halation of chloroform when no cardiac disease exists. Benefit is likewise derived from the use of assafetida and turpentine enemata; and, during the intervals of the paroxysm, from the exhibition of belladonna and stramonium, in conjunction with the remedies already indicated in the treatment of chronic bronchitis.

In withdrawing the exciting cause, regard must be had to its particular nature. If it depends on any irritating qualities of the air breathed, these must, as far as is practicable, be obviated, by removal to the more congenial air of another apartment. If, on suddenly increased vascular engorgement of the bronchio-pulmonary capillaries, derivation to the skin should be energetically solicited by counter irritation to the chest, the warm stimulating pediluvium, by warmth to the general surface, in the form of the warm water or vapour bath, and by the internal administration of the acetate of ammonia, camphor julep, coffee, and the different carminatives, followed immediately by a brisk purgative. If, on the accumulation of mucus in the bronchi, or the presence of indigested food in the stomach, an emetic of antimony, ipecacuanha, or the sulphate of zinc, must be exhibited, according to the particular features of the case,—antimony being the preferable where the patient manifests a moderate degree of constitutional vigour, and ipecacuanha or the sulphate of zinc in cases attended by marked debility.

To correct any condition of the system, which may indirectly contribute to an attack, it will be necessary to inquire into the state of the general functions, and particularly those of the digestive organs, and to treat any deflection from the standard of health according to the recognised principles established by experience.

(End of Part First.)

ARTICLE V.—Reports and Observations in Surgical Practice. By E. R. Bickersteth, Esq., Surgeon, Liverpool.

LARGE SUBCUTANEOUS NÆVUS IN PROCESS OF UNDERGOING A PECULIAR TRANSFORMATION.

M. E. C., a healthy little girl, æt. 18 months, was brought to me in the beginning of April last, with a tumour on the back and upper part of the left shoulder, which presented peculiar characters. It was of flattened oval form, about the size of a small fist, and had upon its summit a red mark as large as a shilling piece, possessing the ordinary appearance of a simple cutaneous nævus. The tumour beneath was firm, minutely lobulated, and felt very like a fatty

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growth that had become somewhat indurated from previous slight inflammatory action. Continued pressure had not the effect of diminishing its size in the smallest degree. It was well defined, and freely moveable upon the parts beneath. No pulsation could be felt. When viewed at a little distance, a slightly mottled bluish tinge was observed over the general surface. The skin was adherent, but could be pinched up and separated over the greater part. The parents informed me that the bright spot was first noticed a few days after the birth of the child, and was then nearly its present size, but not accompanied by any subcutaneous swelling. A few months afterwards, a slight thickening was discovered immediately beneath, and this had been increasing ever since—latterly more rapidly than at first.

They were desirous that the tumour should be removed; and, as it had already gained a large size for so young a child, I urged the operation without delay. I believed the tumour to be a fatty growth, and intended to excise it, but the small superficial nœvus, and the bluish cast over its surface, made me more doubtful of my diagnosis than I otherwise should have been. Lest it should prove more vascular than was supposed, I readily acceded to the proposal of my friend, Mr Hakes, that, as a precautionary measure, it would be prudent to place ligatures under the base of the tumour before commencing the operation of removal.

On the 6th of April, the child being fully under the influence of chloroform, the base of the tumour was transfixed, in both its long and short axis, by needles armed with a double ligature of strong hemp thread; and these being drawn through the ends, were cut, and left in readiness to be tied, if the hemorrhage should be found uncontrollable. A crucial incision was then made over the surface of the tumour, so as to unite the opposite points of exit of the threads, and in doing so care was taken to exclude the diseased portion of skin. The four flaps thus formed were then separated, and dissected downwards as far as the subjacent muscle. Dense adhesions rendered this part of the proceedings more tedious than was desirable; and although every care was taken not to cut into the morbid structure, a most profuse hemorrhage took place. Large vessels poured out blood with every stroke of the bistoury, and the child became blanched, and almost pulseless. While the flaps were held back, the ligatures were tied as tightly and as deeply as possible. The bleeding ceased at once, and the tumour appeared completely strangulated. An incision through the upper part of the growth displayed its structure. It consisted of blood-vessels of large size, imbedded in a dense fibro-cellular tissue, which surrounded and bound together the vascular formation. A portion was cut off for more minute examination, and the wound was dressed with wet lint and gutta percha tissue. The tumour separated on the fifth day, and the flaps brought together by straps of adhesive plaster had advanced considerably towards a perfect cicatrization, when, from a most im-
proper exposure on a cold and wet day, rigor and fever, with symptoms of pulmonary congestion, set in, and the child died exhausted twelve days after.

