SOCIETIES' PROCEEDINGS

ROYAL SOCIETY OF MEDICINE—SECTION OF LARYNGOLOGY

December 7, 1928

President—H. BELL TAWSE, F.R.C.S.

The use of Ultra-Violet Rays in Diseases of the Nose and Throat—ALBERT EIDINOW, M.B., B.S.—The Paper is published in the *Journal of Laryngology and Otology*, vol. xliv., March 1929, p. 177.

DISCUSSION.

Mr H. BELL TAWSE (President) said that two or three years previously one of these lamps had been tried in Nottingham, and he did not think that any harm had been caused by its use. If, however, the erythema occurring on the skin were to occur owing to improper applications to the mucous membrane, that might be a serious matter. He himself had had application of the rays, and was much better after erythema had been caused than when it was not. Pain from herpes zoster was relieved after four applications of the rays, when every other measure had failed. He would like to know whether, in using the rays, it was better to cause erythema or to stop just short of it.

Mr SOMERVILLE HASTINGS said that at Copenhagen he saw the excellent results which were obtained in cases of tuberculosis of the larynx. There, he believed, the applications were made to the whole surface of the body every second day, a procedure which did not accord with Dr Eidinow's theory. An exposure only every fourteen days could hardly produce results better than those seen at Copenhagen.

Mr O. POPPER said that when house-surgeon to the President, he had been instrumental in installing an ultra-violet ray outfit (Kromeyer quartz mercury vapour type) in the Ear, Nose and Throat Department of the General Hospital, Nottingham. He was warned of the harmful effect of over-dosage on the comparatively delicate mucous membranes. Accordingly, it was used with care and with good effect. He understood that, in applications to the larynx, a shield to protect the fauces was used, whilst getting as much irradiation on to the larynx as possible. No attempt was made to estimate the quantity of rays reaching the larynx. That did not seem a scientific regulation of dose. Would it not be better to have direct laryngoscopy, and use a lamp of known power?

Mr NORMAN BARNETT said he had used a mercury vapour and Kromeyer lamps for both local and general applications. The ray was applied every other day, and there had been no bad results owing to inflammation of mucous membrane or skin. From the aspect of disease

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of the parts the results had been good. He had been much pleased with the effect of the rays in nose, throat and ear cases. He would like to know how much of it was attributable to the effect on the cells, and how much to that on the circulating blood.

Dr EIDINOW (in reply) said that the dosage which gave the best response, judged by the bactericidal power of the blood, was the minimal erythema dose. It was best to expose 20 to 30 square centimetres to a kilogram weight. Excessive exposure was harmful; it lowered the blood resistance. The lamp used in Copenhagen technique was poor in biologically active ultra-violet rays. It contained much visible light, and long ultra-violet rays, and only few short ultra-violet rays. In this country, mercury vapour lamps were being used; these were powerful in ultra-violet-rays. The skin was a growing organ, and was rapidly undergoing changes. What was probably happening under the Copenhagen technique was that some cells which had received light were probably immune for a time, while other cells which had not received stimulation reacted. The plan was to give light twice or three times a week, but each time to a different area of the body. To produce a tonic effect on the blood there was no need to use ultra-violet light at all. The ordinary filament tungsten lamp, giving off much visible light, might produce as good a tonic effect as the mercury vapour lamp. When a patient was suffering from infective disease and had a low resistance, it could only be improved by giving a minimal dose to produce erythema. The blood would not respond to a massive dose of either these rays or light. By means of this technique there have been very successful cures of lupus of the skin and in other types of infection by using the short-ray technique. Massive exposures were found to be unnecessary and useless.

When there was present an acute or subacute condition, with definite pyrexia, it was necessary to limit the rays still more, exposing a still smaller area of skin. During the last two years it had been found clinically, and from the bacteriological examinations, that the treatment seemed as good as the Copenhagen technique, saved much time and labour, and appeared more scientific.

