on. But the Pasteurian disease is always transmissible by intra-cranial injection. If the same bouillon as used in these operations be rubbed up with fresh brain matter from a healthy dog, and injected into a rabbit according to Pasteur's method, the rabbit will not die, notwithstanding Spitzka's statement to the contrary, and will not exhibit one symptom of the Pasteurian rabbit, which always dies. It is hardly necessary to add that intentional lesion of the rabbit's brain in the performance of a dummy Pasteurian operation, when nothing at all is injected, does not necessarily cause death, and if it does the symptoms are utterly different from those of the rabbit which has died of the Pasteurian disease or from putrid infection, and inoculations made from such a rabbit will not cause death. Nerve matter from dogs which have been suspected of rabies, and have died, or been killed in consequence, has frequently been injected intra-cranially on rabbits as a diagnostic. If the dogs were rabid, the Pasteurian disease will be developed in the rabbits; if not, the rabbits will survive, without showing any symptoms of this disease, or of any other disease. That this crucial method of diagnosis exists is due to Pasteur; that it cannot be applied so as to settle every doubtful case is the result of British legislation. In fine, the following results are established: The virus used by Pasteur for protective inoculations originated in the rabid dog, and is the virus of rabies. Pasteur had published results showing that the material used for his later protective inoculations of man caused rabies in animals which were unprotected. If virus be taken from a rabid dog and be passed through a series of rabbits it will produce the same disease as is developed in the rabbits from which Pasteur takes his matter for preventive inoculations. If the virus from such rabbits be inoculated back into the dog or other susceptible animal, it will produce true rabies in them, and if then passed back to the rabbit it will reproduce the same symptoms *ad infinitum*. Human rabies, if inoculated on the rabbit, will produce the same symptoms, with such variations only as are due to its origination in the dog, cat, &c. These variations are exhibited chiefly in the length of the period of incubation, and the period elapsing before death, the disease invariably terminating fatally. No other known disease produces the same results, nor can the symptoms be caused either by surgical brain lesion or the intra-cranial injection of inert material such as sterilised bouillon, or with putrid material. The Pasteurian disease is specific, and very distinctly characterised by its course and symptoms, which are different from those of any other disease; it invariably ends fatally, and is indefinitely transmissible by inoculation from animal to animal. Dr. Hime did not enter into the question of the success of Pasteur's treatment, but stated that the protection afforded to dogs by Pasteur was proved beyond doubt or question, and analogy would suggest that the same method was applicable to man. Dogs could be protected either by inoculation before infection or afterwards. Further, they had been protected against the action of the rabbit virus, which is much more active than ordinary canine virus. The reality of this protection established the truth of Pasteur's principle. That his practice was capable of improvement was not improbable; but he had already effected a great deal in a short time. It has been objected that the inoculated prophylactic virus is inert because the patients show no specific reaction. A foolish objection. As well say arsenic is inert because a patient taking it shows no toxic symptoms. Indeed, Dr. Hime was inclined to think that there was a decided though slight reaction. He himself had experienced local symptoms and distinct axillary tenderness, and in others these were more marked still. He had made numerous thermometric observations on patients under treatment, but so far could not assert that there was any characteristic thermal change. Some, while admitting that protection had been afforded by Pasteur after slight wounds, denied that this was true in severe ones. These persons at least admitted the scientific basis of Pasteur's method. But of Pasteur's patients persons most seriously wounded by rabid animals had escaped, and, Dr. Hime believed, entirely owing to the treatment. The accuracy of the method being admitted, he thought this objection was not only in fact unfounded, but was at most one of detail. Finally, from the fact of the extraordinary low mortality—little over 1 per cent.—corroborative evidence was obtained. The rabid condition of the animals in a large number of these cases was proved either by experimental inoculation or by certificates from veterinary surgeons, and the number includes no

doubtful cases, these being purposely omitted. Dr. Hime expressed his opinion that Pasteur had established a true prophylactic treatment against rabies, one of the most formidable and hitherto intractable diseases. He had thus crowned a glorious career of research directed to the benefit of man by a most notable discovery, primarily salutary to this country, he thought, was called for, and such institutions were already established in Paris, Moscow, St. Petersburg, Odessa, Samara, Varsovia, Naples, and Milan. Turin and New York will soon be provided with such institutions. The English public were still vainly waiting for the report of the Royal Commission of inquiry into this subject. While this report was being prepared other countries were acting, and we were satisfied to send our patients to Paris for treatment instead of making provision for them in England.