The examination of the small piece that was removed proved very interesting and important. It illustrated a remarkable pathological change of structure, to which subcutaneous nævus, I believe, is occasionally liable,—i. e., the development of cysts from partial or limited obliteration of the dilated capillaries. On making sections in different directions, and also by dissection, several complete cavities, containing blood in a fluid state, more or less decolorised, were observed. The greater number were little larger than a hemp seed, but some were the size of a large pea, and in these larger ones the contents partook much more of the character of coloured serum than of blood. They were perfectly round, and were formed by a very thin cyst-wall, lined with smooth shining serous membrane. The dilated vessels, which composed much the greater part of the tumour, admitted for the most part an ordinary probe, some were even larger. Their walls were thin, and they collapsed when cut across. It was impossible to ascertain by dissection any positive connection between this vascular network and the cysts; but that such was in reality the case, can hardly, I think, be doubted. The fibro-cellular structure, which gave firmness and consistence to the tumour, appeared to be the result of the organisation of plastic effusion from an originally simple subcutaneous nævus—the consequence probably of chronic inflammatory action of the part. The continued exudation and organisation of plastic material would limit extension of the original disease, check the further dilatation of the aneurismal vessels, and at length, by encroaching gradually on their external walls, would contract, or altogether cause, the obliteration of their cavities. It is in this way that a spontaneous cure of nævus is sometimes effected. A slight thickening or induration remains for a time in the site of the previous disease, but soon it also is removed. The condensed cellular tissue composing it has accomplished its purpose, and is now no longer required.

But suppose the cure to be imperfect, and that, instead of a complete obliteration of the sinuses and dilated vessels, limited portions remain unaffected, and are gradually shut out from the current of circulation,—they are then no longer capable of transmitting their contents, but form simple closed cavities, containing blood in a passive condition; disintegration and removal of the colouring matter is slowly effected; secretion from the internal walls is established; and consequent dilatation of the newly formed cysts completes the metamorphosis.

A similar alteration of structure was recently described by Mr Holmes Coote to take place in "venous tumours;"¹ an affection very distinct from nævus maternus. The process by which the

¹ Medical Gazette, vol. x. p. 412.
transformation is accomplished appears to be the same in both cases, the difference merely existing in the nature of the structure affected.

And in the same way may be explained, I think, some of those peculiar subcutaneous, fibro-cellular, cystic tumours, which occupy a situation previously the seat of nœvus. Growth of this nature are not very uncommon. I have removed two such within the last eight months. Both of them I had supposed to be fatty tumours, and did not discover my error except by dissection; when, upon entering carefully into the history of their formation, I found that in infancy "mother marks" had occupied the same situations. In one of them, a girl eighteen years of age, upon whom I operated in December last, the tumour was situated over the deltoid muscle, and was so diffuse and flattened as scarcely to form any prominence. It moved freely upon the muscle, but could not be separated from the skin, which felt indurated and thickened over its surface, but did not possess any unusual vascularity. The tumour had existed since birth; but during the last year had increased considerably, and had given rise to shooting pains, extending down the arm. The nœvus mark had disappeared in early infancy. Very little bleeding accompanied the removal; but the operation was rendered troublesome from the tumour not possessing any distinct investing capsule, so that it was necessary to cut wide of it in every direction in order to secure its complete extirpation. It was of circular form, two inches in diameter, by about three-fourths of an inch in thickness; and was composed of a congeries of delicate cysts, bound together by tough fibro-cellular tissue. Some were as large as field beans, while others were not more than half that size. They contained thin transparent fluid. In some instances two or more contiguous cysts communicated, pressure appearing to have caused absorption of the adjacent walls. Some minute portions of fat were also observed among the uniting fibro-cellular structure.

In the other case, a gentleman about thirty years of age, the tumour smaller and more prominent, was on the right side of the chest, and, according to his account, was gradually getting larger. The skin over its centre was very vascular, though not sufficiently so to entitle it to the term of nœvus. The history of its formation, and the appearances on dissection, were exactly similar to those observed in the last case.

These tumours differ widely from the ordinary fibro-cystic growths. They do not possess the same distinct investing capsule, but appear rather to be continuous with the subcutaneous cellular tissue. The cysts are more delicate, their walls thinner, and their form less regular; and the uniting fibro-cellular structure, instead of possessing that freshness and vitality essentially characteristic of a new growth or tumour, properly so called, resembles rather ill developed adhesions resulting from the organisation of accidentally effused lymph. It will be observed that in each instance the tumour was said to have enlarged up to the time of operation; but if the explanation of their
origin be as I have stated, it is difficult to conceive how, the transformation once completed, any actual increase could take place, except by the individual dilatation of the existing cysts. No new ones could arise, for the original being themselves of accidental formation, would not possess the power of multiplying common to the true cystic tumours.

Exostosis from the Head of the Humerus; Accidental Fracture of the Pedicle; Excision of the Tumour; Recovery.

