful parties. If the physician will wash out the rectum himself, using luke-warm

water, to which an ounce of yeast and a tablespoonful of powdered charcoal has been added to every quart of the former, he will not only discharge the particles of excrementitious matter which lodge in the folds of the rectal mucous membrane, but will determine the size and firmness of the slough. The latter seems due to coagulation of blood in the large vessels of the hæmorrhoidal tumor; its separation is regulated by the same law that governs the cure of ligated tissues. The management of the fissures, ulcers, abscesses, or fistulæ, which result from inflammation of the lining membrane of the rectum, need not be gone into here, inasmuch as the measures necessary to be adopted either have been, or will be treated of in connection with what has been, or will be said of those lesions from other causes.

To the two indications just recited—to allay pain and relieve local irritability—is to be added that prime requisite for all rational treatment, the removal of the cause. Again, attention must be devoted to the activity and character of the inflammatory process. Mechanical means must be resorted to for the removal of fecal accumulations and alvine concretions. Hot hip baths are of great service in all forms of the disease. Where ascarides are suspected, recourse must be had to vermifuge medicines; terebinthinate enemata are very serviciable, not only when parasites are suspected, but whenever the alimentary canal is in an atonic state. Attention must be given to the state of the secretions—if the bowels have been torpid and the patient's habit costive, he will be the better for a mild dose of mercury with chalk, followed next morning by a saline cathartic. Circumstances must determine the character of the tonic administered. When it can be done, cod liver oil, three times a day, not only builds up the patients strength, but keeps his bowels loose. In some cases, this remedy is either contra-indicated by the patient's state, or is too nauseating for him to take—in such cases, a bitter infusion should be combined with some natural mineral water of a cathartic character.

The use of tobacco renders inflammation of the rectum hard to cure. In some cases, it converts the acute into the chronic form of the disease. In a case where the patient contracted proctitis from exposure to wet and cold riding down a mountain on the outside of a stage coach, the gentleman procured as good surgical advice as New York City afforded, yet he did not get well. Pain in the rectum annoyed him, and he was greatly distressed by a

constant discharge from the anus that soiled his linen and kept him in an anxious and despondent frame of mind. He consulted me in 1873, saying that he was willing to do anything that would afford him relief, but he was fearful that his disease was incurable. There was a faint tradition in his family, which led him to believe that some of his ancestors had died of cancer of the anus. A physical exploration revealed a deeply congested state of the rectal mucous membrane; the anal sphincters were hypertrophied and irritable; but there was no roughness and no hardening of the parts within the reach of the finger. His bowels were a little more free than usual, and he had acquired the habit of taking brandy to relieve them—more, perhaps, than was good for him in other respects. He was a hearty eater, and an excessive smoker. The peculiar point about the case was the existence, all over the lower part of the rectum, of small trachomaton granulations, such as exist in the ocular mucous membrane—little bodies like grains of sago, which felt hard and resisting to the finger. Directing the patient to wash out the bowel night and morning with luke-warm water, to every pint of which a scruple of sulphate of zinc and an ounce of landanum had been added, I cautioned him against the brandy and advised him to abstain entirely from smoking until his bowel got well. Instead of returning in two weeks, I saw nothing more of this gentleman until some six months subsequently, when I accidently ran across him on the cars, and was informed that he had recovered entirely—that he did quit smoking and use the injections as directed, and finding after a few day's abstinence from the former that he was improving, he did not resume the habit. Before the fortnight expired his rectum caused him no more trouble, and the time he was to return and report to me passed without his thinking of the matter. This peculiar granular state of the rectum is not common, yet several cases have passed under my observation, and on some future occasion I shall have something to say concerning them.

Art. 2.— Diseases of the Rectum. External Hæmorrhoids.

No. VII.

BY REUBEN A. VANCE, M. D., GALLIPOLIS, OHIO.

The form of disease known as *hæmorrhoids*, or the hæmorrhoidal affection, is susceptible of division into two well marked classes, which have been recognized in practice from the earliest times. Thus, the variety generally known as *external hæmorrhoids*, differs from that called *internal hæmorrhoids*, not only in situation, but in the symptoms it is attended with, and the anatomical characters revealed by a critical examination. The commonly accepted dividing line between the external and internal forms of the affection is the junction of the skin and mucous membrane of the anus—yet, in certain cases, the mucous lining of the lower portion of the large intestine protrudes, and from exposure to the mechanical irritants it is then subjected to, assumes sooner or later, the structural characteristics of the neighboring integument. Blind and bleeding piles are terms applied to these two forms of the disease—the external variety, owing to its freedom from hæmorrhage, receiving the former designation, and the internal variety, on account of its proneness to discharges of blood, receiving the latter. By far the most important ground of distinction, however, is founded upon the structural characteristics of external and internal piles. Cases of external hæmorrhoids have been reported, in which rupture of a blood-vessel has developed the characteristic hæmorrhage of the internal form of the affection; it not infrequently happens that other phases of internal piles are assumed by the external disease extending along the mucous membrane, or sub-mucous investment of the large intestine, while the proneness of internal piles to protrude and present many of the phenomena of the external disease has already been alluded to. The structural characters of one form are radically distinct from those of the other. In the vast majority of cases of external hæmorrhoids the anatomical changes are primarily limited to the integument, and consist of hypertrophied cutaneous folds, a greater or less degree of exaggeration of the natural rugose state of the skin surrounding the anus, either with

or without elongated bluish-white tumors, which may extend from a half inch to an inch beyond the anal margin, to the point of junction of the skin with the mucous membrane of the rectal outlet, or even so far within the latter as to partially intrude upon its calibre. When these tumors have once been developed their site will subsequently be occupied by a cutaneous fold, which may gradually diminish in size with years, but which, so long as it is in existence, is prone to inflame and may even be the seat of phlegmonous inflammation as the result of the application of a very slight amount of local irritation. The morbid anatomy of internal hæmorrhoids as will be shown hereafter, is quite unlike that of the foregoing variety of the hæmorrhoidal affection, and although both forms may co-exist in the same patient, yet it is within the power of a surgeon to discriminate between the results of each morbid process. In connection with what has just been said the applicability of the term "hæmorrhoidal excresence" to external piles is quite appropriate — the different designations conferred upon the various forms of vascular growth, which constitute internal hæmorrhoids will be enumerated when that form of disease comes up for discussion—as it will in the next paper of this series.

The simplest form of external hæmorrhoids is one that occurs in the experience of almost every person. In any standard work on diseases of the rectum and anus, cases are narrated, which present so strong a resemblance to each other that when one has been detailed, the essential features of all have been enumerated. Yet a practical illustration may be the best means of explaining the facts to which I allude:

1. Thus, in the case of a professional friend of advanced years with whose course of life I am quite familiar, the development of the following phenomena have not only caused him pain and annoyance, but have likewise materially interfered with his medical practice: whenever this gentleman permits any encroachment upon his generally regular habits he is annoyed by an obstinate itching of the anus, which, after persisting from twenty-four, to thirty-six hours is succeeded by a painful swelling of the skin at one point near the anal margin that prevents walking and compels him to assume the recumbent posture. After a day or two of rest, the swelling gradually subsides, and with its subsidence, the pain disappears. Other symptoms may be added to the above, but the annoying itching, followed by painful swelling are present in every

attack. Sometimes a few drops of blood succeed a passage in the earliest phase of an attack. If this gentleman noticed promonitory symptoms on a Sunday, he knew that in all probability he would be unable to resume the active duties of his calling before Thursday, or Friday of that week. Experience taught him to at once give up walking and make use of certain remedies—that by pursuing this course he would be able to resume his work after three or four days confinement, and that he could then count upon from a month to six weeks freedom from attack. The most minute and painstaking examination by a number of different surgeons failed to reveal anything abnormal in the parts about the fundament except a slight thickening of two of the cutaneous folds on the right side of the anus—the part where the swelling and pain were always most marked during a paroxysm. When an attack first came on, there would be redness of the integument; with the subsidence of the itching and the advent of pain and soreness, the whole rim of the anus would be swollen, but the œdema was most marked on the right side, at the point where the anal folds were found infiltrated and thickened during the intervals between attacks. A painful spasm of the anal muscles was one of his most distressing symptoms during an attack.

Although there were no other abnormal appearances discoverable in this case than those just enumerated—a tufting and apparently innocuous infiltration of two small cutaneous folds near the anus between attacks, with the ordinary appearances incident to anal congestion when pain was greatest—yet the frequency with which paroxysms were developed served to greatly impair this patients ability to discharge the duties incident to his calling, and served to inflict upon him a vast amount of physical pain. The slightest irregularity in his habits; the most trifling deviation from the plain diet he limited himself to, served to excite an attack. In every other respect his health was excellent—yet the difficulty just described incapacitated him in the manner mentioned. An important point connected with this case is the fact that there is not the slightest febrile reaction during an ordinary paroxysm.

