SOCIETIES' PROCEEDINGS.

ROYAL SOCIETY OF MEDICINE—OTOLOGICAL SECTION.

November 19, 1915.

President: Dr. Albert A. Gray.

Bony Sequestrum, believed to be the Annulus Tympanicus, removed from the External Meatus of an Infant.—H. L. Whale.—The child, aged two years and nine months, had suffered continuously from otorrhœa since the age of fourteen months. The specimen exhibited broke this afternoon, so members cannot now see what it looked like. I do not know whether it is an annulus; I showed it to Dr. Dundas Grant, and he agreed that was what it appeared to be.

Otomycosis; Colony and Microscopic Slide of Aspergillus fumigatus.—H. L. Whale.—The fungus was growing profusely on cerumen on the floor of a radical mastoid cavity in a male, aged twenty-five. The cavity was entirely epithelialised and dry, not eczematous. The patient complained of slight itching. The mass looked like frost-covered grass, white, with an obvious glint of green in patches. The patient had not been living in a hot climate or unhealthy surroundings, nor had he been putting oil into his ear, nor been in contact with pigeons or other birds.

The President: Otomycosis sometimes presents a very curious colour. I saw one case of a brilliant emerald green. There was evidently some change in the colour of the fungus, probably due to the absorption and transformation of some pigment from the wax. (In reply to a question asked by Mr. West): I should call this otomycosis. I do not know that the term has been exactly defined; perhaps members will give their definitions.

Dr. Grant: In old days, when oil was much used in treating ear conditions, otomycosis was said to be much more frequent than now. At that time probably the aspergillus grew in the oil rather than in the tissues. In the present case the cerumen may act as the base in the same way. I do not think the fact of the growth taking place on cerumen is an objection to the application of the term "otomycosis."

Prof. Urban Pritchard: I have always been much interested in the subject of aspergillus. I do not believe the application of oil to the ear had any part in the causation. I was on the look-out for the condition—some twenty-five years ago—for six years before I saw a case, so that it would not seem to have been very common then. It is less common in England than anywhere else in the world. It is common in Switzerland and Austria, and it is the commonest ear condition noticed by doctors in Bombay. I think its incidence is more to do with locality. I have half a dozen specimens of the *niger* variety from my own patients, but fewer of the *fumigatus*. I think the only differentiation between

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fumigatus and *flavus* is derived by growing a culture. I had a specimen of *flavus* sent me from New York, and that was yellow under the microscope. Mr. .Whale's culture specimen shows the *fumigatus* colour beautifully.

Mr. WHALE (in reply): In answer to Mr. West's question, I might call it a case of fungus growing in the ear; it did not grow on the surface epithelium itself. This specimen is *Aspergillus fumigatus*, whereas the ordinary one is *Aspergillus niger*, which is met with chiefly in India, where I was for a time. The *fumigatus* is supposed to be specially met with in people who are brought into contact with birds a good deal, especially pigeons; that was stated by the botanist who helped the pathologist to prepare this specimen. I showed the case because of it being the rarer form. This was certainly acquired in England. The only three varieties I could find mentioned in the books are: *niger*, *fumigatus*, and *malignus*.

Keratosis of the Auditory Meatus.—W. Stuart-Low.—A girl, aged eight, who has had a discharge from the left ear for over a year. Two months ago white spots began to appear at the lowest and outermost part of the meatus; these gradually coalesced and spread round the passage, forming a tough white ring. Dr. Wyatt Wingrave has examined specimens under the microscope, and describes it as an irritative keratosis similar to what is not uncommonly met with on the tonsils, and said to be due to the presence of a leptothrix. He thinks any true parasitic growth can be completely excluded in this case. Suggestions as regards treatment are requested.

Remarks by Dr. Wyatt Wingrave: A Portion of Thickened Epidermis from the External Auditory Meatus.—The tissue consists of closely-applied hypertrophied papillæ, whose superficial squames show two changes—vacuolation and keratinoid granular deposit. The dermal papillæ do not appear to have undergone any change. Between the laminæ of the squames many mycelial threads are seen, but no spores. It may therefore be a mycosis associated with keratosis. Mycelial filaments may be derived from dirty water used as an injection or may be air-borne. Still, it must not be forgotten that they closely resemble the micro-organisms of a ringworm. Mycelium alone is, however, strongly in favour of a saprophytic nature. There is no evidence of acute inflammation.