UNUSUAL CASE OF ORBITAL TUMOUR.

By T. H. BICKERTON,

LATE CLINICAL ASSISTANT, ROYAL OPHTHALMIC HOSPITAL, MOORFIELDS.

Mrs. G—, aged forty-seven, came under my notice, through the kindness of Dr. Oxley, on July 31st, 1886, on account of slight dimness of vision of the right eye; but what greatly attracted attention, as may be judged from the accompanying illustrations, was the condition of the left orbital region, which was concealed by a large shade, and

which she was only with difficulty induced to uncover. She gave the following history: When she was ten years of age a small boy struck her in the left eye with his fist, the blow causing great pain. The pain continuing, and the eye at the end of six weeks being noticed to be "swelled out," she

was taken to the Glasgow Eye Infirmary. Here she was seen by Mr. Mackenzie, and the notes then taken indicate the condition of affairs at that time and for a lengthened period afterwards. For these notes I have to thank Dr.

William Wallace, the present house-surgeon of that institution, who kindly sent me a *verbatim* copy of the report, which runs as follows:—

"March 4th, 1850: Mary B—, aged eleven. Exophthalmos of left eye consequent on a blow. Complains of pain in forehead. Vision of this eye enables her to see characters an inch long. Pot. iodid., gr. i., t. d. s.—9th: Pot. iodid., gr. ii., t. d. s.—13th: Three leeches to left temple.—17th: Eye seems rather less prominent.—27th: Repeat leeches.—April 4th: Blister behind ear.—11th: Repeat blister.—Sept. 8th: Is reported to be worse. Repeat blister and leeches.—Aug. 23rd, 1851: Much the same. Pot. iodid., gr. 3 $\frac{1}{2}$, t. d.—Sept. 12th, 1851: Exophthalmos seems rather less.—March 28th, 1854: Exophthalmos much increased. Hydrarg. bichlor., gr. $\frac{1}{4}$; ammon. muriat., gr. $\frac{1}{2}$, t. d.—April 29th, 1854: No improvement. Stop the bichloride.—April 18th, 1855: Exophthalmos increased. On lifting the upper lid the glandulæ congregatæ are found increased, and the lacrymal gland enlarged.—Sept. 3rd, 1856: Tumour seems stationary. Lower sinus of conjunctiva, being infiltrated and swollen, was snipped off."

The patient states she has a distinct recollection that on one occasion she was given chloroform for the purpose of having the swelling punctured, but no account of this operation can be found by Dr. Wallace. From this time (Sept. 3rd, 1856) until July 31st, 1886, an interval of thirty years, she has not allowed a medical man to see the eye. Her account of the progress of the swelling since that time is that it has gone on increasing very slowly in prominence and in size in all directions; that she has been a martyr to pain during the whole of this period, and is never without it, except when asleep. At times the pain is of a dull aching character, at times sharp and stabbing. It frequently, by its severity, confines her to bed for days and weeks, and on occasions it is so severe that it brings on vomiting, the vomiting being unaccompanied by any feeling of nausea. Her experience is that the pain is always relieved to a greater or less extent by the recumbent position, and this, with the constant applications of cold wet cloths and cold bread poultices to the swelling in order to "cool it down," have been the only palliative measures adopted.

Present condition.—On removing the large shade there is to be seen an enormous tumour, which, occupying the socket, and extending in all directions, has pushed the eyeball far beyond the limits of the orbit, the eyeball forming the apex of the tumour. The upper and lower lids are tightly stretched, reddish purple in colour, the superficial veins standing out like pieces of whipcord. These appearances are more marked in the upper than in the lower lid. Projecting between the eyelids is the eyeball, which is unaltered in size and shape. The upper two-thirds of the cornea are clear, the lower third is semi-opaque. The pupil is 2 mm. wide and immobile, but it acts faintly to stimulation of the right retina. The right pupil has a width of 3 mm. The conjunctiva, ocular and palpebral, is red and swollen, and the lower tarsal fold is turned inside out. Lacrymation goes on at the regular rate of about one drop per minute, the drop falling from the centre of the lid. Movement of the eye is *nil*. Sight is lost except for light and shade. The length of the left palpebral aperture is two inches; that of the right is one inch. Tension of the globe + 3. The measurements of the tumour are: Circumference at base, measured by string, 8 $\frac{1}{2}$ in.; greatest vertical length of the anterior surface, 4 $\frac{1}{2}$ in. The apex (formed by the cornea) of the tumour projects from the temporal angle about 3 in., and from the cornea of the right eye about 2 $\frac{1}{2}$ in. The tumour is about as hard as cartilage, slightly nodulated, but has nowhere the feel of bone. Right eye: vision normal for distant (C + 1.50 D $\frac{2}{3}$) and (presbyopia corrected) for near objects also. The optic disc is of a normal pink tinge, and the retinal arteries and veins are of normal calibre.