The question of direct action of the light on the skin and on the circulating blood was a difficult one; it had been studied for a long time, but not much progress had been made, as it was difficult to make extracts of skin tissues. He had ground skin up and exposed it to light, in the hope of finding a bactericidal substance but he had failed to do so. If, however, he took a quantity of blood and exposed it to light, the blood was damaged, some of the red cells were hæmolysed, and the blood lost its power to kill microbes; but when he injected that blood into animals he obtained a rise of bactericidal power. Ultra-violet rays did not seem to penetrate as far as the blood, though they might reach the most superficial blood vessels. When irradiation was done it was shown that a bactericidal substance was produced. It must be assumed that the effect of the light began where the light was placed. The action must occur in superficial living skin cells.

He would be interested to try the laryngoscopic method which had been mentioned. He had placed his lamp as far down the pharynx as possible, the patient being anæsthetised.

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Societies' Proceedings

Specimen of Œsophagus from an Elderly Man, treated with Radium—V. E. NEGUS, M.S.—The specimen shows an extensive carcinoma, which has perforated the trachea. The original growth was treated over twenty times with radium and shows disappearance of the carcinomatous cells and the formation of fibrous tissue in their place. Owing to defective distribution of radium the growth has spread upwards and downwards and has thus caused death.

Sections are shown of the microscopic appearances. The radium applicator consists of a bougie, perforated to slide down a thread as in Plummer's method. Above this is a capsule for the radium, to which is attached a whalebone staff. The bougie is guided through the stricture by the thread and is kept in position for as long as required.

Œsophagus from a Middle-aged Man, showing a Congenital Opening into the Trachea—V. E. NEGUS, M.S.—The patient was aged about 45, and died of general weakness, due to a carcinoma which was supposed to be primarily in the œsophagus.

On post-mortem examination, a primary growth was found in the lung, with secondary deposits around the œsophagus; owing to infiltration of the walls of the latter, the appearances were given on œsophagoscopy of a primary growth, and the symptoms were those of œsophageal stricture.

On post-mortem examination, a congenital opening was found, but it had not produced any symptoms in life, and had not given rise to septic pneumonia. The opening led in a downward direction from the trachea to œsophagus, and on the œsophageal aspect there was a small valve-like hood of mucous membrane, which must have prevented regurgitation of food into the trachea.

Carcinoma of the Œsophagus—V. E. NEGUS, M.S.—F. J., male, aged 63.

24th February 1928.—First seen. History of dysphagia for one month. Skiagram shows narrowing of the œsophagus below the eighth dorsal vertebra; no evidence of aneurysm.

1st May 1928.—Œsophagoscopy (local anæsthesia). Jackson's 9-mm. tube. Roughness on the right lateral wall, 26 cm. from the incisor teeth. A piece of this was removed for biopsy, and was reported to be epitheliomatous tissue, with some superadded inflammation.

22nd June 1928.—Gastrostomy. This was owing to absolute obstruction to both solids and fluids of four days' duration, following a period of rapidly increasing dysphagia. The patient was discharged in ten days after an uneventful recovery.

15th October 1928.—Œsophagoscopy (local anæsthesia). Jackson's 9-mm. tube. There was a nodular, friable bleeding mass 26 cm. down. It was dilated with Jackson's bougie to 8 mm.

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30th October 1928.—One hundred milligrammes of radium passed down to growth in special container attached to a railroad bougie. Repeated on the two succeeding days, and on the 6th, 7th, 8th, 13th and 14th days of the next month.

15th November 1928.—Œsophagoscopy. Growth as before. Easily dilated to 8 mm.

19th, 20th, 21st November 1928.—Fifty milligrammes of radium applied just distal to growth for two hours.

22nd, 23rd, 24th November 1928.—Fifty milligrammes applied just proximal to growth for two hours.

Remarks.—After the second application of radium the patient could swallow liquids, which he had not done for over five months. At the end of the course he could swallow light solids, such as mince, fish and chicken.

Sir JAMES DUNDAS-GRANT said Mr Negus had shown a very ingenious and elegant way of applying radium with considerable accuracy, using a thread as a guide. Fibrosis occurring in the stricture after treatment was a very real difficulty. He had now under care a middle-aged man in whose case radium was applied on several occasions; there was definite enlargement of the passage, but after a time there was some narrowing; it was very low down. That patient could not take even liquids without some difficulty. Gastrostomy was performed with the best result, for the patient now could swallow through his œsophagus better. The speaker hoped to be able to dilate the fibrosis, so as to give considerable comfort, though probably the process would have to be repeated at intervals for the remainder of life.