Mr. CLAYTON FOX: I think this is a papillomatous condition and that the mycelium is only associated with it, not causally. Such a papillomatous condition is rare. It bears no resemblance to keratosis obdurans. It is probably the result of irritation from long-standing suppuration of the ear. I suggest the use of salicylic acid in paroleine, which will act as a solvent for the epidermis and also protect the part from the irritating discharge.

Dr. DUNDAS GRANT: This is an extremely rare kind of case, and seems to be a diffuse warty condition. It differs from the classical keratosis obdurans which Wreden described many years ago. I shall be glad to hear whether members have seen anything like it before. I think repeated application of a spirituous solution of salicylic acid would do good.

The PRESIDENT: Sometimes one sees benefit from mechanical measures, such as gauze packing; salicylic ointment can be applied in the gauze packing.

Mr. STUART-LOW (in reply): I thank you for the remarks about

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treatment, as I was at a loss what to do for the case, though I was inclined to try salicylic acid, if I knew the best strength. When I removed a piece for examination it bled profusely, which would perhaps be an indication against scraping, as some members have suggested.

Fractured Skull with Healed Attic Suppuration of an Unusual Type.—E. D. Davis.—The patient, an engineer, aged forty-two, complained of deafness after a crushing injury to the head, in which the vertex of the skull was fractured, and an operation for depressed fracture was performed by Mr. Rowntree on April 24. At the time of the accident there was hæmorrhage from both ears. The left ear shows extensive and healed attic suppuration, revealing a cavity of considerable size above and behind the tympanum. Both external auditory meatuses are unusually large in the region of the drum. The deafness is of the middle-ear type, and there is no history of the deafness or of ear-disease previous to the accident.

Mr. O'Malley: I have not seen the case, but it seems from the description to correspond closely with one which I recently had under my care at Woolwich. The patient was in the motor cycling corps and started out on duty one night and had an accident. He recollected nothing of it until he recovered consciousness forty-eight hours afterwards. On arriving at Woolwich he was complaining of deafness; he also had eye troubles. His fourth, sixth, and seventh nerves were damaged, and on examining his ear I noticed a large fissure in the upper part of the tympanic membrane extending into the roof of the tympanum. X-ray examination suggested that there was a fracture in this region.

Total Occlusion of the External Auditory Meatus.—L. A. Lawrence.—This condition was noticed in a woman, aged thirty-one, who was sent to hospital on account of pain attributed to the right ear, but in all probability due to a carious tooth in the right lower jaw. The right meatus is occluded by a smooth partition stretching completely across the meatus about a third of the depth from the surface. Careful examination failed to show any opening whatever. There was no moisture nor discharge on the surface. No other deformity was found. The Eustachian tubes are both patent. *Râles* were heard through a passed Eustachian catheter on both sides. The left ear is normal. The patient hears an acoumeter 2 in. from the right ear. Weber's test indeterminate. Rinne's test: Right ear −, left ear +. Schwabach neutral. Tuning-forks: R. $\frac{90}{55}$, L. 16. Monochord, R. $\frac{17}{42}$, L. $\frac{17}{18}$, with noise apparatus. The condition is evidently congenital, and the case is shown on account of the rarity of the condition.

Dr. Kelson: In 1904 I showed a case before the Otological Society very much like this in appearance. There the membrane was cicatricial, following suppuration. It is somewhat difficult to exclude that in this case. There may have been some trouble in childhood which has been forgotten. I would like to know what is the differential diagnosis between a congenital condition and one following suppuration. Possibly this may be post-suppurative.

