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"Je prends le bien ou je le trouve."

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A Lecture upon Tetanus. By L. A. Dugas, M. D., Professor of Surgery in the Medical College of Georgia.

Gentlemen:—Having studied with you the nature and treatment of wounds in general and in particular, it remains for me to direct your attention to a very remarkable affection which occasionally presents itself as an effect of injuries apparently trivial in themselves; I allude to tetanus. This is a spasmodic affection of some or many of the muscles of voluntary motion, which usually shows itself between the seventh and tenth days after an injury, and which most frequently terminates fatally in a few days. Tetanus is said to be partial or general, according to the number of muscles implicated, for it may be in its early stages, and sometimes throughout the whole case, restricted to a very small number of muscles, whereas in other instances it will invade them extensively. Tetanus is also said to be idiopathic and traumatic.

I have, however, never seen a case I considered strictly idiopathic. There is occasionally some difficulty in ascertaining the seat of the injury, for this is sometimes so trivial as to have escaped the notice of the patient. Some patients will also pertinaciously conceal the truth, as I have had occasion to see in two instances in which the injuries had been sustained under circumstances that would not be confessed, but which I fully verified.
Most writers speak of tetanus as being either acute or chronic. This is a distinction I think calculated to mislead the inexperienced. If we carefully study the natural history of this disease, unmodified by perturbing influences, we will find that while the fatal cases terminate in a few days, those that are successful occupy a much longer time to run their course. As a general rule, the disease cannot be cut short by treatment, nor does it ever abruptly give way, if let alone. It may terminate abruptly by death; but when this does not occur and the disease is allowed to pass through all its stages to a favorable termination, it progresses gradually to its maximum of intensity and declines by degrees almost imperceptible from day to day, until, at the end of weeks or even months the last symptom of rigidity will disappear. What is called chronic tetanus, then, is in reality nothing but the regular course of the disease when it does not terminate fatally. It is always a matter of primary importance to know the course a disease will run when left to the unaided efforts of nature, for without this knowledge we cannot treat it judiciously. Is it not probable that much of the want of success in the management of tetanus is attributable to a neglect of this study?

This disease is infinitely more common with the African than with the Caucasian race; so much so, indeed, that injuries which excite little or no apprehension in a white person, are never considered without danger if sustained by a black—and the danger lessens in a direct ratio with the infusion of the Caucasian element into the constitution of the individual. Among our domestic animals the horse is exceedingly liable to this affection, especially when pricked in the foot.

The seat of injury seems to exert a decided influence in the development of tetanus, for it unquestionably oftener follows wounds of the extremities, especially the foot and hand than those of the trunk. Wounds of the external ear and of the occipital region are also thought to be peculiarly apt to induce it.
Suppurating wounds are less dangerous than those apparently more trivial. Veterinarians are so well aware of this that when a horse is pricked in the foot they lose no time in provoking active suppuration by pouring spirits of turpentine into the wound and searing it with a hot iron. They consider the horse comparatively safe if they can secure a free flow of pus, for eight or ten days. Our negroes act upon the same principle with their children; but after using turpentine they paddle the sole of the foot instead of resorting to the hot iron.

Tetanus is thought to be more common in hot than in temperate climates. It is certainly very common in the West Indies; but it is not satisfactorily established that white persons are more subject to it there than in the temper zones of Europe and America. The negro population being very large in those islands will account for the frequency of the disease. Sudden or prolonged exposure to cold will frequently induce tetanus in those who would probably have escaped it, as the records of military surgery abundantly testify. Wounded persons should not be allowed even in warm climates, to be exposed to cold or moist air, especially during the night. It is still worse in cold climates as has been often painfully exemplified in the case of wounded soldiers left exposed to freezing weather without adequate protection. The intense cold of arctic regions has induced it among the explorers of those inhospitable localities, probably in consequence of previous frost bites.

Men are supposed to be more liable to tetanus than women and children; and the young more so than the aged. This may probably result from the circumstance that men are more exposed; moreover, the statistics are chiefly derived from army practice where men are almost exclusively treated. I doubt that in civil practice those positions would be sustained. In my own the number of males is only slightly in excess of that of females.

Symptoms.—In studying the symptomatology of tetanus one must bear in mind that this is essentially a spasmodic
affection and that its manifestations must, therefore, be sought for in the muscular system. The functions of the other organs suffer comparatively little modification until the disease has progressed considerably, as I will point out as we proceed. The inception of tetanus is not preceded by premonitory indications, and is often so insidious as to escape observation for some time. Usually the first symptoms are a sense of stiffness in the back of the neck and the occipital region, with an inability to open the mouth widely. The rigidity extends to the temporal and masseter muscles, thus increasing the difficulty of opening the mouth, and down the back giving to the trunk a peculiar air of stiffness. The patient may be still walking about the room, under the impression that he has caught cold in the muscles or that he is rheumatic. Muscle after muscle becomes implicated, however; those of deglutition obey the will so imperfectly as to make it difficult to swallow without being strangled; the jaws are locked; the abdominal muscles become tense and hard to the touch; the diaphragm draws painfully upon the ensiform cartilage as it were; the sterno-leido-mastoideus feels like a cord on each side of the neck; and all the muscles of the face become so fixed as to give to the countenance an expression so peculiar and characteristic as never to be forgotten when once seen. Every feature appears immovable and sunken as though greatly emaciated.

In violent cases the body may be bent in various directions, constituting peculiarities designated by authors as opisthotonos, when the body is carried backwards, emprosthotonos when it is drawn forward, and pleurosthotonos when the inclination is to one side or the other. The most common form is that in which the body is bent backwards, and cases are recorded in which this was so extreme that the head and heels were brought nearly in contact. I have never seen an instance of this degree of violence.

As the disease progresses all the respiratory muscles become more or less rigid so as to interfere materially with
respiration, which is then short, and will be found, by close observation to be tremulous. The abdominal muscles including the diaphragm are so fixed that the respiration is almost entirely thoracic, the shoulders being seen to rise and fall in each act of inspiration and expiration. Many cases proceed to a fatal termination without any serious rigidity of the limbs; but these are often found affected—the lower extremities more frequently than the upper.

I have thus far spoken only of the persistent rigidity of the muscles. I say it is persistent, because, although under the influence of sleep or of powerful medication, the tension may be temporarily lessened, it never ceases entirely. But I must now direct your attention to a peculiarity which may be regarded as characteristic of this affection, and which has, therefore, been termed the "tetanic jerk." Every now and then, at intervals varying from 1 to 15 or 20 minutes, or even longer, the patient experiences a sudden and forcible contraction of the muscles implicated, resembling very much an electric shock, and which is more or less painful. Sometimes he will simply groan as it occurs, but in some instances he will cry out with pain. In the beginning of the attack you may have to watch the patient half an hour before you can detect one of these jerks; but as the disease progresses the intervals become shorter and shorter, until they will not exceed a few minutes; and the violence of the shocks increases correspondingly. They are then induced by the slightest circumstances, such as addressing the patient, asking him to move, or to show his tongue, giving him food or drink. If any one walks in, or any noise is heard, they are induced. Hence the importance of great quiet in the treatment. I should have mentioned that these shocks or jerks are attended with a sudden closure of the larynx, which produces a sound not unlike that of hiccough or singultus, but occurs only once at each tetanic jerk.

During this dreadful perturbation of the muscles of voluntary action those of organic life seem to be entirely un-considered. It is true that the heart may be somewhat
accelerated in its movements; but this seems to be only secondarily—probably in consequence of the modification in the act of respiration and the pressure of the inter-muscular blood-vessels. There is not usually much febrile action, if any. If the bowels are slow this may be accounted for by the rigidity of the abdominal muscles and by the small quantity of food taken, rather than by any impairment of peristaltic action. We have, I say, no positive evidence of any affection of the involuntary muscles. The intellect remains unclouded almost to the last gasp. The temperature of the surface is rarely much increased; the skin feels soft and pleasant; but as the disease advances to a fatal termination a copious sweat breaks out and continues to the end.

Such are the symptoms usually observed; but you will find them more minutely detailed and sometimes differently interpreted in the books.

**Diagnosis.**—The only affection with which tetanus might possibly be confounded is hysteria, in some of its protean manifestations. But in this disease the mind is more or less distempered and the spasms instead of being marked by persistent contractions and sudden exacerbations or tetanic jerks, have more the character of convulsions, that is to say of alternate contractions and relaxations of the muscles in rapid succession. The whole history of the case will also aid in our diagnosis.

**Pathology.**—With regard to the pathology of tetanus we are still very much in the dark. Post mortem examinations have failed to throw any light upon it, unless we give more importance than I am disposed to do to the occasional detection of morbid appearances in the nervous filaments in proximity with the traumatic lesion. We have seen that the danger of tetanus is by no means proportionate to the violence done to the tissues—but that, on the contrary, slight injuries are more apt to induce it than severe ones. The morbid condition of some of the nerves leading from the seat of injury should, it seems to me, rather be regarded
as a mere coincidence than as the immediate cause of the dreadful developments of tetanus. The brain and spinal marrow have been most scrutinizingly inspected without revealing any condition or lesion peculiar to tetanus. We must, therefore, look to physiology, natural and experimental, for an explanation of the phenomena of tetanus, as well as of other spasmodic diseases.

Physiology teaches us that while strong impressions induce pain and perhaps inflammatory sequelae, slight ones provoke convulsive movements at a distance and general exhaustion. Laughing, sneezing, vomiting, &c., induced by the slightest titillation of the peripheral extremity of the nerves are familiar instances of physiological convulsions and cannot be provoked by violence. Here we have a slight irritation transmitted to the nervous centres which in their turn excite contractions in muscles more or less remote from the seat of original impression. This is the reflex action of modern physiologists, and this explanation is applicable alike to pathological and to physiological cases. A pin gently passed across the sole of the foot will cause convulsive movements in the muscles concerned in laughter; this is physiological; but let the foot be pricked with a pin and we may have induced all the phenomena of tetanus. In both instances we have a peripheral impression, or irritation, which is perhaps a better term, followed by a perturbation of remote muscles which the irritation could not have reached without passing through the nervous centres. We therefore arrive at the conclusion that tetanus is a morbid reflex action induced by a morbid irritation of certain nervous extremities. But, you may now ask, why it is that the same morbid irritation does not always induce this morbid action? I answer that all persons are not equally susceptible; some are very easily thrown into violent fits of laughter by being tickled, whereas others bear it with impunity. In like manner morbid irritations which are harmless in some affect other constitutions with spasmodic diseases. It would seem, therefore, that the induction of
tetanus depends in a great degree upon a morbid susceptibility or irritability of the nervous system, which we cannot, however, recognize before the development of the disease. We have observed that negroes are more susceptible to tetanus than whites. Why this is so we cannot determine.

The persistence of this perturbation of the muscular action is exceedingly exhausting, especially when respiration is much impeded; and if to insufficient aeration be added deficient nutrition, in consequence of difficult deglutition, you will readily perceive that fatal exhaustion must be inevitable. The victims die, then, from exhaustion of the vital powers induced by excessive muscular action and inanition.

You are now prepared to appreciate what we have to say with regard to treatment.

Treatment.—In determining the treatment of any given disease we must take into consideration its pathology, its natural history, that is to say, the course it usually pursues when not modified by perturbating agents, and finally the teachings of experience. I ought, perhaps, to have placed the results of experience first. But while in many instances our most valuable resources have been acquired by mere accident, we have nothing to boast of under this head with regard to tetanus. We have accidently discovered that cinchona is a specific in intermittent fevers, and can, therefore, treat this disease very well without reference to either its pathology or its history. Now, if we knew any agent that would act as a specific in tetanus, I would advise you to go no further. I would certainly not stop to consider whether its action accords with my pathological views. With regard to tetanus, however, we know no specific; accident or empiricism has really taught us nothing valuable. We are, therefore, necessarily thrown upon first principles, and if our pathology and history be correct, we ought, assuredly, to be able to indicate the most rational treatment.

We have here, a susceptibility of the nervous system so
morbid that a trivial irritation of its periphery has induced a most alarming perturbation of its functions so far as they relate to the muscular movements; and history teaches us that unless the disease be arrested by death, it will occupy several weeks in running its course to resolution. We know also that this perturbation is attended with the most exhausting effects. Is it not evident, then, that we should endeavor to remove the cause or source of irritation, to lessen the susceptibilities of the nervous system, and to sustain the vital powers by nutrition, instead of attempting by violent means to arrest the disease?

You should, therefore, remove the offending cause if you can. The splinter or other foreign body may still be in the tissues; if so, take it away. You may find pus that cannot escape; if so, let it out by a free incision, and favor its issue by lye poultices. Nervous filaments may be lacerated; you should then make a clean division of them. If the injury be to one of the small extremities, a finger or a toe for example, amputate it at once. The propriety of amputating a leg or an arm must depend upon the extent of the injury. A crushing or lacerated wound of the hand or foot is a common cause of tetanus, especially in negroes, and however great may be your desire to save the limb, you should not hesitate to amputate upon the slightest manifestation of tetanic symptoms. Indeed I do not think that in the case of slaves you should, under such circumstances, run the risk of waiting for such manifestations. It is better to amputate as early as possible in such cases, for the reasons I have urged upon a former occasion, when speaking of amputations in general. I insist that we have no right to risk the life of a slave for the purpose of saving a limb, because neither he nor his family will suffer for the necessities of life in consequence of the maiming. His master will provide them as abundantly as if nothing had happened to impair his efficiency. We may sometimes yield to the solicitations of a white man who is willing to risk his life to save a limb, without which he could support neither him-
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self nor his family; but the slave is more fortunately situated and our first duty is to save his life. This may be a new doctrine in surgery; but I think it correct.

I do not wish you to understand me as attaching much value to amputation after the development of the disease, for experience has but too often demonstrated its inutility. I think, however, that the successful termination of one of the cases I managed was promoted by the prompt removal of a finger, in which a bit of needle was lodged, upon the first manifestations of the disease. It is true that the symptoms were not arrested by the operation, and ran their course for several weeks, but they were mild.

We pass now from the local to the general treatment—and we should select from the materia medica those agents we know to be most effectual in lessening nervous irritability. These are unquestionably quinine, opium, and assafétida. Use these with discretion and they must be beneficial, but you should bear in mind that they are to be given only as palliatives, for you cannot arrest the disease except by death. If you give opiates in the enormous doses sometimes recommended you may overcome the rigidity, but the case will terminate fatally. I was once called in consultation to a case in which the patient had taken half a grain of morphia every hour for 24 hours, besides inhaling large quantities of chloroform—and yet the attending physician was surprised at the inefficiency of such active treatment! The patient died shortly after I saw him. A grain of opium with 5 gr. of quinine and as much of assafétida, administered twice or three times in 24 hours, might have allowed him to live through the disease.

But these antispasmodics will do no good unless aided by nutrition. As nothing makes one so nervous as abstaining from food, so there is nothing so bracing as well digested nourishment. Let him have such as he will relish and as much as his instincts will require. Animal food is best. Brandy is an excellent adjuvant and should be prescribed. Those who are in the habit of drinking should use it liberally.
The apartment should be kept dark and perfectly quiet. No visitors should be allowed admission and none but a discreet nurse should be in attendance. No allusion must be made to the nature of the affection and the patient should be cheered with the belief that he will gradually recover. Micturation and defecation should be attended with the least possible exertion. When the bowels become uncomfortable from the retention of feces or flatus, let them be washed out with an enema of warm water and soap, or oil.

I dislike to mar the simplicity of this plan of treatment by recounting to you the numerous remedies alternately extolled and repudiated by systematic writers and journal reporters. Indeed this would consume too much of your valuable time. Blood-letting, revulsives, mercury, emetics, cathartics, tobacco, indian hemp, and finally chloroform have all been more or less lauded. I have tried most of them without any evident advantage. They are all more or less destructive of the energies of the system; whereas I wish to impress upon you the great importance of husbanding the resources of the economy. Strive to enable your patients to live through the disease instead of endeavoring to arrest it, and you will every now and then have the satisfaction of witnessing a recovery.

Trismus Nascentium is a form of tetanus which occurs in new-born infants and is known by the people as the "ninth day fits" because of the period at which it usually shows itself. This is also much more common with negroes here than with whites. Its real cause is not known, although some think it connected with the state of the umbilicus. Some negro families are peculiarly liable to it. I have seen a striking instance of this. A negro, of apparently good constitution, married a woman who had previously had several healthy children; but who lost, with trismus nascentium, every one she had by this marriage, seven in number. She then died and her husband married another woman who had likewise reared several children by her first husband. But the only child she had by this man died with
trismus. I examined a number of these children and could
detect nothing wrong about the umbilicus. As the women
were attended by different midwives, it is not probable that
there was any special mismanagement of the cases.

Note.—Since this Lecture was delivered and written out, I have read
with much interest a valuable and suggestive paper upon the pathology of
tetanus, by W. Hanna Thompson, M. D., published last February in the
American Medical Times, of New York, in which the author advocates
the doctrine that tetanus depends upon a morbid condition of the blood
either acquired or induced by some peculiar poison. The nervous phe-
nomena would then be referred to the influence of morbidic agents conveyed
by the blood, instead of regarding them as the mere effect of irritation
upon inordinate susceptibility. The treatment he proposes consists of
“hematic agents, such as iron, mercury, iodine and bromide of potassium”
with such “nervine stimulants as asafoetida, musk, camphor and alcohol,
to uphold the sinking nervous force, while the hematic agents are coun-
teracting the toxic cause in the circulation.”

ARTICLE XIV.

Report of Hospital Cases. By Wm. H. Doughty, M. D.,
Physician to Augusta City Hospital.

Opacity of the Cornea.—P. G., aged 45, entered the Hos-
pital April 29th, 1860, for acute catarrhal ophthalmia of both
eyes. The left eye yielded kindly to treatment after a short
time, but the right continued highly inflamed and painful;
at present, however, the inflammation does not involve the
palpebral conjunctiva. The cornea partook of the inflam-
matory action, as a result of which it has been left in an
opaque state, sufficient to prevent the detection of objects
only a few feet from the individual. From the outer cir-
cumference of the eye, two or more large capillaries are
seen extending to the centre of the cornea. The sensibility
of the organ to light is so great that the patient keeps it
covered with a handkerchief. The following treatment was
continued for two months, at the end of which time, the
Case had improved so much that the individual could distinguish objects at the distance of an hundred yards, and at his request, was dismissed. All inflammatory action has ceased, and very little obscurity of the cornea remains.

