suppressed; by therefore adjusting the tube this portion of the retina was exercised.

December 24th. On this date the vision in the right eye had improved to $\frac{3}{8}$, and the ability to take up and maintain fixation was greatly improved.

He was seen once a week, and at each visit exercises were carried out with the pictures and the letters, and by degrees the ability to maintain fusion was cultivated, until he could read type equal to J. 8 and J. 4. For nearly two months very little progress beyond this stage was obtained, and during the time atropine had been used in the fixing eye—the left; this was supplemented by a total-exclusion pad, whilst at the same time he did all his school work with the right eye.

March 20th. Vision in the right eye equal $\frac{3}{8}$ without glasses, and $\frac{5}{8}$ partly with the glasses, but by the end of April he got four letters of $\frac{3}{8}$ vision. During the last six weeks of this period exercises with a 6° prism, base down, had been instituted, and after painstaking efforts we obtained double vision, this being aided by dark glasses at first in front of the left eye.

At the beginning of May the vision in the right eye had risen to four letters of $\frac{3}{8}$ and the shade was removed from the right eye. The removal of the shade, it was feared, would cause the left eye to take up the work of seeing again, but instead the vision of the right eye continued to improve, and when seen last the patient read without his glasses $\frac{3}{8}$ and Jaeger I.

The convergence of the right eye is now all that remains to be removed, and when this is done the condition will be such that he can put his glasses on one side and the vision in both eyes will be equal, his ability to read or write normal, his fusion sense fully developed; in fact, a complete cure will have been accomplished.

This patient, in that he was exceptionally bright mentally, in that there was not much refractive error or any great difference in the refraction of the two eyes, was a particularly suitable subject and justified one in the hope expressed that the lost vision could be restored. But judging by others, far less suitable cases, which have

proved as far as they have gone capable of great improvement, there seems good reasons for hoping that after all we may be able to remove the last stumbling-block which remains in the treatment of squint.

During the course of exercises with the printed type a very interesting feature showed itself. By some authorities it is held that a certain portion of the brain controls a horizontal section of the centre of the visual field. Now, as this case improved it was noted that the lines of letters running across the centre of the visual field were the earliest to become recognized, the lines in the upper and lower parts of the field of the same size type developing later. In the stages of development it was noted that the intermediate letters were not seen, every alternate letter, no matter its size, being recognized. As improvement took place this skipping of letters became less and less in the horizontal line in the visual field, whilst it still remained in the upper and lower fields. This interesting feature, I think, confirms the theory of the function of the cerebral visual centre, and, moreover, tends to show that these cases of acquired amblyopia are due to a cerebral and only partly a retinal defect.

The accompanying illustration is that of an instrument which Messrs. Armstrong, of Deansgate, Manchester, and Bold Street, Liverpool, have brought out, for me. It consists of a series of cards and a holder, and is intended to be used at home by the patient. On each card are printed letters in two sizes, so arranged that a small and large letter alternate. Each card has progressively a smaller size of type, the smallest being composed of 5-point type. When the instrument is held by the handle in front of the face, the two prisms opposite the eyes produce a vertical separation of the image of the card held at the far end of the instrument. Thus, in normal eyes an image of the card is presented to each eye. In the case of a patient

who has by non-use forgotten how to use one eye the card belonging to the amblyopic eye will only show the large letters; the intervening smaller letter will be unrecognized. To elucidate this feature the normal eye must be covered and the patient asked to read the letters he sees. When the correct card is in position the patient will "stutter" over the smaller type. Under such circumstances the other should be momentarily uncovered, by which means he will recognize the letter correctly. Then on re-covering this eye the patient should endeavour to see the letter by his amblyopic eye. Such recognition will not be instantaneous nor for some time permanent. The patient has to teach his receptive perception centre to remember the letter just as he teaches and cultivates his "memory" for pictures, poetry, prose, history, dates, etc. As soon as one card is mastered the next smaller is similarly dealt with until they all are mastered. When one endeavours to train an amblyopic eye by means of a single picture of letters any mistakes in naming of letters has to be corrected by word of mouth, that is, the patient learns the nature of the image presented to his brain by means of the auditory channels. With my instrument he learns by means of the optic nerves and visual centres, which seems a sounder and more rational method. The use of this instrument, in addition to enabling the patient to practise at home, enables the trainer when the patient comes for the other lessons to examine by means of the card for evidence of progress and for proofs of attendance to one's injunctions regarding the carrying out of the exercises at home.

PERSISTENT THYMUS AND SUDDEN DEATH.

