In 1847, M. Langier invented his "aiguille a pompe," a hollow needle fixed in a syringe, apparently like that now in use for subcutaneous injection. Its use is discussed by M. Desmarres. The needle having been thrust through the sclerotica, vitreous humour, and posterior capsule, and lodged in the centre of the lens, the suction was applied by means of the syringe in the handle of the instrument. If the cataract was fluid, it was drawn into the instrument, the pupil became clear, and sight was immediately restored. If the cataract were not fluid, ("et la cataracte est rare,") the vitreous humour was drawn out, the cataract was left *in situ*, and the eye collapsed. This misadventure was followed by internal inflammation of the eye, and in consequence, the operation was condemned. "En resume, l'operation de la cataracte par succion est abandonnée." Failure in this operation was to be expected from using the needle of the syringe as the piercing instrument, and from traversing the sclerotica and rupturing the posterior capsule, which ought to have been preserved as the barrier between the cataract and vitreous humour.

Again, M. Blanchet brought forward another method of extracting cataract by suction. Having dilated the pupil, he made an opening in the cornea with a broad needle, through which he introduced a small tube with a flageolet-like mouth attached to an Anell's syringe. With this blunt tube he pierced the capsule of the lens; and if the cataract proved soft, he pumped it out through the tube by working the piston of the syringe. The main defects of this plan of M. Blanchet, were—first, the attempt to puncture the anterior capsule with a blunt instrument, thereby using unnecessary force in reaching the cataract; and secondly, the imperfect opening of the anterior capsule, whereby the capsule remained in the area of the pupil, and becoming opaque, rendered a secondary operation necessary.

On Suction Instruments.—The original suction instrument which M. Weiss made for me consisted simply of a tubular curette fixed in a handle, to which a small india-rubber tube with a mouth-piece is attached. The flexible tube is of such a length as to reach from the mouth of the operator to the curette when held in the eye.

Shortly afterwards, M. Weiss made, at the suggestion of Mr. Bowman, a modification of this instrument, in which the suction power is applied by an ingenious mechanism in the handle, so that the hand which holds the curette controls the suction. Mr. Bowman, also, inserted a piece of glass tube between the curette and the handle, to enable the operator to watch the result of the suction.

A third instrument has been suggested and made for me by M. Weiss, which is simply a light glass tube with the tubular curette fixed at one end, and the flexible tube with the mouth-piece, at the other end.

A fourth instrument has been made for Dr. Badu, of Guy's hospital, by Khroné, of Whitechappel, and is thus described by Mr. Lawson: "The suction-power is a small, hollow, india-rubber ball, placed at the extremity of a tube which terminates in a glass tubular curette. Pressure is made on the ball with the hand to expel the air from the tube, and its re-admission is regulated by a well-contrived stop apparatus placed close to the curette. After the air from the ball has been expelled and its re-admission prevented by closing the stop the curette is introduced into the eye, and the amount of suction is regulated by a little trigger connected with the stop apparatus within."

Having used the first three forms of the instrument, I have found them to do their work perfectly; and I have no doubt that Dr. Badu's is at least equal to them. On the whole, perhaps from having used it more frequently, I prefer the original curette, (with the addition of the glass tube,) as the suction is more immediately at command when applied by the mouth, and the instrument can be guided with greater delicacy when the hand is not fettered by applying the suction power.

[Dr. Teale reports seven cases operated on by this method. The details are omitted; but they were all successful, and unfollowed, except in an instance—that of a scrofulous child—by any serious inflammation.]

On Glaucomatous Affections and their Treatment by Iridectomy. By W. BOWMAN, ESQ., F. R. S.