2. Nearly ten years since I was called to the bed-side of an acquaintance, who had assumed the duties of proof-reader in a large publishing house in New York a few months before. He was compelled to remain indoors in order to comply with the requirements of his new vocation, and this radical change of habits to one who

had never before engaged in a sedentary pursuit soon began to tell upon his general health. He lost strength and appetite; his countenance became sallow and he rapidly emaciated. Yet he had been able to work at his desk until the evening before I was called to see him, when without warning of any kind, he was attacked with pain and swelling near the anus. His suffering was so acute that he feared the slightest movement of his body would add to it, so he resolutely refused to attempt to change position in order to facilitate an examination. Physical exploration revealed an œdematous state of the parts about the anal opening, with a round, prominent swelling on the right side, about half an inch from the margin of the anus. To the touch, the swelling felt hard and resistant: its edges were not distinctly marked, but gradually merged into the healthy tissues surrounding it, without any distinct line of demarcation. The patient stated that the sitting position excited unbearable pain; that occasional paroxysms of pain came on even when he assumed the easiest posture; and that in addition to a sensation as if the rectum were distended, there was a constant sensation of throbbing in the fundament which was extremely disagreeable. There was no great elevation of temperature—pulse 72, and not irritable. He also said that his bowels had been constipated for three days; that he was at the water-closet the evening before when the pain came on; and that the first symptom was developed by a difficult motion which caused him to strain violently. The fact that the rectum was distended with dried and hardened feces was apparent to the most hasty observer, and despite the pain excited by the procedure, the lower part of the large intestine was evacuated by enemeta of soap-suds and castor oil. An ointment consisting of equal parts of the aqueous extract of opium and extract of belladonna was applied to the swollen parts, and a soft piece of linen, moistened with lead and opium lotion (one drachm each, of acetate of lead and pulverized opium, to a pint of boiling water) was carefully applied to the fundament and changed as soon as it became dry. An hour subsequently, the pain still remaining intense, a grain of morphine was dissolved in an ounce of water, and given to the patient's attendent, with orders to administer a teaspoonful of the solution every fifteen minutes until four teaspoonfuls were taken, or until relief was obtained—if the pain persisted after the fourth dose, a half hour was to be allowed to pass between succeeding doses. The following morning I found

the patient in a comfortable condition, and learned from the nurse that the pain was sensibly relieved by the first dose of the morphine (one-eight of a grain); that he became drowsy after the second, and fell asleep shortly after taking the third, and slept until 4 a. m. The swelling at the side of the anus remained, but the œdema of the anal margin had subsided. That evening the parts were so nearly free from pain that the patient was anxious to get up and dress himself. Four days subsequently a thick fold occupied the site of the former swelling to the right of the anus, and as time passed, the infiltrated cellular tissue which gave thickness to this duplication of skin assumed a healthy character, and the cutaneous fold became smaller. Years afterwards this patient called to consult me in regard to this tab of skin, saying that it was very disagreeable—that it rendered neighboring parts uncleanly, was the caused of a disagreeable secretion which continually bedewed the part, and often became inflamed at which times he suffered great agony. A physical examination at that time (1873) revealed a thin, flexible fold of dark colored skin, which was surrounded by a broad circle of similarly discolored integument. In accordance with the advice given him, the patient had this cutaneous tab snipped off, with a pair of scissors, after which I heard no more complaints from him.

3. During the autumn of 1872, I was called upon to prescribe for a lady who had been taken sick on the cars between Philadelphia and New York. Her husband desired something to temporarily relieve her of the agony that had been induced by an attempt to evacuate her bowels shortly after leaving Philadelphia. Before administering morphia, I called to see the patient at her hotel and learned the details of her case. She was about thirty-five years of age, and since the birth of her first and only child, six years previously, had suffered greatly from "bleeding piles." Whenever her bowels failed to move daily, the next motion would be followed by a profuse hæmorrhage. Occasionly, the latter would recur with such frequency as to reduce her strength, and render her anæmic. At the time I saw her, she was returning from a short visit to some friends in the South—a visit that had been made with the hope of recruiting her strength. During the six weeks she was in North Carolina, the piles did not trouble her, and her menstrual flow was more nearly natural than it had been for years. She also gained flesh and strength, and was returning to her New England home

greatly encouraged, when the irregularity of life incident to traveling interfered with the daily evacuation of her bowels, and induced the accident that led to my being consulted. She also informed me that she never before suffered the same as she then did—that she was not sure, even, that the usual hæmorrhage had occured. Having finally obtained the patient's consent, I made a careful physical exploration. The pulse was 82 per. minute, but the skin was cool and moist. Three small enlargments could be felt on the inner surface of the rectum, but they were not sensitive, and no blood followed the withdrawal of the finger. Externally, however, two small, round projections existed - one at the side, and the other, directly behind the anus. The integument in the neighborhood was not perceptibly inflamed—over the circular enlargements it presented a bluish tint. When the finger was passed over the swellings, it seemed as if a couple of small marbles were embedded in the tissues, so hard and round were the projections. A little persuasion induced the patient to consent to the plan of treatment I proposed and after placing her in a proper position, I drew the keen edge of a scalpel over first one and then the other swelling. Very little pain, indeed was excited by the operation, and as soon as the cuts were made, I was able to turn a clot of blood out of each wound. After scraping out the clots with the handle of the scalpel, a little dry lint was placed in the bottom of each cavity, and the patient given the quarter of a grain of morphine and put to bed. A dose of oil was administered next morning, and the bowels were unloaded. The following day the patient insisted upon continuing her journey. She said that she suffered no pain after the completion of the operation, and so far as a stranger could judge, she seemed in excellent health and spirits the day she left the city.

In order that the symptoms of this affection may be understood, and its pathological characters properly comprehended, a glance at the anatomical conformation of the parts implicated must be premised. The mucous lining, and the cutaneous investment of the anal orifice are remarkably delicate in structure, and are richly supplied with nerves and vascular trunks. Again, the folds of integument which radiate, in a circular direction from the anus, are peculiarly prone to react to a trivial local irritation, by a copious flow of arterial blood to the part—a physiological phenomenon which denotes the readiness with which the vaso-motor nerves of

the neighborhood can be rendered active, and an important circumstance in explaining the comparative ease with which inflammation is excited in the tissues surrounding the anus. The elasticity and distensibility of the structures surrounding the lower part of the rectum, the severe mechanical compression to which they are occasionally subjected, and the peculiar manner in which the blood supplied to the part is distributed, are circumstances which explain, to a certain extent, the reason why these structures are so frequently diseased. Whatever tends to congest and inflame the tissues about the lower part of the rectum, in like manner, tends to bring on an attack of piles as perhaps the simplest expression of such irritation. The loose and elastic cellular tissue so necessary for the performance of the functional offices of the parts, supports the vast body of vessels, both arterial and venous, which form an essential part of their structure. These vascular trunks do not pursue a straight course from their origin to their distribution—on the contrary, their direction is tortuous and wavy. When it is borne in mind that with every distension of the anal aperture, these vessels are mechanically stretched and their direction forcibly changed, vascular dilatation, or even vascular rupture, will no longer seem an inexplicable local lesion.

In the first of the foregoing cases an examination made at a time when the patient was free from active symptoms revealed nothing but a slight thickening of two of the cutaneous folds on the right side of the anus. When an acute attack came on, the integument at this point became red, hot, swollen and painful—in short, inflamed. The rim of œdematous infiltration about the margin of the anus—the "Serous" Hæmorrhoid of Howship—is a condition commonly developed in that situation by inflammation of the neighboring parts.* It was present in more marked degree in the second case. This second case was also characterized by a round, prominent swelling on the right side about half an inch from the margin of the anus, which, to the touch, was hard and resistant, but which was not distinctly defined—its edges gradually merging into the healthy tissues around without any distinct line of demarcation. It is a noteworthy fact that this swelling persisted after the subsidence of the œdema of the anal margin, and when it did pass away, it left a thick fold of distended integument in its place

* HOWSHIP: *Practical observations etc., on Diseases of the Lower Intestines, and Anus*, 3d Ed. London, 1824. p. 208.

which gradually grew thinner and thinner and ultimately assumed the characters of a thin tab of redundant skin. Resembling the second case, so far as the suddenness of attack was concerned, the last case differs from both of the others in important respects. There was no inflammation of the skin and the two globular swellings near the verge of the anus were distinctly circumscribed. They also presented a blueish tint, and the operative procedure adopted revealed the fact that they were due to a collection of blood in the cellular tissue of the part—the result, in all probability of the rupture of a vascular trunk, brought on by excessive straining. The pathological character of two cases is quite clear—in the first, there was inflammation of the integument, in the last, extravasation of blood from a ruptured vessel, but in the second case, the condition of the parts is not so apparent and needs explanation.

Without entering into the controversy which has been waged for many years concerning the true character of the various forms of external hæmorrhoids, it will suffice to say that the cases similar to the one first detailed are so numerous, that no one denies the fact that all the phenomena of the disease may be excited by a circumscribed inflammation of a part of the anal integument. Again, the same facts render that form of the disease due to extravasated blood a clinical phenomena the truth of which cannot be questioned. The anatomical characters of tumors such as were developed in the second case however, are the ones about which there is difference of opinion. The symptoms closely resemble those present in both the other forms of the disease, but the character of the appearances present, and the nature of the swelling approximates the hæmorrhagic, more than the inflammatory form of the affection. One class of observers ascribe the phenomena to a coagulation of blood in the veins of the part, to which the swelling etc., are secondary; others believe that there are local varices, and ascribe to the dilated channels through which the blood passes, an important influence in developing the thrombi; while a third class fails to see any difference between the form of disease such as existed in the second case, and that which was present in the case of the lady whose history was detailed last. That there is an important—a radical difference—the following facts will demonstrate. In cases like the last the clots are contained in a distinct sac, formed of condensed and inflamed areolar tissue, without any communication with neighboring veins, while in cases

similar to the second one narrated, it not infrequently happens that the swellings can be made to disappear, temporarily, by a little careful manipulation of the part. In certain of the latter variety of cases, I am confident of having been able, by squeezing the part, to empty the dilated veins of clots of coagulated blood. The subsidence of the swelling was but temporary—the result of this manipulation has generally been deleterious to the part—and in a short time the enlargement was more marked than before. The result, however, has been such as to satisfy me, beyond a reasonable doubt, that coagulation of the blood in the vessels of the parts near the verge of the anus was the immediate cause of one form of external hæmorrhoid, and a careful study of the phenomena preceding and accompanying its development has furthermore convinced me that this coagulation was induced by a prolonged distension of the anal outlet, generally caused by the evacuation of large masses of hardened feces, and that this coagulation occurs indifferently in healthy and diseased vessels, the prime requisite being such a degree of distension of the surrounding elastic tissues as will interfere with the current of blood in the vessels and produce a local stagnation in the circulation—a condition eminently favorable for coagulation.