By SIDNEY HERBERT DAUKES, M.B., B.C. CANTAB.,

BECKENHAM

THERE is no greater check to the progress of therapeutic knowledge than that which comes from a too ready acceptance of the value of a remedy because in an isolated instance that remedy has seemed to be successful. Remembering that this applies also to many other instances of cause and effect, I submit this case, which I consider of interest not only to the medical but also to the legal mind, with a full realization of the possibility that I have overestimated the importance of the local condition.

At midnight on July 25th I was called to a case of supposed murder. The history I will relate as nearly as possible from the evidence placed before the magistrates, and subsequently before Mr. Justice Ridley at the Maidstone Assizes.

Late on the evening of July 25th a man named H. entered the room where his children slept. Finding that his wife was out he was heard by a neighbour living in an adjoining room to mutter threats against the absent woman. Subsequently the latter entered the house and a scuffle occurred in the passage, but no sounds were heard betokening blows or in any way significant of extreme violence. A few seconds later Mrs. H. rushed out in a state of extreme terror. She tried to get into a house opposite, but failed as the door was shut. She then ran down the road with her husband in pursuit, about four yards behind. Suddenly she seemed to collapse; her legs gave way, and she fell to the ground "like a dead thing." All witnesses are agreed upon this point—it was not a stumble, she was not touched by anybody, she fell, as another witness put it—"all of a heap," and never moved or uttered a sound again. Her husband, who had been drinking heavily, rushed up, and, using a violent threat, told her to get up. As she did not move he is said to have kicked her "in the left side." Three women bear witness to this fact, whilst a fourth witness denies that any kick was given. A point which seems to have struck many who heard the evidence, and one which fixed itself in my mind with overwhelming force, was that the woman was dead when she fell, and that, if her husband did kick, he kicked her dead body. The body was then carried indoors, and it was there that I first saw it.

A careful external examination of the body revealed only one mark of any importance—namely, a bruise on the extensor surface of the left forearm. It might have been caused by the fall or it might have been the result of the

kick; in either case I consider that it was inflicted after death. There was no bleeding from ears, nose, or mouth, and no orbital haemorrhage. The necropsy took place eighteen hours after death, and, needless to say, was done with extreme care.

Necropsy.

The body is that of a well-nourished and apparently healthy woman. Rigor mortis well marked. Recent bruise on extensor surface of the left forearm; old burn on dorsum of right hand; old scratch on dorsum of left hand; small bruise on ulnar surface of right forearm; old scar over right breast. Hypostasis well marked. Signs of incipient putrefaction in right iliac region and round umbilicus. No injury to scalp or face. No blood in ears, mouth, or nose. Mouth and throat normal. No glandular enlargement.

Skull.—No sign of fracture. Meninges normal. No meningeal haemorrhage. Cerebrum, cerebellum, pons, and medulla normal. No signs of concussion.

Thorax.—On removing sternum the great vessels and upper part of pericardium were found to be covered by a thymus gland $2\frac{3}{4}$ in. long, 2 in. wide, and weighing $1\frac{1}{2}$ oz. Pericardial and pleural cavities normal; no adhesions and no haemorrhage. Heart—muscle healthy, valves healthy; weight, $8\frac{1}{2}$ oz. Aorta and great vessels, normal. Lungs, normal.

Abdomen.—Peritoneal cavity, normal; no haemorrhage. Liver, normal, 64 oz. Spleen, normal, no rupture, $6\frac{1}{2}$ oz. Pancreas, normal. Kidneys, normal; capsules strip readily. Suprarenals, normal. Uterus and appendages, normal; not menstruating. Bladder, normal. Stomach, no disease; contained half-digested food. Intestines, lymphoid tissue seemed to be rather prominent, otherwise normal.

This autopsy well agreed with the past history of the woman, who seems to have been exceptionally healthy. She had two children, both healthy.

The only conclusion which I could come to, having heard all the evidence, was that the woman died from excitement, mental and physical, causing heart failure; the persistent thymus being in some way a predisposing factor.

The thymus gland seems to reach its maximum size at two years, at which time its weight is about 200 grains (400 grains would be an exceptional weight). The gland generally maintains its size from the second to the eighth year, from which time it gradually atrophies, becoming practically non-existent by the time adult life is reached.

For some time the association between an abnormal persistence of this gland and sudden death, induced by trivial causes, has been recognized. Cases are reported by Fowler of death during the administration of a hypodermic injection, death during an examination with the aid of a spatula, death during light anaesthesia, death during bathing, and death from a superficial burn by a hot-water bottle. In all of the cases mentioned a persistent thymus was found.