Mr H. V. FORSTER said he had often wished to see such a demonstration as this. He had been asked to put radium into the œsophagus in a case of carcinoma, but he had thought that there would be difficulty from the stilette irritating the arytenoids and fauces.

He had recently introduced radium into the œsophagus of a patient who was having lead treatment too, and he had then adopted a method which had allowed the radium to be kept *in situ* for seven hours. A long rubber feeding tube was used; it was not unlike Symond's original œsophageal catheter, but it had a winged end like the self-retaining urinary catheter. This long tube he had used occasionally for some years for feeding purposes when gastrostomy had been refused. He had been disappointed in the use of Souttar's short tube and Guisez's winged funnel; his observations with these tubes had been confirmed at autopsy.

Mr E. WATSON-WILLIAMS inquired whether Mr Negus felt certain that the recurrence was to be ascribed to a faulty placing of the radium. He had himself on several occasions had a similar experience after using radium. Apparently the original growth had healed, but within three or four months later recurrence had taken place an inch or more higher up the œsophagus. Even when special precautions had been taken to irradiate the œsophagus widely above and below the visible growth, the same thing had happened. He instanced a case for which a special container, with

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a central tube for the purpose of swallowing, was inserted with radium extending along 7 cm. of the œsophagus; although the irradiated area extended a full 2 cm. above the upper limit of visible growth the same melancholy sequel resulted.

But it was not only in irradiated cases where this happened. He had had cases treated by himself with selenium injections, and another was treated by Mr Todd with injections of lead-selenium,* and here again with exactly the same result. No question could arise in these latter cases as to the proper placing of the medicament, and one was forced to conclude that the growing margin of the neoplasm was relatively little affected by radiations or other antineoplastic agents which had power to destroy the older part of the growth.

Mr NEGUS (in reply) said he also had difficulty in getting the thread through in some patients. In such cases it was better to put the thread through with forceps, or on the end of a gum-elastic bougie, under direct vision by œsophagoscopy. The patient could keep the thread down two weeks or more if necessary.

Hyperplastic Laryngitis and Pharyngitis: ? Myxœdema (shown a year ago, but not reported)—Sir JAMES DUNDAS-GRANT, K.B.E., M.D.—The patient, a girl aged 20, originally sent up as a case of tuberculosis. There is hyperplasia of the uvula and of the epiglottis and aryepiglottic folds. A microscopical section of tissue from uvula showed the lesion to be simple chronic inflammation with no evidence of tuberculosis or rhinoscleroma. She was subjected to light treatment but no definite improvement took place until thyroid extract was administered, since which the subjective discomfort has been enormously diminished, though the change in the appearance is slight.

She is taking 8 gr. of thyroid (fresh glandular substance), and the question is whether an increasing dose is likely to do good. The diminution of the swelling is comparatively slight, but the general improvement is so great that she has gone to work.

Mr HAROLD BARWELL asked whether Sir James's diagnosis was that the swelling was the result of myxœdema. The speaker had seen a certain amount of thickening of the laryngeal mucosa in myxœdematous patients, but never such a degree of swelling as in this case.

Mr NORMAN PATTERSON asked whether the Wassermann reaction had been tested in this case.

The PRESIDENT asked whether there were any other signs of myxœdema in the patient.

Sir JAMES DUNDAS-GRANT (in reply) said the Wassermann reaction was negative. The condition was supposed to be tuberculous but the sputum was negative. The diagnosis rested to a considerable extent on the extraordinary improvement immediately following thyroid treatment.

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* *Vide* "Chemo-therapeutic Researches on Cancer," A. T. Todd, M.B., 1928.

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Tuberculosis of Larynx with Cyst—E. A. PETERS, F.R.C.S.—Female, aged 21. Hoarse three months. A growth, the size of a walnut, is seen attached to the left aryepiglottic fold. The growth has a solid rounded fibromatous appearance, and is probably a cyst.