The anatomical conformation of the diseased part explains the intensity and character of certain of the symptoms experienced by the patients. The richness of the structures about the anus in nerves is one reason why inflammation, hæmorrhage or thrombus excites pain of such severity. Spasmodic contraction of the muscles in the neighborhood—the sphincter and levator ani—retract and compress the highly sensitive tissues, and account for the sudden and paroxysmal accessions of pain, so commonly developed just as the exhausted sufferer is falling asleep. The itching of the anus, which was so prominent a feature in the history of the case just narrated, quite frequently precedes the development of the affection in those cases in which an inflammation of some of the structures about the anus is the morbid anatomical element. As a general rule, in those forms of the complaint in which extravasation, or coagulation of blood causes the sudden swelling of the parts about the anus, and the other phenomena such as were noted in the two remaining cases, pain, severe in character and sudden in its development, is the first symptom to manifest itself. Then pain, throbbing, and a sensation as if some foreign body were

firmly embedded in the anus, attend the development of swelling and œdematous infiltration about the terminal orifice of the large intestine, it matters not whether circumscribed inflammation, hæmorrhagic extravasation or a coagulum in the vessels of the part is the morbid anatomical element in the case. Attention to the symptoms just developed in that form of the disease characterised by inflammation of the integument of the anal region will occasionally enable the sufferer to either prevent, or materially abridge the duration of certain attacks. In reference to such cases, Mr. Alligham writes as follows:

"It is desirable to notice the earliest, or rather the premonitory symptoms of one of these attacks, as by this knowledge it may possibly be warded off, or at all events, much mitigated. Not unfrequently a little extra eating and drinking, without any absolute excess, is the exciting cause; an indulgence in effervescing wines—full-bodied ports, or new spirits — being especially dangerous. The earliest symptom is a sensation of fullness, or plugging up, and slight pulsation in the anus; there is also a tendency to constipation, inducing a little straining; this is frequently followed by itching of a very annoying character, coming on when the patient gets warm in bed, keeping him awake for some time, and inducing him to scratch the part. In the morning he finds the anus a little swollen and tender, and if he be an observant person with regard to himself, he will notice, after a motion a slight stain of blood. Now all this may pass off with the simplest care and the slightest medication; but if the patient neglect himself, it will surely be the precursor of a more or less severe attack."*

Among the influences which operate for the production of the various forms of external hæmorrhoids the most powerful predisposing causes are *age*, *sex* and *occupation*; while *constipation* and *straining during defecation* are the most potent agents in exciting the disease. With advancing years, the walls of the blood vessels degenerate — their inner tunics become rough and their walls, friable. Again, all the tissues of the frame become less elastic—not only is the act of defecation interfered with by the increased rigidity of the parts about the anal orifice, but constipation, with all its train of attendant evils renders the motions hard and irritating. The sedentary habits of the female sex seems to render women peculiarly prone to the affection, constipation is by far more

* ALLINGHAM: *Diseases of the Rectum*. Amer. Reprint, Second Ed. Phila. 1873, p. 50.

common with women, than with men—with many females, especially those of advanced years, the rectum is permitted to become distended with hardened feces, and to remain in this condition habitually. If this condition is permitted to develop among those who have borne children, and in whom tissues about the outlet of the pelvis are already in an abnormal state from the great distention to which they were subjected in parturition, one or other form of external hæmorrhoid is sure to develop. The most common variety, in such cases, is the hæmorrhagic—a difficult motion, or it may be, some very trifling bodily movement, precipitates the crisis, a bloodvessel ruptures, and in a short time, the patient is in an agony of pain. But this state of affairs is by no means limited to one sex—shoemakers, tailors, etc., are liable to suffer in the same manner. Men who change from an active to a quiet life very seldom escape. External hæmorrhoids not infrequently develop in young, hardy men, who for some reason or another have neglected their bowels, and become constipated. One class of young men of this kind is especially subject to the disease. It is constituted by young men, generally the sons of farmers, who work at home during the greater part of the year, and when winter comes on, resort to towns and cities for educational purposes. Like most young persons of both sexes, they are profoundly ignorant of the first principles of physiology, and having always been healthy without any effort on their own part, they imagine they will continue so. Were I to attempt to estimate, from personal experience, the individuals among whom the different forms of hæmorrhoidal disease of the external variety is most commonly found I would have no hesitation in saying that in young and vigorous men, the disease was caused by thrombosis; in aged individuals of both sexes, it was hæmorrhagic; while in middle age, it is most generally inflammatory.

The treatment necessary, varies with the stage and variety of the affection. In the earliest phase of the inflammatory form, well-directed and judicious efforts frequently cut short an attack. This is true, whether the morbid anatomical element be the fold of integument remaining after the cessation of other forms of the disease, or consists of a slight degree of infiltration of the delicate skin about the anus—the latter condition being one in which acute inflammation is readily excited by a slight derangement of the circulation, due either to an interference with the return of blood

from the part caused by pressure on the veins from a distended rectum, or engendered by a local irritation, causing stasis. A light and unstimulating diet, free from condiments of all kinds; hot baths to open the skin, together with the most scrupulous cleanliness of the irritated part; and careful attention to the bowels, are the measures indicated. If the lower bowel has become distended, a warm enema, to which an ounce of castor-oil has been added should be employed, when the patient is anæmic, cod-liver oil should be administered three times a day, not only for its general, but for its local effect. These measures, combined with rest, will cut short an atrack of inflammation in the structures about the rectal outlet, in the vast majority of cases. If they are unsuccessful, future treatment will depend upon the anatomical characters of the inflamed parts. When there is diffuse infiltration of the integument, it would be well to resort to the local application of opium and belladonna. In cases where the pain is very great, a large poultice should follow the inunction of the opium and belladonna ointment. Should the pain still continue severe, opium should be administered by the stomach or hypodermically. Very little good accrues from narcotic enemata, and without the case is urgent, I prefer to administer the drug by the stomach. Crude opium—the powder or pill—is the worst form in which that valuable drug can be given. Patients differ so widely in their apparent susceptibility to the drug, that no physician can tell how any given person will bear it, until he has tested the latter's ability. The plan that has worked best, in my experience, is to employ some one of the opium alkaloids—as the sulphate of morphia—and administer it in very small doses, frequently repeated, until the desired effect is produced. Thus, divide a grain of morphia into four powders, and direct the patients attendant to dissolve one in four teaspoonfuls of water, and give a teaspoonful of this solution, every fifteen minutes, until the patient is free from pain. Should the pain persist after one powder is exhausted, dissolve another in the same way, and administer as before. If the second powder is ineffectual, have another one dissolved in the same quantity of water, but give the teaspoonful doses at thirty, instead of fifteen minute intervals. By persuing this course, all danger from the administration of an over-dose is avoided, and a much smaller quantity than usual, will be found to produce the desired effect. I have known quiet, painless sleep to be induced in a

patient by a quarter of a grain of morphia, who had taken from two, to three grains on each of the two preceding nights. These minute doses are not only as effectual in relieving pain, and producing sleep, as larger ones, but they rarely induce vomiting and morning sickness, the following day.

If the inflammation developes in the tab of skin such as has already been described, it becomes swollen and œdematous and may be followed by ulceration or suppuration. When the symptoms are due to inflammation excited by extravasated blood, or local coagulation, the pain may be equally severe and urgent. If the tab of skin is large, or if the disease seems to be confined to the redundant integument, it is often good surgery, to snip off the diseased part. This need not be a painful operation. With the ether-spray, the fold of skin can be frozen, grasped with a pair of bull-dog forceps and cut off with a pair of properly curved scissors. The whole process need not require more than a minute— the painful part, but a few seconds. The treatment required afterwards, will be that already described for the relief of pain in the preceding paragraph.

In those cases in which the observer finds that the suddenly developed pain is due to an extravasation of blood into the meshes of the investing cellular tissue—or, in which the inflammatory symptoms are dependant upon such hæmorrhagic extravasation—the most urgent indication is to evacuate the sanguineous tumors by laying them freely open. The plan pursued, and recommended by Mr. Allingham, possesses many advantages. He pinches up the tumor between the thumb and finger of the left hand, transfixes its base with a curved bistoury and cuts out—at the same moment by pressure with the thumb and finger, he extends the clot—and the operation and after-treatment are completed by inserting a fine piece of cotton-wool into the cavity of the sac. Whenever the clotted blood is removed, these patients convalesce rapidly.

When the pain and swelling are due to coagulation of the blood in the vessels near the anal orifice, an anatomical condition is induced which cannot be relieved by cutting off, or laying open the part. The indications for treatment are to so control the inflammatory action as to prevent the formation of abscesses, sinuses and fistulæ. This can only be done by keeping the patient quiet, with his bowels open, and his skin active until the inflammation

subsides. To prevent local irritation either from the action of substances ingested, or those brought in contact with the parts externally, the diet should be bland, and the patient kept in the recumbent posture. Local applications of anodynes will materially relieve the pain; of these, the best is an ointment composed of equal parts of the aqueous extract of opium and the extract of belladonna, which should be freely applied to the parts about the anus. A poultice, such as was recommended before will prove serviceable. The internal administration of opiates, according to the plan heretofore described, should be resorted to, whenever the pain becomes severe. These measures will do all that can be done towards the prevention of abscesses and fistulæ—further remarks on the prevention of those conditions will be made when those subjects are treated of hereafter.

There are many points connected with the treatment and prevention of hæmorrhoids which cannot be dwelt upon until the internal form of the disease has been described. Further consideration of these subjects will therefore be deferred until the conclusion of the next article of this series, which will be devoted to that form of the disease called internal hæmorrhoids.

Art. 3.—Rupture of the Choroid.

By W. R. AMICK, M. D., CINCINNATI, OHIO.

