to those growths obtained by educating the microbacillus to aerobic growth. This culture is undoubtedly different from the others, and is probably the true microbacillus.

In drawing conclusions from this work we are bound to consider, first, whether the organism cultivated by Dr. Fleming was identical with that grown by Sabouraud. I am forced to the opinion that this is not the case, since it is inconceivable that an organism really an anaërobe should be so changed in its characters by cultivation under anaërobic conditions as quite to lose the power of growing anaërobically. And even a very old strain of microbacilli which has been educated to aerobic conditions will, if transferred to anaërobic conditions, immediately reassert its preference. The early appearance of growth in Fleming's cultures, which is always less than the four days necessary for the first sign of microbacilli in cultures, is also a point against the identity. Again, the pustular eruption described by Fleming on inunction of a mass of his organisms into the arm of a susceptible person is not obtained by a similar experiment with Sabouraud's organism. Now, since it is admitted by all who have compared the two, that the organism seen in Sabouraud's cultures and that obtained by ordinary anaërobic methods are identical, there is no reason again to distinguish between Fleming's organism and the anaërobe.

The next question for consideration is, Which is the real microbacillus of acne?

In the first place, Fleming's organism is admittedly difficult to obtain, and a culture has not been forthcoming in my hands or in those of Dr. Whitfield, in spite of numerous essays. On the other hand, the colonies obtained by anaërobic cultivation are in myriads, as would be expected when one remembers the vast numbers of the organisms in the comedo. Again, Dr. Fleming does not mention a single instance of successful cultivation of his organism from comedo, all his cultures having apparently been made from pus, which is more liable to contamination and not so rich in the organism whose cultivation is sought as the comedo.

Most of Dr. Fleming's conclusions seem to have been based upon the opsonic indices of his patients to the organism cultivated. But it seems to me unjustifiable to pronounce an organism the cause of a particular lesion on these grounds. There are at least other possibilities.

With regard to inoculation experiments, at first sight the results published by Dr. Fleming appear more promising, but it is to be remembered that comedo formation and not suppuration is the essential lesion of acne vulgaris, and no account of a production of comedo is given in the description of his results. In addition, treatment with vaccines of Fleming's organism apparently caused increase of the amount of pustulation; but no mention is made of the disappearance of comedo under such treatment.

The inoculation experiments by inunction with the anaërobe are, it is true, unconvincing. But nearly everybody is at least seborrhoeic, and the liability of the subject to react to the presence of the organism by comedo production seems to be limited, in the vast majority of cases, to the age of puberty and early twenties, and then to certain well-defined localities—for example, face and back where inoculation results would be open to question. Those who have suffered from acne in their teens appear, as a rule, to become immune to the organism to the extent that the only reaction observed is a persistent excessive fat secretion.

Next, as to the causation of the pustulation, on only one occasion did I fail to find staphylococci in culture from pus, though it is only fair to acknowledge that Sabouraud in his vast experience has occasionally found cases which gave no staphylococci. It is true also that microbacilli can be cultivated in great numbers from the pus, but not more than might be expected considering the amount of comedo debris present in this material.

In conclusion, a great deal has been written about media for the cultivation of this organism. In my opinion the complicated agars recommended are quite unnecessary. The secret of success in cultivating the organism is the use of anaërobic methods. Under these conditions a simple and easily prepared medium like 2 per cent. glucose agar gives luxuriant growth. Sjödmersen and Thompson, who also used anaërobic conditions, recommend a highly acid medium (+ 40 to phenolphthalein). But even by reducing

the acidity to + 20, I was unable to obtain a material which was sufficiently stiff to be sloped.

Dr. Sabouraud still uses his special medium and method of inoculation, but for ease and rapidity of obtaining a pure culture from all sorts of material, I think it must be admitted the anaërobic methods are the most satisfactory.

In conclusion, I wish to express my gratitude to Dr. Ledingham at the Lister Institute for his goodness in controlling my work and advising lines of action; to Dr. Whitfield for the material he provided, and assistance throughout the work, and especially to Dr. Sabouraud for his kindness in furnishing me with the full literature on the subject, and in examining and identifying my cultures.

REFERENCES.

- ¹ Unna, *Histopathology of the Diseases of the Skin*, 1896. ² Sabouraud (1897), La séborrhée grasse et la pelade, *Ann. de l'Inst. Past.*, t. xi, p. 134; (1897) Sur la nature, la cause, et le mécanisme de la calvitie vulgaire, *Ann. de dermat.*, t. viii, p. 257; (1899) L'acné nécrotique, *Ann. de dermat.*, t. x, p. 841; (1902) Séborrhée, Acné, Calvitie, Paris, 1902. ³ Gilchrist (1900), A Bacteriological and Microscopical Study of over 300 Vesicular and Pustular Lesions, etc., *Johns Hopkins Hosp. Rep.*, vol. ix, p. 409; (1903), The Etiology of Acne Vulgaris, *Journ. of Cutan. Dis.*, vol. xxi, p. 107. ⁴ Hallé et Civatte (1907), Contribution à la bactériologie des glandes sébacées, *Ann. de dermat.*, t. viii, p. 184. ⁵ Fleming (1909), On the Etiology of Acne Vulgaris and its Treatment by Vaccines, *Lancet*, 1909, vol. i, p. 1035. ⁶ Whitfield (1909), The Etiology of Acne, *Lancet*, 1909, vol. i, p. 1207. ⁷ Sjödmersen and Thompson (1909), Cultivation and Characters of *Bacillus acne*, *Journ. of Pathol. and Bact.*, vol. xiv, No. 2, p. 224.