After some hesitation the patient consented to be photographed, but she would not listen to operative treatment. In the literature bearing upon tumours of the orbit to which I have had the opportunity of referring I have not been able to find a record of a case similar to this one.

Liverpool.

On the 3rd inst. Dr. Riddell of Dunsford, near Exeter, committed suicide. The deceased, who died from poisoning by strychnine, had been called upon by the Local Government Board to resign a parish appointment which he held.

CASE OF TUMOUR OF THE PONS VAROLII AND MEDULLA OBLONGATA.

By A. MACGREGOR, M.D.,
ASSISTANT-PHYSICIAN TO THE ABERDEEN HOSPITAL FOR SICK CHILDREN.

G. M—, aged seven years, was admitted into the Aberdeen Hospital for Sick Children on April 21st. His symptoms then were paralysis of the right seventh and sixth cranial nerves, marked deafness on the right side, the eyeballs prominent and strongly drawn to the left, the head drawn towards the right shoulder, with the face turned towards the left, the sterno-mastoid in a state of tonic spasm, headache, and frequent attacks of sickness and vomiting. Temperature from 96° to 97°; the abdominal and thoracic viscera seemed healthy. Specific gravity of urine 1022; otherwise normal.

The patient was one of a family of five. The father died of phthisis; the mother is alive and healthy. Three weeks before admission into the hospital he awoke during the night screaming, and complained of pain in the head. Next morning the facial paralysis was noticed, and frequent attacks of sickness and vomiting followed. For some time previously to this he was considered to be "not well," but no definite symptoms presented themselves.

On April 26th the sickness was distressing, and it was then noted that the right pupil was contracted while the left was dilated, and this continued throughout the course of the illness; occasionally the right dilated slightly, but never to the same extent as the left. The ophthalmoscope showed a haziness and paleness of the right disc and fundus generally, and the vessels were not so full as those of the left fundus, which appeared to be normal. The cornea of the affected eye was insensitive over its entire surface, and its lower half after a time became opaque, and there soon followed a large ulcer, which a few days before death penetrated into the anterior chamber.

About May 1st it was found that the grasping power of the left hand was very much less than that of the right, and that on attempting to walk the patient staggered, with a marked tendency to fall to the right; and it was also noted at this date that the spasm of the right sterno-mastoid had passed off, and that the head had regained its natural position, while the left eye was no longer divergent, but the convergence of the right was even more marked. There was now paresis of the right side of the palate, and the hemiplegia gradually became almost complete. Tactile sensibility was nowhere lost, but pinching up the skin on the point of a needle gave rise to no pain; deeper penetration did. He was unable to distinguish between heat and cold over the surface of the lower limb below the knee; over the other paralysed parts the sensibility to changes of temperature was decidedly diminished. Taste and smell were not affected.

On June 4th the sickness was severe, and the patient could not articulate distinctly. This paralysis of the muscles of articulation passed away next day, but became quite complete on the 6th and remained so till death. On the following day he became unconscious, and the left upper limb passed into a state of spastic rigidity. He remained unconscious until his death, which took place on the morning of the 12th. Previously to this there had been no vomiting for five days, but a few hours before he died he vomited twice, and the temperature rose from 100.5° to 102.6°. During the first week in hospital the temperature was almost constantly 96° and the pulse 116; during the next fortnight the temperature oscillated between 96° and 99°; after this the morning temperature was almost constantly 97°, and the evening temperature ranged between 98° and 100°.

Necropsy.—The brain alone was the seat of any lesion, and the following were the appearances found at the examination made about twelve hours after death:—The dura mater was tightly stretched over what appeared to be a distended brain. The vessels were congested, especially those of the pia mater. The subarachnoid space over the entire vertex was filled with a milky-looking fluid. The olfactory nerves were soft and pulpy, the right more especially. The optic nerves appeared perfectly healthy, as