Before the British Medical Association, the author, after eloquently calling attention to the vast revolution which had been worked in the diagnosis and treatment of diseases of the eye since the invention of the ophthalmoscope, by Helmholtz, passed on to the consideration of the treatment of glaucoma by iridectomy. He most warmly eulogized Von Graefe for having discovered a cure for a disease which but six or seven years ago was deemed incurable, and for having enriched the literature of the profession by his admirable papers on glaucoma, &c. Mr. Bowman then proceeded to give a masterly *expose* of the different symptoms of glaucoma in its different stages, viz:—the premonitory, acute, subacute, and chronic, and laid particular stress upon the increase of tension or hardness of the eye-ball—a symptom which he considers of paramount importance in all intraocular affections, and one which demands close and anxious watching. He also pointed out the fact noticed by Von Graefe, that a glaucomatous condition of the eye may supervene upon other affections of the eye, or after operation for cataract. The treatment required in such cases is an early iridectomy. He strongly urged the necessity of all medical men making themselves conversant with the various symptoms of glaucoma, in order that by a timely iridectomy eyes might be saved which were now irretrievably lost from the fact that the time had passed by when an iridectomy would have produced any improvement of sight. How often had we not to pass the melancholy verdict—"Too late! had you applied sooner your eye-sight might have been saved." Mr. Bowman vindicated the efficacy of iridectomy as a cure for glaucoma, having himself had many brilliant results of this operation. In conclusion, he explained the method of performing the different steps of the operation, the plan of incision, &c.

Dr. Richardson said he had been of late trying to work out the synthesis of glaucoma in the same way as the synthesis of cataract by the increase of the specific gravity of the blood. He should be glad to know if Mr. Bowman could tell, with absolute precision, what was the source of the fluid that produced the tension, and the nature of it; the source from which it was derived, and in what part of the eye-ball the tension existed; also, if he could explain physiologically the action of iridectomy. He had seen cases with such extraordinary results, that it was difficult to know how the operation really acted. He believed Mr. Bowman had somewhat under-estimated the blood conditions leading to glaucoma. It was necessary to consider that there was a gouty, or rheumatic, or super-fibrinized state of the blood, but a change simply in the specific gravity of the blood. By reducing the specific gravity of the blood, conditions were produced analogous to those occurring in glaucoma; so that, as cataract often depended upon an increase of specific gravity, the opposite effect might be produced by the opposite condition of the blood. He should be glad to know if Mr. Bowman had ever seen glaucoma in diabetes; for, therapeutically, the two diseases seemed incompatible.

Mr. Wells said he had seen the operation performed by its originator, Von Graefe, and could endorse all that Mr. Bowman had said respecting it. The reason why it had not been successful in some cases, were, that they had not been properly diagnosed; that the operation was not performed sufficiently early; or, that the mode of operation was not what it should have been—the incision not being made through the sclerotic.

Mr. Bowman said he came as a practitioner to speak to practitioners, and had therefore avoided going into anything like abstract or physiological reasoning. In one case he had seen the connection referred to by Dr. Richardson; but in that case there was a large amount of sugar, and the specific gravity was not higher than 1025. It was a case of chronic glaucoma—the sight of one eye was entirely gone and but little remained in the other. He performed the operation of iridectomy, and nothing could be more satisfactory than the recovery of the patient. With regard to the blood conditions, there might be varied morbid conditions of the blood not marked by albuminuria, or by anything gouty, rheumatic, or diabetic in the system. There was much more to be discovered on the subject by future observers, and there might be states of blood found to be intimately connected with glaucoma; but he thought the symptoms were rather referable to a local condition of the blood vessels and the nervous coats of the blood vessels in the eye. With regard to the *rationale* of the operation, he followed his friend Von Graefe. He at first thought that the result was produced by opening a freer communication between the back and front of the iris, thus allowing the fluids from behind to percolate more freely into the aqueous humour. He was not prepared to agree with Von Graefe's early supposition, that it might depend upon a removal of a portion of the iris, the iris being considered as the secreting agent of the aqueous humour, and that thus there might be a diminished secretion of the aqueous humour in the eye. He did not think it depended upon the quantity of iris removed; but upon the exactitude with which the marginal part of the iris was turned away from the ciliary bodies. With regard to the cause of the tension, he believed that in chronic cases it was an enlargement of the vitreous chamber of the eye, and in many cases a partial consolidation of the substance of the vitreous humour, not necessarily connected with any serum, or fibrous, or cloudy flocculi.

Employment of Glycerine in the Treatment of Diseases of the Eye. By W. ABBOTTS SMITH, M. D.

Notwithstanding that glycerine is largely used as a bland, emollient application to the skin, in several affections of that delicate membrane, its importance as a remedial agent in certain diseases of the conjunctiva, appears to be considerably underrated, although several marked points of analogy exist between the two structures.