Dr. Dundas Grant: In this case there is absence of a history of suppuration. I had a case not long ago which was almost identical with it, and it was one in which pure carbolic acid had been put in by mistake for carbolised glycerine, and the resulting erosion led to occlusion. The hearing was, however, so much improved by the use of the

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Eustachian catheter that there seemed to be no justification for cutting through the diaphragm as one would otherwise have been inclined to do, and I think the middle ear behind it was sound. As a rule in congenital cases there is some concomitant defect of development in the auricle or face, or the Eustachian tube. In the present case everything except the diaphragm seems perfect, and I think there must have been some traumatic cause for the condition early in childhood. My idea of treatment would be to make a small opening in the thinnest part of it and insert a fine tangled tent, small at first and then gradually increased. I think that is more likely to cause dilatation than cutting it into quadrants and stitching up the small triangular portions as is so beautifully described in some of the old text-books. May I ask for an explanation of the numerical nomenclature used in the notes of the case in regard to the monochord?

Dr. DAN MCKENZIE: Last year I showed a case very closely resembling this. There was a definite history of suppuration in the ear during childhood. Probably the present case is not congenital, but is produced as the result of ulceration of the external meatus or by traumatic means. The congenital conditions with which we are familiar do not resemble the appearance here.

Dr. H. J. BANKS DAVIS: I thought it was so hard that it might be solid bone. I think a skiagram should be taken of it to see whether there is any meatus behind it.

Mr. CLAYTON FOX: There seems be a ring of solid bone round the periphery, 1 or 2 mm. in width. I think it is likely to be a congenital case because it is so definite and symmetrical.

Mr. SYDNEY SCOTT (replying for Mr. Lawrence): I think the atresia may be due to adhesions in early post-natal life. The obstructing tissue is not of bony hardness—it can be easily indented with the probe. The tuning-fork tests are carried out with Bezold's fork and the steel monochord. The former figures represent the lowest audible vibration frequency at maximum amplitude; the latter figures represent centimetres and indicate the length of wire used to produce the highest tone audible by air and by bone conduction, the lower of the two figures refers to bone conduction. I think Mr. Lawrence will agree with Dr. Kelson's suppositions.

Cartilaginous Overgrowth after the Radical Mastoid Operation.—W. M. Mollison.—H. C——, aged fifteen, has suffered from chronic otorrhœa for years, and has had several operations. Two years ago a radical mastoid operation was performed on the left ear. A few months later a cartilaginous nodule appeared at the concho-meatal junction, and has grown to its present size slowly. Suppuration has continued in spite of operation, and now the mass of cartilage is obstructing the meatus.[1]

Audible Tinnitus.—W. M. Mollison.—Patient, a boy, aged nine, complained a few days ago of a "ticking" in his ears; his mother noted that she could hear the noise herself. There is an easily audible ticking in the left ear, very clearly heard through an otoscope; it is not synchronous with the pulse, and is much less audible when the boy's mouth is open; a similar noise is to be heard in the right ear, but much less loud. The boy has retracted membranes, and large tonsils and adenoids. The noise is presumably due to irregular contractions of the tensor tympani.[1]

[1] Discussion on these cases was postponed to the next meeting of the Section.

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Transparencies of Microscopical Sections through the Temporal Bone, from a Case of Otosclerosis.—A. A. Gray.—Four photographic negatives illustrating bony changes in otosclerosis.

Discussion on Skin-grafting in Mastoid Operations.

The PRESIDENT: We are very much obliged to Mr. Marriage[1] for the clear way in which he has put this matter before us. Historically, I was interested to hear him mention Siebenmann as being the first to employ these grafts, because I saw those cases when I was studying under Bezold at Munich. With regard to Mr. Marriage's remarks concerning secondary grafting, I tried that method a few times, but I never used it much. I gave it up long before primary grafting was introduced, as I was disappointed. Moreover, I found that patients disliked a second operation, requiring a second anæsthetic. Of primary grafting I have not had experience, but I have used a method of my own, which, however, has not yet been published. The method is as follows: Immediately after the mastoid operation, I scrape a considerable area of skin on the forearm after having made the area aseptic (but not with iodine), and I spread the pulpy mass, consisting of epithelial cells and blood, on to little sponges or, preferably, on to gutta-percha tissue, as one would spread butter on to bread. They are then pressed down on to the bony surface, the sponges or gutta-percha tissue being removed at the first dressing. At the end of the first week or fortnight one would think there was no difference in the wound compared with an ungrafted one, but after that period epidermis rapidly begins to appear in the form of islands which coalesce, and the whole bony surface is soon covered. With regard to exposure of the dura mater, I always do that purposely, because I expect it to be a more likely site for the grafted material to live upon. With regard to removing the packing on the fourth day after operation, that was the day which I also hit upon quite independently. At first I only allowed two days, and gradually worked up to the fourth, whilst Mr. Marriage worked the other way from a larger number of days. I find the use of scarlet red helps considerably, and it is probably more useful in my method than it is likely to be in Mr. Marriage's; in mine it helps the cells to radiate from the little islets which are formed. I first used scarlet red as an ointment; now I employ it as a powder mixed with boracic acid, in the proportion of 1 to 8. I generally scrape from the forearm with a long amputation knife; what I implant is a mixture of blood and epithelial cells, and looks like soft, pink paste. In my early cases, I not only grafted at the time of the operation, but at subsequent dressings also.