Radiogram of chest.—Report: Consolidation of right apex with suspicion of cavitation.

Mr HERBERT TILLEY said that he did not think this swelling was a cyst, because one could see a continuous swelling from the arytenoid upwards. He regarded it as tuberculous and suggested an examination under efficient local anæsthesia, so that the swelling could be punctured, and, if it were solid, galvano-puncture could be applied.

Dr PETERS (in reply) said that when he had first seen the patient she was very hoarse and the mass rolled about with the laryngeal movements of respiration and presented the appearance of a cyst.

The patient had now nearly recovered her voice, and the mass appeared more like a solid infiltration of tuberculous character. He would puncture with the cautery and report the result.

Tuberculosis of the Larynx with Outgrowth from Ventricle—Sir JAMES DUNDAS-GRANT, K.B.E., M.D.—Patient, a man aged 31. Former disappearance of outgrowth under galvano-cautery treatment. Recent recurrence. Removal of a portion of ventricular band which showed tuberculosis on microscopical section.

Mr HERBERT TILLEY said that many years ago Dr Jobson Horne in his work on tuberculosis of the larynx had shown that often the first deposit occurred in the mucous glands of the ventricular band, and was first noticeable when it emerged from beneath the band on to the surface of the cord. Recently he (the speaker) had seen a paper by Dr Heyninx, of Brussels, reporting such cases of tuberculous laryngitis originating in the mucous glands of the ventricular band.

Mr HAROLD BARWELL said he agreed with Mr Tilley that this was a tuberculous infiltration; there was a flask-like swelling of the arytenoid, right up the aryepiglottic fold; it could be punctured with the galvano-cautery as part of the treatment.

Mr E. D. D. DAVIS said he thought an ulcer would be found on the anterior surface of the arytenoid, and agreed that the condition was a tuberculous infiltration.

Tuberculous Ulcer of the Septum Nasi with Infection of Sinuses of the Affected Side—MILDRED WARDE, F.R.C.S.—Mrs W. G., aged 39, came to hospital on 19th October 1928, complaining of discharge from the left ear of three weeks' duration. She had suffered from left frontal and vertical headaches and from thick nasal discharge intermittently for fifteen months. Examination showed swelling of the left membrana tympani with a small perforation discharging watery fluid.

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Nasal examination revealed a bright red polypus blocking the left nasal passage. This bled freely when touched but did not look malignant in type. It was removed with a snare and cheesy matter was found behind it, lying in an ulcer on the upper part of the septum. The edge of the ulcer consisted of pulpy granulations, and the whole picture suggested tubercle. Section of the polypus (slide shown) shows many giant cells but no tubercle bacilli have been found in the section nor in any of the specimens of discharge sent for examination.

Radiogram shows invasion of the left antrum, the ethmoid and, in my opinion, the left frontal sinus. Proof puncture of the antrum showed first a gelatinous mass with mucopus besides, and, on the second occasion, mucopus. On culture a mixed growth of staphylococci and streptococci occurred.

Up to the present the patient is having ultra-violet ray treatment with menthol ointment and inhalations, and drops for the ear, the condition of which latter is much improved.

Mr E. WATSON-WILLIAMS asked why the exhibitor called this condition tuberculous. It was true that the section showed giant cells, but no endothelioid cells or other elements of a tubercle, nor tubercle bacilli. He had himself twice seen a similar condition in each case in rhinitis caseosa: the core was surrounded by granulation tissue, quite obviously different from a nasal polypus and bleeding readily on touching. He regarded this as a chronic inflammatory condition involving the ethmoid and possibly other sinuses.

