Loyd Jones is already known as the author of a valuable research on the discrimination of hue in the spectrum, a research which confirms the observations of Steindler and others, and is of the greatest theoretical importance to physiologists, psychologists and ophthalmologists. Our knowledge of heterochromatic photometry by the flicker method, which is also of profound importance in the theory of vision, has been developed and put upon a sound scientific basis by the exhaustive experiments of Ives, Nutting, Luckiesh, Troland and others. Nearly all this work has been done in the research laboratory of the National Lamp Association, Cleveland, Ohio, or the Nela (Lamp) research laboratories. Scientific results of the greatest value have followed researches initiated by the Bureau of Standards at Washington. It is a humiliating, but undoubted fact that Industrial Corporations in the United States are far more alive to the advantages of scientific research than are the corresponding bodies in Great Britain. The lethargy from which we were aroused during the war seems to have fallen upon us again. So far as encouragement by the Government is concerned the Medical Research Council and the Industrial Fatigue Board have succeeded in evading the axe, and are carrying on most admirable work. The National Institute of Industrial Psychology is also carrying on a financially precarious existence under the able supervision of Dr. C. S. Myers, but requires far more adequate support than it is receiving. We are grateful to our transatlantic rivals for the excellent research work which they are doing. In common with the rest of the world we are sharing the benefits. It is as much a matter of honour that we should make an effort to repay this debt as the more material debt which Englishmen are too proud to attempt to evade.

ABSTRACTS

I.—OCULAR PHLYCTENULAE AND TRACHEO-BRONCHIAL ADENOPATHY

Weekers and Colmant (Liège).—Ocular phlyctenulae and tracheo-bronchial adenopathy. (Phlyctènes oculaires et adénopathie trachéo-bronchique.) Arch. d’Ophtal., February, 1922.

Weekers has on several occasions given expression to his belief that the subjects of phlyctenular kerato-conjunctivitis are tuberculous. He recognizes that this view is not universally accepted. It is true that the association is usually with tuberculosis of a quiet and torpid type compatible with apparent good health. In
one paper* he showed how frequently tuberculosis is clinically recognizable in cases of phlyctenular disease of the eyes. In the present paper the authors draw attention to one of the manifestations of tubercle, tracheo-bronchial adenopathy, frequent in children the subject of ocular phlyctenules. They have carried out a systematic investigation of 50 such cases by radiography. The majority were examined while suffering from phlyctenules, but a certain number were those exhibiting the sequelae of the disease. A few adults with active phlyctenulae or the corneal cicatrices left by them were included.

Among the fifty cases there were:—Thirty-four children under 15 years of age under care for phlyctenular lesions; two children formerly affected by phlyctenules; three adults with active phlyctenular disease; eleven adults who had suffered from phlyctenular attacks in early life.

In interpreting the radiographic plates the authors have been guided by the instructions given by Mery, Détré and Desmoulins in their recent work†. These investigators enumerate three degrees of changes visible in radiographs of the thorax; a brief description of them, aided by illustrations, is given by Weekers and Colmant in their paper, which should be consulted on these points.

In all the fifty cases, without exception, the radiographs revealed evidence of tracheo-bronchial adenopathy of the second or third degree, indicative of tuberculous glandular lesions. In all the subjects during a phlyctenular attack the radiographic signs were those of active glandular disease. In three adults, more than 30 years of age, who had had phlyctenular trouble in early life, the signs were those characteristic of the third degree, i.e., of healed and cicatrised gland lesions.

In view of the results of this series of examinations the authors conclude that the occurrence of ocular phlyctenules always denotes the co-existence of active lesions in the tracheo-bronchial glands.

Recognizing that the criticism may be made that thoracic adenopathy occurs frequently in children, and that its discovery may not be of great clinical importance, the authors examined ten control cases, non-phlyctenular children, chosen at random, suffering from squint, etc. In three of these there were no radiographic signs of diseased glands. In seven tracheo-bronchial adenopathy of the first degree was observed, appearances which they believe to be devoid of special significance. In none of the control cases could they detect the signs described by Mery, Détré and Desmoulins as characteristic of tuberculosis, signs which were recognizable in all their phlyctenular cases. J. B. Lawford.