Constitutional treatment was 5 grs. blue mass at night, three times weekly; and one teaspoonful of the following mixture, three times daily:

\[
\text{R.—Potass Iodid, } 5\text{ij}.
\]

\[
\text{Tr. Iodin gtts, } xxx.
\]

\[
\text{Aqua ad } 5\text{ij.m.}
\]

Locally the frontal and temporal regions were sponged freely with cold water, and the following wash used twice daily:

\[
\text{R.—Argenti Nit, grs. iiij.}
\]

\[
\text{Aqua, } 5\text{ij}
\]

Open the eyelids and drop in a few drops. The enlarged capillaries were also cut in several places; and occasionally a small blister applied to the temple.

Remarks.—The satisfactory results of the above treatment has alone caused the selection of this case for publication. Its purely practical character will render it acceptable to the profession.

Amputation of the Leg for Chronic Ulceration.—For fourteen years Mr. R. C. W. had been afflicted with chronic ulceration of both legs—the right, however, being worse than the left. As is common with such cases, the ulcers, which were large, irritable and offensive, would occasionally heal and then spontaneously break out again. They have not been healed for eighteen months or more, and on the right leg they are so extensive as to have embraced almost the entire region between the tuberosity of the tibia and the malleoli. He is a printer by trade, is fond of whiskey, and has led an irregular life, which facts are quite sufficient to explain the permanency of the disease. Nevertheless, he looks quite robust, and his general appearance is by no means that of a person whose constitutional vigor had been seriously impaired. He first entered the Hospital about
the middle of January, and was under treatment until March. The ulcers were healed, though the cicatrices and newly-formed tissues were tender and weak. He returned to his trade and usual habits, against which he was cautioned; and, on April 10th, applied for re-admission, for the purpose of having the right leg amputated. The ulcers had broken out with renewed vigor, and verily the last state of that man was worse than the first. Of course he was advised against amputation, and urged to remain long enough in the institution after the healing of the ulcers to enable the tissues to acquire strength; and also to quit his trade, which required him to stand many hours without intermission, as well as all stimulating drinks. It was much easier to suffer amputation than to undergo the latter privation he thought, and further remarked that his brother printers had kindly offered to furnish him with a cork leg. A week was allowed him for reflection during which the parts improved, at the end of which, however, was as clamorous as ever for its removal. Being persuaded in our own mind that the circumstances necessary for the preservation of the limb in a permanently useful state would never be observed, we determined to gratify him by taking it off. Accordingly, on 17th April, the operation was performed by Dr. J. S. Coleman, of this city, in a skilful manner, at the point of election, a few inches below the tuberosity of the tibia. The circular method was adopted, and after the tying of the blood-vessels, and the application of the usual dressings, the patient was put to bed. For several days he had high fever, and much pain at intervals in the stump, for which quinine, laxatives, and opiates were given.

April 21st.—Patient comfortable; pulse natural in frequency and volume. Stump examined, and a portion of the indurated integument that was necessarily retained, found to be in a sloughing condition.

The usual dressings were applied, and a nourishing diet ordered.
April 25th.—This is the second dressing since last examination. Doing well.

May 18th.—Stump in fine condition.

Remarks.—The ulcers on the left leg are completely healed, and it is probable that by the time the artificial leg is procured, it will be firm and strong. Before amputation was performed, a written certificate, with witnesses thereto, was required of the patient, relieving us of all legal responsibilities on his part, and all others interested. This was a necessary precaution in view of the peculiaries of the case.

Autopsy of a Case of Phthisis Pulmonalis.—This subject, E. M., was an Irishman, 75 years of age, of irregular habits. He had the general appearance of a patient far advanced in phthisis, being pale, emaciated, &c., but when his case was fully investigated its tubercular character was not so evident. His disease dates from a severe cold contracted eighteen months ago, occasioned by wet feet, which confined him to bed for several weeks; since then he has been scarcely able to go about. For three months or more he was an inmate of one of the Charleston hospitals, where, according to his statement, he was treated for chronic bronchitis. With the general appearance of a consumptive, yet he had no hectic paroxysms, and night sweats; no diarrhea; no marked acceleration of pulse and respiration; no chronic laryngitis. His breathing was labored and oppressive, but not increased in number; and his pulse, though feeble and irregular, was still scarcely over the standard. The only rational evidences of phthisis were cough, labored breathing, and general marasmus, and muco-purulent expectoration. Physical examination gave abundant evidence of disease, but as there are no signs disjoined from rational symptoms that may be regarded as certainly indicative of phthisis, was insufficient to establish its existence. Bronchial and broncho-vesicular respiration, bronchophony, pectoriloquy, and cavernous respiration (in rare instances), as well as the adventitious rales, may exist occasionally, as fully marked in chronic dilatation of the bronchial tubes as in phthisis.
The same is true of the percussion sounds, for degrees of dulness, varying from simple appreciable dulness to almost flatness; tympanic dulness and its various modifications are also incident to it. The physical signs elicited in this case were such as might be ascribed to either disease. Under these circumstances, the importance of the rational symptoms became greatly enhanced, for upon them must turn the diagnosis. The leading rational symptoms of advanced phthisis were absent, and so far it favored the presumption of its absence. Doubtless it was this circumstance that induced others to regard the case as one of chronic bronchial disease. Irregular cases of phthisis are occasionally met with, and hence we were vigilant to detect it if possible. This case was made the basis of a lecture on consumption, embracing also a brief notice of the differential diagnosis between it and bronchial dilatation, before the attending class of the Medical College of Georgia, which was afterwards published in the *Southern Medical and Surgical Journal*, March 30. In it the main points were discussed, and the irregularities set forth. The position then assumed was, that it would be unsafe to declare that tuberculosis did not exist. It affords us pleasure to review the conservatism of that position: a post-mortem examination alone could settle the disputed point, a synopsis of which is hereto annexed. It should have been remarked that there was no hereditary predisposition to consumption on the part of the individual.

April 20th.—Autopsy one hour after death. On opening the chest, the left lung was found collapsed; at its apex it was slightly adherent to the wall of the chest. Its upper third, particularly the apex, was occupied by aggregated tubercular masses, firm and resisting to the knife; the middle and lower thirds were also filled with tubercles in a disseminated state, varying in size from a mustard seed to a large-sized pea. The right lung was adherent to the parietes of the chest throughout, and so firm were the attachments that in some places the knife was necessary to sever them. The entire upper lobe was a solid tubercular mass,
and in its posterior part was an excavation of some size. Within and about this region, the structures seemed in a transition stage approaching decomposition; some parts of it were indeed so much softened as to render it impossible not to tear it in our efforts to break the adhesions. The lower lobe was also occupied by tubercles in small masses; and the base of the lung was, as it were, firmly glued to the diaphragmatic pleura.

Heart.—Not the least interesting was the condition of the heart. There was fatty degeneration, with extensive softening. The muscular tissue when cut or torn, had a decided yellow tinge; and so greatly softened was it, that it trembled like jelly when exposed to view. There was no firmness about it, and when held in the hand gave sensations such as would be experienced by a loose bladder partially filled with water. The valves of the pulmonary artery were slightly thickened; and at the aortic orifice only one of them appeared at all altered.

Remarks.—This examination fully demonstrates the correctness of the position taken in our lecture, and as satisfactorily teaches us the importance, aye, the necessity of bearing in mind the possible occurrence of cases of pulmonary tuberculosis, which may display but few of its rational symptoms. And this is the more necessary, since it is one of those rare junctures in which physical examination fails to discriminate, the differential diagnosis turning upon the rational evidences of the disease. This would not be so if there were any physical signs distinctive alone of phthisis; as it is, however, the rational symptoms place, in a degree, a special interpretation upon the latter, which enables us, in a large majority of cases, to make a successful diagnosis. The question, so often asked, "how few physical signs, taken in connection with symptoms pointing to tuberculous disease, are sufficient to establish the diagnosis?" has its converse in that which may be asked, "how few of the rational symptoms of the disease, in connection with abundant physical signs, can suffice for the differential diagnosis?"
Clinical Researches into Morbid Pigmentary Changes in the Complexion. By Thomas Laycock, M. D., &c., Professor of the practice of Medicine and of Clinical Medicine, and Lecturer on Medical Psychology and Mental Diseases in the University of Edinburgh.

It is well known that the tint of the skin in disease is an easily available, and often an excellent guide to diagnosis and treatment. This disease arises mainly from the fact that changes in it indicate any important change in the constitution of the blood, but more especially of the blood corpuscles. Its physiognomical uses are well known in showing the race or temperament of the individual, and therewith his mental and corporeal tendencies. In these and various other similar applications, the tint of the skin is due to the presence or absence of the animal pigment, with or without changes in the blood.

Although these color characters are capable of such varied and important applications to practical uses, they are so imperfectly understood as to their nature and origin, that changes in the complexion in disease have had little more than an empirical value in medicine, and have, indeed, not infrequently led the observer into error; thus, the tint in "Addison's disease" has doubtless led to its being mistaken for icterus until very lately. The coincidence which Dr. Addison showed to occur between structural disease of the suprarenal capsules and a pigmentary deposit in the skin of whites (and whose conclusions have been confirmed by others) has of late years directed my attention to the clinical meaning and pathology of morbid pigment-deposits and pigmentary changes in the complexion. Although the results of my inquiries are not so definite as further delay might have no difficulty in showing very conclusively that clearer views as to the pathology, diagnosis, and treatment of certain related groups of constitutional diseases may be deduced as well from the absence of pigment-deposit as its presence.

The following are the conclusions at which I have arrived, and which I propose to illustrate:

1. That besides blue and green, of rare occurrence, there are two common and well-marked and distinct forms of morbid discoloration, due to pigment deposit—the yellow or sallow, and the black or swarthy.

2. That both yellow or swarthy discoloration of the skin will occur from the action of local irritants—as heat, light, cutaneous parasitic fungi, blisters, sinapisms, and the like, or in the
progress of various cutaneous diseases of the skin and its appendages.

3. That the absence of pigment (leucopathia), as well as its deposit, may be caused by inflammatory and other diseases of the skin, affecting its chromatogenous function.

4. That morbid states of the cerebro-spinal centres will influence the deposit or non-deposit of pigment.

5. That morbid states of the genito-urinary organs in both sexes, acting probably through the nervous system, will determine the election of locality of pigment-deposit, according to the same law, by which the development of sexual hair and pigment is regulated.

6. That structural disease of the abdominal viscera and peritoneum also exercise an influence through the nervous system upon the local deposit of pigment in the skin.

7. That in the diseases of the supra-renal capsules, the bronzing of the skin, whether swarthy or yellow, is partly nervous, and due to the direct or indirect influence of the capsules or the kidneys and nervous system; partly haemic, and in so far due to the morbid influence of "dyserasic" blood.

8. That pigmentary changes in the skin of both whites and blacks may be the result of morbid causes, and yet may remain after the operation of the causes has ceased, and assume a physiological character.

9. That although local morbid pigmentation of the skin may occur exclusively from local causes, or the influence of the nervous system, in the majority of cases there is a morbid condition of the blood.

10. That the morbid conditions of the blood associated most commonly with pigmentary changes are characterized by those changes in the blood corpuscles (leukaemia, leucocytosis) which are observed in cachectic states of a constitutional character (pregnancy, chlorosis, tertiary syphilis, chronic rheumatism, cancer, &c.,) or which are intimately connected with "dyserasic," visceral or glandular diseases (of the spleen, supra-renal capsules, lymphatic glands.)

11. That the tendency to discoloration increases (ceteris paribus) with age after a certain period of life.

12. That the morbid pigment-deposits proper, as distinguished from masses of altered blood-corpuscles, are carbonaceous excretions, and are often vicarious with the suspension or imperfect elimination of other carbonaceous excretions—as the carbonic and lactic acids, and the pig-
ment constituents of both the urine and bile; and are consequently associated with morbid states of assimilation, as well as of elimination (through the skin, lungs, liver, kidneys).

13. That amongst the morbid states of assimilation, the rheumatic and gouty are especially to be classed, as well as those coincident with anaemia.

Semeiology.—Pigmentary changes in the skin, and pigment-deposits in the tissues, are observed clinically under the most varied conditions, and have given trivial names to groups of symptoms. Jaundice (jaune, yellow) is the simplest illustration of these. The deposit of black, or brown, or blue pigment in the skin of white races, has led to the various nosological terms indicative of the change—as melasma, melanopathia, nigrities, bronzed skin, blue skin or cyanopathia, melicoris, stea-rhæa, flarescens, stea-rhæa nigricans chlorois (or green sickness), melancholia, melanochlorosis, melasicterus, &c. As to the absence of pigment we have alcura, leuce, leuco-pathia, vitiligo, canites, &c. The congenital absence known as albinism has always excited curious attention, and, as those who have treated albinos know, coincides with peculiar forms of disease. I need not refer to the albinos forms of animals, nor to the curious ethnological doctrines and oppressive laws which have originated in the presence or absence of cutaneous pigment, except to say that a better knowledge of the pathological forms will necessarily throw much light on the physiological.

Classification of Morbid Pigments.—The pathological pigments are of two kinds. 1. The spurious, which consists either in foreign carbonaceous matters, or in direct modifications of the coloring matter of the blood corpuscles after they have died; these pigments are all some form of haematin, and presents all the shades of black, brown, yellow, and purple. 2. The true, being those pigments which are products of the transformation of the living blood corpuscles, or tissues, and which must be held to differ from the preceding in the circumstance that they are the results of the action of the vital forces. They are of all colors; correspond in this respect to the normal coloring matter of animals; and are found in the cutaneous appendages and excreta, but especially in the urine and bile.

Le Cat, a surgeon at Rouen, was the first to examine systematically the morbid pigmentary changes of the human skin in their relation to anatomy, physiology, and
organic chemistry. He details cases of melasma and nigrities, and distinguished evidently what was a case of "bronzed skin" from ordinary melasma and icterus.* He examined the pigment (which he termed "Ethiop’s mineral") chemically, and showed that the coloring matter of the ink of the cuttle fish was identical in nature with that of the skin of negroes, and of the choroid coat of the eye. He was also the first to observe that the encephalic tissues of the negro were of a darker tint than in whites—an observation subsequently confirmed by Meckel and others, and very recently by M. Gubler. Although considerable progress in observation has been made during the last century, we may still say, with Alibert, "Les lois de la coloration sont encore couvertes d’un voile épais."

Modern inquiries have ascertained that black pigment is deposited morbidly in the tissues, mucous membranes, and capillaries (melanosis), as well as in the skin (melasma), and that it is sometimes present in considerable quantity in the blood (melanemia). Its nature and composition have also been carefully examined of late years. Baruel first attempted to show that the chemical composition of the black deposit in melanosis was identical with that of the coloring matter of the blood. Breschet founded upon this analysis and upon his own researches the conclusion that the deposit was due to effused and modified blood with a large proportion of true coloring matter; and Heusinger, Lobstein, Andral, Trousseau, and Leblanc, J. Vogel, Bruch, Rokitansky, Virchow and others, have theorised as to the mode in which the pigment is formed from the blood.† It is now well established that although the pigment in numerous cases really consists of modified hæmentine, derived directly from the blood-corpuscles, the deposit in melanosis, melasma, and nigrites is not of this kind.

The term melanosis was first used by Laennec, who pointed out three forms of the disease. 1. Those in which the pigment is deposited in masses, whether encysted or not. 2. Free deposits of pigment in layers in serous membranes. 3. Infiltrations of pigment.‡ In 1821, Breschet

* Traite de Couleur de la Peau Humaine, &c., p. 158. 1765.
‡ Bulletin de la Soc. de l’Ecole de Medecine, No. 2. 1860.
added a fourth, the fluid form; and in 1829, Andral asked whether certain cases of pigment-deposit in the skin should not be classed with melanosis. Andral also called attention at the same time, not only to cases of inky discoloration of the intestinal mucous membrane, in which pigment appeared as a deposit into the tissues, but to another class (some observed by himself), in which it appeared on the surface of that membrane as a secretion.* These deposits of pigments in the tissues, that is to say, externally to the blood-vessels, are now well established.

Breschct and Cruveilhier seem to have been the first (in 1821) to detect pigment in the blood-vessels in the form of black, sharply-cut masses.† It was considered to be rather a post-mortem phenomenon than a true pigment-deposit, and what they observed was probably due to the hematine of the altered blood-corpuscles. In 1823, Dr. Haliday published a case of melanosis, in which he found fluid black pigment in the vessels at the base of the brain, and in those of the choroid plexus.‡ In 1825, Billard and Bailey observed capillaries of the brain to be obstructed by pigment. Several years subsequently, Mr. Holmes Coote recorded a case of melanosis of the eye, in which he found a black matter present in the blood-vessels of the recti muscles of the globe, between the blood and lymph-corpuscles in appearance, and which moved with the blood-corpuscles when pressure was made on the vessels.|| Of late years, this deposit of pigment in the blood-vessels has been frequently observed and connected with the presence of free or celled pigment in the blood and certain viscera, but especially in the spleen. German observers have largely contributed to this portion of the subject, particularly Meckel, Ecker, Virchow, Planer, Heschl, and Frerichs.

The term melanemia (first used by Frerichs) has been applied to that condition of the blood in which the pigment has been found. Seeing how readily the carbonaceous matter is deposited in the skin and tissues in melanosis, and how abundantly in the capillaries the conclusion was natural that in all cases it was a deposit made directly from
the blood, without the intermediate vital action of the tissues in which it was deposited. Now, this mechanical theory may be admitted as to the blockade of the capillaries by pigment granules, the products probably of altered corpuscles, but it is by no means sufficient to explain the usual phenomena of melanosis or melasma. As to the latter, it may be observed especially that the deposit takes place in a tissue, the normal function of which is at least to receive it, but perhaps to excrete it: hence the change is in one sense a physiological process; whereas in melanosis and in blockade of the capillaries, the change is in no sense physiological, but purely pathological.