Charlie Ulner, æt. 10, schoolboy. On Sept. 23rd, he was playing with some of his comrades when one of them struck him over the left eye with a stick. Immediately following the blow he was unable to see anything with the eye. Over the inferior margin of the orbit there were three or four abrasions of the integument. There was considerable swelling and tumefaction of the lids, especially the upper one which hung in a great fold down over the cornea. He also complained of severe pain in and around the eye-ball Under an antiphlogistic treatment the swelling of the lids passed away leaving a ptosis of the upper lid. The iris, when the inflammation of the lids had passed away sufficiently

Art. 2. — Diseases of the Rectum. — Internal Hæmorrhoids.

No. VIII.

By Reuben A. Vance, M. D., Gallipolis, Ohio.

The radical difference which exists between the external and internal forms of the hæmorrhoidal affection will be illustrated by comparing the cases of the former complaint, detailed in an article in the Lancet and Observer, October 1877, with those narrated in this one. As has already been stated, the anatomical character of the parts in which the hæmorrhoidal growths develop, should be thoroughly understood by whoever seeks to acquire truthful ideas of the nature of these affections. This knowledge is an indispensible requisite for the comprehension of the internal form of the disease; in fact, no adequate description can be given of the affection without referring not only to the structures of the part, but also to its functional offices. In order that these references may be intelligible—also, because descriptions of the anatomical characters and functions of the rectum are not generally accessible—a brief review of the more important points will be premised.

The external longitudinal fibres which invest the rectum have three distinct distributions. One part blends with the levator ani and ascends with the fibres of that muscle; another set pierce the external sphincter and attach themselves to the tendinous center of the perineum and, by means of fibrous prolongations, to the integument about the anus; while the remainder curve around the lower border of the internal sphincter, ascend on the inner aspect of that muscle and are attached to the terminal fourth of the lining membrane of the rectum. Between the mucous lining of the lower portion of the rectum and its muscular wall is to be found a quantity of loose areolar tissue which increases in quantity the nearer the anal orifice is approached. These structures, so important for the physiological process of defecation, are likewise potent agents in the production of the structural changes which constitute the morbid anatomy of internal hæmorrhoids. In

order, however that the pathology of the latter may be correctly appreciated, it is essential that the blood supply, and the vascular distribution of the rectum, should be correctly known. The rectum is largely supplied with blood, and the vessels to be observed on its outer side are large, and the branches which they send through the muscular coats ramify between them and the mucous membrane.

In the observation of Quain, that independently of their position as regards the coats of the bowel, the arrangement is not the same throughout the rectum, can be verified by any careful observer."* Thus, over the greater part, the arteries and veins, taking both systems of vessels as following the same course, penetrate the muscular coat at short intervals, and at once divide into small branches which hold a transverse direction, and form a network by their communications with the sub-divisions of other vessels of a similar nature. Towards the lower end of the bowel for the length of about five inches, the arrangement is quite different. Here the vessels have considerable length, and their direction is longitudinal. Penetrating at different heights, they are directed in parallel lines towards the end of the intestine. In their progress downwards they communicate with one another, and are still more freely connected near the orifice of the bowel, where the arteries all join by transverse branches of good size, and the veins form loops and inosculate with equal freedom. The venous plexus just within the internal border of the external sphincter is about three-quarters of an inch in length, and is most marked between the longitudinal columns of the rectum. This plexus does not extend beyond the internal border of the external sphincter, but branches from it, passing between the fibres of the internal sphincter, descend along the outer edge of the former muscle close to the integuments surrounding the anus. An acquaintance with these peculiarities in the circulation is very important to one who desires to become acquainted with the mechanism of certain pathological processes in these parts, especially the manner in which internal hæmorrhoids are developed.

In the article treating of ulceration of the rectum—the third of this series—a few remarks were made relative to the physiology of the large intestine, but more especially of its terminal portion, the rectum, the substance of which it would be well to recall prior to

*QUAIN. Diseases of the Rectum. N. Y., 1855. p. 32.

entering upon a consideration of the mechanism by which the greater number of cases of internal hæmorrhoids are produced. It was then stated that when the bowels are regular in action, and the daily evacuation always had at a particular hour, the rectum is empty at all times, except during the few moments which precede a call to the closet. From the termination of the sigmoid flexure, at the junction of the descending colon with the rectum to the sphincter of the anus, the walls of the rectum are as thoroughly in apposition as the walls of the œsophagus. Whenever the regular time for emptying the bowels comes round, relaxation of the circular bands of muscular fibre at the lower part of the sigmoid flexure occurs; and this intestinal movement corresponds with the sensation which the person knows is the signal for defecation. The fecal matter passes from the rectum and if the sensation then developed is heeded and the person retires to the water closet, the bowels are regularly evacuated. But, as has already been insisted upon, this physiological warning is not an imperative command, it is still within the power of the person to resist the call. As a general rule, a neglect to respond to this intimation is followed by a subsidence of the uneasy sensation, and the act of defecation can be postponed for from an hour to a day. In such cases the relaxation of the fibres at the sigmoid flexure, and distension of the rectum, are followed by an anti-peristaltic contraction in the walls of the latter; the rectum expels its contents into the colon, and the fibres at the sigmoid flexure contract. When the bowels are neglected, and permitted to become irregular, the rectum may not empty itself after the signal for defecation has once been given; in such a case the rectum becomes a reservoir for fecal accumulations. In such cases, instead of the organ remaining empty and collapsed like the œsophagus, its canal furnishes lodgment to masses of excrementitious matter which should be evacuated. Whenever the feces remain in the rectum for any length of time, their watery portions are absorbed and the residue is left in the intestine as a plug of hard, dry, foreign material. The muscular efforts necessary to disengage it, are far more powerful than in health. Generally some form of cathartic medicine has to be used in order to secure a satisfactory motion. In either case, extensive hyperæmia of the bowel is induced. The eversion of the mucous membrane incident to normal defecation is exaggerated; the interruption to the circulation which is but mo-

mentary in health may now be attended by a certain amount of serous effusion, and be followed by a painful or uneasy sensation deep in the fundament—quite commonly there is more or less hæmorrhage at the same time. Distension of the veins at the lower part of the rectum is accompanied by a tortuous course on the part of those which usually pursue a straight direction; the materials effused during defecation often glue their adjacent parts together, and render the loops thus formed a permanent condition of the venous trunks; while the effect of the sphincter upon the slight enlargement thus produced is to mechanically irritate the part, to increase the quantity of the morbid products in the submucous cellular tissue, and occasionally, to induce either hæmorrhagic extravasation, or coagulation of blood in the affected vessels. The circumscribed enlargement thereby produced projects into the cavity of the rectum, and so stimulates the muscular structure of that organ as to excite prolonged and violent efforts to expel what feels like a foreign body in the lower part of the large intestine. The œdematous structures are grasped and pinched by the sphincter, and the morbid process, already initiated, is thus stimulated into greater activity. The connective tissue about the vessels becomes condensed and hypertrophied, the arterioles and venules enlarge and project more and more into the cavity of the organ, and the obstruction to the passage of fecal matter, which is very great during congestion of these parts, exists to a certain extent at all times. In advanced cases, something like the following course of events can be traced: These circumscribed enlargements or "tumors" from daily contact with the mass of fecal matter as it is extended from the bowel, are gradually pushed before it, and through the yielding of the loose connective tissue between the mucous membrane of the rectum and its muscular coat, at the lower fourth of that organ, they are finally forced through the anus with a stool, carrying with them more or less mucous membrane in which they have developed. This constitutes prolapse of the hæmorrhoidal tumors. When the sphincter muscles contract promptly around these tumors, their return is prevented; if the circulation be interrupted for any length of time, sloughing, to a greater or less extent, may be increased. The mucous investment of these enlargements becomes thickened and altered, and occasionally presents a granulated surface similar to that of the conjunctiva when the subject of chronic inflammation. The vast

number of minute arterial ramifications near it, become dilated and bleed when irritated. When this condition exists, a motion harder than usual, or a trifling derangement of the digestive organs, attended with hepatic congestion, may excite a profuse flow of the blood from the rectum.

So far as concerns size and position of the growths, the varieties of internal hæmorrhoids are almost innumerable. In some cases they are so small as to reveal nothing more than a trifling increase in the number and size of the vascular trunks distributed to the mucous membrane of the rectum; in others they form tumors the size of the fist. Bleeding is a characteristic symptom in some, and may recur daily; in others, after continuing for a length of time, it may cease, never to return. In those attended with hæmorrhage, the blood may be either arterial or venous; it may pass away in a continuous oozing, or be discharged in a series of jets, or again, run out in a continuous, if small stream, accordingly as it arises from a small artery, the capillary circulation, or a minute vein. The hæmorrhoidal growths occasionally rest quietly within the internal sphincter and only appear externally during defecation. Far more commonly do they not only come down at stool, but protrude whenever the patient makes any active muscular exertion. In a few cases of long standing, the piles are always down. The number of the growths, their size and situation are points of minor importance compared with their structual characters, and the presence or absence of hæmorrhage. Accordingly, in arranging the different forms of internal hæmorrhoids into groups for the better study of their clinical characters, their structure will be made the basis of division.