Mr T. B. LAYTON said he thought Miss Warde had proved her contention that this was tuberculous. On looking at the mucous membrane one saw the edge of an ulceration very suggestive of a tuberculous ulceration such as could be seen in any part of the body. Beyond it was a cavity of caseous material. The section exhibited showed something characteristic of certain types of tuberculosis. A number of tubercles could be seen running together, with the giant cells beginning to break down into a caseous mass; endothelial cells were surrounding the giant cells, and outside were numerous leucocytes. This was sufficient to confirm the clinical diagnosis, and a section, after all, was to confirm a diagnosis, not to make one. If then there were tuberculosis of the nasal fossa one might suspect that the conditions within the maxillary sinus were also tuberculous. He suggested that Miss Warde should make another attempt at cultivation, and that whatever material was brought away should be divided into three. One part should be examined directly for tubercle bacilli; another part should be cultivated in the ordinary way, and the third part cultivated anaerobically. In antra he had examined, other than cases of suppuration, cultivations had been made aerobically without success, but anaerobically had given a mixture of organisms.

If he did not think this was tuberculous he would have suggested operating on the deviated septum to relieve the pressure in the middle turbinal region, as he believed it was the first thing to do with certain cases of sinus disease in the nose. That he did not advise it here was

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because he would not operate across what he regarded as a tuberculous mucous membrane. Nor did he recommend a major operation on the maxillary sinus, either intranasally or by the sublabial route. He did not find that operative treatment on the sinuses affected by non-suppurative inflammation gave the same good results as when the maxillary sinus was full of pus. Much mucous membrane might be scraped away, but the symptoms remained the same. He suggested that ionization of this maxillary sinus might be tried. Probably other organisms than tubercle bacilli were present in this case. He had had several cases of non-suppurative maxillary sinus disease, which had distinctly improved after ionization, and in this case he thought it might benefit the non-tuberculous factor.

Mr NORMAN PATTERSON said that, failing the finding of the tubercle bacillus, it would be worth while to sacrifice a guinea-pig. In a case of tuberculous laryngitis which he had under investigation, he received three negative reports on the sputum, but a guinea-pig inoculated with material obtained direct from the larynx was found, when killed, to have developed tuberculosis.

Dr JOBSON HORNE said his impression was that the nasal condition was not due to tuberculosis. Years ago, when he examined under the microscope a large number of growths removed from the nose, he had met with giant cells in cases in which there was no evidence of tuberculosis. Giant cells were not in themselves evidence of tuberculosis. Before the case under discussion could be regarded as tuberculosis further evidence of that disease was required.

Miss WARDE (in reply) said that the diagnosis here was merely presumptive. As to trying the material on a guinea-pig, the pathologist said there were too many pyogenic organisms present to make the test of much value. There was a deep ulcer on the septum, and on passing a probe over the edge of the tissues one discovered a pit, from which caseous material could be scraped. The polyp had not the appearance of an ordinary nasal polyp. She had tried to find a foreign body, thinking it might be carious bone giving rise to giant cells, but she found only polypoid granulations. The antrum culture the first time was sterile. She would follow Mr Layton's suggestion and give a further report. The aural discharge was thin and watery, and there was practically no pain.

Congenital and Hereditary Nasal Deformity—L. GRAHAM BROWN, F.R.C.S.—W. S., female, aged 11, first seen 16th November 1928, for nasal obstruction and attacks of tonsillitis.

The nasal deformity is congenital. The right naris is normal, but the left is stenosed with excoriation. Tonsils hypertrophied and cervical adenitis present.

The patient's father (shown for comparison) has a similar nasal deformity, and there are other features in common between parent and child, viz., irregular dentition with poorly developed face and jaws.

I propose to remove the tonsils, which are causing much obstruction

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and repeated tonsillitis. Apart from that there is the question of operation on the nose. Something ought to be done, not only for cosmetic reasons, but also to improve the health and give better nasal breathing.

Mr HERBERT TILLEY said he would suggest submucous resection and that the father also be advised to submit to a similar procedure.

Mr NORMAN BARNETT asked what was the pathological cause of the condition. Was it due to the deformity? Had syphilis and tuberculosis been excluded?

Mr GRAHAM BROWN (in reply) said that a septal operation was said to have been performed at Middlesex Hospital on the father in 1910. The result, it would be agreed, was not very satisfactory. He intended to leave the father alone. He had not gone into the matter of syphilis and tuberculosis in the child. The condition in both father and child was congenital, and seemed to be due to mal-development of the facial bones. The father was said also to have been operated on for cleft-palate at an early age, but there was no trace of this.