As I shall have to refer to melanamia from time to time, I would observe here, once for all, that although the facts are so numerous and apparently so decisive as to the presence of free pigment in the blood, they require confirmation, and have in fact been controverted. In 1852, Zeroni stated in a contribution on the Treatment of Ague by Arsenic,* that he had examined the blood of ague-patients for the pigment-cells described by Heschl, and, to his great delight, he found them at once; but on examining the blood in other cases, and in the spleen of a fatal case, he could no longer find them, but discovered that he had used glass covers which, under a power of 300, showed objects marvellously like Heschl's drawings of his pigment-cells. Probably the doubts thus thrown on Heschl's researches are not altogether inapplicable to the researches of other inquirers, for Zeroni indicates a very certain source of fallacy. I have examined the blood of several individuals (certainly not fewer than 100), and am satisfied that nothing is more difficult than accurate observation of the pigment-elements. The slightest particle of dust, coal, or ash, is sufficient to give the appearances described by Planer and Heschl. Even a microscopic particle of dried blood, remaining on the slide, shows as brown pigment, in a freshly-drawn specimen of blood taken on the slide. So that the utmost care will hardly suffice to avoid fallacies in observations at the bedside. It appeared to me that the only method by which even an approach to accuracy can be obtained clinically, is by examining the blood of a number of persons under the same conditions as to time, place, state of

* Deutsche Klinik. Nos. 40, 41.
slides, and method of taking the blood, so that all the observations are equally liable to the same class of fallacies; in this way a comparison of the differences in the phenomena observed could be instituted. The results of clinical examinations thus made, I shall state shortly, believing that, although not strictly accurate, they are sufficiently approximative for the first steps of a clinical inquiry.

Melasma considered generally.—There are two forms of pigmentation observed in the skin of men and animals; namely, those of the skin proper, and those of the appendages to it, as hair, quills, feathers, scales, shells. The pigment of the skin proper of man is contained in the soft, newly-formed cells of the epidermis, formerly termed the retemucosum, into or by which it is secreted. That of the hair, scales, and other similar appendages, has fundamentally the same origin; for they are either compressed epidermic products (as scales), or produced from follicles which are fundamentally involuted portions of the derma proper. The function of these follicles is, however, modified by the fluid which is poured into them from the sebaceous glands. But these again are involutions of the derma. Hence the general relations to the pigment of the skin appendages are the same in both; it is contained in cells having a common origin at the surface of the body.

The skin in all men, whether white or dark, has normally a function of pigmentation, although the activity of it differs greatly in extent in different races, and even in the same race, from varying circumstances as to climate, food, and exposure to climatic influences. In white races this coloriferous function is almost in abeyance, especially in the clothed portions of the body, but it is easily developed under certain circumstances. In all, however, the anatomical relations of the pigment to the epidermic cells appear to be the same. Thus the pigment-deposit in "bronzed skin" has been found by various observers to have the same relation to the epidermis as in sun-freckles (ephelis), and as in the colored races. The cells in which it is contained in the form of minute granules are covered with a colorless epithelium in the ordinary cases of melasma, chloasma, and the like, but in certain morbid states of the skin, in which there is rapid production of epithelial scales (desquamative or squamous diseases), the epithelium contains abundant coloring matter. This is observed clinically in pityriasis versicolor, in various forms of ichthyosis,
in cases of true leprosy, known as "black" leprosy, and in lepra nigricans. A similar rapid production of pigment may take place either within the hair follicles or the sebaceous glands, and be poured out on the surface of the skin. This is seen in *stearrhæa nigricans* and *stearrhæa flavescens*. It is probable, however, that it is poured out also as an excretion from the sudoriparous glands.

Leucopathia in relation to Melasma.—It is not every part of the human body which is equally dark, or has equally a tendency to become dark; on the other hand, in colored races, and in portions of the skin or its appendages of the whites, which are naturally dark, there is sometimes a morbid defect in the pigmentation. This state has been termed white disease, or *leucopathia*. It is to be observed, however, that there may be a pathological leucopathia; that is to say, white spots due to morbid changes in the skin may appear amongst colored patches of white skin due to excited action of the epidermis. This gives a mottled appearance to a bronzed skin—i. e., a skin darkened by disease, and may tend to puzzle the observer. In particular it may lead him to mistake a pathological tint for the dark tint of sordes of the skin. The mottling of the skin in cases of melasma, indicates a true pigment-deposit, for the white patches are due to the absence of morbid pigment, just as *leucopathia* in the negro indicates the absence of normal-pigment. Now, as the pigment-deposit in these cases of melasma is due to morbid excitation of a normal but suppressed function of the rete mucosum in whites, the white motting indicates a morbid condition of the skin at the places where the skin or the hairs remain white, when all around is darkened. This morbid condition can often be traced to some eruptive disease of the skin by which the function of the rete mucosum, so far as the production of pigment is involved is interrupted. In other cases, it is due to some other cause or causes. I have seen, for example, a case of syphilis, in which the hairs of the entire surface of the body, cap-a-pie, fell off, and pigmentation therewith ceased. The patient was a young man of dark complexion, and when the colorless downy hairs reappeared on his pink-looking skin, he presented a curious contrast with his former appearance. Again, although leucopathia may be thus traced to changes in the disease induced by locally inflammatory or constitutional causes, and the result of which is to interrupt the chromatogenous function of that portion of
the skin affected, there are forms of leucopatia wholly un-
connected with any such structural changes, and which are
probably due to changes in the innervation. Thus, a man
with renal and cardiac dropsy had broad patches of liver
color (melasma) and leucopatia on his right forearm. No
structural change could be traced in the site of the latter,
while it was observable that the hairs of the spot were
white, so that the production of pigment was suppressed in
them, as well as in the rete mucosum. Such cases as these
I would term melasmic leucopatia.

On the other hand it is to be noticed that portions of the
skin, which have been the seat of considerable structural
change, are the seat also of pigment-deposit. The deep
cicatrices left by a severe attack of small-pox may be ob-
served sometimes to be thus colored; it is no uncommon
thing to observe the same appearance in the cicatrices of
old ulcers on the legs, especially of gouty old people. In
these cases the pigment-deposit is manifestly due to another
kind of action than that which occurs in the rete mucosum
or cutaneous glands in instances of melasma. In the latter
it is a natural function of normal structures exalted by some
special conditions; in the former the normal structures are
destroyed, and the process is purely morbid. These two
forms of cutaneous pigmentation are, in truth, typical
forms, and correspond to what may be termed carbonaceous
excretion and carbonaceous deposit (melanosis proper.)
The black, yellow and blue stains following upon bruises
are, of course, wholly different, being due to the effused
blood-corpulcles.

Local Causes of Melasma.—The conditions under which
morbid pigment-deposit takes place, being so very complex,
it becomes necessary to determine the more important by
illustrative cases. These conditions may be classed under
three heads, as they involve the blood, the nervous system,
and the tissues themselves. As regards the skin and its
appendages, it may be here observed generally and by way
of preliminary, that any stimulation or irritation applied to
the skin under certain conditions of the blood, the nervous
system, or the system generally, will induce pigment-
deposit. Thus, heat and light tinge the rete mucosum of
certain persons. In old people, the shins get to be of a
brown or liver color, from exposure to the fire (laeches de
brulure). The same thing happens in certain cachectic
states, as in the syphilitic cachexia, in anaemic conditions
Cutaneous Discolorations.

Cutaneous the skin of aged and otherwise distributed, (chlorotic girls), and the like. In a similar class of cases the irritation of a blister suffices to cause pigment-deposit, so that the exact size and shape of the blister is indicated by a dusky brown or liver colored patch. Various skin diseases have a similar effect, as the furunculoid, eczema, psoriasis, &c. In an inveterate case of psoriasis, treated in the clinical wards during the session 1859-60, a man, aged about fifty-eight, after convalescence the entire surface of the back and trunk was almost wholly covered with large confluent patches of dark pigment-deposit, indicating the portions of the skin which had been the seat of the disease. And seeing this result, it was not difficult to understand how, in cases of this kind, the complexion of the individual might be indelibly changed, so that he would exactly resemble men of the colored races, in that particular at least, just as in some cases of leucopathia in negroes, the skin has become as white as in the white races. Now, in these cases of cutaneous pigmentary change, after convalescence from skin diseases, I have observed that the patient has been either advanced in years or cathectic (if young), or both aged and cathectic.

Psoriasis, for example, is very common in young and healthy adults, but in these cases, stains are very rarely left after cure, as in the aged and cathectic. It occurs in the exceptions, I think, because the patient is of a dark complexion, and is therefore predisposed naturally or normally to pigment-deposit, just as a woman of such a complexion will have a darker mammary areola from pregnancy than a fair-complexioned woman; and this indicates one of the most common conditions under which pigment-deposit will vary in intensity—namely, the ethnic, or conditions proper to the race. Probably to this class of conditions may be attributed, in part, the difference between swarthy and yellow bronzings in the diseases of Europeans.

The mode in which the sun's rays excite freckles (ephelis or lentigo) shows, however, that there are conditions in the skin of the face and neck which predispose it to the development of pigment in the small patches termed freckles, otherwise the change in color would be uniform. Sometimes this appearance is very remarkable, as in a youth of twelve, just arrived from India, who came under my notice, and whose face, after exposure to the sun, was suddenly dotted uniformly over with round brown spots of the size a large pin's head. In these cases, the deposit may be due
to irritation of the rete mucosum at points where a group of sudoriparous or sebaceous glands pour out their products, or if not to this, to the same class of elective causes, by virtue of which herpes, variola, and other circumscribed inflammations of the skin, are induced. It is to be observed, too, that red-haired persons are more liable to this lenticular pigment-deposit (taches de rousseurs) than the dark-haired, in whom the pigmentation is more uniform. I shall, however, refer to these special forms of pigmentation or leucopathia when I discuss more particularly the causes of melasma, and with these preliminary remarks will now give some illustrative cases.

**Cathetic melasma** (i. e. swarthy bronzing, as distinguished from yellow) is the most commonly observed; it is that specially designated by the term melasma.

**Case 1.**—Mottled swarthy bronzing (melasmic leucopathia) of thorax and abdomen, mistaken for sordes; abdominal tumor; enlarged lymphatic glands.—Reid, a tailor, aged about thirty-five, was admitted into the clinical wards, 27th May, 1856. On admission it was found that he had a pulsating tumor about four inches in diameter, occupying the middle line of the epigastrum, and extending thence into the left hypochondrium. In addition to the tumor proper, there was a supplementary enlargement caused by fecal accumulation at the left angle of the colon. Complained of constant constipation and severe shooting pains in the back and loins, extending to the left groin. Pain also more particularly referred to the region of the kidney, where there was tenderness on pressure. On careful examination the tumor was found to be not expansile, but a loud systolic murmur was heard over it. The skin of the trunk was universally of a darker hue than natural, but more particularly over the abdomen; the dark surface was mottled with white spots, which, on inquiry, we found to be the sites of a previous pustular eruption. Face pallid anaemic; axillary and ingunal glands enlarged. In discussing this case at the bedside, I pointed out the bronzing of the skin, but the appearance was so like that of sordes, that several of the class got soap and water, in the confident expectation that they could "wash the Ethiope white." The only result was to bring out the dark and white spots more distinctly.

**Symmetrical Melasma.**—In the case just detailed, the change in color was limited to the trunk; it is sometimes,
however, symmetrical, both as to morbid whiteness and morbid dinginess; and although it by no means follows that, being symmetrical, it must be due to changes in the centric nervous system, yet in the absence of any other cause, we may fairly refer it to these, as they probably were influential in the following case.

Case II.—Long-continued diathetic eczema and erythema; enlargement of lymphatic glands; symmetrical pigment deposit on the skin; melasnic leucopathia.—P—— S——, aged sixty-two, a workman in an iron foundry near Glasgow, admitted into the clinical wards 22d July, 1860. He states that he had always enjoyed good health, with the exception that in youth he had frequent attacks of headache until sixteen years ago, when his lips became red and swollen and covered with small vesicles, accompanied with excessive itching. In three or four weeks he was cured by the application of a yellow ointment, but the affection recurred annually every spring, and at each recurrence extended over a wider surface. About four years ago the shoulders became affected, and for the last two or three years there has been no remission. The itching is very distressing, and the desquamation from the parts affected considerable.

About three years ago, he observed that the glands of the groins were becoming large, and shortly after those of the axillæ. About this time, also, three abscesses formed; one in the right groin was opened, two others lower down in the right thigh burst. They commenced with shivering, thirst, and other febrile symptoms. Two years ago, while feeling a little weak, small brown spots began to show themselves on various parts of the skin of the groins, back, and abdomen. He cannot remember whether one patch preceded another, or whether they all appeared at the same time. He has never had rheumatic fever, but when forty years of age he suffered from three or four attacks of lumbago. His father was rheumatic, his mother not.

Examining the patient more particularly, it was found that he complained of no pain, only of a troublesome itching extending over the whole body. The skin generally is of a pinkish-red color where not discolored, showing a deficiency of pigment, gives off abundant scales, and is universally thickened, but more especially so on the legs, where it presents the appearance of ichthyosis. Symmetrical brown patches, as large as two hands, are observed over each shoulder-blade, and which extend across the median line;
another large patch surrounds the neck, and extends symmetrically up to the face, which is uniformly dusky, presenting no patches. Symmetrical patches occupy each axilla, extending forwards to each nipple; there is a similar patch around the umbilicus, and also in each groin.

The superficial lymphatics generally are enlarged in the groins, both above and below Poupart's ligament, in the axilla, at the elbow, and in the neck behind the sternomastoid. There is also an enlarged moveable gland over the left tenth rib.

The head is covered with hair, which is almost uniformly white, contrasting with his dusky face. The facial and other characteristics are those of a degenerate form of the gouty or rheumatic diathesis. The lips do not exhibit any peculiar pallor.

The blood was examined microscopically, and found to contain an abundance of white corpuscles. (Leucocytosis.)

A cardiac murmur is heard with the first sound, loudest at the apex; pulsation visible in the neck; pulse 69; the appetite is good; the bowels regular; urine abundant, of a light amber color, with the normal amount of chlorides, and affording no traces of albumen or sugar. As the wards were closed for the autumn shortly after his admission, the termination of the case was not observed.

In this instance the symmetrical deposit of pigment in certain spots of the skin, and its absence in others, is the most striking point. It is also to be classed with Case No. 1. in regard to the affection of the glandular system. The melasma presents resemblances to that observed in some of the recorded cases of bronzed skin. Thus, in No. 6 of Dr. Additon's cases,* the patches of discoloration were associated with patches of leucopathia, in which the skin presented "a singularly white or blanched appearance; the hair upon these patches were also "completely white." The axilla and groins are also very commonly the seat of discoloration in Addison's disease, and in some of the cases a symmetrical deposit has been observed, as in this. Symmetrical deposit is not confined, however, to these constitutional forms. In chronic peritonitis and chronic structural diseas of the abdominal viscera of all kinds, it is not uncommon to find a darkened hue of the skin of the abdo-

* On the Constitutional and Local Effects of Diseases of the Supra-renal Capsules, p. 25.
men, approaching in some cases to a deep tint of Indian ink. In one of this class (evidently cancerous) which Dr. War-
burton Begbie kindly brought under my notice at the Edin-
burgh Royal Infirmary, there was not only this pig-
ment-deposit in the skin of the abdomen, but it extended
symmetrically downwards along the groins to each thigh.

Desquamative Melasma.—The desquamation in Case No.
II was not pigmented. There are cases, however, in which
the scales either contain or excrete abundant pigment.
Schilling* mentions the case of an infant with previous
“hyperæmia” of the skin, whose entire surface was covered
with a lamp-black matter, which came off with the linen.
The following presents one of these forms of pigment-

deposit.

Case III. Nigrities of trunk with extensive desquama-
tion (pityriasis versicolor); eczema; yellow bronzing of face;
profound anæmia.—Elizabeth Fleming, aged sixty-six, ad-
mitted into the clinical wards May, 1856. On admission,
physical signs of bronchitis, with slight consolidation of
lung, blowing stystolic murmur loudest at the base, œdema
of legs, recurrent headaches, and attacks of diarrhæa.

On the surface of the body were the remains of an ecze-
matous eruption, the lips very pale, face and hands strik-
ingly anæmic, but of a pale straw color (yellow bronzing),
contrasting strongly with the hue of the arms, trunk and
extremities. These were of various shades of bronze and
black; bronze on the forearms and legs, but deepening
upwards towards the trunk, which was very dark, and, in-
deed, almost black in the axillæ and over the abdomen.
As she recovered her health under chalybeates, wine and
generous diet, desquamation came on, and the epidermis
came off in dark flakes, leaving the skin paler, but of its
natural hue. No sporules of the pityriasis fungus (the mi-
croscoporon furfur) could be detected. The skin over the
abdomen and other pigmented parts was mottled over with
pale spots, which had evidently been the seat of the ecze-
matous eruption. This was a second attack of the kind, for
the patient stated that five years previously she was simi-
larly affected, and that it ended then in desquamation.

This case presents an obvious point of resemblance to the
two preceding in the circumstance that leucopathia, from

* De Melanosi, p. 32. 1831.
the inflammatory affection of the skin, was associated with the nigrities. In other words, that some morbid condition of the skin caused a deposit in one portion of it, while another morbid condition prevented the deposit. In the blood condition there was also a point of resemblance.