In an affection so common, and so widely distributed as the one under consideration, a just appreciation of its causes would require more time and space than can be devoted to it in this paper. For the present, it will suffice to say that among those influences which predispose to the development of internal hæmorrhoids there are none more important than Hereditary Tendency, Age, Sex, and Occupation. The effect of inheritance is undoubted, but its influence in particular individuals is hard to estimate. Age has a two-fold effect—with increase of years the parts about the rectum become susceptible to this disease by long use and by local changes, especially in the vessels; while the changed habits incident to advanced life, promote rectal affections in proportion as they gravi-

tate towards in-door occupations and sedentary habits. Sex deserves its place among the predisposing influences, from the fact that the changes incident to child-bearing, the peculiar periodical congestion of the pelvic organs as each menstrual epoch passes, and the retired habits of women all conduce to develop hæmorrhoids. Finally, occupation, when it interferes with an out-door life and active muscular exertion, in like manner conduces to the development of this disease. The one great exciting cause, not only in professional but in popular estimation, is constipation. A careful study of the manner in which internal hæmorhoids develop, however, will speedily convince a competent observer that another element, in addition to the constipation, is necessary for the development of this affection, that is, a certain amount of congestion of the liver. The vessels of the rectum are extremely susceptible to changes in the vascularity of the liver, and a moment's attention will show why this is so. The blood returning from the veins of the rectum, not only ascends against gravity to reach the liver, but the vascular trunks in which it is conveyed break up and form a second capillary plexus in the organ. It occasionally happens that two patients suffering from internal hæmorrhoids become constipated, and one has hæmorrhage from the piles while the other has not; the explanation being that there is congestion of the liver in the one who loses blood, while there is no change in that organ in the other.

Hæmorrhage constitutes one exceedingly valuable means of distinguishing between the different varieties of internal hæmorrhoids. The presence of this symptom will enable the observer to exclude one large division of the affection, and limits the diagnostic problem to the recognition of one of the two remaining forms of the disease. This is true, provided the classification devised by Mr. Allingham is the one adopted, and as his sub-division is based upon natural distinctions, and can readily be verified by the observation of a number of cases, it will be followed in this paper. In fact, but a day or two since, the writer had an opportunity of testing its truth in a very satisfactory manner. The mother of a young girl, of fifteen or sixteen, called to consult me relative to a curious feature which had developed in her daughter's case, some six or seven months ago, and persisted ever since. During the menstrual epoch the girl lost blood from the rectum, as well as the vagina, and for a day or so every month, after the discharge from

the latter passage ceased, there would be an exhausting hæmorrhage from the former. Although there was no loss of blood at any other time, and the trouble had been in existence but a few months, yet the girl had grown weak, and presented a pale and languid look. From the best information I could obtain, the patient's condition had not been improved by the course she had pursued, for her parents consulted an ignorant colored empiric, and followed the advice he gave them, which was too loathsome and revolting to appear in print. The state of the vagina permitted but an imperfect digital examination, which revealed nothing wrong with the genito-urinary apparatus. Rectal exploration was more satisfactory; on the left wall of the organ, at a point about an inch and a half from the anus, there was a spot which felt much as if a piece of leather, the size of a nickel, had been placed beneath the mucous membrane. It felt soft and spongy and seemed to project beyond the surface of the rectal wall. A profuse hæmorrhage followed the withdrawal of the finger. After considerable trouble, and some distress to the patient, I succeeded in obtaining a view of the affected part, which looked as if the seat of a bunch of pale, exuberant granulations. The slightest touch excited a flow of blood. The patient was of great assistance in enabling me not only to see the part, but helped me materially in applying fuming nitric acid to the bleeding point.

Internal hæmorrhoids of the form just alluded to are called *Capillary Hæmorrhoids*. In structure they are distinguished by more or less hypertrophy of the sub-mucous cellular tissue, with a greatly increased development of the capillary vessels of the lining membrane of the rectum. A more careful examination will reveal changes in the mucous investment of the growth which may either assume the characters of granulation tissue, as in the case alluded to, or present the appearance of minute lobules like a raspberry, and consist of thin walled vessels, arterial and venous, together with capillaries so dilated that a mere touch is all that is required in order to develop profuse hæmorrhage. Again, with a base of hypertrophied and vascular cellular tissue the mucous membrane over it is not infrequently studded with minute bodies presenting a striking resemblance to trachomatous granulations. As a general rule, when bleeding piles first develop, the foregoing is the anatomical condition present. In such cases, the blood lost is bright in color and arterial in character.

It is not a common occurrence for hæmorrhoids discharging arterial blood in a continuous stream to become prolapsed; yet, such is occasionally the case. Thus, a lady lately delivered of her first child, on the morning after the day she ventured abroad, was seized with violent expulsive pains at the water-closet, together with what she thought was a profuse watery discharge. After this had continued for some little time without relief, she grew so weak that she was compelled to summon assistance. When raised up she fainted, and continued to do so when placed in the erect posture. Chancing to be in the neighborhood I was summoned in haste, and upon making an examination found a large hæmorrhoidal growth which had been extruded, firmly embraced by the sphincters, and bleeding freely. A careful examination showed that its surface was covered with a plexus of minute vessels, that the growth was formed of hypertrophied sub-mucous cellular tissue, and that a number of large arterial trunks could be felt converging towards it. A little manipulation effected its return, and an enema of warm water, to which some perchloride of iron had been added, speedily checked the flow of blood. This was the first intimation this patient ever had that she was afflicted with piles.

The tumor in this case, excluding the character of the hæmorrhage, would be a fair example of the *Arterial Hæmorrhoid*. Most commonly the latter are tumors varying in size, but hard, slippery and glistening, and when they bleed, the blood comes away in small jets. Large arteries are distributed to them, and they rarely discharge blood unless prolapsed and strangulated by the sphincters. In structure they consist of a firm stroma of connective tissue, most marked externally, and a series of arterial and venous trunks which anastomose freely and are tortuous and irregularly dilated.

The remaining form is the *Venous Hæmorrhoid*. This is the tumor that is so commonly becoming prolapsed, and is the largest as well as the most common form of the affection. The bulk of this hæmorrhoid consists of dilated venous trunks supported by a firm stroma of cellular tissue. It rarely if ever bleeds, and like the arterial tumor, is often the cause of a profuse watery discharge.

In glancing back, I can recall many cases during the past eleven or twelve years, in which the first phenomenon developed was hæmorrhage; in which a morbid growth, or hæmorrhoidal tumor,

with or without hæmorrhage, attracted attention; and finally, after years of suffering, the hæmorrhagic tendency subsided and a disposition to "prolapse" took its place. In the beginning no enlargement was noticeable, but the hæmorrhage was very troublesome; then, as the losses of blood became infrequent, the inflammatory attacks and prolapse of the growths took place. The amount of suffering from prolapsed and inflamed tumors depended greatly on the state of the sphincter; when the latter was weak and atonied, one source of agony, spasmodic compression of the swollen and inflamed growth, was done away with.

Physicians are quite frequently summoned in great haste to relieve the agonies of one whose piles have prolapsed and become strangulated. When this accident occurs for the first time, there is more or less hæmorrhage. After a time the flow of blood increases; then the hæmorrhoids become the seat of a throbbing, pulsating pain of the most intense character. The patient, especially if a woman, will endure the suffering for a number of hours; at last utterly exhausted she falls asleep. The circulation sinks to its lowest point, and the patient may enjoy uninterrupted repose for some time. When aroused, however, the heart beats more rapidly, and the pain recurs with a degree of intensity that is almost unbearable. The foregoing facts explain why the medical attendant is so generally summoned to these cases at night. In treating such patients, unless the prolapsus is of long duration and the danger of sloughing imminent, I rarely now resort to taxis, but at once inject, hypodermically, from a quarter to three-quarters of a grain of morphine. This measure has been attended with the happiest effect in all but one or two cases. I cannot recall more than three cases in the last seven years in which it failed to cause the piles to return without mechanical assistance. In two of those I was obliged to elevate the hips, place the patient on his face, and while compressing the hæmorrhoidal tumor with an oiled cloth with one hand, to insert the forefinger of the right hand beyond the ring of the sphincters and to slowly and carefully return the prolapsed part, carrying that part last everted within the compressing muscles first. In all cases it is well to administer an opiate before manipulating the exceedingly tender part. In the other case, a fold of mucous membrane, with part of the subjacent pile sloughed off, causing the patient a great amount of pain, but resulting in decided benefit so far as future suffering was concerned.

The treatment of internal hæmorrhoids may be either, first, Operative; second, Medicinal; or third, Hygienic. Operative measures can rarely be relied upon to the exclusion of remedial and hygienic agencies; medicinal treatment would be of little avail without the adoption of means calculated to procure and preserve health; while the best results will always follow a judicious combination of all the resources at the command of the surgeon in individual cases, without regard to the class in which they may belong. Yet, for an enumeration application of the diverse agencies which can be adopted, the foregoing division is very desirable. Glancing first at the surgical measures it will be found to include *Cauterization*, *Excision* and *Ligation* of the hæmorroidal tumors, each of which embraces two or more distinct operative procedures. Thus:

1st. *Cauterization* has of late years risen into deserved prominence from the attention drawn to the subject by the excitement created by the advocates of the nitric acid treatment, some ten or twelve years ago. The late Mr. Houston, a distinguished anatomist and surgeon of Dublin, in a paper published in 1843 in the *Journal of Medical Science* of that city, strongly recommended the use of nitric acid in the treatment of two special forms of hæmorrhoidal growths—the florid vascular piles. Ten or fifteen years afterwards two London surgeons did much to popularize this treatment—Mr. Henry Smith and Mr. Henry Lee—and in the warm controversies which were developed on account of the indiscriminate use of the remedy in all kinds of cases, the subject was so rigidly investigated that advantage accrued to all phases of surgical treatment of the rectum. Mr. Lee's account of the two forms of disease in which Mr. Houston recommended the use of the acid is so true to nature, that I quote the whole paragraph from page 105 of Lee's *Diseases of the Rectum:*

"The first of these is described as a sort of aneurism by anastamosis of the small vessels of the mucous membrane and submucous cellular tissue; the second, is of a chronic inflammatory nature and best illustrated by comparing it to the red, villous, tender hæmorrhagic surface exhibited by the mucous membrane of the eyelids in old cases of chronic conjunctivitis."

