in rabbits, the fæcal pellets became so soft that none of the ordinary rounded masses were found in the rectum. The fæces were pulpy, and covered over with a slimy mucus.*

Jaschkowitz, by dividing the sympathetic nerves of the spleen in cats and dogs, caused an increased flow of blood to that organ, and a copious deposit of hæmatin pigment in its cells.†

In the experiments instituted by Bernstein on the pancreas, he discovered that, notwithstanding the absence of secretion in that organ during fasting, on dividing the sympathetic nerves going to it a continuous flow of pancreatic fluid is produced.‡ The originating power of the ganglionic centres is indicated by the fact, that when secretion is thus artificially produced it is not arrested by placing the animal under the influence of woorara. The special relation, moreover, in which the action of the pancreas stands to the digestion of food, increasing immediately after a meal, attaining its maximum about three hours after, and then gradually diminishing,§ shows the local centralisation of nervous influence.

The structure of the kidneys is almost suggestive of the function of each component part.

The Malpighian tufts, and the special capillaries surrounding them, shut up within the Malpighian capsules, in which there is but little of epithelial cell structure, exhibit the most perfect contrivance for that simple and independent filtration of fluid which is known as exosmosis—a simple outpouring of the watery part of the blood into the capsules, to flush, as it were, the tortuous tubuli uriniferi in front.

The contorted tubuli, surrounded by their special capillaries, to which the ultimate fibres of the renal plexus have been traced, and constructed of basement membrane, lined with the rounded, glandular variety of epithelial cells, indicate a secretory structure; and here, undoubtedly, it is that the salts which characterise the urine are eliminated from the blood.

Section of the splanchnic nerves, as performed by Eckhardt, induces hyperæmia of these latter capillaries, albuminuria, and increased renal secretion; and Dr. James Tyson, of Pennsylvania, has shown that by section or stimulation of the gangliated nerve-fibres, the terminations of which he has traced to the minute vessels surrounding the contorted tubuli uriniferi, he produced either distended vessels and an abundant secretion, or a diminished and slower blood-current and a corresponding secretion.

The question as to which of the three forms of nerve-fibres it is that is subservient to the special function of the secretory tissues admits of a positive answer. It cannot be the fibres of Remak, because when they are cut secretion is increased; neither can it be the sensory fibres, for they are centripetal nerves, and their influence can only be of a reflex character. The motor fibres are those only which, going to a gland, cannot be cut without destroying secretion; and those fibres, therefore, must be the cause or condition of the phenomenon. The sensory nerve-fibres may endow the secretory cells with their vital sense, as exemplified in Bernstein's experiments on the pancreas; but the motor fibres must be immediately concerned in supplying blood for increased secretion.

The following case is illustrative of my inference. R. de L.—, aged forty-three, presented herself at the Infirmary for Epilepsy and Paralysis in July, 1869, complaining of spasm of the muscles supplied by the facial nerve on the left side. Some two years before she had a severe headache, after which she awoke one morning with her mouth drawn to the left side, with a feeling of stiffness, but no anæsthesia. From that time any extraordinary action of the muscles of the face induces a contraction of the buccinator, masseter, digastric, stylo-hyoid, and orbicularis palpebrarum muscles. The act of sneezing, gaping, or blowing her nose, will produce this spasm, which continues for five or six minutes, when the face regains its tranquil appearance. She has occasional dyspnoea, a copious flow of saliva from the left parotid gland, and the left side of the face and head often sweats when the right does not.

(To be continued.)

NOTES OF A

CASE OF PHTHISIS AB HÆMOPTOË (?)

WITH REMARKS.

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EVERY practical physician will acknowledge that it is of great importance that the question should be settled, whether blood-spitting is ever a cause of phthisis or not. It is to be hoped that those who have opportunities of watching cases bearing upon this important subject will avail themselves of them by carefully recording notes of the cases which come under their observation, and publishing them, with a view of arriving at the precise relation between hæmoptysis and phthisis.

The following case seems to me important in this respect, and consequently I offer no apology for bringing the following notes of it before the profession.