Visceral Melasma.—The cutaneous pigmentation observed in Addison’s disease has been termed melasma suprarenale. This term is premature and objectionable, because it assumes the accuracy of the theory which connects the cutaneous pigment-deposit necessarily with structural diseases of the supra-renal capsules. In some of the cases there is melanosis as well as melasma, and these two pathological changes are, as we have seen, very distinct in their nature. The general symptoms are anaemia, gastric and intestinal irritation, and various neuroses, as neuralgic pains, convulsive movements, and mental despondency. The following case presented these, together with melasma:

Case IV.—Addison’s disease; intense swarthy bronzing; recovery.—Stevenson, aged twenty-nine, a ship carpenter, from North Shields, was admitted into ward No. 1, on the 18th June, 1856. Naturally of a dark complexion, he presented nothing particular in this respect until the month of August previously, when, without any serious ailment, he began to be dark and yellowish in color, and was treated for jaundice, without any alteration in his complexion. Feeling pretty well, he engaged as ship carpenter for a voyage, but hardly had been four days at sea before he was seized with most violent vomiting and purging, accompanied with a feeling of great un easiness in the lumbar and right iliac regions. He returned from London (where he was treated) to North Shields, and had another attack on the way. Six weeks before admission he again engaged to serve on board ship, but the first night he was seized with a rigor, which continued a quarter of an hour, and was succeeded by a cold sweat. During this he became unconscious, and was carried ashore in that state. Again, on June 7th, he was seized with violent vomiting that continued four hours, and with purging and abdominal pain, especially in the right iliac region, with great weakness, headache, and total loathing of food. Has had seven such attacks. His complexion is absolutely that of a mulatto, so that on admission he was taken for a man of color. His hands and feet are brown, like his face; dark patches in axillae and groins; conjunctivae and nails white; the mucous
membrane of mouth and lips patched with dark inky spots; the same spots seen on the side of the tongue. Tongue clean, bowels costive, moved once in four or five days; pulse 80, feeble; cardiac impulse feeble, and sounds very faint. In left lung posteriorly crepitation. Hands very cold and moist; feet cold. Complains of pain in the spine at the level of the crest of the ilium. Under the microscope blood showed abundance of small white corpuscles. He was ordered the persesquinitrate of iron, wine, and a generous diet, but diarrhoea came on and he lost strength and weight, so that on 1st July he was reported to have lost one pound and a half during the preceding week. On that day he was ordered full doses of glycerine daily, and in addition to the other remedies. He now began to improve rapidly in both strength and weight, so that by the 14th July he was so much better in every respect, except his complexion, that he went home convalescent.

This case was in all particulars so similar to the forms of melasma accompanied with anaemia which Dr. Addison has described, that I have no difficulty in classing it with them. Of course it may be objected, that there was no proof there was disease of the supra-renal capsules, because there was no post-mortem examination to determine the fact, and that as all true examples of the disease have always been fatal, the simple fact of recovery is opposed to the diagnosis. I cannot admit, however, that every case presenting the group of symptoms known as "Addison's disease" must necessarily end fatally, or that the concurrent disease of the capsules is necessarily structural; nor is it a legitimate exercise of the art to establish no diagnosis except by examination after death. The case presented all the pathognomic symptoms of Addison's disease, and ought therefore to be placed as such nosologically.

There is one point in the history of the melasma in these cases of considerable clinical importance. The morbid conditions which lead to the pigment-deposit may be removed, and yet the deposit itself may remain; or, in other words, the primary disease may be curable, but the melasma be permanent or incurable. A patient (Lawson), aged fifty-four, was admitted into clinical ward No. 1, under my care, in profound anaemia, apparently the result of starvation. His color was universally of the swarthy hue of a mulatto, but deepest in the face. He spoke with the strongly marked Scotch accent, or he might have passed for a Las-
car just arrived. To all inquiries as to his color, he only answered that his mother told him he was white until he was four years old, when his skin changed to dark after an illness. It is possible that the maternal history may have been a myth, for Le Cat quotes a case in which the blackness of the child of a lady was attributed to her having seen a negro. A case related by Dr. Parkes of this kind, is, however, conclusive: A man, aged fifty-nine, was treated in the University College Hospital for jaundice. He left the Hospital apparently well; but four or five months afterwards portions of the skin became gradually dark—first on the face and neck, then in patches on the body, arms and thighs, until the hue was very deep. For five years afterwards no change in tint took place, when he was again admitted into the hospital (seven years after the attack of jaundice), with ascites dependent on contracted liver. At this time he was like a mulatto, there being only slight variations of tint on the face, neck, shoulders, and arms; but over the trunk, and especially the abdomen, thighs and scrotum, there were white patches (melasma leucopathia); below the knees the skin was of its natural tint. There was a little pigment on the conjunctiva, and a dark patch on the mucous membrane of the lips. No excess of white corpuscles or free pigment were detected in the blood. After death pigment-deposit was found beneath the epithelium of the peritoneum (melanosis). The supra-renal capsules were found to be perfectly healthy.

Now, in this case the pigmentary changes were consequent upon the attack of illness which occurred seven years before death. If they had depended upon supra-renal disease (which may have been the case), then that had evidently been of a curable character, and the organs had been restored to a healthy condition. In any case the melasma and pigment-deposit were exactly like that which occurs in "Addison's disease," as Dr. Parkes very truly observes.* We may, therefore, conclude from these examples (and others might be added) that melasma may occur in whites as a permanent coloration of the skin, resembling that of the colored races in all essential particulars; and although the result of the disease is not itself a morbid state.

Yellow bronzing.—I have hitherto described more espe-
ially the cases of morbid pigmentation in which the discoloration was swarthy or dark. In Case III., however, although swarthy on the trunk, it was yellow on the face. As these cases of yellow bronzing are little understood, yet more common even than the swarthy, the discoloration requires a more particular investigation than it has hitherto had. For example, in all the recorded cases of "Addison's disease," the swarthy tint has, I believe, been exclusively looked for and described, so that examples of supra-renal disease in which the discoloration was yellow have been recorded as instances in which there was no pigmentation whatever. That yellow discoloration of the skin is as possible an occurrence as black discoloration in diseases of the white races is clear from the simple fact that the races of mankind of a yellow color, or of yellow shaded with brown, are as numerous as the swarthy or dark races. The complexions of the numerous and widely-spread Mongolian race and of its various offshoots and branches have yellow as a basis. When, however, such yellow tint (known as sallowness) has been observed in various morbid states—as icterus, hepatic and splenic diseases, chlorosis, scrobutus, cancer, tertiary syphilis, and the like, the change has not been connected with morbid pigment in the epidemic cells, but exclusively with morbid states of the blood. Now, that it is often due to these is certain; but there are numerous facts which incontrovertibly show that this doctrine is wholly insufficient to explain all the phenomena of the discoloration, even in those of a pure case of icterus, when bile can be detected in the blood.

Before we can form a correct diagnosis in the class of cases in which there is a morbid deposit of a yellow or xanthous pigment analogous to the swarthy, we must examine more carefully the order of the symptoms upon which our diagnosis should be founded. Ordinary swarthy bronzing (as in "Addison's disease") is easily mistaken for the tint of biliary disorder by the inexperienced eye; now, the condition of the blood in the vessels is our guide in these cases. If the conjunctiva be white and pearly, the nails white, and the mucous membranes very pale, it is inferred that the discoloration is not due to biliary disease, because bile-tinted blood gives a yellowish tint to the conjunctiva, nails, and mucous surfaces. On the other hand, a careful examination of the discoloration shows that the color is not in truth that of a diluted bile, being too dark, but rather of diluted Indian ink. Cases of *mesicterus* may, however, present this swarthy complexion; but for the most part the diagnosis of the tint in "Addison's
disease" from that of hepatic disease may thus be made. Now, it is obvious the diagnosis of yellow bronzing must be made on the same principles, but more weight is necessarily given to the pallor of the conjunctiva than in swarthy bronzing, and less to the differences of tint, because the sallowness of pigmentation differs little from the sallowness of the icteric tint.

I would not, however, be understood to regard the color of the conjunctiva as an absolute guide in diagnosis, for it is also pigmented in the colored races as well as the skin, and therefore there may be pigment-deposit in it in disease; and we have seen that this occurred in Dr. Parkes' case, before quoted. It is not difficult to understand how this may be. The conjunctiva contains all the elements of the skin, for the eye itself, qua development, is a skin product. Hence, not only pigment may be deposited therein, but hairs may grow from it. My friend, Mr. A. M. Edwards, lecturer on surgery in Edinburgh, showed me an interesting illustration of this fact, in a portion of conjunctiva with the hairs attached, which he had removed from the eye of a girl, aged eighteen, in whom the deformity was congenital.* These observations equally apply to the color of the buccal mucous membrane and of the tongue, as both these surfaces are normally the seat of swarthy pigment-deposit in lower animals. It may be objected, that the presence of bile in the urine, its absence from the faces, and other circumstances, may serve equally well, as the color of the surfaces indicated to diagnose morbid pigmentation from biliary blood; but in practice it happens that the most difficult cases for diagnosis of this kind are just those in which there is simply a bilious tint without any important or noteworthy change in the secretions.

Yellow bronzing may pass into swarthy bronzing, or be conjointed with it in as in Case III., or it may be symmetrical. Le Cat† quotes cases of this kind from the Journal Encyclopédie, for March, 1744. A man had an apoplectic attack after being very angry, which ended in hemiplegia of the right side; at the same time this side of the body became completely yellow, without excepting the right half of the nose. Another man, addicted to drunkenness, experienced painful feeling of numbness on the right side; when it pass

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* An account of the case, and reference to others, may be found in October number (1869) of the Edinburgh Veterinary Review.  
† Traité de la Couleur de la Peau Humaine, p. 168 et seq.
off, the face became green, the right side black, the left side yellow. The urine was sometimes black, sometimes green. Having taken salt of wormwood (carbonate of potash) for several days, the color changed, the face and the right side became yellow, the left side black. In about twenty days a yellow tint only remained, and this gradually disappeared. These are not, by any means, solitary cases, but it is unnecessary to multiply examples. The following illustrates yellow bronzing in a case of supra-renal disease, expressly recorded by the reporter, as being opposed to the conclusions of Dr. Addison:

Case V.—Yellow bronzing; disease of supra-renal capsules; multiple cancer.—Leclerc, a laborer, was admitted into the Hospital Beaujon, April 3d, 1856, under M. Gubler. His previous history could be ascertained with difficulty on account of his remarkable "insouciance," but two months previously he was attacked with a painful feeling of distension of the abdomen, loss of appetite, occasional vomitings, and habitual constipation. He became pale, and thin, and weak, the abdominal pain increased in violence, recurring in paroxysms, and for a fortnight before his admission he had been confined to bed.

On his admission, the most striking characteristics were his extreme thinness, and the remarkable pallor of the surface, which also presented in a remarkable degree the yellow straw tint (teinte jaune-paille) of the "cancerous cachexia." No icterus, the sclerotics being of a very pure white, no trace of bronzed discoloration or vitiligo; bellows murmur in the neck; cough, with expectoration of greyish sputa; abdominal symptoms those of cancerous disease; urine of an ochre yellow, and containing uric acid, no albumen nor sugar.

As the disease advanced the yellow tint became deeper and deeper, the epigastric pain more intense and constant, and extending thence to the base of the thorax and the lumbar region. A little to the left, and below the umbilicus, two tumors appeared which were the seat of a powerful impulse and loud murmur. The patient died twenty days after admission.

The post-mortem examination showed that, although the liver was very voluminous, and the substance matter hypertrophied, bile had been freely secreted, for there was abundance of it in the biliary canals; the gall bladder was large and filled with greenish bile; and although the common duct was surrounded by cancerous masses, its calibre was rather increased than diminished. The stomach, pancreas, and supra-
renal capsules were the seat of cancer, as were also the mesenteric and dorso-lumbar glands. The spleen healthy and small; the kidneys large, anaemic, but not cancerous. No examination of the blood.*

In this case the post mortem condition of the liver and bile-duct was conclusive as to the correctness of the diagnosis during life—namely, that as the sclerotic was of a pure white, there was no icterus. The yellow bronzing could not be due, therefore, to the presence of bile in the blood, while the extreme pallor showed it was not owing to change of color in the blood-corpuscles. Hence the only remaining conclusion that it was caused by pigment-deposit.

The examples of yellow bronzing are so common in practice that I need only leave it for further and closer observation, as a true form of morbid pigmentary change. But I may remark, by way of caution, that while the coloring matter of the bile will give a yellow tint, it must not be forgotten that a thin layer of blood corpuscles separated upon the derma, will also stimulate yellow bronzing. The most familiar illustration of this is to be found in bruises or in scorbutus; but it also takes place in yellow fever, and, perhaps, other forms of fever—not, however, to the exclusion of biliverdin.

Amongst the most interesting forms of morbid pigmentary changes, are those which are associated with emotional states of the nervous system, or with peculiar conditions of the genitory-urinary organs. They may be termed the neutrose forms, but as the entire group requires special and detailed examination, I shall reserve the consideration of it for a separate paper.—*British and Foreign Medico-Chirurgical Review.*

[to be concluded in our next.]

* M. Ferreol; Gazette Hebdomaire. August, 1857.
origin of their sufferings, must always claim the indulgence of the physician for any attempt to throw another ray of light on their modes of production. I shall, therefore, venture a few remarks on the subject, premising that these will be of an elementary character, chiefly aiming to show that the weight of the upper portion of the frame often contributes to engender sufferings in those parts, in ways not commonly suspected; and that thus there may be simple means at hand of affording relief in cases beyond the reach of drugs. Whilst such is my main purpose, I may be tempted to illustrate the views submitted from collateral sources.

It is an old remark* that rheumatism is oftener found associated with the tendinous and aponeurotic continuations muscles, especially at the junctions of these with bone, than with the muscular fibre itself. And Dr. Inman, of Liverpool, has ably maintained† that much of the pains experienced in the structures now mentioned are due to a stretching of fibrous tissue by the contraction of muscle, or by its excessive tension produced by any other means. He elaborately distinguishes between the pains thus engendered in the muscular fibre, as cramp or spasm, and those resulting from strain along the line of osseous attachment, or line of union between the muscular and tendinous fibres. And he insists that in a weakened condition of the animal system the muscles are more liable to cramp than in a robust, and pain more likely to be felt along the said lines of junction.

Now, I have no further exception to take against this doctrine, but I do not think that it embraces the whole series of such kind of pains as it aims at accounting for. I would affirm rather, in general language, that all the tissues of the body in their several degrees become painful when they are either stretched or compressed; in other words, that there is a state of equilibrium for the structures throughout the animal frame, which is the only one in which they remain free from pain; that the amount of suffering consequent upon the disturbance of this balance of opposing forces depends ordinarily upon the extent of the displacement, or the time during which it is kept up, that

†Spinal irritation, or Myalgia, 8vo, 1858; second edition, 1860.
is, making allowance for the higher nervous endowment of one part than another, and taking for granted that in such a case the structural points to which the nerves of common sensation, or their ultimate subdivisions are distributed, alone be squeezed or stretched: for if a nervous trunk be thus affected, painful phenomena will, of course, accrue, radiating beyond the point mechanically interfered with.

To explain what I have just stated by example. In a position of ease, the hand rests pretty much flexed. But, if we spread it flat upon a table, we soon begin to feel inconvenience from the tension of its skin and other tissues. And if we close the fingers tightly upon the palm, we soon find their tops in the fist becoming sore.

Or I may take another example, which may be regarded as furnishing an epitome of the principles I wish to supply in this paper. The eyeball is a globe suspended, as it were, by its muscles, in a fatty bed, and rotated so gently and equably as to preserve usually its proper form. If we make the slightest pressure of the finger through the eyelid over the sclerotic coat, we become informed of the compression of the retina along the line of greatest flexure by a luminous image of the contour of the applied portion of the finger; whilst we feel pain along the corresponding portion of the ocular globe—the visual sentient elements in which the optic nerve ends, manifesting in this way the effects we experience in the tactile sentients. In like manner if we strain the eye by resolutely staring in a given direction, the orbital muscles warp the globe out of form, the false impressions of light result, and the power of seeing external objects is almost obliterated, whilst the orbital muscles are thrown into spasms, insomuch that we have a feeling of soreness and fatigue in them, with a tenderness of the ball itself, for many an hour after the experiment. Even any lengthened exertion of the eyes in our habitual occupations is attended with such results in an appreciable manner.

These illustrations will, I hope, help to a reader apprehension of our peculiar liability to sufferings of this order in the regions of the thoracic and abdominal walls, if it shall be made to appear that these are very variously exposed to be forced out of the position of structural balance, and that force applied hereabouts in one part often entails a displacement of the greatest magnitude in some others, in a manner that is not usually thought of.
Let us imagine, as a rough approximation, all the human body, exclusive of the lower extremities, in the sitting posture, as a heavy lever or a beam revolving about tubera ischiorum, as an axis of fulcrum. And let us assume that the centre of gravity of this beam lies between the middles of the scapulae. Then in the upright sitting position the whole weight of the beam falls upon the tubera. In the horizontal the weight will be borne up—distributed—along the whole length from the head to the buttock. If we recline so that the back rests at some point against a prop, we may find the portion of the weight supported by the prop, by drawing a perpendicular to the beam at the point of contact with the prop, and then a perpendicular to this line from the fulcrum, as also a perpendicular from the fulcrum to a vertical line passing through the centre of gravity; when the pressure upon the prop will be to the whole weight of the beam, as the latter of the perpendicular let fall from the fulcrum to the former. Thus, the nearer to the buttock the prop is placed, and the more the body is made to recline, the greater pressure falls upon the prop. Whilst it is apparent that should we, whilst we sit, lean pretty much back against a single prop meeting the spinal column at any point whatever, a considerable pressure must be endured by that part of the body in contact with the prop, which is a general statement sufficiently accurate for the purpose of a practical essay like the present.

Now let us further assume that the back whilst we sit is supported entirely by two props of equal height, and several inches asunder, bearing each, similarly, against one of a pair of ribs. In this instance pain from compression would be felt at the points of contact, as is obvious. But there result also certain secondary effects which, I think, we are apt to overlook. The two ribs are made to revolve by the pressure upon their vertebral articulations, and the numerous ligaments that bind them to the vertebrae and neighboring ribs are stretched, and pain is occasioned in those parts. In addition to which, this movement causes an alteration in the shape of the ring made—with the interventions of the vertebral column, their cartilages, and the sternum—by the pair of ribs. Had such a ring as this been of uniform texture and shape all around, one effect of letting it bear merely its own weight upon two of its under points in the manner here imagined, would be that of flattening the ring above. In such a combination of structures as do
exist in these rings, the result must somewhat differ. Yet we may be sure of this much, that, in the cases before us, much displacement must occur along the most pliant part of the ring—that is, along the cartilaginous portion, and at the articulations of their cartilages with the sternum; for the costal rotation at the spine tends to bring the sternal ends of the ribs nearer to each other, that is, to bend them at their junction with the sternum, independent of the weight of the upper portion of the ring depressing that region. In other words, pain would be developed at other parts than those where the direct pressure is applied.