Mr. C. E. WEST: The points of interest seem to be, firstly, those concerning technique; and secondly, the *pros* and *cons*. With regard to technique, it is best for each person to say what he does. To take the graft, I use any razor which is sharp; if I have any doubt about it I shave myself with it on the morning of the operation: it is no good to trust to the instrument-maker to sharpen it. The Thiersch knife I consider a badly balanced and unsatisfactory implement. The next essential is to have a light hand. I do as thorough an operation as I know; I remove the posterior bony meatal wall as low as I dare. I do not make a point of exposing the dura mater, but I do not mind whether it is exposed or not. I clean the cavity out as far as I can by packing

[1] See p. 73.

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it with dry gauze, and I tampon it with gauze wrung out in 1 in 1000 adrenalin. Then I cut the graft. I take it up with two fingers, and spread it out until it lies in contact with the wall of the cavity; then I tampon it into place with gauze wrung out in paroleine and bismuth subnitrate, which prevents putrefactive organisms multiplying, while the paroleine greatly aids the ease of extraction of the plug afterwards. I bring the ends out through the meatus, I form a flap, which I think is Ballance's original flap. It is most important to have an adequate opening; and if you keep a long, firm, even curve in the incision, there is nothing lacking in æsthetic effect. It is necessary to pare the flap as thin as possible. It is a marvel to me how primary grafts take on a new raw bony surface. What I find most difficult is to get sufficiently close apposition between the graft and the relatively soft tissue of the deeper surface of the concha; it is there that I get most persistent granulations. With regard to the contra-indications, I agree with Mr. Marriage that one would not graft a confessedly infected labyrinth; and I will go much further. I used to think it was safe to graft a case of canal fistula in which I had good reason to suppose that the periosteum of the canal was intact; but I lost two cases from meningitis owing to doing that, and I have not done it since. And I do not now graft a case which has had undoubted symptoms of vertigo, whether inspection revealed a labyrinth lesion or not. With reference to the *pros* and *cons*, in a routine case of chronic disease which will not get well without operation, I think one saves time, on the whole, by primary grafting, and in fewer cases are there troubles afterwards when this is done. I do not think the results brought forward are more than impressions, but I think one gets better hearing after grafting, as a rule, than without grafting. I think it is because in a proportion of the latter cases there is a filling up of the tympanum. We shall not form conclusions on this until we have an elaborate series of cases in which operation has been carried out under the same conditions, and there is a complete record of the hearing power before and after operation. I do not think it suffices to group cases as "improved" and "not improved." I think that if you do the radical mastoid operation on a patient whose hearing was good before the operation, you will nearly always find his hearing is reduced afterwards. On the average, I think the hearing is not much altered either way. If you operate upon a patient who had pure middle-ear deafness, there is a chance of improved hearing after the performance of the mastoid operation. If there is not much cicatricial tissue in the tympanum, I do not think it matters much whether you have grafted or not. I should like to hear the views of other members, particularly with regard to the dangers of skin-grafting in cases of possible infection of the labyrinth, a matter which impresses me more than anything else in regard to primary skin-graftings.