John G.—, aged thirty-one, single, by occupation a porter, was admitted under my care April 11th, 1871. No family history of phthisis. Patient acknowledged that he had been intemperate. He had never had syphilis, but he had an attack of gonorrhœa about five years ago. Always had good health, with the exception just mentioned, till August 1st, 1870, when he began to cough and raise blood. He about this time, on several occasions, brought up about a quarter of a pint of blood at once. Soon after this he commenced to lose flesh, but his appetite was pretty good. He has never had epistaxis. At the beginning of January last he had another attack of hæmoptysis, for which he was treated by one of my colleagues, and which left no trace of pulmonary disease behind it except some slight consolidation of the upper lobe of the left lung, as was evidenced by bronchial breathing over the spine of the left scapula, and very slight dulness on percussion over the same region. On March 28th he began to spit blood again, and the hæmoptysis was repeated daily to the time of his admission, varying in quantity from several ounces to a few streaks. At this time he had no pain in his chest, but complained of shortness of breath. Although he said he had wasted, he still appeared to be a very muscular man. Chest remarkably well formed. There was no flattening under the clavicles, and no difference in the expansion of the two sides of the chest during inspiration. There was feeble breathing on the right side of the chest anteriorly, but no other abnormal sound could be heard there on auscultation. The breathing was rather jerky on the left side, but this was probably due to nervousness. The percussion note was slightly less resonant under the right than the left clavicle. Medium-sized crepitation and rhonchus were heard over the spine of the scapula on the right side, and over this area there was also slight dulness on percussion. There was no cardiac disease.

On the evening of his admission (April 11th) the temperature was 102.2° F.; on the following morning 102°. He was ordered beef-tea and milk for diet, to be given as cold as possible, and the following mixture: dilute sulphuric acid, fifteen minims; tincture of hyoscyamus, thirty minims; sulphate of magnesia, ten grains; peppermint-water, one ounce; to be taken three times daily.

On April 14th he again coughed up 4 oz. of florid blood; the cough became very troublesome. A little medium-sized crepitation was now heard under the right clavicle, and a very little rhonchus and crepitation over the spine of scapula on the same side. Instead of the sulphuric acid I prescribed the following pills to be taken every four hours: gallic acid, ten grains; of glycerine a quantity sufficient to make two pills.

On the 15th the hæmoptysis was repeated to the extent of a quarter of a pint. He attributed the expectoration of blood to the troublesome cough. Crepitation and feeble breathing heard over the whole of the right side of the chest anteriorly; voice sounds rather more distinct on right than left side. Complained of flatulence. In addition to the pills he was ordered to take fifteen minims of the liquor of hydrochlorate of morphia every six hours, with the view of relieving the harassing cough. He was also recommended to swallow ice; and to drink soda-water to relieve the flatulence.

* Nova Acta, Acad. Cæs. Leop. Car. Nat. Cur., xix., p. 257, 1860.

† Jaschkowitz de Dissectionis Plexus Lienalis efficacie in Lienem.

‡ Sachs Akad. Sitzungsberichte Math. Phys. Class, 1869.

§ Arbeiten aus der Physiologischen Anstaltzen, Leipzig, Vierter Jahrgang, 1869.

On April 16th, between 1 and 2 A.M., he coughed up 2 oz. more of florid blood. Cough less troublesome; physical signs unaltered; bowels regular. Instead of gallic acid and morphia, the following mixture was prescribed:—Acetate of lead, two grains; dilute acetic acid, fifteen minims; tincture of opium, five minims; water to one ounce: six times a day.

On the following day the patient said he had slept better. He had only brought up a few streaks of blood, with frothy expectoration not unlike that of acute bronchitis. The rhonchus and crepitation were not so distinct over the spine of the scapula on the right side. Physical signs in front remained the same.

April 18th.—Cough prevented him from sleeping. Expectored three small clots of blood, not a teaspoonful in all. A linctus to be used when the cough is urgent. He wished to have mutton-broth instead of beef-tea.

19th.—Slept well; cough less troublesome; expectoration still slightly blood-tinged; pulse feeble; bowels relieved daily.

20th.—Slight eruption of acne on the nose; tongue coated; crepitation on the right side anteriorly more marked; expectoration very slightly tinged with blood. Ordered, at his own request, another pint of milk instead of mutton-broth.

From the time of his admission (April 11th) to the 20th of April the evening temperature averaged 102° F., the morning being about 1° lower. From the 20th to the 30th, with two or three exceptions, the temperature gradually declined; and on the latter day the temperature was 0·8° F. lower than normal.