Henry V——, æt. 16, applied to me in December last, for advice about a tumour in front of the right shoulder, which he had discovered only four days before. He was lifting up a heavy bar of iron, and was in the act of fitting it into a window-sash, in order to secure the shutters of his master's shop, when suddenly he felt a severe pain in the shoulder and down the arm. The limb dropped powerless by his side, and he nearly fainted. On putting his hand to the part, he found a hard lump, which was painful, and very tender to the touch. Before this period he was not aware of any swelling or defect of any sort. One arm was as strong as the other; and he does not recollect ever to have suffered pains, or to have received an injury to the shoulder. Since the accident, the pain and helpless condition of the arm have continued.

On examination of the part, a slight prominence is observed on the inner and anterior aspect of the articulation. It is formed by a deep-seated tumour of bony hardness, and is most prominent about half an inch below, and to the outer side of the coracoid process. A few of the anterior fibres of the deltoid can be distinctly traced, passing over the external portion of the tumour, and the remainder of it appears to project in the interval between that muscle and the pectoralis-major. The soft parts move freely over its surface, which feels lobulated, and of extreme hardness. On grasping the body of the tumour, it can be felt passing deeply downwards towards the head of the humerus. A slight degree of motion is permitted to its superficial portion; but at its origin, which is evidently narrow and very deep, no movement can be ascertained with certainty. Once when endeavouring to discover its attachment, I felt a distinct crepitus, but by repeating the same manipulations, I could never again detect a similar feeling. The movements of the shoulder-joint were quite free, but pain prevented him raising the arm from his side, or from making any use of the articulation. There was no fracture of the neck or head of the humerus, which was plainly felt, occupying its natural situation. The movements of the tumour corresponded exactly with those of the humerus, both during flexion and rotation.

From the examination there could be no doubt that the tumour was an exostosis, arising from the immediate neighbourhood of the head of the humerus; but whether fixed or broken off, it was impossible to
ascertain. The latter appeared most probable, from the history and from the crepitation that I had felt upon one occasion; but, on the other hand, my failure to experience a second time the same sensation, and the remarkable precision with which the tumour followed all the movements of the humerus, rendered the diagnosis of this point very uncertain. However, as it was agreed in consultation to remove the tumour, I was prepared with strong bone pliers, should their assistance be found necessary.

December 15th.—Chloroform was fully given; but even with this aid to diagnosis, a careful examination failed to decide the point at issue. Having made an incision about four inches in length, parallel with the anterior fibres of the deltoid, and cut through a thin layer of muscular tissue, the fibrous capsule which enveloped the tumour, was immediately exposed. When this was freely divided, the two halves of the sac were turned aside; and as no adhesions had formed, the fingers were passed without difficulty round the body of the tumour. Then by lifting it up, I found it already detached. A little dissection from the dense fibrous tissue, which adhered closely round its neck, was all that was required to turn the tumour fairly out from its bed. Scarcely any bleeding occurred, and that little was checked by the application of cold. On putting the finger into the cavity, a narrow elongated fractured surface was readily felt. It was on a level with the general surface, and was very close to the head of the humerus. The rough portion had not the sharpness of newly fractured bone, but felt as if covered with thick lymph. A few sutures were introduced, and the water-dressing placed over the wound.

On the 29th of December the wound had closed completely, and he could use the arm perfectly.

On examination of the tumour, of which fig. 1 is an accurate representation of the natural size, it was impossible to overlook its remarkable resemblance to the head of the humerus. It was of
similar shape, and possessed all the essential structures of an articu-
lar extremity, developed in a perfect but less regular form. It con-
sisted of an elongated neck or pedicle, composed of compact bone,
and expanded into a globular-shaped body or head, which was
crested with a thin layer of glistening semitransparent cartilage. To
complete the resemblance, the periosteum, which was firmly attached
round the neck of the tumour, and constituted its capsule by en-
veloping the entire body, became reflected near the margin of the
cartilaginous crest, and lined by a smooth serous membrane. In
this way a shut sac, having all the characters of a synovial capsule,
was formed for the pseudo-articulating extremity.

On making a section (fig. 2), the body of the tumour was seen
to be composed of cancellated bone, and separated from the super-
posed cartilage by a thin and irregular stratum of compact
structure.

Exostosis near the head of the humerus is a very rare affection.
On the lower end of the femur, and on the head of the tibia, it is
comparatively common. At whatever situation it arises, the charac-
ters I have described are commonly observed; but I am not aware
that the synovial capsule, which invests the cartilaginous extremity,
has attracted that share of attention which, considered either patho-
logically or physiologically, it manifestly deserves. After an exos-
tosis has gained an inconvenient size, it is not unfrequently broken
off by an accident—as a fall or blow. Its further increase is thus
stopped, and the fractured extremities becoming rounded off, are
reunited by a species of false joint. I remember to have seen two
cases where a complete socket had formed at the lower end of the
femur, in which the rounded end of the pedicle was received, and
revolved as in a joint. The same would probably have occurred in
the foregoing case had a longer time been allowed to pass.