In 1848 Mr. Houston published some cases and observations, showing the application of this mode of treatment to various other forms of hæmorrhoidal growth, and especially, to such as were

connected with a relaxed condition of the mucous membrane of the rectum. He said that the benefit to be drawn from this plan of treatment must not be expected 'til the small ulcers made by the caustic begin to heal. The loose folds of mucous membrane are then drawn upon, and the whole mucous lining rendered more tense. Each small cicatrix, moreover, serves as a permanent point of attachment for the relaxed membrane, and consequently, the inner coat is retained permanently in contact with the other coverings of the bowel—an important point, as in many cases it alone descends. The beneficial results attendant upon the use of the nitric acid are equally well attained by the employment of the acid nitrate of mercury. In some cases the latter acts better than the former. The applicability of this form of cauterization is limited to that variety of hæmorrhoid known as the Capillary. In such cases this plan of treatment is quite efficacious. The following is the best way to use the liquid caustic:

Means having been taken to bring the pile into view, the patient should lean over a chair or table, and the nates seperated by an assistant or the hands of the patient. With a thin, flat spatula of soft pine wood which has been dipped into the acid, apply the escharotic to the entire surface of the hæmorrhoid until its red color is changed to an ashen hue. In applying it so that no red point is left, care must be taken that the skin is not touched. If this is avoided, but little or no pain will be excited. Smear the parts well with oil—having first wiped them dry—and return them within the rectum. My own plan is at this point to so distend the sphincters mechanically, that their power of spasmodic contraction is suspended for several days.

The use of the galvanic cautery is so much restricted by the bulk and unhandiness of the mechanism necessary, that, valuable as it is as a method of destroying hæmorrhoidal tumors, it will never become extensively employed, and needs no attention at present.

2nd. *Excision* alone is never to be employed in the treatment of internal, however valuable it may be in the cure of external piles. Combined with the actual cautery it is the plan so popular with many distinguished German surgeons, and has many powerful advocates among leading London practitioners. The complete protrusion of the growths is an important preliminary point, and is best effected by the action of castor oil, administered several hours be-

fore the time of operating. This done, the patient should recline on his left side on a bed or a couch, and, if an anæsthetic is used an assistant should seperate the nates, if not, the patient may perform this duty. Seizing each growth seperately, it is to be drawn firmly outwards and its base embraced with Smith's clamp; the projecting tissues are then to be strangulated by firmly closing the blades of the clamp, and excised with a pair of scissors, curved on the flat. The stump should then be dried with lint, and carefully seared with a red-hot cautery iron. This done, the clamp should be loosened, little by little, in order to detect any spouting vessel, which, when discovered, is to be retouched with the iron. Each growth is to be dealt with seperately, in this manner, until all have been removed; then all the cicatrices are to be freely oiled and returned within the rectum. The clamp which is formed of two opposing plates of thin metal, lined with ivory and coming together like the blades of a pair of scissors, should be provided with a spring to hold them together when closed. One important point is to not disturb the eschar; therefore, if the sphincters are to be distended, it should be done before the removal of the growths.

3rd. *Ligation.* There are two methods of using the ligature, both of which have strong advocates. There are likewise two kinds of ligatures—the elastic and non-elastic—each of which has its special advantages. The usual method of applying the ligature is as follows: The protruded tumors are held in place by an assistant while the operator perforates the base of the one to be ligated with a needle armed with strong silk cord. The doubled ligature is caught, the needle withdrawn and the end which passed through the tumor snipped off with a pair of scissors. This leaves the tumor with two strands of cord through it. These cords are then tied, one on each side, and the ends are permitted to hang out of the rectum until all the tumors are ligated in the same way, when, if desired, they can be snipped off with the scissors. The plan which I am in the habit of using, and the one I think best, is the one known by the name of the late Mr. Salmon, and was introduced into the practice of St. Mark's Hospital by that gentleman some forty years since. It is also the one commended by Allingham and Curling, the two most recent authorities on the subject of diseases of the rectum. Its principal distinguishing feature is based upon the anatomical fact fully dwelt upon in the first

part of this paper, that the vessels of the lower part of the rectum run in a straight course through the sub-mucous tissues of the lower portion of that organ. When the tumors have been exposed as in the ordinary operation for ligation, one of them is seized by the forceps and detached from the walls of the rectum through the inferior three-fourths of its extent, the operator being careful to cut parallel with the rectal wall and not into the substance of the pile. The upper remaining attachment of the tumor consists almost wholly of vessels, and is ligated in one of two ways; it is either perforated in the way just described, and each lateral half of the neck is independently compressed, or the whole is included in one ligature, which is tied in the notch formed by the scissors. The latter is in many respects to be preferred, there is then no likelihood of a vessel being transfixed, as occasionally occurs when the needle conveying the ligature is passed through the neck of the pile. The elastic ligature which possesses so many advantages in the treatment of fistula-in-ano, will never rival the inelastic cord in the treatment of internal hæmorrhoids and requires no special mention in this connection.

In addition to the three classes of surgical measures just enumerated, there are two others which have attracted attention from the character and ability of those who have advocated their use. One is the ecraseur; the other, the employment of torsion in the removal of hæmorrhoids. With the former I have had sufficient experience to convince me that it is a painful and inefficient method, very often succeeded by hæmorrhage; the latter, I have never tried in the treatment of hæmorrhoids, and can conceive of no advantages it can possess over the ligature.

No surgical operation should ever be performed upon the rectum without attention to the state of the bowels, and careful inquiry into the general condition of the system. There is a broken down condition of the organism attended with disease of the liver and kidneys, which may escape observation without examination of the renal secretion. Operations in such cases are very often fatal; no operation should ever be attempted in such a patient for the cure of hæmorrhoids. A careful preliminary examination of the urine will inform the surgeon of the danger to be avoided. Again, there is a nonsensical notion in many minds that hæmorrhage from the rectum is always salutary and should not be interfered with. Undoubtedly, there are cases of venous hæmorrhoids in connection

with hepatic disease in which a flow of blood, by relieving congestion of the liver, is attended with advantage, but such a case differs widely from the draining of the system of the vital fluid which occurs in hæmorrhage from capillary and arterial hæmorrhoids. The local depletion by loss of blood could be much better accomplished, so far as the good of the patient is concerned, in many other ways. In preparing a patient for an operation, the abdominal organs should be put in as good condition as possible. This is the best accomplished by the administration of a mild mercurial three nights before the operation, with some cathartic mineral water every morning for two or three days prior to the time for operating. On that morning, administer a full dose of castor oil, and do not operate until at least an hour from the last passage. The system is then in a condition to *stand* any strain the after treatment may require. Again, many persons suffering from hæmorrhoids bear with all the agony and inconvenience they produce until the tumors become inflamed; the pain is then so great that they demand an operation at once. Many surgeons are indisposed to operate at such time, but I must say that I have never seen any ill-effect succeed operations upon inflamed piles. It is much better to use the ligature after Mr. Salmon's plan, and to remove all the growth except the stump grasped by the ligature.

The after treatment is of great importance in operations on the rectum. The patient should remain in bed for twenty-four hours after any operation; then it is better that he subsequently rest on a lounge. Quiet is very essential. The bowels should be confined with opium, and I find great benefit from the administration of cod-liver oil, commencing its use on the third day after the operation. The time the ligatures will seperate will vary with the operation and the bulk of the part strangulated. When Salmon's method is employed, and cod-liver oil administered as just indicated, the bowels will move of their own accord between the fourth and sixth day, and in the vast majority of cases, the ligatures will come away during the evacuation. It is always good policy to inject about six ounces of warm olive oil, using a long, flexible pipe and carrying the oil directly into the sigmoid flexure of the colon, as soon as the bowels manifest an inclination to act. The same course is advisable with the first motion after any operation. All the ligatures should come away before the fourteenth day.

Operations upon the rectum are very generally dreaded on ac-

count of the danger of hæmorrhage commonly thought almost inevitable. Since the excision of internal hæmorrhoids has been abandoned, and care taken to avoid surgical interference in cases of organic disease of the kidneys, secondary hæmorrhage has become quite infrequent. The possibility of hæmorrhage in any case —even of ligature—has been forced upon my mind of late, and now I never operate and leave a patient without seeing to it that there are means of plugging the rectum, always at hand. When called to a case of secondary hæmorrhage, the bleeding vessel should be isolated and tied, if possible. Sometimes the parts are so swollen that the bleeding point can not be reached; again, the ligatures may cut out, and the blood made to flow worse than ever by the very attempt to check it; or, the hæmorrhage may be an oozing from a large and inaccessable surface. In such cases, the patient's strength and the surgeon's time are saved by at once plugging the rectum. The best, most expeditious and satisfactory way of doing this, is to pass a strong, double ligature through the pointed extremity of a cone-shaped sponge, hollow at the base, to moisten it with water, squeezing it thoroughly, and saturate it with the per-sulphate of iron. Then, having inserted the left forefinger into the rectum, pass the sponge to the depth of at least five inches; withdraw the finger and stuff the lower end of the intestine with a bandage, unloosing a roller for this purpose and passing in its free end first. The bandage should drop into a vessel containing a strong solution of per-sulphate of iron, and be inserted into the rectum with all the styptic it can hold. Two rollers will suffice in any case—often, one is enough. When the end of the bandage passes within the sphincter, the surgeon should place the fingers of his left hand against the materials he has inserted, while he draws on the double ligature that passes through the sponge with the other. In this way, the sponge is opened and the rectum distended. This effectually checks any hæmorrhage. Occasionally it is well to insert a female catheter through the center of the mass, when first put in, in order to evacuate any gas that may collect. This plug may be left in the rectum for a week, with safety. One advantage of the plan just detailed is the facility with which the obstruction can be removed when necessary. All that the surgeon has to do, is to take hold of the last end of the bandage, and pull the whole mass out. It is quite different with a plug of lint and iron.