On April 25th a mixture containing twenty minims of dilute sulphuric acid, five minims of tincture of opium, and one ounce of water, to be taken three times a day, was substituted for the lead mixture. All medicine was discontinued on April 29th.

The following note was made on May 1st:—Still expectorates at times a small clot of blood. Expectoration very little in quantity, and not muco-purulent. The râles over the front of the chest on the right side are still audible, and the percussion note is slightly less resonant. Breathing on this side is feeble. There is decided dulness over the spine of the scapula on this side, and also medium-sized crepitation above the spine of the scapula. Nothing abnormal can be heard on the left side except a little tubular breathing over the spine of the left scapula. Tongue clean; eats a slice of meat at dinner; cough rather troublesome; no complaint of dyspnoea.

From May 1st to May 3rd there was a gradual rise of temperature. On May 3rd and 4th there was hæmoptysis to the extent of about 1 oz. each day. The patient was sick on the 3rd, and looked very pale; the tongue became coated, appetite bad, and the cough was very troublesome; physical signs unaltered. He was again ordered the lead mixture and morphia draught.

May 10th.—The temperature was 99° in the morning, and 99·2° in the evening. Expectoration still continued to be slightly streaked with blood. Physical signs on the right side remained the same. Medium-sized crepitation was heard for the first time on the left side in front; heard all over this side anteriorly, but most markedly a little above and to the left of the nipple. Omitted the lead mixture, and substituted for it a sulphuric-acid mixture, similar to that ordered on April 25th.

17th.—Patient has continued to improve since the last note, although for the last four days the temperature has been rising. For the last five or six days the expectoration has been free from blood. No crepitation could now be heard over the left side of the chest anteriorly, and only a few moist râles on the right side in front. Posteriorly no crepitation was audible. The patient complained of slight sore-throat, probably due to cold north-east winds which prevailed about this time.

From May 18th to May 27th there was a recurrence of the bleeding; the patient brought up blood daily in quantities varying from 16 oz. to $\frac{1}{2}$ oz. These attacks of pulmonary hæmorrhage were attended with considerable elevation of temperature, and an aggravation of the pulmonary symptoms. The lead mixture and morphia draught at bed-time were again prescribed.

24th.—There was much less movement of the chest on the right side than on the left; and a patch of recent

lobular pneumonia could be detected on the left side, at a point midway between the clavicle and the nipple. The breathing at both bases behind was free from crepitation, but distinct on the right side. Instead of the lead mixture and morphia draught, I now prescribed ten grains of compound ipecacuanha powder, to be taken every night; also twenty minims of dilute sulphuric acid and ten grains of gallic acid in an ounce of water, to be taken every six hours.

25th.—Passed the best night he has done for a week. Cough has been less troublesome, and the quantity of blood expectorated has been slightly less.

30th.—For the last two days the expectoration has been only slightly streaked with blood. He has been very sick, and vomited on two successive evenings after taking the Dover's power; this sickness probably checked the hæmoptysis. There was now decided dulness over the right side of the chest, and also over a small patch of lobular pneumonia in the upper lobe of the left lung.

31st.—The compound ipecacuanha powder and mixture containing gallic and sulphuric acids were suspended, and the following substituted: five grains of alum and twenty minims of dilute sulphuric acid in an ounce of water, to be taken thrice daily.

June 2nd.—The evening temperature on this day was 103° F. Patient's cough was exceedingly troublesome. To relieve the cough I prescribed the following mixture: one grain of acetate of morphia, one ounce of spirits of chloroform, and two ounces of acacia mixture; a teaspoonful to be taken when the cough was urgent.

3rd.—No improvement, so a blister was applied over the patch of lobular pneumonia on the left side. The application of the blister was followed by a diminution of temperature for one day, but on the evening of the 5th the temperature was again 103° F. Since the last attack of hæmoptysis the pulse has also increased in frequency, being on the 3rd and 4th 120 per minute.

8th.—Patient felt much weaker, and perspired very much; had also lost his appetite. He was ordered a mixture containing fifteen minims of dilute hydrochloric acid, to be taken thrice daily before meals.

15th.—No improvement. A blister was applied to the right side of the chest in front, and he was allowed two ounces of port wine.