Mr. Sydney Scott: Mr. Marriage's paper is a very interesting one, and impresses upon me the similarity of our experiences and views. I prefer, however, to transfer the graft by moulding it over gauze and packing it directly into the cavity, and have discontinued the use of paroleine, mentioned by Mr. West, because of the possibility of a thin film intervening between the graft and bone and preventing intimate contact. Age presents no contra-indication, and when it is impossible to obtain a graft from a wasted infant the graft is taken from a more robust subject. Special treatment is necessary after skin-grafting on account of the formation of casts of epithelium which accumulate in the cavity afterwards. Will the President say whether this occurs after his method of

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grafting? [The PRESIDENT: Yes, it does; but I find that time puts it right.] Patients should attend regularly every three months, *whether they feel any complaint or not*, after the radical mastoid and skin-grafting operation, for the purpose of removing this epithelial accumulation, otherwise ulceration is apt to occur beneath. After a year or so the epithelial accumulations are much less troublesome. Like Mr. Marriage, I do not hesitate to apply a graft over a fistula of the external semicircular canal when the labyrinth is properly functioning, and I have never seen bad results from doing so. Where it is intended to drain the labyrinth for suppuration in it, I do not graft over the labyrinth, nor after opening the internal auditory meatus, as in the translabyrinthine operation; in these cases I confine the graft to the mastoid area. Favourable results can be obtained even when an extra-dural abscess has been opened by grafting after completing the radical mastoid operation, but naturally one cannot employ the same technique in every case. The President's method of grafting seems so simple that I intend to try it upon the next opportunity.

Mr. MARK HOVELL: Most of my cases have been treated by grafting, and therefore I cannot draw a comparison from experience between cases which have and those which have not been grafted. I think success greatly depends on the thinness of the graft. With regard to flattening the surface from which the graft is to be taken, I think the application of a paper-knife or some other straight edge draws the skin tighter and flatter than using the hand. With regard to accumulations of cerumen and skin, I agree that, as time goes on, the quantity lessens; they are universally present, and it is important that they should be removed.[1]

Mr. HUNTER TOD: After the excellent paper of Mr. Marriage, which has been so heartily supported by others, it is difficult to say anything against skin-grafting. And yet I would compare the two methods, grafting and non-grafting, for this reason—that I am one of those who in recent years have not made a practice of grafting. Much depends on the character of the case. Probably those who have taken up grafting as a routine measure started with successes, because they did it first in simple cases. My experience has been among cases nearly all of which suffered from complications. At the London Hospital 10 per cent. of the mastoid operations have accompanying intracranial complications, and most of the patients are ill-nourished, and are not brought to the hospital until they have extensive bone disease. I did not get good results from grafting in my early cases, partly owing to the class of case operated on, and partly, perhaps, owing to faulty technique on my part; therefore I largely gave it up. In the straightforward complete mastoid operation, without grafting, for chronic otorrhœa, for polypi and middle-ear disease without extensive bone disease, the average duration of time before healing takes place is two to three months; one expects the stitches to be removed within one week, and the patient to be out and about within three weeks. Mr. Marriage, I admit, has had quicker results, and I congratulate him on having 99 per cent. of his grafts take successfully. My experience is that in a certain proportion of cases—certainly larger than Mr. Marriage mentioned—granulations spring up about three weeks after operation from points of underlying diseased bone which one thought had been removed. Another group of cases is those in which there is general bone disease—mastoid osteomyelitis; these are very difficult to cure, either with or without a graft. One of my chief difficulties after the complete mastoid operation has been that instead of skin growing in, you get

[1] See p. 120.