* Arch. d'Ophtal., 1909.
† Le diagnostic radiologique de la tuberculose ganglio-pulmonaire chez l'enfant, Presse Médicale, 19 March, 1921.
II.—THE DIAGNOSIS OF TUBERCULOSIS OF THE EYE

Gourfein, D. (Geneva).—The reaction of Besredka, radiography and radioscopy of the thorax in the diagnosis of the tuberculous nature of ocular affections. (La réaction de Besredka, la radiographie et la radioscopy du thorax dans la diagnostic de la nature tuberculeuse des affections oculaires.) Revue Générale d'Ophtal., May, 1922.

Professor Gourfein has realized the extreme difficulty of ascertaining with certainty the cause of iritis, irido-cyclitis and irido-choroiditis cases by clinical methods. Close clinical study of such cases shows that no matter what may be their cause, they present no definite symptom which will reveal their specific nature. When the symptoms of irido-choroiditis or irido-cyclitis of tuberculous or syphilitic origin are analysed one realizes how difficult it is by clinical means to establish a precise differential diagnosis. Further, in the present state of our knowledge, it is impossible to make not merely an early but even a late clinical diagnosis of tuberculous ocular affections. Yet, the very thing that is required is an early diagnosis. While it is certainly true that ocular tuberculosis may actually be primary and constitute the sole lesion, in practice tuberculous ocular affections are often secondary. Numerous laboratory methods exist for the early diagnosis of ocular tubercle. Thus we have injection of tuberculin, the reactions of Arlouing-Courmont and of Mérieux, the cuti-reaction, the ophthalmo-reaction, etc. We all know that not one of these reactions has redeemed its promise, not one is infallible. None of these methods is specific, since each may fail in obvious tubercle or be positive in perfectly healthy subjects.

Gourfein in this article puts forward his results in this matter of diagnosis by combining thoracic radiography and radioscopy with the reaction of Besredka. The two former indicate the existence, the extent and the situation of lesions of the thoracic organs which auscultation and percussion are incapable of determining, but do not give any information as to the nature of these lesions; standing alone they are not conclusive. They are only of value when added to other probable signs. Therefore exploration by radiography has to be completed by other means of investigation which can inform us definitely as to the nature of the lesions found. One of these means is furnished by the reaction of Besredka, a method of diagnosis which is both early and scientific. The author has applied this combined method of diagnosis in 35 cases of various ocular affections, and relates five of these in full. In all the cases the Bordet-Wassermann reaction was also applied, a negative result being regarded as exclusive of
Barraquer's Operation

syphilis. In all the cases where the Besredka reaction was positive X-ray exploration showed old or recent lesions of the thoracic organs of greater or lesser extent. The author had taken care to exclude other infective maladies to which the origin of irido-cyclitis might be attributed. The final paragraph reads as follows:—"From the ensemble of cases to which we have applied the reaction of fixation with the Besredka antigen one may conclude that this reaction, even employed alone, but especially when associated with radiography and radioscopy, is very valuable exactly where clinical observation only furnishes a vague indication as to the tuberculous nature of ocular affections. It indicates with greater or lesser probability the presence in the organism of a tuberculous focus, but it does not give the direct proof of a colony of Koch's bacillus in the visual organ. This direct proof can only be given as we have shown (Revue médicale de la Suisse Romande, April, 1903), by puncture of the anterior chamber, by which method the bacillus of Koch may be found in the aqueous humour or by inoculation thereof into the anterior chamber of the rabbit."

Ernest Thomson.

III.—Barraquer's Operation

(1) Marbaix (Tournai).—Considerations on three cases of intracapsular cataract extraction by the Barraquer suction apparatus without the vibratory vacuum. (Réflexions sur trois cas d'extraction de la cataracte dans sa capsule par la ventouse de Barraquer sans vide vibratoire.) Ann. d'Ocul., Vol. CLVIII, November, 1921. (With one line drawing of bell-jar used.)

(1) In the present short article Marbaix refers to the academic discussions that have taken place on the anatomical attachments of the lens, one school holding that these are very intimate and the other that they can be ruptured with impunity, which the clinical results of Barraquer's operation would suggest. Probably advancing age and the development of the cataract may tend to reduce the risks that such rupture would entail in a clear lens in a young person, as Henry Smith has suggested. Barraquer's operation strongly supports the view that a cleavage is possible between the lens in its capsule and the patellar fossa.