20th.—Rhonchus and crepitation heard all over right and left sides in front; crepitation heard also over the whole of right side behind. Left base behind free from crepitation. Above the spine of the scapula on this side the breathing was much drier than below that—in fact, it was almost cavernous. The right side was the duller of the two, but the left was less resonant than when the last note was made. Cough and sweating very troublesome. Temperature 102·2° F.; pulse 120. Ordered a pill composed of a grain of sulphate of quinine, a quarter of a grain of powdered opium, and half a grain of powdered digitalis, to be taken three times a day.

21st.—The pills reduced the temperature and pulse very considerably. They were only continued for a day, as the patient said they disagreed with him.

25th.—A cavity could now be detected in the right apex. The patient had lapsed into a typhoid condition; his tongue was covered with a dry brown fur; he was also troubled with diarrhoea.

30th.—Is becoming gradually weaker. The temperature for the last few days has resembled that of typhoid fever in the third week.

July 2nd.—Died at 9.30 A.M.

Autopsy, twenty-seven hours after death.—The whole of the upper lobe of the left lung was infiltrated with so-called yellow or yellowish-white tubercles. At two points on the posterior surface of this lobe, just underneath the pleura, were two small cavities, evidently formed from the softening of cheesy matter. Almost at the apex behind was a small cheesy nodule, which had not softened. The base of this lung was in the first stage of pneumonia. Scattered throughout the lower lobe were a number of yellowish-white tubercles, of about the size of millet-seeds. At some points these bodies were aggregated together. They were chiefly situated immediately beneath the pleura. The right lung was universally adherent in front, and also to the diaphragm. The lung was considerably increased in bulk, owing to its being throughout infiltrated with yellowish-white tubercles. The whole of the lung seemed marbled

by iron-grey induration. A cavity the size of a Tangerine orange was found in the apex of this lung; and another about the size of an egg in the upper part of the lower lobe, on its outer aspect. A number of bronchial tubes, filled with muco-purulent fluid, were visible on section of the lung. No true grey tubercles were found in either lung. A few atheromatous patches were found at the commencement of the aorta. The valves were healthy. The liver was in the first stage of cirrhosis.

Remarks—There is strong reason to believe that in this case no pulmonary disease existed before the first attack of hæmoptysis, beyond a morbid delicacy of the walls of the bloodvessels of the lungs, probably induced by the patient's intemperate habits. The man's health, he several times assured me, was perfect up to the time of the first attack of bleeding. I have been unable to ascertain what was the state of his chest during the period he was in the hospital under the care of another physician; but at the time of his discharge the only evidence of pulmonary mischief consisted in some slight consolidation of a very limited portion of the upper lobe of the left lung, probably corresponding to the small cavities found after death, which had resulted from the softening of cheesy nodules. These nodules were in all probability the results of changes set up by the hæmoptysis. The further progress of the case is interesting. Every subsequent attack of hæmoptysis was followed by inflammatory changes in the lungs, especially the right. There was also a decided tendency for the first series of these changes to terminate in resolution, but another attack of bleeding unfortunately prevented this. There was a peculiarity in this case which is worth noticing—viz., the rise of temperature for a day or two before each series of attacks of hæmorrhage occurred. If this temperature elevation should be found to occur in other cases it will be an important guide to treatment, for as soon as the increase is noticed remedies should be administered with a view of preventing the supervention of an attack of bleeding. There are a few other points connected with the treatment of hæmoptysis in which this case is instructive. Acetate of lead checked the first attack of hæmoptysis the man had after coming under my care, when gallic acid, which has been recently so highly extolled, failed. In my experience, acetate of lead is the best remedy in pulmonary hæmorrhage, except in those cases in which the hæmorrhage is very persistent, when an emetic of ipecacuanha, as recommended by Trousseau, has no equal. The Dover's powder in the above case produced vomiting, and thereby checked the hæmorrhage, which had proved rebellious to acetate of lead and a mixture containing gallic and sulphuric acids. From the record of the case there can be no doubt of the advisability of checking the bleeding at once in cases of pulmonary hæmorrhage. I am inclined to doubt whether this symptom is ever a salutary one in the progress of phthisis. In a great many instances no ill effects may arise from an attack of bleeding, but in others it may have a most injurious influence; and in my opinion the temperature of a patient should be carefully observed for some days after an attack of hæmoptysis, with a view of ascertaining whether such attack has been followed by inflammatory action in the lungs or not.