The Medical and Hygienic treatment of hæmorrhoidal growths is occasionally curative, and always of value. It is hard to draw the dividing line between these measures and those of a surgical nature. Perhaps as good a ground of division as any, is to include under the former all the resources advised by the practitioner which the patient can apply himself. Thus, if the former have a case of capillary hæmorrhoids requiring attention, and he apply to the diseased surface the fuming nitric acid, there can be no doubt but what the treatment is surgical. But, on the contrary, if the patient be decided to procure a quantity of persulphate of iron, and to inject into his rectum a strong solution of the same twice a day, there would be ground for doubt as to the purely medical nature of the treatment. Yet, on the score of convenience, it is desirable to include under the head of Medical and Hygienic measures all those which the patient can employ without the aid of the surgeon.

Some years since I had my attention drawn to the case of a young professional friend, with whom I was thrown in daily contact, who, at that time, suffered intensely from internal hæmorrhoids. For two years after leaving college, while studying Medicine, he could not attend lectures, owing to his inability to remain any length of time in a sitting posture. The slightest irritation brought on hæmorrhage; he became greatly emaciated, but his morbid fear of an operation induced him to continue in agony rather than seek surgical aid. The hæmorrhages grew infrequent when the tumors became large enough to protrude externally, but attacks of inflammation, with spasm of the sphincters came on instead. In order to obviate the latter, rather than with any hope of securing permanent relief, this gentleman began a rigid course calculated to render the bowels regular and free the rectum from congestion. He employed mild laxatives to keep the bowels open; he would retire to the water-closet at a certain hour every morning, and remain there until he had an evacuation. When costive, he solicited nature with an enema. After each motion he directed a stream of cold water against the anal orifice until the part was not only thoroughly cleansed, but until the rectal walls were contracted, and the tumors were drawn within the ring of the sphincters. Then he assumed the recumbent posture, and rested for from half an hour to an hour. In his diet he did not restrict himself so long as his bowels were open. Every day he exercised

in the open air for several hours. At first, he would have to stop and return the prolapsed hæmorrhoids, but in a few weeks after he commenced this course, he was no longer troubled in that way. In short, he found himself free from any annoyance, and although the tumors were still present, they were greatly reduced in volume, they never protruded nor became inflamed.

There is a measure of a surgical character which I have found of rare value in the treatment of those cases in which, for any reason, the ligature cannot be employed. This is the forcible dilation of the anal muscles, to which I have made allusion, as a valuable adjunct in the treatment of this disease. The cases in which it is of greatest use, are those in which the piles are arterial or venous in character, and in which the patient is annoyed by protrusion with inflammation and spasm. With it should be combined all measures of a medicinal or hygienic character, calculated to keep the bowels open and free from congestion, and to cause absorption of inflammatory products. In many instances the anal orifice can be distended, and the muscular fibres of the sphincters rendered temporarily inactive, by an amount of force which will cause but a trifling degree of pain. The full benefit of this measure can be obtained by those only who keep perfectly quiet for from one to two weeks subsequently.

The relief of constipation is of great importance in the treatment of any form of the rectum, particularly of hæmorrhoids. The confection of senna is a reliable laxative, but a very expensive medicine. An excellent substitute can be made in this way: Procure four pounds of the best figs, cut them up fine and add a teacupful of white sugar. Take eight ounces of senna leaves, place them in a close vessel and add eight ounces of boiling water. Place on a hot stove and let it draw for ten minutes; then strain and pour the infusion over the figs and sugar, which have been put in a sauce-pan, and let the whole stew until it forms a jelly-like mass. Twenty or thirty minutes will suffice; great care should be exercised to prevent burning. When cold, put in ordinary glass tumblers and seal them up with paper dipped in white of an egg. The dose will vary with the individual—a half-teaspoonful generally suffices. It is one of the most agreeable, certain and painless laxatives I am familiar with.

A few years ago there were a number of drugs which had a reputation for the cure of piles. One well-known remedy exten-

sively used in England thirty or forty years ago, was called "Ward's Paste." The pharmacopœia contains a confection of pepper designed to take its place. While an attending physician at the Bureau for the Relief of the Out-Door Poor, connected with Bellevue Hospital, New York, I had the apothecary compound some pills which I administered in cases where piles were troublesome. They acted admirably, and acquired a local celebrity which led a number of druggists in the eastern part of the city to call on me and request a copy of the formula from which they were prepared. One enterprising individual went so far as to bestow on them a name, and to advertise their virtues in a manner that caused me no little annoyance. They were composed of *black pitch*—each pill containing three grains—as follows:

℞	Black Pitch	ʒj
	Magnesia	q. s.
M.	ft. pil. No. 30.	

Dose: Two immediately after meal.

In quite a number of cases these pills, in connection with other measures of a hygienic character, produced marked relief where the suffering had previously been almost unendurable. This remedy was first used in this affection by a medical gentleman named Wardleworth, of Cheetham Hill, near Manchester, England, who contributed an article on the subject to the *Lancet*, in March, 1843.

In conclusion, I would simply say this: In no class of diseases is accuracy of diagnosis more important than in hæmorrhoids. Not only must the practitioner satisfy himself of the existence of piles, but, before applying remedial measures, he must know that there is no complicating complaint. Fistulæ, strictures, tumors, both polypoid and parenchymatous, fissures and abscesses must be recognized or excluded. The capillary, arterial or venous nature of the hæmorrhoid must then be determined, and 'ere surgical, medicinal or hygienic measures are resorted to, the presence or absence of disease in neighboring organs—especially the liver and kidneys—should be settled beyond question, or no good can accrue from any treatment.

Art. 2. — Diseases of the Rectum. — Observations on those Structures in the Mucous Membrane of the Human Rectum known as the Valves of Houston.

No. IX.

By REUBEN A. VANCE, M. D., Gallipolis, Ohio.

In an article which appeared in the *Philadelphia Reporter* of March 16th, 1878, I called attention to those structures in the human rectum which I thought properly belonged to the class of rudiments. Without touching upon those questions, more interesting to a naturalist than a physician, which an allusion to rudimentary structures will always evoke. I desire now to direct attention to the interesting and practical paper in which Mr. Houston first brought these valves to the notice of the profession. His original article is contained in the fifth volume of the *Dublin Hospital Reports*, which appeared in 1830, and, as it extends over very few pages, is inaccessable to those not possessed of that series of reports and, moreover, is of interest to every practitioner. I shall make no apology for embodying it in this paper. It was entitled "*Observations on the Mucous Membrane of the Rectum*" and commenced on the 158th page of the 5th volume of the reports. The following is a literal transcript:

"The structure and arrangement of the mucous membrane of the rectum ought to be perfectly understood, with a view towards the accurate diagnosis, or successful treatment of its diseases; and particularly, in order to be able to introduce instruments with dexterity along its canal. It is a subject the consideration of which has certainly not been neglected, but nevertheless there is one material circumstance connected with the disposition of the membrane which either is not generally known, or is not weighed as its importance deserves. In the natural state, the tube of the gut does not form, as is usually conceived, one smooth uninterrupted passage, devoid of any obstacles that might impede the entrance of bougies; it is, on the contrary, made uneven in several places by certain valvular projections of its internal membrane, which

standing across the passage, must frequently render the introduction of such instruments a matter of considerable difficulty. Cloquet, and some other anatomical writers, have made a cursory allusion to this condition of the membrane; but all the authors, who have treated of diseases of the rectum, appear to have wholly over-looked it.

"My attention was first called to these valves by preparations which I made to demonstrate the relative situation of the pelvic viscera, and to display the natural state of their cavities; and from the manner in which the making of these preparations was conducted, viz., by distending and hardening all the parts with spirit previously to being cut open, the valvular condition above alluded to was most satisfactorily exhibited.

The valves exist equally in the young and in the aged, in the male and in the female; but in different individuals there will be found some varieties as to number and position: Three is the average number; though sometimes four, and sometimes only two are present in a marked degree. The position of the largest and most regular valve is about three inches from the anus, opposite to the base of the bladder. The fold of next most frequent existence is placed at the upper end of the rectum. The third in order occupies a position about midway between these, and the fourth, or that most rarely present, is attached to the side of the gut, about one inch above the anus.

"In addition to these valves, of tolerably regular occurrence, there are frequently several intermediate smaller ones, but which, from their trifling projection and want of regularity in their situation, merit comparatively little notice.

"The form of the valves is semilunar; their convex borders are fixed to the sides of the rectum, occupying in their attachments from one-third to one-half of the circumference of the gut. Their surfaces are sometimes horizontal, but more usually they have a slightly oblique aspect, and their concave floating margins, which are defined and sharp, are generally directed a little upwards. The breadth of the valves about their middle varies, from a half to three-quarters of an inch and upwards, in the distended state of the gut. Their angles become narrow, and disappear gradually in the neighboring membrane. Their structure consists of a duplication of the mucous membrane, enclosing between its laminæ some cellular tissue, with a few circular muscular fibres.

"The relative position of the valves, with respect to each other, the pressure of these valves, the gut resembles somewhat the colon in the condition of its interior; but in the peculiar spiral arrangement of the valves, it bears more an analogy to the large intestine of some of the lower animals, in which, as for example the cæcum of the rabbit, the large intestine of the serpent and dog-fish, a continuous spiral membrane traverses the cavity from end to end, and gives to the alimentary matters a protracted winding course towards the anus.

"The only method by which the condition of these valves in the distended state of the rectum can be displayed, is that above noticed, of filling the gut with spirit previous to being disturbed from its lateral connections. By the ordinary procedure of distending it after removal from the body, the valves are made to disappear. Their presence may like-wise be ascertained in the empty state, if looked for soon after death, and before the tonic contraction of the gut has subsided. They will then be found to overlap each other so effectually, as to require considerable manuvre in conducting a bougie, or the finger, along the cavity of the intestine.

"Mr. Colles, in an excellent paper on Diseases of the Rectum, to be found in another part of this volume, makes some observations corroberating in the fullest manner the fact I wish to establish. He says the finger cannot always be insinuated up the rectum—that the gut feels as if its cavity were obliterated.