Barraquer began by using buccal suction, but this is not usually more than 12 cm., while a pressure of 40-65 cm. is necessary, varying with the consistence of the lens. Marbaix uses a water pump attached to an inverted bell-jar in which lies the mercury manometer and from which comes the tube to the sucker. He
notes that in softish cataracts the anterior surface of the lens is apt to become prominent so that the antero-posterior diameter of the lens is increased. He paralyses the orbicularis by van Lint's method to start with and instils cocain for half an hour and euphthalmin for one and a half hours. He advises a conjunctival flap, and uses one drop of 1 per cent. bromhydrate of arécolin to help the pilocarpin effect. Marbaix had his third lens examined by van Duyse, Senr., who found no zonular fibres but two attached at equator. The posterior epithelium was pathological, tearing of it being evidenced by a rolling-up of the capsular membrane and the egress of some broken-up lens masses. The posterior rupture is described as "brutale." Some interruptions on the anterior surface were evidently due to the de Lapersonne knife used to divide anterior synechiae present. He urges that lenses should be examined, when removed by phakoerisis, to establish some of the anatomical facts at present in doubt. He is evidently much impressed by the possibilities of this operation.

W. C. SOUTER.

(2) Munoz Urra, F. (Talavera).—A simple means for producing the vacuum necessary for the extraction of cataracts "in toto" according to the method of Barraquer—Phakoerisis. (Un moyen simple pour la production de vide nécessaire pour l'extraction de la cataracte "in toto" selon la méthode de Barraquer—Phacoérisis.) Ann. d'Ocul., Vol. CLVIII, November, 1921. (With two line drawings of the apparatus.)

(2) Munoz Urra, realizing the costliness of the electric motor and vibratory pump recommended by Barraquer, set himself to improvise something which would give the necessary vacuum pressure at the critical moment. He advises the use of a rolled copper cylinder, 17 cm. long, 7 cm. in diameter, completely closed save for a small pipe at one end to receive the rubber tube going to the sucker. Into the cylinder 20 grammes of water are placed and the cylinder is heated over a spirit lamp till steam comes vigorously out, the rubber tube is then slipped on, with a special tap on the tube before it reaches the sucker, closed, and then the cylinder is placed in cold water. Munoz Urra says he has done a large number of extractions with this apparatus and has obtained the same excellent results he got with the more expensive and elaborate outfit recommended by Barraquer. With careful control of the tap he speaks of being able to do eight to ten extractions on end, but in any case only a few minutes are needed to re-establish the desired vacuum. He intends later on to publish some observations on this operation and to suggest some lines of laboratory investigation in relation to intracapsular extraction of senile cataract.

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(3) Gallemaerts went to Barcelona and had the privilege there of assisting Barraquer at eighteen total extractions with his suction apparatus, and of performing six under Barraquer’s supervision. He is, therefore, well qualified to give these useful hints as to the details and difficulties of this operation. The pupil should be well dilated with 1.5 per cent. to 5 per cent. euphthalmin, the eye anaesthetised with cocain-adrenalin, and the orbicularis can be put out of action by an injection of cocain, as recommended by van Lint and Villard. A rather larger incision than usual is needed in the limbus, whilst a peripheral buttonhole iridectomy is enough. There was no loss of vitreous in any of the 26 cases. Eserin was used after operation. Notes of these cases are given; in one the Morgagnian nucleus fell back into the vitreous, but was recovered later; in other two cases there was small inclusion of iris; all the others were most favourable, vision of 1 being obtained in seven cases, 0.9 in one, 0.8 in six, 0.7 in one, 0.6 in three and 0.5 in two. These results were obtained early, patients being able to read eight days after operation. The astigmatism was 3 D. Gallemaerts says one ought to see a few cases done, but that the operation is neither painful nor difficult, whilst the avoidance of all pressure on the eyeball, as is necessary in ordinary extractions, is an advantage. Cases should be chosen for the operation and the pressure of the vacuum can be altered to suit different kinds of opaque lens. Gallemaerts thinks highly of this operation of phakoerisis.