ACHONDROPLASIA.

BY

O. EICHHOLZ, M.D. OXON.,

LONDON.

ACHONDROPLASIA is described by Poynton¹ and others² as a rare disease. I recently saw five cases, three of which, it is true, were not quite typical, though, as I shall presently endeavour to show, they were undoubted cases. This morning I accidentally passed two more cases while walking in the streets of London within ten minutes' interval, making in all seven cases seen in three or four months. It would not, however, be fair to doubt the accuracy of the statement that the disease is rare on the strength of what may be an unusual experience, especially as five of the above cases were attached to a travelling company of dwarfs.

My remarks will be limited to three of these cases because they differ in some respects from the usual description. Two of them were sisters and the third was a daughter of one of them. Mother and daughter were 18 and about 40 years of age respectively. The aunt was about 42 years of age and a nulliparous widow.

These facts, of course, support the view that the disease may be hereditary, as has been recorded by Porak and others; but Drs. Rankin and Mackay³ appear to doubt the evidence for this. The transmission of the disease from parent to child is mentioned by Dr. Poynton. The diagnosis is easy in typical cases, and most authors lay stress on the pug-nose, which is so common as to be an almost invariable symptom; but in none of the three cases to which I now refer was this peculiarity present, nor was there anything in the appearance of the head or face to suggest any abnormality. Nevertheless, the great disproportion between the lengths of the four limbs as compared with the body (which was certainly small, as would be expected from imperfect ossification of the ribs and pelvic bones), the small stature, the characteristic appearance of the hands described as *main-en-trident*, the absence of rickety changes such as contracted chest, deformed ribs, curved spine, and bowed legs, leave, I think, no doubt of the nature of the disease. Moreover, the dentition did not appear to have been delayed, and the shortness of the limbs was noticed about the second year, when it is unusual to notice shortening from rickets. The history I was able to obtain may have been faulty, and I was only able to examine one of the two sisters clinically. Apparently this absence of the depression at the root of the nose, which is admitted to be due to a premature synostosis of the occipito-sphenoidal synchondrosis or os tribasillare, has been noticed by others, for Dr. Thomson⁴ says "there is usually an abrupt depression at the root of the nose," though he does not say definitely that there are other cases which might not show that peculiarity. The skin is described as

smooth and pliable by Rankin and Mackay, while Poynton says it is usually soft and natural to the touch although it may be redundant over the extremities. In my case the skin of the trunk and head was normal, but over the limbs, especially at the wrists and ankles, it was unusually soft and doughy to the touch, and the same feature characterized the hands of her two relatives.

The pelvis of my patient was contracted, the conjugate diameter at the brim was estimated by external examination at 6.5 cm., and there was a sharp angle between the lumbar and sacral vertebra which gave at first the impression that one had to deal with a spondylolisthetic pelvis, but this I do not think was the case. The uterus was situated in the right half of the pelvis. Presumably the pelvis of her sister was similarly contracted, as she had undergone Caesarean section.

Lordosis is described as one of the characteristics of achondroplasia; this is probably only apparent, the acetabula being displaced backwards from shortening of the ilio-pectineal lines, so that the femora are attached in a plane posterior to that of the normal individual (Poynton). My observation certainly accords with this view of the matter.

REFERENCES.

¹ Clifford Allbutt's *System of Medicine*, vol. iii. ²G. Rankin and E. C. Mackay, *BRITISH MEDICAL JOURNAL*, June 30th, 1906. ³Ibid. ⁴*Encycl. and Dict. of Med. and Surg.*, J. Thomson, article Achondroplasia.

A CASE OF GENERAL SUPPURATIVE PERITONITIS: RECOVERY.

By HARRY COOPER, M.A., M.D. OXON.,

MEDICAL OFFICER, TOLWORTH ISOLATION HOSPITAL; A MEDICAL OFFICER, SURREYTON COTTAGE HOSPITAL.

The infrequency of recovery from general suppurative peritonitis prompts me to record this case.

Ethel H., aged 8 years, was admitted into the Tolworth Isolation Hospital on November 9th, 1909, on suspicion of suffering from enteric fever.