Had we placed the two props much further apart, and so as to take the weight of the trunk at the back part of a lower rib on one side, and of an upper one on the other, consequences very similar to those detailed in the case of a pair of ribs must have ensued. The ribs would have been pressed in upon the lungs behind, the cartilages would have been bent, and the sternum itself—in young subjects at least—somewhere along the imaginary lines drawn diagonally across it, that joins the articulations with the sternum of the two ribs selected. This may be regarded as a general sketch of what takes place in such an experiment; but it must not be forgotten that a pressure received by any rib will, in some degree, be transmitted to adjacent ones. And it can scarce need to be added that if our back be supported at more than two points, or even along its whole length, the effects here described will only be diminished in amount, and not be entirely obviated.

Now, in the sitting posture, if the support of the back happens to be a flat surface, as in a church pew or box in a theatre, the back rests against the shoulder-blades, that is, virtually the upper ribs; and a fortiori, if the support for the back consists, as in most chairs, of a series of a few horizontal concave bars, the ribs are likely to have to bear at a distance from their vertebral articulations, a large amount of pressure. In weakly persons such a posture produces—not to dwell on that occurring posteriorly—suffering in the anterior part of the chest, especially along the margin of the sternum. For not only from what has been stated must this happen, but in addition, the thrusting forward of the shoulders renders the pectoral and great serrate muscles lax, and thus deprives the ribs of the support due to the elasticity of these inspiratory muscles, increasing the liability to the kind of inconvenience we are discussing;
whilst a confined play of the respiratory movements is induced, entailing other evils. Even lying upon the back in bed—more completely still if so on a hard mattress without elasticity enough to expand itself decidedly against the spine along the interseapulic gutter—will leave the seapulic—that is, the upper ribs—to bear a weight at least equal to that of the whole thorax, and will occasion a strain along either margin of the sternal gutter.

Having considered some effects upon the thoracic walls of flexure in a plane perpendicular to the spine, let us now turn our attention awhile to flexure in planes passing through its axis.

We will take first the case of a person sitting on a chair whose back does not rise to his shoulder-blades. As he reclines, the centre of gravity of the beam falls above the point of support, and the beam is only prevented from lifting at the bottom by the weight of the lower extremities. Indeed, did we propose to break a stick over the back of the chair, we should put it under the same conditions, confine the end of the shorter branch, and apply our strength (the weight of the head and shoulders in the example of the beam) at the end of the longer one. We see the stick split on the side opposite to that which rests on the fulerum, because the forces applied tend to lengthen that side, and strain most those fibres which are most remote from the fulerum. Just so the whole line of tissues along the paths of the recti abdominis muscles and the sternum, from the pubes to the clavicles, are laid under extreme tension; the ensiform cartilage and the whole sternum is depressed towards the spine, and the pleural cartilages warped. And pain again befalls the region.

It may be appended that the actual fixed point at which the trunk curves backwards is not where the spines of the vertebrae are in contact with the back of the chair, but rather at the posterior margins of the bodies of the said vertebrae, and that the spines gather nearer together and the skin of the back into transverse folds, as we may have observed the skin covering the stick, being broken as above to do on the side next the fulerum, because the fixed point, or the unstretched longitudinal fibre, is at the back of the stick itself. Again, if the sole transverse portion of the chair-back consists of one bar at the height, say of the root of the sitter’s neck, unless great muscular effort be made, the weight of the loins and thorax would cause the trunk
to become convex behind, just as occurs when we stoop to pick anything from the ground; and we know how liable such a stretching of the lumbar muscles is to be followed by crick, and that it always takes a good interval to recover from the soreness resulting from a prolonged stooping posture. But as the line that undergoes, in this instance, no change in length, is somewhere along the anterior edges of the vertebræ, the lower end of the sternum is brought much nearer than before to the pubes, the contents of the abdomen pressed up towards the cavity of the chest, and the abdominal muscles project forwards and cover the ensiform cartilage, so that this, by their support, takes some of the weight of the head and neck, and may thus be flexed, depressed towards the spine, carrying with it the lower costal cartilages of the left side, rather than those of the right, which are supported by the liver. So that this very pain may be produced in the district so much exposed to this misfortune.

If we press upon the sternum directly, as in leaning over a table to write, we may push it towards the spine and bend the attached cartilages. If we curve the trunk laterally, as in leaning on a table sideways, we stretch the opposite oblique muscles, and may occasion pain either at their upper costal insertions or at their lower pelvic. The same effect may follow by lying in a bed; for on the side on which we lie, by the weight of the lumbar portion of the trunk, the natural concavity of the waist tends to become obliterated; for this portion of the body is now primarily supported at the brim of the pelvis and lower true ribs.

I must here conclude my anatomy of trunk pains, as I believe I have indicated the fundamental way in which the commonest of the chronic kind are generated. It were an indefinite task to work at exhausting the subject. The weight of the arm may make the muscles of the shoulder ache; and it is conceivable that one might write a separate history of the sufferings of all the muscles of the trunk. Besides, the effect of the compression or weight of clothes might be expatiated upon. Such effects as these, I presume, are likely to be detected with little difficulty, by those familiarized with scrutinizing the sources of the pains in the thoracic and abdominal walls, by first eliminating those that may arise in any of the modes above described. As far as I have here gone I am persuaded that I have not transgressed the bounds of clinical experience, and that there is
not one of the ways of suffering just pointed out, which I have not met with in several instances, and seen relieved simply by precautions against the strain that occasions it.

To give cases in detail would only be repeating in the form of narratives the foregoing explanations, so I will content myself with a simple sketch as a type of the class. I once had to think for a young gentleman of rather studious habits, of a slender symmetrical figure, but enjoying good health, except that he was rendered miserable by attacks of pain at the sternum, and along the cartilages of the ribs, commonly about the lower end of the sternum, though sometimes higher up—a condition of things that existed for two or three years in spite of tonic and other medical treatment. But he having himself observed that he had once been extremely afflicted after pressing the epigastrium against a table in drawing, it soon came to light that all his sufferings arose from posture. Even lying upon his back in bed was found to bring on a fit of pain, and resting his back against any support that threw the weight rather upon the ribs than the spinal column did the same. He now soon got rid of all his troubles by habitually supporting his back, when studying, at the spine. I omit to state how, as I mean to consider the best mode of doing this in another part of this paper.

Perhaps it may not be superfluous to subjoin, that such a relative depression of a rib with respect to those next it, as may happen when it has to bear undue pressure in some of the modes above treated of, may sometimes expose the trunk of an intercostal nerve to squeezing or stretching. These nerves are, indeed, curiously lodged in grooves along the lower borders of the ribs, which guard them from accident; but they traverse a short space from the spine to enter these, and do not seem to lie absolutely safe from mechanical injury. I am not sure that I have not met with cases of neuralgia shooting along their paths from this cause, wherein no spinal deformity existed. It is the nerves most unprotected against pressure and cold that appear most liable to neuralgia. I am confident I have known sciatica to be engendered by a habit of sitting sideways, in a partially recumbent manner, on a sofa or chair, so as to squeeze the sciatic nerve at its emergence from the pelvis into the thigh; and several instances in which a fit of ic doloureux has followed a nap upon a book or some hard thing for a pillow. Nevertheless, these nerves cited in illustration are oftener
affected by their exposure to great differences of temperature, since even the sciatic, by careless sitting upon surfaces which rapidly conduct heat, are subjected to such vicissitudes.

In juxtaposition with the reflections with which this paper sets out, though I would be chary of applying them too far, I have reason for surmising that there are some ailments whose seats are among the abdominal or thoracic viscera themselves, instead of in the trunk walls, which can only be understood by such rudimentary considerations. I will touch upon two or three rarer examples which have fallen under my own notice.

A while since a woman of about 36 years of age became a dispensary patient of mine, for what, prima facie, seemed to be a form of gastralgia common enough among such patients. She assurced me that she literally feared to eat a full meal, so greatly did she suffer pain at the pit of the stomach, which radiated along the lower border of the thorax for an hour or more after a meal; that she had become very thin in consequence of enforced abstinence, and that several medical men had failed to give her any relief. Though her affirmed loss of flesh seemed justified by her appearance, and her look of distress was great, yet she had not the aspect nor any of the prominent symptoms of organic disease of the stomach; there was no chain of evidence to convict it of scirrhus or ulcer. It was not until I had exhausted in vain all the current remedies for facilitating digestion that, upon a more deliberate sifting of the symptoms, I ascertained the curious fact that if she went to bed immediately after eating supper, this meal gave her but little inconvenience. Thereupon I directed her to lie down after all her meals, and to eat good solid dinners of animal food and vegetables, drinking bottled porter with them. With some difficulty I got her to persevere in this practice, and she was not many weeks before she was convalescent.

Now, we cannot imagine that mere distension of the stomach occasioned the suffering, because the recumbent posture could not obviate such an effect; nor that there was an abrasion of the mucous membrane so placed in the organ as to be brought more into contact with the food in one posture of the body than another, for whatever may have been fancied to the contrary, the pressure of the atmosphere must keep the stomach always closed tightly upon its contents. It seems to me that the pain was evolved
through the weight of the meal—by traction upon the diaphragm at the cardiac orifice possibly, but mainly by traction upon the liver by the lesser omentum, and thereby upon the xiphoid and costal cartilages uniting with it. I would compare the case with the two following.

About the same time I had under my care two cases parallel to each other in all essential particulars. The first was that of a miner who had been for more than half a year under treatment for what he described as a most severe pain along the margin of the cartilages of the lower ribs on the right side, extending from the edge of the liver downwards, through the abdominal wall, and penetrating, he fancied, inwards. He shrunk when I touched the abdomen over the parts referred to. It was only with difficulty he could stand upright, or walk, or rather crawl about. Being unable to discover anything amiss with the liver, or indeed, at first view, any general sign of ill health, except lack of flesh, I commenced a devious examination of his body, and, to my surprise, found that he had effusion into the pleura, not on the side complained of, but on the left. Posteriorily and laterally the bottom of the chest on this side was much duller on percussion than on the corresponding portion of the right side, notwithstanding the hepatic dullness here existing. At the same time respiration on the left was barely audible at levels, where on the right it was very so; and fremitus on the left was almost as barely perceptible, whilst the intercostal spaces protruded. By putting him under a succession of blisters over the diseased region, instead of, as had before been done, over the region of pain, with iodide of potassium, diuretics, and then tonics administered internally, the physical signs of effusion soon began to diminish, and with this the pains in his right side.

A few months afterwards a once stout and lusty smith, who had been working in London, returned to Cornwall in a very weak state, wasting and laboring under excessive pain at the right hypochondrium, and spreading over the abdomen, which pain he accused as the sole cause of his troubles. He had been perfectly well until about six months before, when, after an imprudent exposure to a piercing cold draught of air, he became suddenly ill, his suffering soon settling entirely on his right side. This man's story and attitude reminded me so forcibly of the foregoing case that I at once examined his chest, and discovered more strongly marked symptoms of pleuritic effusion on the left side than in
that of the miner—a condition of things which, as in that instance, had been overlooked. He commenced, too, to recover from the moment the true seat of disease was besieged.

With respect to the propagation of the pain to the opposite side in this pair of cases, it seems to me that the mode might have been thus: The fluid in the left pleural sac would have nothing to sustain its weight beneath the diaphragm but yielding viscera, consequently the left half of that muscle would be depressed below its usual region; but this could not happen without dragging downwards the right half also—that is, not without pulling downwards upon the liver, and exerting a force to rotate it on its anterior border from the costal cartilages which cover it. In this way not only would these cartilages themselves be warped, but the ligaments of the liver would be made abnormally tense, and therefore, their peritoneal continuations along the parietal abdominal wall be unduly stretched, as well as such tissues as it lines. I venture on this conjecture on taking common survey of the three cases last introduced, under guidance of the more general principles on which this paper proceeds.

Infra-mammary Pain.—I must emphatically repudiate the idea that I would offer the preceding propositions as a key for opening the mysteries of all the aches we meet with in the thorax and adjacent parts. In such an affection as hysteria, for example, perturbation of all the other parts of the nervous system are far too transparent for me to go so far as to say that the tactile nerves, or such nerves, if they be other than these, whose office is to inform of violence done to the tissues, may not also be morbidly affected. Nevertheless, let us see whether the pain under the classic designation heading this paragraph admits of a plausible explanation by the principles submitted. In the autumn of 1858 this pain was made a topic of discussion in the medical weekly publications. Dr. Inman, Dr. Fuller, Mr. Holmes Coote, and others, took part in the debate. I do not know that I can do better than take the main points at issue from their statement.* The first of these writers, in reply to the

*I have not access to the second edition of Dr. Inman's 'Myalgia;' I am therefore unaware if he has therein made any new observations upon this subject.
second, who had asked him why the seat of a chronic pain is more commonly in the left than in the right side, remarks: "At one period I thought I could trace some connection between the locality of the pain and the position commonly adopted by the sufferer; but after a more extended inquiry I have been obliged to consider the facts referred to as inexplicable in the present state of our knowledge.*

Mr. Coote† comments upon this correspondence. Premising that it is not to be doubted that it may have "more causes than one," he affirms that he has noticed it to be "one of the very earliest and commonest symptoms of incipient lateral curvature of the spine," and he reminds us that it had been recognised in this point of view since the days of Delpech (citing his 'Orthomorphie,' tome ii. p. 10, 1828); "a constant pain somewhat vague in its seat, which takes place sometimes in the side of the chest; its duration is usually constant, but it is infinitely variable; in its periods of calm and exacerbation have nothing regular; there is no disturbance of the functions of the organs in the seat of pain; nothing quietes it, nothing relieves it. It is accompanied by slow, progressive, and inexplicable determination of the state of health. It is evidently allied to something grave but quite clandestine." Delpech then instances a girl of 11 years thus afflicted, who, by means of a plumb-line, was found to have a slight lateral curvature. "The greater frequency of spinal curvature," Mr. Coote subjoins, "may explain in some measure the obedience of infra-mammary pain to the same law." Whilst thus suggesting the curvature or the pain inclines to one side rather than the other.

However, as Mr. Coote had (as recently as in the Lancet, Oct. 23, of the same year) given a graphic sketch of the course usually taken by spinal contortion, I will continue to follow him:—"The curvature generally commences in the upper dorsal region, and extends directly to the right in one even sweep up to the junction of the lower dorsal with the lumbar vertebrae; then the direction of the articulating surfaces is altered, and the movements of the spine change from the lateral inclination to the artero-posterior movement, as in springing; a second curve forms in

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*British Medical Journal, November 27th.
†British Medical Journal, December 4th.
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the lower region to the left, accompanied with a rotation and twisting of the vertebrae." He then proceeds to quote from the plates and descriptions of M. Bourvier (Physician to the Children's Hospital, Paris,) explanatory of the packing of the viscera found on dissection of cases of confirmed lateral curvature of the spine. Thus, in what he calls le premier plan, that of the above type, the latter says the "lungs are apparently not much deformed, when viewed anteriorly. But the right is reduced in height, its base being pressed by the abdominal viscera; the left has its inferior lobe compressed between the ribs and the heart. The heart is voluminous and closer than natural to the ribs of the left side. The liver is much deformed, deeply fissured, and, as, it were, mounted (à cheval) on the crest of the ilium."

Now, it is worthy of consideration whether we may, by chance, find the cause of the preference of the line of lateral curvature for one side of the body rather than the other, in a difference in the compressibility of the viscera that are lodged against the parietes of the respective sides. If there be any just foundation in this notion, the only organ within that seems at all capable of affording a relatively greater support is the liver. This is a firm, resisting mass, filling the whole of the right hypochondrium; and if the spine becomes drooping and weak, or its muscles no longer able to sustain the upper portion of the body erect; if the vertebral column begins to yield, so that a weight that it should carry becomes cast upon the viscera, it seems not absurd to regard it as not improbable that the circumstance of the left lower ribs and cartilages covering compressible lung and stomach, whilst the right are supported all along within by a much firmer body, may be the means of causing the chest to arch inwards on the left rather than the right.

The details of M. Bouvier give strong countenance to the idea that the left pleural cartilages are more liable than the right to be warped out of shape by any of the modes suggested in the beginning of this paper. And thus the left side will be more frequently the seat of pain than the other. By whatever cause of ill health the general strength fails, this liability will be more remarked. This seems a necessary consequence of the manner of stowing the more massive viscera in the chest and belly. We may assert this much without pushing our conclusion so far as to assume
that infra-mammary pains can be of no other order. I can well conceive that the cire of the liver may determine that we are not left but right handed, because the pectoral and other muscles that move the arm or shoulder upon the trunk have, through the hepatic support, steadier points of resistance on this side than the other; for this organ manifestly plays an important mechanical as well as a more purely glandular part, in the economy.

Having so nearly approached the subject, perhaps I may be permitted to say a word or two on the thoracic distortions in rickets. Dr. Jenner* speaks thus:—"The deformity of the greatest interest to the physician is that of the thorax. The back is flattened. The ribs are bent at an acute angle where the dorsal and lateral regions unite. At that part the lateral diameter of the thorax is the greatest. From it the ribs pass forwards and inwards to the point where they unite with the cartilage; on that line the lateral diameter of the thorax is the least, the cartilages curving outwards before turning in to unite themselves to the sternum. The sternum is thrown forwards, and the antero-posterior diameter of the thorax is abnormally great."

"The great determining cause," he afterwards subjoins, "of the thoracic deformity is the atmospheric pressure; this is aided by the elasticity of the lung, and the fact that the more resistant viscera underneath are obstacles to recession of the chest-walls where they lie. It appears to me difficult to account for the "acute angle where the dorsal and lateral regions unite," or the flattened back by such diffusive pressure as must be produced between the air without and the air-containing elastic lung within. On the other hand, it is certain that if the rickety child be let to lie much on its back, which, from its inability to stand and sit upright, would inevitably happen, the weight of the chest must so press upon the softened ribs as to tend to bring the spines of the vertebrae and those of the shoulder blades on the same level, or to flatten the back. Again the mere weight of the costal cage of bone and cartilage tends to flatten it in front (above), so that this cage would tend to fall flat in front and to crack sharp off at the sides. Now, when we take into consideration with these facts the obstacle to recession of the cage in front furnished by such solid

*Medical Times and Gazette, March 17th, 1860.
parts as the liver, heart, and spleen, as Dr. Jenner himself does, I think it may be worthy of reflection whether this is not the simple history of the development of the deformity in question. Allowing that some deviations must be expected to be produced in the form of the chest by weights thrown upon it when other posture are assumed, the principle involved in this explanation would be in accordance with Dr. Jenner's general mode of accounting for ricketty distortions in the limbs, which he ascribes to their weight or the weight of the other parts bearing upon them. He remarks:—"In excluding muscular action from all direct share in the production of curvature of the long bones in rickets, I am, so far as I know, unsupported by any authority;" this observation, it may be implied, he would extend to the chest, as he cites Rokitansky's of the thoracic deformity being caused by a want of power in the inspiratory muscles, and moos no other hypothesis but his own.