Cambridge, September, 1871.

TREATMENT OF GRANULAR OPHTHALMIA BY THE LOCAL USE OF QUININE (QUININÆ BISULPHAS).

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THE unsatisfactory results of the treatment of granular ophthalmia, especially if combined with pannus (vascular cornea), will, I hope, justify the publication of the following remarks. Experiments were made, with various substances, on patients suffering from granular ophthalmia with pannus. The idea which led to the selection of the substances experimented with was, that granular ophthalmia is the result of some extraneous substance becoming lodged in the conjunctiva, and giving rise to what have been called granulations. Experiments made elsewhere with antiseptics

on organic matter have shown quinine to be one of the most effective antiseptics.

The substances experimented with on granular ophthalmia were the scrapings and juice of the root of bryonia nigra, the nitric oxide of mercury ointment (hydrarg. nitrico-oxidi, gr. iii., adipis ʒi.) and the bisulphate of quinine in powder. The remedies were applied morning and evening; of the quinine about as much as would go on the point of a pen-knife was placed, with a dry camel's-hair brush, on the inner surface of each lower eyelid. No other treatment, such as exclusion from light, use of lotions, &c., was made use of. The hypothesis that quinine acts specifically upon granulations, as mercury, for instance, does on lice, may be erroneous; the effect may merely be that of an irritant, causing moderate suppuration, and, with it, removal of the granulations.

The effects on granular conjunctiva of bryonia nigra and of the nitric oxide of mercury ointment, though curious in other respects, are of little interest here. Suffice it to state those of quinine. In some cases its application was followed by severe smarting, which continued for ten or fifteen minutes; in other cases no pain whatever was felt; in all cases appeared increased purulent discharge from the conjunctiva, with shrinking of the granulations, and clearing of the surface of the cornea. The intolerance of light ceased rapidly in all cases; the dilatation of the pupils appeared in from twelve to twenty-four hours after the first application of quinine. The pupils, though dilated in ordinary light, contracted well on exposure to strong light.

CASE 1.—A. B., aged fourteen. Granular ophthalmia for six years; at present vascular cornea (pannus) in both eyes; pupils barely visible; granular conjunctiva; extreme intolerance of light. The application of bryonia nigra was followed by symptoms of purulent ophthalmia (chemosis, swollen lids, &c.), which, with slight improvement of sight, subsided within ten days; the intolerance of light persisted. Quinine was used and the bryonia discontinued. The eyes improved rapidly; the granulations became smaller, and the intolerance of light disappeared completely within four days.

CASE 2.—C. D., aged ten. Granular ophthalmia with pannus for two years, with intolerance of light. The use of the nitric oxide of mercury ointment (for fourteen days) was followed by slight improvement. It was discontinued and quinine substituted. Within ten days all intolerance of light had ceased, the cornea became much clearer, &c.

CASE 3.—E. F., aged ten. Granular ophthalmia for one year. The intolerance of light persisted for three weeks while the nitric oxide of mercury ointment was used; it disappeared on the second day after the quinine had been applied.

CASE 4.—G. H., aged thirty-four. Granular ophthalmia for one year, with pannus and intolerance of light. Quinine was used for ten days; on the third day the pupils became dilated, and on the fourth all intolerance of light had ceased.

CASE 5.—I. J., aged eleven. Granular ophthalmia for four months, with slight pannus and intolerance of light. Quinine treatment for three weeks. All intolerance ceased; cornea much clearer; granulations red, much smaller; slight purulent discharge.

Case 6, aged fourteen, bad for three months; Case 7, aged fifteen, bad for four years; Case 8, aged ten, bad for two years, improved equally rapidly under the quinine treatment; in all did the intolerance of light disappear within from five to ten days, with marked improvement in the state of conjunctiva and cornea.

SOURCE OF FALLACY IN ESTIMATING THE MORTALITY FROM CHLOROFORM.

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DEATH from chloroform inhalation is a subject worthy the attention of all practical surgeons, and the particulars of each case deserve the strictest investigation. Yet the most accurate attention to details very often leaves us wholly ignorant of the conditions which accompany or cause the fatal result. The object of this communication is