W. C. SOUTER.

IV.—SYMPATHETIC IRIDOCYCLITIS


Harbridge bases his remarks upon sympathetic inflammation chiefly on his experience of two cases in his own practice, and three others seen elsewhere. In his practice he has had many hundreds of cases of perforating injury of the eyeball, and the low incidence of sympathetic ophthalmia in his experience favours the view that the incidence of this condition is not more than 5 or 6 per cent.

One case which he reports in detail was that of a man, aet. 67, who had met with an injury of the right eye 6 weeks before observation. The injury was followed by complete loss of vision in that eye. The left eye for the last 2 years had suffered diminution
of vision, which had not apparently received any attention. On examination the R.E. was absolutely blind; it was painful, and commencing to shrink. Vision in L.E. was =6/60. There was slight ciliary injection, and several deposits of pigment on the lens capsule. The lens was somewhat cataractous.

Immediate enucleation of the blind eye was advised, but patient refused. He returned 5 weeks later with the history that the vision of the left eye had suddenly failed a few days previously. The eye then presented a typical picture of sympathetic irido-cyclitis. Vision = hand movements at 2 feet.

Enucleation was performed, but the patient was not very satisfactory during convalescence, and the left eye showed little or no improvement. Dental caries was revealed by radiograms some time afterwards, and the mouth was thoroughly cleared, with the result that within 20 days the eye had improved, vision being now =1/60. At the end of 5 months vision had risen to 5/60. When the patient was seen 15 months after the attack Vc- 4 = 6/15, although the lens was cataractous and swollen.

The microscopic appearance of the enucleated eye is given in detail.

The other case cited by the author followed cataract operation, the exciting eye showing better vision in the end.

The author goes into the literature of the subject, and discusses the various theories put forward in explanation of the condition. He is of opinion that something may be borrowed from all the theories at issue, and that the true explanation lies in a resultant of all the different forces alleged to be concerned. He looks upon the circulation as the channel of infection, however the causative agent may have gained access to the blood stream.

He thinks several foci or different causes may be concerned. The same focus of infection may give rise to different manifestations according to the tissue involved. He asks if we are justified in looking upon sympathetic disease as a specific condition rather than as a secondary disturbance due to local changed metabolism—the source or agent being in the uveal tract of the sympathogenic eye. The injury followed by a low-grade inflammation lowers the resistance of the tissue, and the latter becomes susceptible to bacterial invasion or toxic agents. The products of this invasion reach the other eye and find affinity there. The focus which lights up the process may be a septic tooth (as in the author's case), the germs concerned having special affinity for uveal tissue. He considers it possible that the exciting cause may have no direct connection with the original cause (i.e., injury), and he argues from the fact that enucleation of the injured eye does not always save the sympathizing eye from destruction, that the exciting cause does not lie entirely in the injured eye.
He thinks it reasonable to infer that if the agent were sufficiently virulent to destroy the sympathizing eye it would produce the same result in the exciting eye, particularly as the resistance of the latter is at a low ebb owing to inflammation following injury. A possible explanation may lie in the assumption that the reaction is one of anaphylaxis contributed to by infection from various focal points.

At the time of injury the uvea develops immunity, and in the second eye this immunity has not had time to develop, so that the eye becomes an easy prey to the attack.

Whatever one may think of the theory set forth in this paper, one is entirely in agreement with the line of treatment advocated, viz., that possible sources of infection (e.g., dental caries) should be carefully attended to in all cases of sympathetic ophthalmia.

J. Hamilton McIlroy.

V.—TRACHOMA AND END RESULTS


Burleson announces at the beginning of his paper that he is going to express views which open up a new line of thought regarding trachoma. He looks upon trachoma as a "symptom complex," and not as a specific disease. Having enumerated the two chief views that obtain in regard to the aetiology of the condition, viz., (1) That the trachoma bodies are definite new growths of specific nature, and (2) that these bodies are natural lymphatic follicles which have undergone change on account of repeated attacks of inflammation, he gives it as his opinion that the changes in the lid are due to repeated attacks of chronic inflammation of any form, and not to the agency of any microbe which may be taken as specific for trachoma. Lymphoid infiltration leads to softening of the lid, and this is followed in its turn by the formation of scar tissue and contraction, with deformity of the whole lid. He considers that the chondritis (i.e., inflammation of the tarsal cartilage) occurs merely as a complication of prolonged conjunctivitis, the nature of which may be various. Varieties of granulations (papillary, follicular, mixed, acute, and chronic) all depend upon the character of the particular inflammation which has been experienced. The author acknowledges that he has not met with an acute case which could be diagnosed as trachoma with certainty. He regards microscopic investigation as an essential factor in the differential diagnosis of a case, the clinical appearance not being sufficient.
His treatment falls into two categories according to whether he is dealing with an acute or a chronic case.