Finally, returning from these collateral meditations, I will venture a word as the practical use of such considerations form the fundamental reasonings of this paper. If suffering is occasioned in a patient by a disturbance of structural balance in any part, the obvious indication of cure is to remove the cause of the disturbance. If any body by pressing upon the eyeball deprives it of its sphericity, remove the body that does so. If a patient leans against his sternum in writing till he begets suffering thereabout, take care he ceases to do so. Each case requires its special precaution so clearly that it were idle to iterate the fact. But I hardly think it unprofitable to invite attention to a very homely topic before I take leave of this essay.

It has been shown how important it is that the structural balance of the trunk should be ordinarily preserved. When we walk, this equilibrium is stable, and when we lie it is approximately just. But we spend a great portion of our time in the sitting posture, and what provisions have we that the balance shall be easily kept in this attitude? In plain English, on what principle are the backs and other upright supports to our chairs and sofas constructed? Our easy chairs and couches, not to say chairs for general use, show no conformity in the principles upon which those uprights are conceived. All looks as if there were no knowledge of comfort in such things. The majority seem made with a view to torture rather than ease. I cannot, therefore, deem it a thankless task to endeavor to ascertain what
are the requisites of such structures. At least, I will give a device for what I have concluded to be the best form of chair as an example. I will do so in dimensions to fit the use of a man of middle size. The chair shall be of wood. For if it be easy in bare wood, it cannot fail to be so when cushioned.

Let the seat be 18 inches from the floor and of the shape of a semi-circle of a diameter of 21 inches, whose straight edge is the front of the seat, and let in, in a style which is common, be scooped towards the back to fit the nates. Again, in the usual style of elbow chairs, let there be a horizontal semicircular bar for the elbows to rest upon, 11 inches above the seat and of its diameter, and let this elbow-bar be supported on either hand laterally by four or five upright bars with equal intervals.

In the middle of the back let the support for the elbow-arch be a flat plank of $\frac{5}{4}$ inches' breadth or rather, let two short elbow-bars be let into such a plank rising from the middle of the posterior border of the seat, to the height of 22 inches, and let this plank be curved to the lateral contour of the loins, as may be seen in the cushions of railway carriages. Or in definite measurements let the plank, at vertical heights of 2, 5, 10, 15, 22 inches, be gradually inclined backwards to the horizontal extent of $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 4 inches, respectively. Beginning at the top of the plank, let a longitudinal groove be cut a foot down the anterior face of the plank, of 1 inch wide and $\frac{3}{4}$ inch deep: let its edges be bevelled away, as also other sharp edges of the plank. Below the elbow-arch the plank may be hollowed the in horizontal direction to coincide in curvature with the seat.

Graceful appearance apart, we have here the elements of a comfortable chair. The lower portion of the back will form a cradle for the pelvis, and prevent its weight from effecting pressure upon higher parts of the trunk; the curved portion rising therefrom will bear up the loins and lower part of the chest. The backpiece will allow the middle channel of the back to rest against it at any, and every point, whilst its longitudinal groove will afford an escape from pressure for the thinly-covered vertebral spines, leaving this to be encountered by the bed of muscle at their sides. Then any pressure that might be extended to the ribs would not affect the form of the chest owing to the short leverage at the vertebral articulations of the ribs along.
the channels at the sides of the spine. The shoulders play backwards and forwards without impediment; and since the trunk preserves its natural form as in a standing position, the respiratory muscles meet with no hindrance in their office. The arms, resting upon the elbow-bars, do not cast their weight on the shoulders, whilst these are steadied.

But the combination of contrivances fulfils more refined conditions. Not only do the ribs and abdominal surface ebb and flow as we breathe, but the curvature of the spine oscillates in degree. In this oscillation the backpiece allows the vertebral column to roll, as it were, along it—it is a sort of involute, for the chain of vertebrae, as the evo-lute, to wind and unwind upon. For these reasons I have placed persons suffering from pains about the sternum, which have been acquired by pressure habitually thrown upon the shoulders, to sit against a narrow pillar or vertical plank, as may be met with in panelling, and the ready expedient has answered my expectations.

People do not sit long in one posture, and this chair allows a considerable degree of shuffling about the sacrifice of its presumed advantages. If to change the point of chief pressure the nates be slid forwards, the backpiece will take the spine, and chiefly at another spot, so as to relieve the points of pressure along the back also; and the semi-circular shape of the back-cradle will give the sitter a fitting support for his back, however he leans about.

Though it has been laid down as a rule that the shoulders should not rest against any framework, it would not be amiss if there were such a framework forming a portion of a larger circle than the framework described, and crossing the upright bar at the top posteriorly, so that this bar be let into the upmost crosspiece in front, and that it project for an inch beyond it. Thus this extra framework, which may be partially formed by prolongations of the hinder upright bars that support the elbow-arch, would form recesses where the shoulders may be brought to bear a little to steady them laterally, and that they may take a little of the pressure of the trunk at our pleasure.

I have given the above description of stiff-lines for the sake of being explicit and intelligible, but there is no reason why elegance should not be realized in the design. The elbows may be curved along their upper margin, the bars replaced by ornamental carving or wicker-work, the
backpiece extended in a curved fashion below, or perforated for ornament, and may be undulating upwards, spreading over the top of the shoulders on either hand. Cushioned chairs may be so stuffed as to afford a backpiece as here indicated, as well as the transverse projection for the loins as they now commonly have; and if carried as high as the head, bear a cushion projecting well forwards, to take it, without the neck being unnaturally thrown back. I have thus devoted some attention to the analysis of the conditions essential to comfort in an article in daily use by every healthy person who is not destitute or a bad-liver; and whatever be thought of these reflections, it will not be gain-said that they treat of questions of concern to the healthy, and of vast interest to a host of invalids.

Diphtheria—An Unsuccessful Case of Tracheotomy, and a New Method of Treatment, Exemplified by Four Cases. By Jno. O. Brinson, M. D., late Professor of Anatomy in the New York Medical College.

The many methods which have been followed in the treatment of the disease under consideration seem, as far as my observation leads me, to be possessed of no very distinguishing characteristics one over another.

The one prevailing idea is, the evident prostration and the seemingly necessary tonic course to be pursued. The results which have followed my efforts in the treatment of the disease, governed by this idea, have been so unsatisfactory, that I have been led to mark out and pursue an entirely opposite course. In the case first mentioned, and in which tracheotomy was performed, the tonic course was pursued, and, as in nearly all previous cases, without a favorable result.

Case A. Tracheotomy Performed.—On Sunday, December 23d, 1860, I was called to see one Daniel Horgan, et. 4 years and 7 months. He had been ailing for about a week, though running about until the day previous to the summons. He had had a cold, and complained of a sore throat, for which his mother had given usual domestic remedies, without any good effect. She therefore sought advice.

The little fellow was suffering with an inflammation of the mucous membrane of the pharynx and larynx.

Diph-
Diphtheria.

[June,

theritic patches were developed upon the tonsils and on the posterior wall of the pharynx. Prostration severe. Pulse 126. I prescribed tinct. ferri mur. and quiniae sulph. To the inflamed parts argent. nitras., in solution, was applied.

On the following day, the little patient was not less prostrated. The diphtheritic exudation had extended but little, if any. The treatment was continued, and wine whey ordered.

25th (Christmas Day.)—Called at 8 a.m., in response to renewed summons. Patient much worse. Prostration extreme. Great obstruction to the respiration. Fauces completely lined with exudation, which had undoubtedly extended into, and perhaps beyond, the larynx. Pulse 146.

Believing my only hope to be in tracheotomy, I proposed the operation, which was acceded to by the mother.

Having obtained assistance, at ten and a half o’clock I again visited the patient, prepared to operate. The lips and countenance of the little patient, by their vivid hue, betokened early suffocation. Assisted by Messrs. J. E. Steele and F. G. Sanley, medical students, I performed the operation speedily, with but trifling loss of blood, and with immediate relief to the patient. A considerable quantity of false membrane found exit through the wound, and after the introduction of the tube, the child soon began to rally, and seemed better than for two days previous.

Potass, chloras, quiniae sulph., and brandy were prescribed. At 3, and again at 9 o’clock, observations were taken, and he had improved. Respiration easy. Expectoration of tenacious mucus very considerable. Pulse 130.

26th—Morning.—Slept well most of the night. Respiration free. Expectoration as the day previous. Pulse 126. The treatment continued.

Evening—Condition generally as in the morning. Expectoration, however, diminished. Pulse 130.

27th—Morning.—Expectoration much diminished. Respiration labored. Symptoms like those present previous to the operation appearing; pulse 140. It is evident that exudation has produced the fatal membrane in the bronchial tubes.

Evening.—Further efforts deemed unavailing.

28th.—Died at 5 a.m.

Examination fourteen hours post-mortem. Rigor mortis complete. In laying open the thorax, the lungs did not collapse; pulmonary emphysema general. Larynx, and
portion of the trachea above the point of entrance in the operation, completely filled with false membrane. The portion of trachea below the above-mentioned point exhibited an ulcerated condition. The bronchial tubes, as far as into the fourth bifurcation, were lined with the characteristic exudation, at many points to the extent of entirely closing the canals. Upon making examination of the wound, there appeared to be no secondary exudation.

Case B. Adult.—On the second day of January, 1861, I was called to see Mrs. C., a native of this city, æt. 30. She had been sick for several days, and was getting worse. She was of a weak habit. I found her with a flushed face, hot skin, sore throat, and anxious expression; pulse 145. An examination of her fauces evinced the presence of diphtheritic membrane on both tonsils, and on the palate.

Having concluded previously to institute a new method of treatment upon the presentation of the next case of the disease, I prescribed as follows:

R.—Tinct. aconit. rad., fss.
   Aque puræ, 5iv.
M.—Sig. Cochl. parv. quaque hora sumendus.

R.—Ammoniæ mur., 5ij.
   Aque pur., 5vj.
M.—Sig. Garg. quaque duo horis utenda.

On the 3d, I found the patient improved to this extent—skin cool, pain much diminished, deglutition much easier; pulse 120. Treatment continued.

On the 4th, still more improved; pain but slight, skin natural. One small spot of exudation three-eighths of an inch in diameter present in the fauces; pulse 98. Treatment continued.

On the 5th, throat clean. Inflammation entirely gone. Aconite to be taken only once every three hours; the gargle as before, every two hours; pulse but 80.

On the 6th, the condition of the patient such, that tonics and stimulants could be used with hopes of success. I therefore prescribed as follows:

R.—Quinia! sulph., 3j.
   Ferri Sulph., 5ij.
   Ext. nucis vom., gr. vj.
M.—In pil. xx. div. Sig. Unam ter in diè capiat.

Wine whey, and such articles of solid food as desired, ordered to be taken.
From this time onward, everything progressed most satisfactorily, and the patient was discharged in a few days.

**Case C. Adult.**—On the 17th of January, but a few days subsequent to the preceding case, I was called to see Mrs. P., also a native of this city, at 58. The condition of the patient was very similar to the condition of the previously cited case. She had not been so long sick, and I found the diphtheritic exudation on the left tonsil to be less dense than elsewhere. It presented the appearance of a frosted spider's web, and seemingly was more tenacious than that fully formed.

The prescription was identical with that used in the preceding case, and the result was even more perceptible. In thirty-six hours the membrane had entirely disappeared.—The pain, which at first was present in the throat, was banished at an earlier period than in case B. The after-treatment was identical in character and in result.

**Case D. Infant.**—On the sixth of February, 1861, I was summoned to the bedside of a little girl, the daughter of Mrs. D. The condition of the child was very similar to Case A, but with less laryngities; pulse 150. Hoping to meet with like effects from the use of the same remedies used in Cases B and C, I prescribed the aconite, with this modification: (the patient was but three years and six months old, and consequently could but receive a proportionate dose of the aconite, with any hope of success.)

R.—Tinct. aconit. rad., gtt. vj.  
Aque, \( \frac{5}{j} \) vj.  
M.—Sig. Cochl. parv. quaque hora capiat.

The gargle was used as a lotion, by means of a probong not diluted.

On the 7th, a great part of the exudation had disappeared from the fauces. The pulse of the patient had diminished to 105, and in every other respect improvement was evident.

On the 8th, the pulse had come down to 90, and the throat was perfectly clean. A diminution of all the symptoms was present, and everything betokened a result similar to the preceding cases. With wine whey only as a tonic, I was pleased to find the little patient put on its wonted strength, and assume its former health.

**Case E. Adult.**—I mention this case because it resem-
Of the cases marked B and C, in respect to time and the disappearance of the exudation.

On the first of March I was called to see a young lady, aged 20, a native of France, having been in this country about eighteen months. The general condition of the patient was more extreme than that of the aforementioned cases. Skin hot, dry, and flushed; throat swollen and painful; diphtheritic exudation present on both tonsils, and on posterior wall of pharynx. Pulse 153.

I considered the aggravation of the symptoms attributable to the torpid condition of her bowels, which had existed for some time. I prescribed ten grains of blue mass to be given at once, and followed in eight hours by six ounces of the solution of the citrate of magnesia. As soon as the bowels were freely emptied, the same remedies prescribed in case B were ordered. In thirty-six hours the patient's condition was such that I felt that the remedies were almost specific. In forty-eight hours all exudation had disappeared from the fauces, and the pulse, from 153, had come down to 85. All pain had left the throat, and one small spot alone showed signs of inflammation. On this spot I applied a piece of the sulphate of copper, simply as a stimulant. It was probably not necessary. On the following day all symptoms of anything like disease were gone.

I prescribed as follows, the patient seemingly having a sufficiency of iron in her system.

R.—Quiniae sulph., 3j.
Zinci valerianat., 3j.
Ext. nucis vom., gr. vij.
Aloes socot., gr. v.

M.—In pil. xxiv. div. Sig. Unam ter in die capiat.—Wine at dinner made up the complement of directions, and in three days' time all evidences of disease or debility had disappeared.

It would afford me much pleasure to have introduced a larger experience in the treatment of infants after this mode, yet I believe that the early and agreeable change which followed in the one case reported so similar to the adult cases, is evidence of almost a uniform result. We are all well aware that the system bears up better under, and reacts quicker from, a condition of depression, than of excitement. I deem the constitution of children poorly prepared to bear the stimulus and tonic remedies usually ad-
Diphtheria.

The following summary of experience on Diphtheria, w
find in the valuable Monthly collection Dr. O. C. Gibbs, o
Frewsburg, New York:

Diphtheria.

In the Boston Medical and Surgical Journal for January
24th, Dr. L. H. Angell has an article upon this subject. W
make one quotation only. "Tonics and the preparations o
chlorine are indicated to arrest the febrile paroxysm, and
consequently, the formation of false membrane. I have pri
principal ly relied upon quinine and the chlorine mixture, an
have not been disappointed in a single instance."

In the Cincinnati Medical and Surgical News for January
Dr. W. H. Matchett, of Ohio, has an article upon this subje
As Dr. Matchett’s treatment differs somewhat from that w
have previously seen recommended, we shall attempt a synop
sis of it. After moving the bowels, he trusts the case, so fa
as internal remedies are concerned, to quinine and iodid o
potassium, both in tolerably full doses, and frequently re
peated. In addition, he adds a generous diet. As local mea
means, he recommends a gargle of pepper, salt, and vinegar
This is also applied by means of a swab, and then the parti
are dusted with finely-pulverized borax; these local means
are frequently repeated. A tar plaster is applied to the neck
Unlike Dr. Calhoun, of Georgia, referred to last month, he
does not ascribe the cure to the tar plaster, but to the quinine
iodide of potassium, and nourishing diet. He does not ap
prove of the frequent application of nitrate of silver to the di
seased parts. He says: "The frequency with which the solu
tion of nit. arg., of the strength of 20 grains to the 5, is use
by some physicians, is, of itself sufficient to produce seriou
difficulty."

Partial paralysis, after diphtheria, is not a very uncommo
affection. In such cases, Prof. Pepper, of the University o
Pennsylvania, makes the following prescription:

"R.—Extract of St. Ignatius’ bean, 8 grains.
Sulphate of quinia, 30 grains.
Vallett’s mass, one drachm.—M."
Diphtheria.

To be made into 30 pills, of which one is to be given 3 times day, after meals. At the same time electricity is to be applied to the throat.

In the Chicago Medical Examiner, for January, Dr. T. J. Pearce has an article upon diphtheria. He has but little confidence in topical treatment: "I think the too frequent swabbing has been in many cases a fruitful source of mischief." He does not object to gargles. "As an external application, when there is oedema or enlargement of the parotid or cervical glands, I have found nothing better than the free use of iodo. A domestic poultice of equal parts of tar and wheat bran may often prove serviceable." He, however, places greatest reliance upon general remedies: "We know of no course better than the free use of chlorate of potash, muri. nitrici, and sul. quiniae. The muri. tinct, ferri, I think, is generally given too sparingly." When emetics are needed, he recommends sulphate of copper, or, in croupal cases, sulphate of iron. As a gargle, he prefers the sulphate of copper solution.

The Special Committee of the New Jersey State Medical Society, as per report in the Medical and Surgical Reporter for January 26th, recommend the following, which does not differ from that usually relied upon: "The tinct. ferri sesquisulph. chlor. ten to fifteen drops, in water, every three or four ours, with chlor. potassem and quinia, and brandy with milk, croupal ether, etc., are the articles chiefly recommended." As a local application, a solution of nitrate of silver is preferred.