She was rather a frail little girl, and looked ill; the cheeks were flushed, the orbits sunken, and the lips dry and scaly. Temperature, 100.8°; pulse, 128; respirations, 36. The tongue was furred; the fauces were noted as normal. The abdomen was somewhat distended, and did not move freely with respiration; there was considerable resistance on palpation all over the abdomen, and some complaint of tenderness on the right side, though not directly over the iliac fossa. The spleen was not palpable, and no "spots" were present. Rectal examination revealed no swelling or distension. The heart and lungs were normal. The urine was acid, clear, specific gravity 1024, and free from albumen and sugar.

During the next ten days there was continued fever, with persistence of the abdominal signs; vomiting occurred once on the day following her admission, and once again on November 15th. Some indefinite pulmonary signs in the form of coarse râles and rhonchi, suggestive of enteric bronchitis, also developed, and on the fourth day after her admission a general scarlatiniform rash was noted, though unaccompanied by any other signs of scarlet fever.

On November 21st there were signs of free fluid in the peritoneal cavity, and on November 27th, as this had increased very considerably, a Southey's tube was passed into the abdomen with a view of relieving what was thought to be an ascitic collection. Instead of serous fluid, however, pus welled out from the tube.

On the following day, under an anaesthetic, the abdomen was opened over the right iliac fossa, and several pints of thick creamy pus were evacuated. The peritoneal cavity was then flushed with a large quantity of sterile normal saline solution at 105° F., the rubber flushing tube being freely passed from the diaphragm to the pelvis and from one loin to the other. This huge collection of pus had in fact occupied the entire peritoneal cavity in exactly the same manner as ascitic fluid. Both visceral and parietal layers of peritoneum were represented by continuous sheets of pyogenic membrane, so that the individual coils of intestine were not visible nor consequently was the appendix. Two large drainage tubes were inserted. I regret that I did not on this occasion collect a specimen of the pus, which was thick, creamy white, and inodorous, for bacteriological examination. A specimen taken subsequently from the discharging wound, however, showed the presence of pneumococcus.

From this date the child gradually improved. One incident remains to be recorded. On January 4th, when all seemed to be going on well, she had an attack of haematuria, and the daily excretion of urine was much diminished. This was not accompanied by any other appearance of illness either objective or subjective; there was no elevation of temperature or alteration of pulse, and by January 15th no blood or albumen could be detected, and the kidneys were acting well.

On January 20th the wound was closed, and on January 31st the child was discharged from the hospital.

I would call attention to three points of interest in this case.

First, as to the diagnosis: This seemed at first to lie between enteric fever and appendicitis. The general appearance of the child suggested enteric; the abdominal signs were consistent with that view, and the advent of bronchitis supported it; moreover, the child did not become worse. On the other hand, the abdominal signs were the predominant feature of the attack, and the immobility of the abdomen was greater than is usually seen in enteric fever; moreover, there was no enlargement of spleen and no "spots"; the first Widal reaction was negative, but that was on the seventh day of illness and too early to be conclusive; when the second Widal was also negative signs of fluid had already appeared in the abdomen. At this stage tuberculous peritonitis seemed to be the diagnosis. It was only when the Southey's tube revealed the presence of pus that the diagnosis of general suppurative peritonitis was established.

The second great point of interest is that a general suppurative peritonitis should recover at all, especially at so late a stage, and this in itself suggested a pneumococcal infection, which was found to be the case.

Thirdly, a puzzling feature was the rash which appeared four days after the child's admission. This rash had the exact distribution and character of a scarlet fever exanthem, but there were no confirmatory signs in tongue or throat, nor was there any desquamation more than the powdery state of the skin so often present in patients who have been some time in bed. I looked upon the rash as a septic one. The occurrence of haematuria, however, during convalescence, which I could not otherwise account for, and which in its abrupt onset, its mild course, and rapid termination was so suggestive of a slight scarlatinal nephritis, again raised the possibility of that explanation of it. If this was so, the child had scarlet fever concurrently with her peritonitis.

Memoranda:

MEDICAL. SURGICAL. OBSTETRICAL.

CARCINOMA OF THE MALE BREAST.

IN connexion with Dr. Bingham's case of carcinoma in the male breast (February 19th, 1910), I think it may be of interest to record the fact that I have seen two such cases during the present year. Both were natives of Travancore, S. India. One of the cases, which presented all the naked-eye appearances of scirrhus of the breast, did not submit to operation, and I have, temporarily at any rate, lost sight of him.

The other I operated upon. He was a native, aged 65, and said that he had first noticed a small lump near the left nipple four years ago. This gradually increased in size until about a year ago, when he received an injury to the growth. Soon afterwards the skin over the tumour began to give way, and on admission to hospital there was a typical cancerous ulcer (about 3½ in. long by 1½ in. broad) with very hard raised edges (as shown in photograph).

The usual radical operation of removing pectorals and fascia and clearing out the axilla was performed. Some of the glands in the latter region were very hard, though