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mucous membrane growing out from a patent Eustachian tube, sometimes spreading over the inner surface of the tympanic cavity and antrum. In such cases the patient may have good hearing, but there is still a mucous secretion. I ask whether Mr. Marriage finds this also, and whether he thinks that putting in a graft prevents this infection of the surface. In operating I do not scrape the inner wall at all except around the Eustachian orifice, because the less you tamper with the inner wall of the promontory the less likelihood is there that scar tissue will form. If you leave the promontory alone you may find in some cases that for a long period it is lined with mucous membrane which gradually becomes normal, as in a "dry" perforation; but the hearing is much better than in those cases in which you get fine scar tissue growing up. So in a certain proportion of cases you benefit by not grafting. And if you can get skin to grow in normally over a bony surface, you are more certain of a permanent cure; normal skin will not grow where there is disease. If the skin grows in normally and completely lines the cavity within in eight or ten weeks, you may say that the patient is cured. Of course, our failures go to others; it is only the successful ones we keep. So I see cases of unsuccessful grafting, whereas my colleagues may see my unsuccessful cases of non-grafting. In a certain number of cases in which there is a small sclerosed mastoid, grafting seems to me to be quite unnecessary. Like Mr. West, I make a continuous cavity, removing the posterior wall of the meatus completely between the tympanic and mastoid cavities. I then fashion a Y-shaped posterior meatal flap, preserving the whole of the fibrous portion of the cartilaginous meatus, and if you cut it longitudinally a little below the median portion, you can throw this flap into the lower part of the mastoid cavity; this will often prevent the formation of granulation tissue between the tympanic cavity and the mastoid cavity, the area where, I think, trouble commences. I never make the concho-meatal flap, as it may cause a wide deformed meatal passage. If you are certain that the graft will take at the primary operation, as Mr. Marriage asserts, I admit that probably grafting is better than non-grafting, because it shortens the case. But if the disease is limited, and there is a small cavity, you can do just as well without grafting, and often the hearing is even better. If the deafness is due to mechanical obstruction, owing to the middle ear being filled with granulations, so that conversation is heard less than 12 feet off, you can promise, if you do not over-curette the promontory, that on recovery, ordinary conversation will be heard about 12 feet off. But if you do a radical mastoid operation on a person who hears at more than 12 feet (which should not often occur) the hearing is likely to be reduced afterwards. Formation of scar tissue about the stapes, whether the result of grafting or curetting, will considerably reduce the hearing.

Mr. J. S. Fraser.[1]

Dr. Dan McKenzie: I have followed out the ordinary Thiersch graft method, described by Mr. Ballance, for four years. But if anyone supposes that skin-grafting of any kind is going to turn the ordinary radical mastoid operation into a satisfactory operation he will be disappointed. It does not accomplish anything in the nature of magic; it does not transform what is a difficult and tedious operation into a satisfactory one. What it does do, however, is to shorten the period of convalescence. After grafting, the cavity is more rapidly covered with epithelium, and the ear dries up quicker. The time taken in grafting at the operation takes so little longer that those who have begun to

[1] See p. 80.

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graft continue to do so as a routine. The reason grafting has not become popular is that it is felt it is difficult to cut a graft. But in reality the difficulty is very much exaggerated. The chief necessity is a very sharp knife. With regard to subsequent hearing, that matter has been worked out by Welty, of San Francisco.

Dr. DUNDAS GRANT: I have not made a routine practice of grafting, but have done it in many cases. I have never regretted having grafted, but have frequently regretted not having done so. With regard to hearing, I am convinced, in company with Sir William Milligan, that the best results are seen after grafting. I had a good proof of this in a case in which both ears had to be treated for a similar condition, one with a graft, and the other, for certain reasons, without a graft. The hearing on the side grafted was very much better than on the other. It is difficult at first to believe that a primary graft placed on bare bone will take root and stay there, but it is now accepted that primary grafting is an excellent course to pursue. In some of the cases one sees now—for instance, soldiers—the patients have very coarse skins, and from them it is not easy to get a nice thin graft. The graft should be cut very quickly. There are cases in which Nature creates the equivalent of a graft, as in those in which, through long neglect, a cholesteatoma has formed, with a preservative matrix. It is a mistake to take that away and put another in its place. Ten years ago I brought a boy to the Otological Society in whom I had found such a cholesteatoma. A year afterwards I brought him up again to show how well Nature's graft had acted. It was dry at the end of a month, and skin was lining the cavity. A few weeks ago I was asked to see a soldier who had been under my care; it was this same boy, now developed into a strong Scottish soldier. He came because of deafness *in the other ear* owing to the bursting of a shell. The cholesteatoma-matrix had stood the hardships of months of campaigning, and was as well as if perfect skin-grafting had been done. Usually, of course, cases are now seen before a cholesteatoma has had time to develop. There are also cases in which the cavity is very small and grafting is scarcely called for. There is, on the whole, no method more perfect than the use of the Thiersch graft, as formulated by Mr. Ballance, and in the "primary" form as now described by Mr. Marriage.