"The experience of Mr. Crampton goes like-wise to establish not only the existence of such valves in the rectum, but also their spiral arrangement. He uses a bougie bent with a couple of light spiral turns, and in the introduction, moves it about gently between his thumb and fingers. Mr. Crampton was led to curve the instrument after this fashion, from having noticed that of itself it assumed such a form when allowed to become soft, by remaining some time up the gut, and he practices the spiral movement while introducing it from an observation, that during its return down the canal, after being thus modelled, it is disposed, if handled loosely, to assume that course. All these facts, derived from observations both on the dead and living body, leave no doubt as to the existence of the valvular arrangement in the interior of the rectum, and point to the advantage which may be derived in practice from a proper attention to them.

"Considered physiologically, this conformation of the gut is such

as might naturally have been expected to exist, as necessary to support the weight of fecal matter, and prevent its urging towards the anus, where its presence always excites a sensation demanding its discharge. But considered in reference to disease, the valves or shelves thrown across the cavity of the intestine are fraught with still more importance. They may possibly become the most frequent seat of that morbid alteration of the inner membrane, termed stricture. I have not, however, examined the subject with a view of determining this question, but several facts give probability to the conjecture. In the first place this disease is generally confined at its commencement to a portion of the circumference of the gut; and secondly, the seats of this occurence correspond very much to the places where these valves are most often found, viz., near the orifice, about three inches up, or at the top of the rectum. There is still another more weighty reason why the surgeon should bear in mind the existence of these folds, that he may not mistake them for strictures in the gut, a mistake which it is to be feared has often happened to those who have reported such numerous cases of this disease, and which, by leading them to the frequent practice of bougies, may have brought on the very malady which their instruments were intended to remove."

There was an illustration accompanying the foregoing paper in which the valves were delineated. Also, with it was an outline figure of Mr. Crampton's spiral bougie. Before alluding to any of the points connected with this paper I desire to quote a couple of paragraphs from my article in the *Philadelphia Reporter* of March 16th, 1878, entitled "*Rudimentary Structures in the Human Rectum—Spiral Folds and Valvular Projections from its Mucous Membrane.*" to which I have already alluded;

"In 1865, while dissecting in the University of Michigan, I found that in my subject the mucous membrane lining the rectum was thrown into a spiral arrangement which, commencing on the right side of that organ at its junction with the sigmoid flexure of the colon, passed downward, backward and to the left, until the side opposite the point where the valve commenced was reached. In this situation the duplication was as large as on the right side above, where it commenced. The same was true of a point corresponding with the base of the bladder on the internal aspect of the anterior wall of the rectum. The valve could be traced from this situation, at first downward and backward to the posterior

wall of the viscus, and then downward and forward to a point about three-quarters of an inch above the anal orifice, where it seemed to terminate on the left side in one of the columns of Morgagni. The valve gradually enlarged and became more and more prominent as its course from the left side along the posterior wall and around the right side was traced from the column of Morgagni to the base of the bladder. In the latter situation it was more than half an inch broad, and this breadth was preserved along the anterior wall and up the side of the rectum, until it joined the duplication on the left side, with the exception of one point where, for the distance of an inch and a quarter, the duplication was very narrow indeed—perhaps no more than the eighth of an inch in depth. This defective spot in the spiral arrangement of the fold of lining membrane was on the left side, immediately in front of the broad and well marked valve placed below and on the side opposite to the point where the duplication was first manifested, at the junction of rectum and colon. The duplication of the mucous membrane could be traced from this defective point spirally around the left side and posterior wall of the rectum, to the end on right side at the termination of the colon, where it blended with the lining membrane of the part; between the valves a narrow portion similar to that between the valve on the left side, and the one opposite the base of the bladder, could be seen on the posterior wall of the intestine. In other words, from one of the columns of Morgagni, on the left side of the terminal portion of the rectum, to a point on the right side of the junction of the colon and rectum, there was a duplication of the lining membrane of the latter organ—a duplication varying in width, but always persisting—which pursued a spiral course, and made one and a half circuits of the intestine. The free edge of this spiral duplication of the lining membrane of the rectum was directed inward; the thickness as well as the width of the valves varied in different situations. The structure was thickest and strongest where the fold was widest; this was especially so at its commencement superiorly on the right side, opposite the base of the bladder on the anterior wall, and at about midway between these points of greatest development (particularly on each side of the one located on the left wall of the rectum) were the situations where the duplications were least marked. It is to be regretted that this specimen was removed

from the body, and its relations with neighboring parts broken up, before the peculiar character of its lining membrane was observed."

"During the past twelve years I have made critical examinations of the rectum in thirty-four cases. In other instances I have either seen the rectum after it has been removed; or have examined it on the cadaver without taking it out. But in the thirty-four cases alluded to I have examined it, so far as possible, in its natural situation, and have then taken it out and subjected it to a thorough investigation. In five cases the appearances have resembled those just described, and in seven there were separate projections meriting the name of valves. In all thirteen cases—for the case detailed at length is included—there were duplications of the mucous membrane on the anterior wall, opposite the base of the bladder, and at the junction of the colon and rectum on the right side of the intestine, while in twelve of the cases the valve on the left wall, above the base of the bladder, was also distinctly marked. In three of the seven cases in which the valves were separate, there was a valve about an inch above the anus on the left side; and in each of these cases the valves of the base of the bladder, the left wall of the rectum, and on the right side of the junction of the colon and rectum, were well developed. In one of the remaining four cases of this group there were but two valves; one at the base of the bladder, and the other at the commencement of the rectum on the right side; while in the other three, the separate projections were located at the base of the bladder, the superior extremity of the rectum on the right side, and on the left side between these two points at the usual place. In six cases there were duplications of the lining of the intestine opposite the base of the bladder, on the left side of the rectum above, and on the right side of the upper extremity of that organ, and these duplications were connected together by narrower and thinner, yet equally well-marked folds of mucous membrane. In twenty one cases there were neither folds nor valves."

It is not my intention to discuss the various points made by Mr. Houston in reference to the physiological offices, or pathological bearings of the structures he brought so prominently to the attention of the profession. Not only had the influence he ascribed to these structures been denied, but the existence of the valves themselves has been questioned, and that too, by writers who have also taken the trouble to endeavor to prove that Houston was not only

mistaken as to the reality of the structures he supposed he had found, but that these valves were described long before he was born! There is no disputing the fact that Cheselden alluded to valves in the rectum; that long before that eminent English surgeon flourished other medical writers and anatomists had spoken and written of similar structures; and that at various periods prior to Houston's publication. Morgagni, Glisson, Portal and other continental observers made reference to duplications of the lining membrane of the rectum and ascribed to them a valvular office. Yet, if I have read the record correctly, I can find no reference to a complete spiral band-like arrangement, such as was approximated in six cases to which I have referred, and believe that my paper in the *Reporter* is the first description of that peculiar state of the rectum which has been published. Mr. Houston, it will be observed, complained that those who had written on diseases of the rectum paid no attention to these valves. The late Dr. Bushe, of New York, whose valuable work on rectal and anal diseases appeared shortly after Mr. Houston published the above quoted paper, was led by it to re-investigate the anatomy of the rectal mucous membrane. A series of careful examinations led him to declare, most unhesitatingly, that the folds to be observed in that structure are accidental; that the tissues there are lax and naturally double up, but that the duplications thus formed are in no sense valves; and that so far as the performance of the functions ascribed them by Mr. Houston is concerned, that gentleman was in error. Dr. Bodenhamer arrived at the same conclusion, substantially, as can be seen by reference to his work on "The Physical Exploration of the Rectum." Both Bushe and Bodenhamer acknowledge the presence on the rectal walls of loose folds of their lining membrane, but both hold them to be accidental in origin and of no physiological importance. The text-books in general use in this country—the works of Wilson and Gray—quote Houston's researches with approval and speak of the valves as if one or more of them were constantly present. Yet neither Syme, Quain, Ashton, Lee, Curling, Smith, Van Buren, Allingham nor any other writer on diseases of the rectum, with the exceptions above noted, make allusion to them. The existence of spiral folds, extending around the inner aspect of the rectum and reaching from one end of the organ to the other was never announced (to

my knowledge) prior to my publication in the Philadelphia *Reporter*, of March 16th, 1878.

In connection with the original paper of Mr. Houston describing these independent valves of the rectum and the foregoing extracts from my own observations of the frequency with which these separate duplications of mucous membrane occur, and detailing cases of continuous spiral folds in the lining membrane of the rectum, I desire to quote the concluding paragraph from my paper in the *Reporter:*

"In view of the foregoing facts, is it not reasonable to suppose that both spiral folds and independent valves exist in the human rectum as rudiments, and that, when present in that organ, they must be looked upon as illustrations of the law of reversion?"

Mr. Darwin, in the first chapter of his work on "The Descent of man" indicates the nature of the evidence bearing upon the origin of man, and after briefly discussing that referable to bodily structure and embryonic development, enters with more fulness upon the subject of rudimentary organs. Rudimentary organs, he tells us, are eminently variable, and as they are useless, or nearly useless, they are no longer subject to natural selection. Not only are rudimentary organs variable—they are often wholly suppressed.

Such structures are by no means necessary for the perfection of the organism, and when they develop to an unusual degree, they illustrate what is known as the law of reversion—they are anomalies that display the tendency of the human frame to revert to some former and ancient type of structure.

I have adduced the foregoing facts relative to the nature and character of the duplications of the lining membrane of the rectum because, it strikes me, their significance and peculiarities have heretofore been overlooked. Thus, when speaking of the rudimentary structures in the human body, the illustrious author of the "Descent of Man" says:

"With respect to the alimentary canal I have met with an account of only a single rudiment, namely: the vermiform appendage of the cæcum*."

* DARWIN—"Descent of Man," p. 29.