In the case which I report an emotion—namely, fear, together with some physical exertion—seems to have determined the fatal result, without any actual violence.

How the gland can have such an adverse influence upon an otherwise healthy body is difficult to conceive.

It is easy to theorize upon the subject; to give an anatomical explanation and say that the close relationship of the gland to the trachea, vagi, and great vessels, affords a clue to the situation; or, again, to give a physiological explanation and say that an internal secretion, which produces a sudden fall of blood pressure, is the determining factor.

A mechanical explanation seems totally inadequate in such a case as I have recorded; and should the persistence of the gland be a danger to those who are its unfortunate possessors, I am inclined to think that the explanation is more likely to be found in the physiology, than in the anatomy, of the gland.

I have been told by an eminent authority on anatomy that the condition of persistent thymus is not altogether uncommon in the female sex. It does not seem to me, however, that this fact in any way negatives the possibility of its malign action in certain cases. In one way it lends support to the idea, as these rather obscure cases of sudden death are far more common in women than in men. Mitral stenosis is a common defect, but it is only in a small proportion of cases that it leads to sudden death.

In conclusion, whatever cause may be allotted to the case in question, I think that the subject of sudden death associated with persistence of the thymus gland—quite apart from the condition known as status lymphaticus—is worthy of the attention of those skilled in medical jurisprudence.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TRAUMATIC RUPTURE OF SPLEEN.

E. V., aged 11, was admitted into the South Devon and East Cornwall Hospital, Plymouth, at 10 p.m. on June 22nd, with a history of having jumped from a low wall ten hours previously, missed his footing, and fallen with his belly on a large stone placed across the gutter in a country road.

He appeared in considerable pain, and his abdomen was very hard and rigid, so that nothing could be made out by palpation. There was a superficial abrasion over the left hypochondrium. The pulse was 120, rapid and running; temperature 98°. There was slight dullness in the left flank.

Twelve hours after the accident I opened the abdomen in the middle line above the umbilicus, when some dark liquid blood escaped, and on exploring with the fingers in the splenic region blood could be felt flowing. The left rectus was divided transversely half-way across, to give more room, and the spleen was brought up without much difficulty. It was torn nearly across, its whole surface lacerated, so that suturing or plugging appeared equally futile; it was bleeding freely. The pedicle was clamped, the organ cut away, and the stump transfixed and ligatured. The effused blood was rapidly removed, as far as possible, and the wound closed. No injury to other organs was apparent.

The boy recovered satisfactorily and went out in a month. A blood count by Dr. Pethybridge on his departure showed: Reds 5,200,000, whites 7,400, haemoglobin 70 per cent. I saw him a week or so ago—quite well, to all appearance.

The point of interest was the very little on which to base a diagnosis—practically only the skin abrasion and the slight dullness. He complained of general abdominal pain, and, though the spleen was thought to have been ruptured, the abdominal rigidity only permitted some "catastrophe" to be inferred with absolute certainty. Delay in operation might have been followed by a different result, as the haemorrhage must have gone on steadily.

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EUCAIN AND ADRENALIN AS AN ADJUNCT TO GENERAL ANAESTHESIA IN OPERATIONS FOR HAEMORRHOIDS.

THE necessity for complete relaxation of the sphincter in these cases requires the administration of general anaesthetics to a dangerous degree, and demands very constant watchfulness on the part of the anaesthetist, in order to maintain this condition during the whole period of the operation. To paralyse the sphincter without rupturing some of its fibres entails a good deal of force and some judgement. Without an anaesthetist who has had a good deal of experience in this variety of operation, much embarrassment to the operator may occur, owing to the contraction of the sphincter preventing a clear exposure of the area of operation, especially if the requisite dilatation of this muscle has not been procured.

In doing some operations for interno-external piles under eucain I noticed the great ease with which the sphincter could be dilated, and that it remained quite patulous during the operation. It occurred to me that the use of this drug would be of great assistance if combined with general anaesthesia, and I have lately tried it; 10 c.cm. of Barker's solution is injected into the external sphincter on each side of the median raphe, the needle being inserted in the middle line and pushed into the muscle in an outward direction. This is done fifteen minutes before the general anaesthetic is commenced, and by the time the patient is under, the sphincter will be found quite paralysed. It has been found possible to complete the operation under very light anaesthesia—such a degree, in fact, as would be quite useless without previous injection of eucain and adrenalin.

I have been much struck by the comparative absence of pain after the operation—due, I presume, to absence of bruising and tearing of the sphincter. The lessened amount of anaesthetic which is inhaled by the patient