Mr. W. STUART-LOW: After personal experience I would say I am not in favour of grafting. I used it for some time, but I got as good results without if I was careful. I think surgeons do not always take sufficient care in regard to a number of points respecting the mastoid operation. First, in regard to the preparation of the patient, I insist on tobacco and alcohol being stopped, and I give the patients a rest from work. I operate on the throat by enucleating the tonsils and removing the adenoids; a resection of the nasal septum is also done, if necessary, and consequently the patient is properly prepared for the operation. It is also important to remove bad teeth. I cut a large flap into the concha, and then there is a good deal of epithelium to lay down. This is laid down over the facial ridge, catgut stitches being put in to maintain the flap in position. Do not curette the inner wall of the tympanic cavity on any account, otherwise you will get scar tissue, and the hearing will not be good. I now use the blood-serum treatment. Having removed the diseased substance and dried the cavity, I put in 10 c.c. of horse-serum, and the cavity is packed with gauze and a dressing applied. To avoid contraction of the meatus I employ a cage, and a bandage over the cage. I have never had any contraction of the meatus since using this. Forty-

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eight hours afterwards the plug is taken out, and no more after-plugging is ever required. If the epithelium is not coming on quickly enough, I blow into the cavity dry sterile powdered pig-skin epidermis.

Mr. MARRIAGE (in reply): I have been very interested in hearing the views of different members, but I do not seem to have much to reply to. In the treatment of these cases, as regards the small details of technique, it is largely a matter of what one is used to, but as regards method the question is, Which one will give both patient and surgeon least inconvenience? From that point of view, I think there is no question that primary grafting saves the patient much pain and gets him well quickly, and saves the surgeon much trouble too. In the patient I showed this afternoon, healing occurred in five weeks, and I have only seen her three times since the operation; all the treatment she has had was done by the ordinary dresser at the hospital. That is a big contrast to the cases which we used to treat by plugging, or even with scarlet red; cases then required much more attention than that. In answer to Mr. Tod, one cannot guarantee that the Eustachian tube will be closed, and that there will not be some extension of mucous membrane. But by not scraping the inner wall of the tympanum at all he is much more liable to get trouble than if he had scraped. Still, even grafting will not always close the Eustachian tube, and I have never suggested that grafting will make all cases heal immediately. I think Mr. West is too pessimistic about putting grafts over a bony fistula. I have done many such cases, but up till now I have not had meningitis developing in consequence. I was glad to hear of Mr. Scott's method of transferring the graft; I have not myself tried it. I started with a section lifter, and got accustomed to that, and I do not think there is much difficulty. I was interested to hear from Mr. Scott in conversation that he had had a case of primary grafting of the mastoid which healed up in one week, and another in ten days. I do not profess to equal that, but I see that it can happen, because so often when you take out the first dressing, the whole cavity is practically covered, especially the bony cavity. The chief difficulty is the posterior meatal wall. Mr. Fraser's method, cutting out a crescentic piece, seemed from the description to be more complicated than cutting a straightforward graft. I would rather cut a graft and cover the whole cavity than put in a layer of skin and tuck it away in the manner described. I do not agree with Mr. Stuart-Low, that after grafting you get a contraction of the meatus; one of the advantages of grafting is that you do not get that contraction. Getting the skin to heal over the raw surface, at any rate in the upper part of the meatus, prevents it from contracting up, and I think Mr. Stuart-Low must have been unlucky in the way he cut his flap, or in his cases, if he has had many cases of contraction of the meatus.

Abstracts.

PHARYNX.

Gardiner, H.—Tonsils and Chronic Cervical Adenitis. "Lancet," October 2, 1915, p. 725.

From his own researches in thirty cases the author concluded: that in 80 per cent. of chronic cervical adenitis where no obvious source of infection is present the tonsils are infected. The size of the tonsil makes

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