Before the Paris, Ill., Esculapian Society, at a recent meeting, the subject of diphtheria was under discussion.—Dr. Chambers relied upon chlorate of potash, and large doses of quinine, with the local use of nitrate of silver, "gr. 60, the ounce of water." Dr. Tenbrook relied upon stimulants and tonics, and the solid nitrate of silver locally. Prof. J. S. Davis prefers the tincture of iodine, as a local application, believing it will stop the spread of the disease from the throat to contiguous parts. We quote from a report in the Chicago Medical Examiner, for January, the remarks of Dr. York: "Emetics should be used continuously; of these prefers alum, one teaspoonful every twenty minutes until vomiting. Avoid the too frequent application of causes to the throat; it produces mischievous irritation; not tenen than once every day, or every other day. When the disease has extended into the larynx and trachea, stop the local application of tincture of iodine, or nitrate of silver,
(we should have observed that he prefers the tinct. of iodine.)
It is then a useless annoyance. A vast majority of cases
die in which there is complete aphonia known of only four
recoveries from this condition. Here I give quinine very
freely, with Dover's powder."

We have thus endeavored to give a summary of the prac-
tical portion of the papers, upon the above subject, that
have come under observation in the journals of January. If
any papers have been overlooked, their respective authors
will please excuse us.

Surgical Miscellanies. By Furneaux Jorday, Assistant-Sur-
geon to the Queen's Hospital, Consulting Surgeon to the
Birmingham Eye and Ear Dispensary, and Professor of
Anatomy at Queen's College.

I. An undescribed Affection of the Leg. During the last
six years I have seen a few cases of a peculiar affection of
the leg, any description of which I am unable to find in sur-
gical literature. The cases to which I allude are undoubt-
edly rare—less rare, however, I think, than many surgical
diseases of which we are supposed to possess an extended
knowledge. It is my intention, in these miscellaneous sur-
gical notes, to avoid the record of individual cases, and
state merely the conclusions which they have led me to
form. Let the reader test such conclusions by his own ex-
perience—by his own recorded and remembered cases.

The disease to which I refer exists in two varieties, which
may occur separately or together. In the first there is a
convex enlargement or collar completely surrounding the
lower part of the leg immediately above the malleoli. The
second form is more common and less peculiar; it consists
in a slightly irregular, rounded, or hemispherical projection
seated below and behind the malleolus. The relative fre-
quency of the two affections may be stated as follows: little
frequent is that below and behind the outer ankle; less fre-
quent is the combination of the two; least frequent is that
around the tibia and fibula.

The rarest form of the disease, and the most characteris-
tic, is a soft, elastic enlargement, occupying the entire cir-
cumference of the leg. Its size and shape are the same at
the inner, outer, anterior, and posterior aspects. The ver-
tical measurement of the collar is about three inches. Its
The greatest thickness (an inch and a half) is at the centre. The margins are thinner, but do not become imperceptibly lost in the parts above or below. The lower portions of the malleoli are not involved. At no period in the formation of the growth is there doughiness, or pitting, or pain, or tenderness, or integumental discoloration. Indeed, the skin is throughout perfectly healthy. The bones of the leg are not altered in size. The formation appears to be gradual, and unattended by noticeable constitutional phenomena. The word "noticeable" is used designedly, because the general health is certainly not good, and there are indications of cardiac or circulatory derangement in greater or less degree. In the most typical case I have seen there was marked mitral regurgitation, but there was no history of acute rheumatism or any other acute disease. All the cases were in young, adult, unmarried, and childless women.

In asking what the affection is, let us first ascertain what it is not. It is not elephantiasis arabicum; elephantiasis has a greatly thickened, hard, rough, nodulated, darkly colored, and partially insensible skin. The bones, areolar tissue, fat, and other structures (muscles excepted), share in the enlargement. The toes and feet are implicated, and severe pain is usually present.

It is not a cutaneous outgrowth; in the cutaneous outgrowth, as Mr. Paget remarks, all the tissues take part, and the proper tissue and appended organs of the cutis are nearly as much exaggerated as the fibro-cellular substance. Fibro-cellular outgrowths, moreover, are usually pedunculated and attached to the parts in the vicinity of the vagina and rectum.

It is not a fibro-cellular tumour—at least if we use this term in its strict meaning—for, independently of the circumstance that the fibro-cellular tumour resembles in its sites the cutaneous outgrowth, the enlargement I am attempting to describe certainly could not be separated or enucleated from the neighbouring tissues. Erythema nodosum sometimes leaves irregular bulky masses on the leg, but its history is unmistakeable, and the enlargements which it leaves have no uniformity of configuration or locality. The term phlegmasia alba dolens has an accuracy and significance of meaning which render any observations on white leg a superfluous task.

That the enlargements in question are fibro-cellular in structure I think there can be little doubt, though differing
essentially from the cutaneous outgrowth and fibro-cellular tumour. There is probably as little doubt that one of the two following causes operates in their development. Either (1) there is a peculiar fibrinous oedema arising from extreme obstruction (cardiac or other), of an extent so limited and a duration so temporary as to permit of the organization of the effused plastic material, or (2) there is inflammation which is neither acute, nor obvious, nor lasting. The inflammatory phenomena, however, do not disappear until plastic lymph has been effused in a locality and under circumstances favourable to organic development. The second causal agency appears to me the more probable. In dropsy, local or general, serum without fibrine is usually, and always at first, effused. In extreme obstruction, such as to involve exudation of fibrine, the large quantity of attendant serum would have a historical value too great to escape detection. But indeed fibrinous dropsy in the lower extremity, with or without general anasarca and grave constitutional ailment, is altogether improbable. In the hydrops fibrinosus of Vogel, where the fibrine was noticed in the abdominal cavity, serious disease was certainly present.

If, then, immediately above the malleoli, or beneath the outer one? Why in those localities particularly should the inflammatory product be more susceptible of organization, and less amenable to absorption than elsewhere? Probably from some evanescent and slight cardiac ailment, endocardial, or pericardial, or, which is more probable, from a temporary aggravation of a chronic disease, obstruction occurs in the venous system. This, for many reasons, is chiefly evident in the lower extremities. The internal and external saphenous trunks, and the network of veins which connects them around the lower part of the leg, are plugged with coagula, which subsequently acting as foreign bodies, cause a certain degree of inflammation attended with effusion of plastic lymph. The inflammation terminating quickly, permits the lymph to organize, probably by nucleated blastema, as in the repair of subcutaneous wounds. Now, if the obstruction should be more permanent, or the inflammation more severe, we should have not development, but distintegration, in the form of ulceration, varicose or otherwise. It is possible that the inflammation may be confined to the radicles and the commencement of the external saphenous vein, which runs behind the outer ankle without any
muscular support, and which, as we shall presently see, may explain the second form of enlargement under consideration. The obstruction and coagulation of blood in the veins is commonly attributed to the hydrostatic pressure in a long column of blood, as that in the internal saphenous vein.—Apart from the fact that this hypothesis does not explain the lesion in the external saphenous vein and its radicles, it appears to me that a better explanation can be found, and that the anatomist can more easily discover it than the mechanical philosopher. There is ample proof that muscular contraction plays an important part in assisting the flow of blood in the veins. It is a remarkable fact that such assistance is almost entirely absent in the lower third of the leg and below the outer ankle. Tendons have not the slightest contractile, and therefore no expansive power. In the lower part of the leg we find (for very good reasons too) tendons only. The tendons of the deeper layer of muscles at the back of the leg have muscular fibres joining them at a lower level than is the case in the superficial layer, but they are so tightly held down to the tibia and fibula by the deep fascia as to exercise no influence on the superficial veins by their contraction. Further, on each side of the tendon Achilles there are large spaces filled with loose areolar and adipose tissue, which afford the most favourable opportunities for the inaction and dilatation of veins. In exceptional cases, I may parenthetically remark, the soleus muscles send muscular fibres to the under aspect of the tendon Achilles almost to its insertion. Such cases we may reasonably infer would be little liable to varicose or indolent ulcer, still less to the peculiar enlargements under consideration. Again, a third of the tibia is subcutaneous, and the veins (the internal saphenous especially) can receive no pressure from so passive an agent. Thus, then, many circumstances conspire to show how a lesion affecting the venous system is prone to show itself in the supra-malleolar region and below the outer ankle. In the latter spot the external saphenous vein lies on the flat calcaneum, totally unassisted by muscular action. It is true that the two peroneal tendons run obliquely across the outer and anterior part of the os calcis, but they have not the least influence in compressing the veins.

I have reason to think that the enlargement which I have described as seated below the outer ankle has been frequently, though vaguely, referred to syneivial distension of the
peroneal sheaths. On the super-malleolar form of the disease I have never known an opinion given.

If it be granted that I have shown sufficient grounds for the dilatation and inflammation of certain veins, with the possibility of an exudation of plastic lymph that shall, under certain circumstances, be capable or organization—the circumstances, however, being so rare and so peculiar, that varicose and indolent ulcers must always be more common diseases than the one which forms the subject of these observations—it will also be granted, the lymph having been exuded, and the inflammation and other circumstances unfavorable to organization having disappeared, that the same agencies which operate against the flow of blood in the veins will operate also against the absorption of the lymph which is deposited in the areolar tissue at the lower part of the leg. Here, then, there is none of that muscular pressure which elsewhere is a most effective agent in the absorption of inflammatory exudation.

It is not improbable that the fluid exuded by the inflammatory process should escape notice, because the so-called serum of inflammation is really liquor sanguinis, containing all the material requisite for coagulation and organization. Probably, too, the enlargements do not result from a single pathological process, but from a series, each in itself slight, painless, and unobserved.

I have indirectly referred to a new pathology for indolent and varicose ulcers. At another time I hope to fill up the outline, and suggest a treatment which is more analogous to muscular pressure than any now in use, and which I have adopted in practice with great success.

II. A Node on the Patella. In the 'Edinburg Medical Journal,' in 1857, I described a case of bubo occurring within the abdominal cavity. Last year another singular form of constitutional syphilis came under my care. A hard, indolent, partially tender, and nocturnally painful swelling formed on the patella. This, after a lengthened period, suppurated. A practitioner, under the impression that it was an inflamed bursa, passed a seton through it. Inveterate, though varying supputation, and short, irregular sinuses in the superjacent tissues, followed for upwards of two years. The knee-joint was not affected, but the patella was much enlarged, and its range of motion greatly diminished. The tendon of the extensor of the thigh covers very closely the anterior surface of the patella, and presents certain an-
alogies to the relation of the occipito-frontalis muscle to the cranial bones, which are so obnoxious to syphilitic disease.

III. A Proposition for the Treatment of Aneurismal Varix. The rarity, in late times, of cases of aneurismal varix must be my apology for proposing a method of treatment before I have had an opportunity of practically testing its utility. It is common to do nothing in these cases unless the symptoms are very severe, when a ligature is applied above and below the wound in the artery. It appears to me that, in a large number of cases, especially in the extremities, very considerable, if not complete, relief might be afforded by obliteration of the vein, above and below its communication with the artery, by means of a needle and twisted suture, or some other method, as in an ordinary (and widely different) varicose vein; perhaps in some cases a needle might also be passed with advantage under the contiguous artery for a short time, as in the acupressure method of Professor Simpson. If the practicability of the principle be granted, the method of applying it admits of great variety to meet the requirements of individual cases.

Whiskey as a Prophylactic in Typhoid Fever. By Hugh Kelly, M. D., of Iredell county, N. C.

The above announcement may excite surprise, incredulity or disgust in some; but all should, however, suspend their judgement until they have had an opportunity to test it fully. I by no means advocate the regular or even the occasional use of ardent spirits as a beverage by persons in health, for I hold that spirituous liquors are in their proper sphere only, when used and prescribed as medicines. Consequently, persons in health should not indulge, for by so doing, they tax their systems beyond what they have a right to do. Very frequently the stomach, lungs and kidneys are over worked to dispose of what is not at all congenial to health, and particularly to the natural functions of those organs.—What a very short period elapses betwixt the reception into the stomach of a portion of spirits, and efforts for relief through the lungs and kidneys, rendering it very evident that it is an intruder, all the energies of the system being called upon to dispose of this unwelcome stranger.

In the spring and summer of 1847, there was a great deal of typhoid fever in the neighborhood of Gold Hill (then a
village containing a population of some eight or nine hundred inhabitants, white and black.) The fever made its appearance in the latter part of April, was of a very grave type, and was quite fatal among the blacks. The appointment of a nurse was almost equal to passing sentence of death on the one so appointed. Some four or five of them died. The whites suffered very much also, and a number of fatal cases occurred. In one instance, where some sixty or more negroes were employed by Barnhart Manney & Co., the number of sick was between thirty-five and forty; and, in fact, all seemed to be dispirited and languid. Nurse after nurse dying, I feared that all might in a very short time be confined to bed, whites as well as blacks. A short time previous to this, I had read the history of typhoid fever in an Irish Hospital, that had continued for some time, proving very fatal to nurses and physicians, and making it difficult to get those who were willing to take the places made vacant by diseases. Only two or three nurses of the original corps were left, and not one physician. One of the newly appointed doctors, enquired of those nurses how they managed to keep clear of the fever, their answer was that they took their whiskey three times a day, and plenty of it; hence they did not fear the fever at all. The physician acting upon this hint had all the nurses and doctors belonging to the house to commence the use of whiskey, and he reported that from that time no new case occurred in the house. Finding myself to be similarly situated, I ultimately prevailed upon the company (all being temperance men) to try whiskey, by giving from half gill to a half three times a day for an adult, and to children in proportion. I was much gratified at the happy change effected. From the day they began to give the hands, both white and black, their allowance of whiskey, not a single new case occurred, and the fever subsided in some two or three weeks, and all were up again.

I was so much pleased with this result, that I determined to try it further, and did adopt it in all the families to which I was called, where they had fever of this type, from this time, July 47, up to the time of my removal, December 54. In not one single instance did a new case occur, during that period, after the family (I mean those that were able to be up,) had commenced the use of this remedy. Since my residence in Iredell, I have pursued this same course and with the same success. Some persons in this section of
country would not make a trial of this preventative, and all or nearly all of their families were sufferers. A trial was made in this neighborhood last summer, which resulted as all the rest had done. Col. A. has a large number of negroes who had the fever among them in June last. It was of a malignant type, and after some three or four deaths, he procured a barrel of whiskey and commenced giving it as heretofore directed. The result was that not another case occurred on his farm. Its modus operandi in preventing this fever, I leave for others to examine; that it is a preventive, I am fully satisfied from an experience of thirteen years. When called to attend on cases of this fever, I advise all the family that are on foot to use this preventive, and to continue its use for sometime, at least until the sick are out and able to take exercise; or for two weeks at least after the fever subsides in the family. In many instances where several members of the same family were attacked at or about the same time, I have seen the remaining members of the household adopt this prophylactic, and continue to watch and nurse for several weeks in succession without one of them taking the fever, which fully sustains the opinion formed of this agent. I suggest to all who nurse typhoid cases to use this medicine, as constant exposure to the fever, but for a very few days, may bring on an attack. That typhoid fever is contagious to a certain extent I presume none will doubt.

Remarks on Dr. Levis' Application of the Metallic Ligature to the Cure of Varicose Veins, with Report of Two Cases.—By J. M. Boisnot, M. D., of Philadelphia.

It is more with the object of contributing something that may substantiate an operation that the reaers of the Reporter are already acquainted with, than to advance anything new, that the following remarks are submitted. The number of cases of varix existing, and the previous want of an operation to safely effect a radical cure, make a method likely to be followed by success, and especially one that has simplicity and freedom from danger to recommend it, of great importance.

Varix depends for its existence upon two principal causes—an imperfect condition of the veins themselves, and anything retarding the return of the blood through them; the
first being due both to constitutional and local causes; the second mainly to mechanical. To be more explicit: in a person where the return of the circulation is unequal to the distribution, we have a cause acting upon the veins that will be followed by distention, not only in the main trunks, but also in the branches. Imperfection in the valves is what I refer to as local, and pressure the mechanical cause. Varix of the lower extremities is essentially a disease of the saphena interna; the continuous length and superficial; position of this vein explain, in a measure, why this is so.

A derangement of the circulation must first affect the main trunk; afterward the confluent branches. Independently of the cause, therefore, we say, as it is the saphena interna that first suffers so must it first be treated. The veins in this disease may be compared to streams which, under ordinary circumstances, are able to drain perfectly the adjoining land; but, when unusually filled, suffer, not only in themselves, but by communicating the force of the flood to tributary branches, damage contiguous parts also. To accomplish the desired end, therefore, we must force the current in a different direction, and away from the suffering parts; this the operation under consideration does most effectually; and, as it is simple and productive of little or no subsequent irritation, we see no reason why it should not meet with general approbation.

The success of the operation so far has been such as to leave no doubt of its efficiency, while its simplicity and freedom from danger tend strongly to recommend it. Subsequent irritation and inflammation seem to have been the principal sources of objection to previous operations, but this is overcome by the fact that silver wire is unirritating, and subcutaneous operations, generally, do not produce inflammation.

Nearly all the operations heretofore advised for the cure of varix have been opposed, or reluctantly performed, on account of their liability to produce fatal inflammation, and yet the idea that a certain amount of inflammation was indispensable to effect a cure has been embodied in all of them. Now, it is this that is avoided by the operation under consideration, and yet the desired end attained, viz: obliteration of the veins; and this we maintain is accomplished, not by inflammation, but in the same manner that the umbilical vein and ductus venosus, deprived of their circulating current, become reduced to fibrous cords.
Case 1.—Mrs. R., æt. 42, came under my care in the autumn of 1859. She was suffering from a varicose condition of the veins of the right leg, and an ulcer near the external malleolus of the same. This condition had existed nearly three years, the varix having formed during a twin pregnancy, and the ulcer originated from a bursted vein.—From the first she had been under medical treatment, but no operation had been performed. The usual palliative measures had been employed with the usual success.

I relied upon strips of adhesive plaster as the best means for exerting a constant and uniform pressure upon the part. The subcutaneous application of the metallic ligature had not been advised. As soon as I was informed of this operation I resolved to try it upon the case under consideration. In November last I placed a silver ligature upon the saphena interna, about three inches below the knee joint, and one upon the tributary branch, midway between the knee and ankle joints, in accordance with the directions already given in this journal. No dressing was applied to the ulcer, excepting dry lint, and at no time were the wires interfered with until their removal at the time of cure, which was seven weeks from the time of operating.