Having been induced some time since by the perusal of a paper published in the *Bulletin de Therapeutique*, by M. Foucher, upon this subject, I have given a fair trial to the topical employment of glycerine, and the results have been such as to warrant me in recommending its use in some of the forms of ophthalmia, and other superficial affections of the eye.

The application of *pure* glycerine, uncombined, is decidedly advantageous for the prevention and removal of the hard crusts produced by irritation which are occasionally closely adherent to the eye-lids in ophthalmia, which disorder they consequently tend to perpetuate.

In ectropion, and in cases of partial loss of the eye-lashes, glycerine forms an agreeable and efficient application; and it will also be found similarly useful in epiphora, and in any other superficial diseases of the eye which are dependent upon diminished secretion by the Meibomian glands. Among these may be especial mention of the peculiar condition of the conjunctiva to which Von Ammon gave the name of *Xerosis Conjunctivæ*, in reference to the dry, cuticular appearance of the eye-ball, and which is most commonly met with in persons of scrofulous diathesis, who have long suffered from chronic ophthalmia. The free play of the eye-lids upon the front surface of the eye-ball is preserved by the topical employment of the glycerine; and the tendency to symblepharon, or to

an uncomfortable temporary adhesion of the eyelids, which occurs after sleep, is counteracted.

Unctuous applications are always preferable to watery solutions in ophthalmia, both because they are not so readily washed away by the tears, and because they more closely resemble the natural greasy secretion of the Meibomian glands, by which the conjunctival surface is lubricated in the healthy state; and the circumstance that glycerine alone, when employed locally, is highly beneficial in the ophthalmic affections already referred to, also points to that substance as a valuable vehicle in the preparation of collyria.

M. Foucher enumerates, in his paper in the *Bulletin de Therapeutique*, a long list of medicaments with which he has combined glycerine in the treatment of ophthalmia in numerous cases which had come under his care at the *Hopital de Enfants*. The substances which I have found to be most usefully employed in this form are the sulphate of zinc, the sulphate of copper, and laudanum; but M. Foucher also combines glycerine with the perchloride of iron, with borax, with tincture of iodine, and other agents.

It should be here stated that the nitrate of silver, owing to the chemical action which ensues upon its coming in contact with organic matter, cannot be used conjointly with glycerine; and it further remains to be mentioned that the glycerine should be well purified, in which condition it is perfectly natural, does not possess any odor or taste, and does not produce irritation when it is applied to the eye.

The Submaxillary Ganglion.

M. Claude Bernard, in a late communication to the Academy of Sciences, treated of the special function of the submaxillary ganglion. The results of his experiments prove that the tongue is connected with the submaxillary gland by two kinds of nervous arcs, which are, in a measure, concentric; the one of the greatest extent passing through the brain, the other, far shorter, passing through the submaxillary ganglion. There results from these two nervous connections two kinds of reflex action destined to affect the submaxillary gland. The first, which traverses the brain, is *intelligent*, and is excited more particularly by the gustatory faculty of the tongue; the second, which is unintelligent, is transmitted by the submaxillary ganglion, and seems to be provoked more especially by the dry or moist condition of the buccolingual mucous membrane. The submaxillary ganglion not only possesses the faculty of developing reflex action, which may, by its mediation, reach the gland without passing through the encephalic centre, but it also exerts a special influence upon the intermittent character of the salivary secretion. Everyone is aware of the fact, that the flow of the saliva takes place in an intermittent form, and that only when an exciting cause, reflex or direct, calls forth the activity of the gland, and that the secretion ceases when the exciting cause is withdrawn. M. Bernard has observed that after the section of the submaxillary ganglion, the lingual and chorda tympani nerves still remaining intact, the secretion of the submaxillary gland becomes continuous, although it may be augmented by the application of strong-tasted stimulants to the surface of the tongue. Another fact of interest brought to light by the same experiment is, that when separated from the encephalic centre, the ganglion after a certain time loses its controlling influence over the secretive powers of the gland, which instead of ceasing its function, remains in a condition of permanent activity.—From which it results that the submaxillary ganglion is at one and the same time independent of, and subordinate to, the encephalic centre.