Specimen of Bilateral Abductor Paralysis—H. BELL TAWSE, F.R.C.S.—F. B., male, aged 5, 21st April 1928.—Guillotine enucleation of very large tonsils and removal of adenoids under ethyl chloride anæsthesia on account of nasal and pharyngeal obstruction. Breathed badly when asleep. Larynx not examined. 12th May 1928.—Breathing worse at night and occasionally, even during the day, makes a peculiar croaking noise. Mother suggests that "one of the tonsils has been dropped into the throat." Admitted to hospital.

Larynx shows bilateral abductor paralysis. Glottis a mere chink and varies only in the direction of getting less at times. Voice good—complete adduction on phonation—breathing impeded. Some recession of the intercostal spaces; occasional attacks of urgent dyspnœa and inspiratory stridor. *Physicians' Report.*—Negative. *X-ray Report.*—Negative. *Wassermann reaction* of patient and mother.—Negative.

23rd May 1928.—Very difficult tracheotomy under ether and chloroform. Trachea small, soft and difficult to find, and gave the impression on palpation of a soft tube. It was obscured by a large thymus which had to be retracted. Insertion of tube did not give the relief anticipated and suggested obstruction lower down. 3rd June 1928.—Sudden death from hæmorrhage through the tube.

Post-mortem.—(Specimen shown.) Very large thymus apparently enveloping cricoid, trachea and continuous with similar looking tissue around roots of lungs and heart. Hæmorrhage came from a tear in the right innominate vein.

Pathological Reports.—(1) Typical thymoid tissue with very large Hassall's corpuscles; no evidence of malignancy. (2) Inflamed lymph gland tissue.

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Papilloma of Larynx—E. BROUGHTON BARNES, F.R.C.S.E.—R. S., male, aged 34. Husky since February 1927. Admitted to Creaton Tuberculosis Sanatorium, February 1928. Said to have had tubercle bacilli in sputum before admission. No evidence of tuberculosis of lung found since admission. June 1928: Semi-pedunculated tumour beneath anterior end of right cord: supposed to be tuberculoma. Removed through a tube. Report on section shown: The fragments from the vocal cord are composed of stratified squamous epithelium arranged round a fine fibrous tissue reticulum like a papilloma in transverse section.

The tumour now extends widely on both sides of the larynx, chiefly in the subglottic space.

Mr A. WYLIE said he thought Mr Barnes should get a good view by direct laryngoscopy and try again to remove the growth thoroughly.

Mr A. J. WRIGHT said that in some cases of papilloma of the larynx recurrences would take place, whatever type of operation was carried out. At relatively long intervals throughout her life—she was now over 70—recurrences had taken place. The late Dr William Hill had removed these growths several times and had cauterised the base after removal. He (the speaker) had twice removed them by the direct method during the last few years. He knew of no means of checking these recurrences. He had been watching for some years a case in which the patient, an old lady, had, during adolescence, undergone thyrofissure, performed by Sir Henry Butlin for removal of papillomata from the larynx.

Mr HERBERT TILLEY said he had had a similar case, that of a patient who had had papilloma removed from the anterior commissure on five occasions by the direct method. She was then about 40 years of age. He had advised that she should obtain another opinion regarding the question of laryngo-fissure. A colleague suggested that the growth was malignant. He (the speaker) persuaded the patient to allow him to open the larynx by thyrofissure; there had been no recurrence during the last four years, and the voice had remained normal. He advised Mr Barnes to make one more attempt in this case by the direct method, and if he had any doubt about having removed all the growth it would be wise to split the larynx, remove all the growth by cutting deep into and around its base of origin, and then cauterising this region. In this patient the growth is largely subglottic, and it extends to the other side. The right cord did not appear to move as freely as the left, and therefore it would be well to have everything ready as if for the removal of a malignant growth.

CORRIGENDUM.

In the February number, p. 132, lines 2 and 3 should read, "They were *not* prepared to abandon tuning-fork methods used for so many years," and the mathematical calculation should read

$$A_t = A_0 E^{-\frac{k}{2}t}$$

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