Case 2.—William G., æt. 63, called me to attend him November 9th, 1860. He was confined to bed by a very large ulcer, situated just above the internal malleolus of the right leg, dependent upon varicose veins. I was informed that the ulcer had existed since 1824, and had never been entirely healed from that date, being a duration of thirty-six years. He was feeble, anemic, and unable to go about, excepting from one room to another by the aid of crutches. The ulcer discharged a very offensive, ichorous pus, and presented an extremely indolent appearance and no disposition to heal. He had been under the care of physicians and surgeons of eminence, both in this city and New York, without material benefit to either the ulcer or the veins, although the latter had been subjected to the much lauded caustic treatment.

I propose the operation of subcutaneous ligation, but was not allowed to perform it before the 28th of November.—The points of ligation were the same as in the previous case, the ends of the wire were covered by strips of adhesive plaster, a compress of dry, soft muslin was placed over the ulcer, and a roller applied from the toes to the knee. The bandage was removed every two or three days for the first
two weeks after the operation, and the ulcer washed with soap and water. This constituted the whole of the local treatment. Constitutionally he received a nourishing diet, with quinia and iron. The irritation from the wire was at no time sufficient to produce more than slight redness at the point of entrance and exit. On the forty-sixth day after the operation, finding the veins, where ligated, quite solidified, and the ulcer entirely healed, I untwisted the wires and withdrew them. The cure seems perfect, and, at the present time, he is able to go about free from lameness and in good health.—Medical & Surgical Reporter.

Compound Fracture. A Paper by Mr. Byrant, F. R. C. B.

Having recognized the fact that the science of Medicine and Surgery was one purely of observation, and that its principles and practice could only be regarded as sound so long as they were based on facts, the result of recorded and carefully-observed phenomena, the author went on to state that he believed it to be the duty of every practitioner to communicate to his professional brethren any positive material he may possess, and thus to add his quota in building up the noble art and science to which we have the honor to belong. In conformity with such a principle he had the pleasure of presenting to the Society a brief analysis of upwards of 390 cases of compound fracture of the extremities omitting only those minor examples in which the smaller bones of the hands and feet were involved, believing that the results educed were not unfruitful either of interest or instruction. The cases were all taken from the experience of Guy's Hospital within the last twenty years, the earlier ones having been collected from the records of the institution, and the author's own notes having furnished him with the particulars of every case admitted within its walls during the last seven years. He then proceeded to the analysis of the whole number—302 cases:

17 or 5-6 per cent. were of the thigh.
198 or 63-9 " " leg.
35 or 11-5 " " arm.
57 or 18-8 " " forearm.

11 out of the 17 cases of compound fracture of the thigh
proved fatal, or 64-7 per cent. 74 out of 193 examples of compound fracture of the leg were fatal, or 38-3 per cent. 4 out of the 35 cases of compound fracture of the arm died, or 11-4 per cent. And 7 or 22-2 per cent. of the 57 cases of compound fracture of the forearm. Of the whole number, 96 were fatal, or 31-7 per cent. A table then followed showing the causes of death in these 96 cases, from which it appeared that in cases subjected to amputation pyæmia was twice as fatal as in others treated on conservative principles, and that exhaustion and gangrene were more common causes of death; that in cases treated on ordinary surgical conservative principles delirium tremens and tetanus were more common causes of a fatal result. Analysing the 17 examples of compound fracture of the thigh—9 underwent primary amputation; 6 died and 3 recovered. 1 underwent secondary primary amputation; fatal. 7 were treated on conservative principles; 4 died, and 3 recovered. 10 were thus treated by amputation, and 7 of these died, or 70 per cent. 7 were left to Nature's efforts for repair, and of these 4 died, or 57 per cent. Having given an outline of the fatal cases, the author went on to remark, first, on the rarity of compound fracture of the thigh, the accident bearing the proportion only of 5-6 per cent. to the other cases involving the larger bones of the extremities. This fact, he stated, was well borne out by the experience of all surgeons. The excessive mortality of these cases was the second point to which he alluded, 64 per cent. of the whole number of cases proving fatal. In nearly 60 per cent. amputation was had recourse to, and 70 per cent. of these cases subsequently sank. The extreme severity of the majority of these cases, he remarked, rendered primary amputation absolutely essential. He showed that more than half the examples died, or 57 per cent., in which attempts had been made to save the limb; and that in cases in which recovery had taken place were in young and healthy subjects. The author passed on to review the opinions of some military surgeons on the subject, and pointed out how Dupuytren, Hennen, Larrey, Guthrie, and others all agreed that in compound fracture of the thigh from gunshot wounds, "in rejecting amputation, we lose more lives than we save limbs;" and also, "that in the exceptional cases, which result in consolidation, the condition of the limb is not encouraging." He quoted Macleod's Crimean experience as indicating the same opinion, this
surgeon advising amputation in all such cases when taking place in the middle and lower third of the thigh, and hesitating only in a like recommendation in cases of fracture of the upper third, on account of the extreme mortality of such amputations. Malgaigne's and Bauden's experience was then quoted to prove the poor success of conservative treatment in these injuries, the latter surgeon saving 2 out of 25 cases, and these two retained useless and deformed limbs. The author then went on to say that the experience of civil surgeons was not unlike that of their military brethren, although it was much more limited; and expressed an opinion, which he believed to be generally entertained, that a satisfactory result can rarely be obtained by conservative treatment, except in the most favorable cases—that is, when the subjects are young and the fracture uncomplicated; when the soft parts are not materially damaged nor the bone comminuted. When the bone was comminuted and the soft parts seriously involved (such a condition being generally produced by local mechanical violence), he believed that a satisfactory termination of the case must be regarded with doubt. If the patient should be old or unhealthy, amputation should be at once performed; and if there should be a doubt as to which line of treatment to adopt, the safest is to decide on amputation. But if the subject should be a young and healthy one, and not subjected to injurious hygienic influences, the author believed that a satisfactory termination might be obtained by removing at once the broken and disconnected fragments of bone (enlarging the wound if necessary), and by maintaining the absolute repose which is so essential. He stated that he believed it to be bad practice to leave the broken fragments in position, with the hope of union; and that by doing so we left a constant source of irritation, which must retard the local process of repair, as well as seriously weaken the powers of the patient, a subsequent operation being almost necessarily required to remove what will become necrosed bone.

Analysis of the 193 Cases of Compound Fracture of the Leg.—The author commenced by stating that these numbers included fractures of the tibia, and tibia and fibula combined, the latter being the most numerous. Compound fracture of the fibula was comparatively a rare accident. 129 were treated on conservative principles, 35 of which died, or 55.55 per cent. 15 underwent secondary amputa-
tion of the leg, 10 of which died, or 66-66 per cent. 6 underwent secondary amputation of the thigh, 4 of which died, or 66-66 per cent. 74 of the whole number died, or 38-34 per cent.—27-13 of those dying which were treated on conservative principles, and 60-9 per cent. of those treated by operative interference. In 22 per cent. primary amputation was performed; in 10 secondary; and in 67 per cent. conservative treatment was adopted. A table was then given, showing the causes of death in the fatal examples, from which it appeared that of the fatal cases operated on, about one-third died from pyæmia, and nearly two-thirds from exhaustion or gangrene. That of the cases treated on conservative principles, not one-sixth die from pyæmia, and something less than half from exhaustion and gangrene—pyæmia being evidently a more common cause of death after operation. The author then went on to observe, that no comparison can be well drawn between the two classes of cases in which conservative treatment and operative interference had been applied. In compound fracture of the leg, he believed that the injury should be very extensive to warrant such a practice as amputation; for most cases, whether treated by primary or secondary amputation prove fatal to about sixty per cent.; and when attempts to save the limb are carried out, by care and close attention good results may be anticipated. Let a free exit be made and kept for the evacuation of all pus; let loose pieces of bone be removed as early as possible; and limb be preserved in absolute repose by any splints which will secure such an end. Let the tendo-Achillis be divided if the slightest difficulty is experienced in maintaining rest, and good support and nourishment freely given. Under such treatment, apparently hopeless cases often turn out well, and rewards the surgeon's attention by a successful result. The author then dwelt at some little length upon the necessity of making free incisions whenever pus was present; it was a practice which he had never seen followed by any other than good results, and strongly advocated its adoption in appropriate instances.

Analysis of the 35 Cases of Compound Fracture of the Arm.—14 were treated on conservative principles, and all recovered; 4 were treated by primary amputation at the shoulder-joints, 2 of which died from internal complications; 13 were treated by primary amputation of the arm, and 2 died; were treated by secondary amputation, and re-
covered; 31 of the whole number recovered, and 4 died, or 11·4 per cent.

Analysis of the 57 Cases of Compound Fracture of the Bones of the Forearm.—27 were treated on conservative principles, and all recovered. 22 were treated by primary amputation of forearm; 2 died, or 9 per cent. 5 were treated by secondary amputation—4 of forearm, 1 died; 1 of arm, fatal. 3 died from internal complications. The author then drew attention to the fact of the favorable termination of these two classes of cases, which the experience of all surgeons correctly indicated. He stated that such operation as amputation should be resorted to only in the severest examples, and that in more favorable cases a good recovery might with some confidence be anticipated. He drew attention to the fact that so large a proportion as 50 per cent. of the cases of compound fracture of the forearm admitted into Guy's Hospital were subjected to amputation, and explained it by proving that the majority of the cases were caused by machinery, which was too often followed by a total destruction of the part. The author concluded by expressing a hope that the analysis was of some value and interest, although he was well aware that few general deductions could be drawn, as there were no cases in surgery which required to be treated more upon their individual peculiarities than those of compound fracture.

**Analysis of Fifty-two Cases of Epilepsy.** By Dr. Edward H. Sieveking.

This was the second contribution of the same character as the one admitted into the Transactions of the Society for 1857, and the author has limited the analysis to the same number of cases, taken in the order of observation as had been subjected to analysis on the former occasion. Only those points were brought forward on which satisfactory evidence could be obtained.

Sex.—23 were females, or 44·2 per cent.; 29 were males, or 55·8 per cent. Taking the two series together, the ratio of females to males was as 45·2 to 54·8.

Age.—The following was the distribution throughout the different periods of life: Under 10 years, 12 cases; from 11 to 20, 25 cases; from 21 to 30, 7 cases; from 31 to 40, 3 cases; from 41 to 50, 2 cases; above 51, 3 cases. The basis of this
calculation is the time when the epilepsy first showed itself. Arranged according to sex, we find during the first decennium 8 males and 4 females; during the second, 11 males and 10 females; during the third, 5 males and 2 females; during the fourth, 3 males; during the fifth, 1 male and 1 female; during the sixth, 1 males and 2 females.

Causes.—An hereditary taint was traceable in 14 cases, but in 8 only of these was there evidence of epilepsy having occurred in a near relative of the patient. The exciting causes were traced in 37 cases, as follows: Uterine derangement, 9 cases; venereal excesses, including masturbation, 6 cases; fright, 4 cases; over-work, 4 cases; anxiety, 3 cases; dyspepsia, 3 cases; denition, 4 cases; scarlet-fever poison, 2 cases (doubtful); meningitis, anaemia, blood-poison, and development of puberty, each 1 case.

Premonitory Symptoms.—Comprising under the term "aura" all symptoms indicative of a near approach of a paroxysm, the author found in 21 cases, or forty per cent., or less frequently than it was met with in the first series, where 52 per cent. of the cases exhibited premonitory signs.

Headache.—Headache is very commonly associated with epilepsy, but its significance varies much according to its period of occurrence: it may be habitual, or it may be connected with the attacks only as a precursor or a sequela. It was constant or frequent in 9 cases; it occurred after the seizures only in 12 cases, or 23.0 per cent.; it occurred only immediately before or after the fits in 3 cases, or 5.8 per cent.

Biting the Tongue.—Although a large number of genuine cases of epilepsy occur in which this symptom is never met with, it is important as a corroborative symptom. In the first series it was met with only in 32.7 per cent.; in the present, 27 patients, or 53.8 per cent., exhibited this feature. It did not appear that the female sex, as might have been anticipated, were less prone to inflicting this injury upon themselves than males; because of the 24 cases in which the tongue had not been bitten, 16 were males and 8 females.

Urine.—The author has found no constant derangement in the urine associated with epilepsy. He has always failed to discover any sugar, nor has he met with a constant or even frequent excess of phosphates, or a diminution of urea. In several cases he found the urine presenting a specific gravity ranging about 1030, and containing a large excess of urea. There was in the present series no case of albuminuria, except, perhaps, in one instance, in which a small quantity of
albumen appeared to be present for a brief period. An excess of phosphates was observed twice, oxalates in one or two cases, and an excessive deposit of lithates in a small number of cases.

Treatment.—The author, while urging the value of treatment in alleviating the disease and indefinitely postponing the seizures in a large number of cases, admitted the doubt which always attached to any absolute cure of epilepsy. He advocated no specific, but the employment of all rational means indicated by the constitution and peculiar symptoms of each individual case. Above all, he considered perseverance in a combination of moral, regimenal, and medical treatment essential. As many of the cases analysed had not been under the author's care permanently, he did not regard the results as to the treatment indicative of what might have effected in the whole series. He considered that he could lay claim to eight cures, that fifteen were decidedly benefitted, while the remainder were either uninfluenced by treatment, or did not continue under observation for a sufficient period to justify any positive statement as to the result.—Medical Times.

Dr. Henry Musset relates a case of gangrenous disease of the back of the mouth which resisted all other remedies, but yielded to the employment of perchloride of iron. This medicine was administered in a draught at periodical intervals, and under its use the fever abated, the delirium ceased, and a large patch of ecchymosis which had appeared on the right side of the chest began to grow pale. Broth and wine were then administered, and every day the improvement continued; the breath was no longer foetid, the tissues became clean, and at length the patient, who had appeared moribund, was restored to life. Dr. Musset attributes the recovery entirely to the use of the perchloride, because it was the only medicine employed internally from the time when the worst symptoms appeared, and because the improvement continued regularly as soon as its administration was begun. With regard to the patch of ecchymosis which appeared on the chest, the perchloride seems to have acted beneficially in removing it, whether this interstitial hemorrhage was produced by the gangrene having destroyed some vein, or whether it was the consequence of an alteration of the fluids under the influence of a general cause.—L'Union Medicale.
EDITORIAL AND MISCELLANEOUS.

MEDICAL COLLEGE OF GEORGIA.

Under cover of the present issue will be found the Thirteenth Annual Announcement of the Medical College of Georgia with the catalogue of its numerous alumni. By this our readers will find that the session will open, as usual, on the first Monday in November, and continue until the first of March following.

The College Edifice, lately much improved by the addition of a most commodious Dissecting Room, is now undergoing thorough renovation and repair, being painted from attic to cellar, and in every way prepared to afford comfort and convenience to the class. The present political distraction on our continent, and the din of actual war, may, for the coming season, diminish the class, but thorough preparation and accumulated facilities are the best means of securing success in teaching. In these no medical institution, North or South, can surpass the Medical College of Georgia. Every means of demonstration, and every appliance are accumulated within her walls, and each member of the Faculty, well practised in the art of teaching, will give himself with energy and devotion most earnestly to the task. Let Southern institutions of learning, like all other departments of Southern enterprise, receive now new life and additional impulse from the remodeling and regeneration which must surely follow the present national troubles and disaster, brought upon us by fanatical enemies, not only of the South, but of the whole country. The constant dripping of water has at last worn away the rock whose foundations seemed so deep and so firm that the shock of a volcano could scarce have stirred its base.

Pulmonary Hemorrhage.—In the intercurrent hæmoptysis of phthisis, the tincture of larch-bark, in doses of half a drachm to a drachm every second or third hour is a very effectual remedy, succeeding in some cases when the usual remedies (ipecacuanha, lead, tannin, and gallic acid) had failed. It is now the remedy principally used in these cases, in the wards of St. Vincent's Hospital.—Dr. J. M. O’Ferrall, p. 77.
Notes on Diabetic Cataract.—The author has collected from different sources about twenty cases of double cataract, occurring in patients suffering from diabetes. These cases are of no small interest in connection with the recent observations of Dr. Weir Mitchell* and B. W. Richardson,† which show that, in several of the lower animals, the abnormal introduction of sugar into the system, whether by immersion of the body in syrup for a sufficient time for the osmotic process to take place freely, or by injection beneath the integument, is almost certainly followed by the development of lenticular development.—John F. France.

Bronchocele.—The author considers this disease as the result of a perverted action of the nervous functions, at least in this country. Acting on this theory he administers strychnia in these cases, giving at first a dose of the sixteenth part of a grain three times a day; if accompanied by anæmia, he combines iron with the strychnia in solution. This treatment, from the cases reported, seems to be followed by good results; the enlarged organ shrinks, the improvement commencing after taking the remedy a few weeks.—Dr. Murney, of Dublin. p. 281.

Chorea.—Farardization of the skin in cases of chorea occasions a rapid and marked diminution of the movements, and frequently effects a rapid cure of the malady. It should be applied chiefly to the parts most convulsed, every day, or every other day.—M. Briquet, p. 70.

Headache, Congestive.—In severe headache, owing apparently to congestion, give the usual doses of the extract of belladonna. This drug excites the ganglionic nerves, tones and strengthens them, but depresses the cerebro-spinal system. Hence its value in congestive headache.—Dr. R. Hughes, p. 300.

[We should rather doubt this being the true explanation. There is just as much reason to think that the belladonna is valuable as a sedative to both the ganglionic and cerebro-spinal nerves.—Editor Braithwaite's Retrospect of Practical Medicine and Surgery.]

Neuralgia.—Hypodermic Injection of Morphia.—The hypodermic injection of morphia is of no use whatever in cases where inflammatory disease (caries of bone) produces the pain. It was of temporary benefit in a case of severe pain originating in inflammation of the nerve itself. The cases best adapted to this mode of treatment are those where the pain is of a purely neuralgic character, depending upon general anæmia.—Dr. J. K. Barton, p. 46.

* American Journal of the Medical Sciences, Jan. 1860.
† Dr. Brown-Sequard's Journal de la Physiologie, &c., July, 1860.