In the acute stage every effort should be directed towards the immediate cure; if one can control the early stages of inflammation, there will be no later stage, and therefore no trachoma “complex” will take place. He strongly disapproves of treatment (in the early stages) by caustics, or by grattage, as he attributes the formation of scar tissue to their agency to some extent. In the later stages, however, when chondritis has already become established, grattage may be of assistance in that it hastens cicatrisation and shortens the time that must elapse before surgical treatment for deformity of the lid can take place with good effect.

The operation that he favours for deformity is one advocated by Dr. Cary, of Dallas. It is performed upon the outside of the lid. An opening having been made in the skin, the skin and muscle are freed above and below, from the border of the lid to the upper border of the cartilage. The fibres of the muscle are removed by scissors, and the deformed tarsal plate is fully exposed. The tarsus is then removed in thin slices by means of a sharp scalpel, all the thickened projecting portions being shaved off. A thin flat plate is ultimately arrived at, manipulation being applied to straighten final irregularities. The author looks upon this operation as free from all the objections that may attend the usual plastic operations upon the lids, e.g., conjunctival adhesions granulating wound, corneal involvement, and relapse of the lid deformity.

J. Hamilton McIlroy.

VI.—RELATIONSHIPS BETWEEN RADIANT ENERGY AND THE VISUAL PROCESSES

Sheard, Charles—Some important physical and physiological relationships between radiant energy, and the visual apparatus and processes, being the fourth Thomas Young oration. *Amer. Jl. of Physiological Optics*, October, 1922.

In this paper the author discusses some of those optical problems associated with the name of Thomas Young, herein aptly described as the “Father of physiological optics,” and proceeds to elaborate some of the relationships between radiant energy and the visual processes.

He first considers the exact nature of the image received by the human retina, and points out that the vast preponderance of the visual world is represented in consciousness by ill-defined images. These obscure sensations, from the periphery of the retina, are the result of spherical and chromatic aberration and distortion. They
must be regarded as the necessary background through which the foveal image acquires a significance it would not otherwise possess.

Furthermore, in connection with the distortion which rays of light from a point source, not on the axis, undergo, he points out that their foci must vary according to the position in space, shape and colour, of the object viewed. This he thinks affords a basis for the notion of uniocular tridimensional space perception.

He next briefly discusses astigmatism and accommodation, and finally, passing from the consideration of these physical, to physiological and psychical relationships, proceeds to discuss colour vision at some length.

The three "classic" theories, e.g., Young-Helmholtz, Hering, and Ladd Franklin, postulate the existence in the retina of specific chemical substances, acted upon by light. The more modern theories, however, are largely built upon the basis of resonance phenomena. Resonance, in this connection, may be spoken of as a correlation between radiant energy, and what may be either chemically dissociated atoms or electrons. The author himself believes that the visual reception process is of a character included within the broad term "photo-electric."

In conclusion he realizes that the "explanation of the phenomena of vision in their entirety, must involve a knowledge of the laws of the brain and its operation, the functions and structure of nerve-tissues, and the physical chemistry of the retinal processes," and pleads that for the solution of such problems physicist, physiologist, and psychologist should all work together.

E. Maxwell.

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**BOOK NOTICES**

**War Blindness at St. Dunstan's.** By Sir Arnold Lawson.


This book is the outcome of a promise to the late Sir Arthur Pearson, by the author, "to present the work at St. Dunstan's from a purely medical standpoint," and contains the "history of over five years' medical work amongst the war-blind" by Sir A. Lawson and his colleague Major Ormond. During the war the cases under Sir A. Lawson's care numbered 825, while Major Ormond had charge of 1,008 blinded men, most of whom were transferred from his wards at the 2nd London General Hospital.

The book is in three parts. Part I deals with 407 men the subjects of traumatic blindness, arranged in groups, with brief