

lowed a free flow of aqueous, but no vitreous, and tension was reduced to below normal. Three days afterward the patient was very uncomfortable, the eye being hard and the fundus blurred. The conjunctiva distended; incision gave immediate relief, the sight rising and the media clearing. Three days after the puncture the patient felt severe pain. A new incision produced a free discharge of aqueous, but no vitreous, and immediate relief from pain. Scleral trephining in the same place revealed a new fibrous scar, a free escape of aqueous, no vitreous, was produced; tension lowered to normal and vision rose. But the same symptoms recurred.

Three months later trephining was performed on a fresh spot of the sclera. Finally the sight was lost entirely, and tension rose to 70 mm.; but the eye was quiet and comfortable.

The conclusions which can be drawn from this case are: 1st. That scleral trephining as an operation for the relief of subacute glaucoma, even with slitting of the choroid, is entirely useless, because the wound is rapidly closed by newly formed fibrous tissue, which interferes with the proper drainage of the eye. 2d. The cloudiness of the cornea and vitreous, and the arterial pulsation, can be instantly relieved by drainage from the vitreous, with immediate restoration of the sight. 3d. The loss of vitreous even in such quantity as to leave the eye very soft, is no more cure for glaucoma than is the removal of the lens. 4th. A drainage of the aqueous can be established from the anterior part of the eye through the vitreous and below the conjunctiva.

It is an established fact that the vitreous is never reproduced, its loss being always compensated by a quantity of aqueous which takes its place. For that reason it is not unusual in our opinion, that no vitreous escaped after the incisions of the conjunctiva and choroid. What makes this case interesting is the striking fact that glaucomatous symptoms were always produced when the aqueous accumulated in the eye, notwithstanding the small quantity of vitreous left. This proves

that in glaucoma the secretion of the aqueous is not stopped, even when the intraocular pressure is very high, and also that when the anterior outlet is closed it accumulates in the vitreous sponge, and equalizes the pressure all over the eye, escaping freely when an artificial outlet is produced either forward or behind the equator.

It is to be regretted that Dr. Ewing had not made the chemical analysis of the aqueous which escaped after his numerous operations, with the object of ascertaining whether the composition was changed, and if a greater quantity of colloids, albumin, etc., existed. A fact which points to this altered composition is, that the media always cleared to a great extent when the eyeball was punctured.

M. URIBE-TRONCOSO.

WAR OPHTHALMOLOGY

The phrase, "War Ophthalmology," and its equivalents are used to indicate certain aspects of ophthalmic science and art, that have been rapidly developed or emphasized by war. The literature of the war period has been very largely devoted to ocular injuries, certain forms of which have been relatively very frequent. Yet the eye remaining unchanged, its reaction to external force is very much the same as in times of peace. Looking backward we can surmise from present experience, what took place in former wars; and for the future, the lessons now learned will have permanent value, and will be applicable in an era of peace.

The continuity of war ophthalmology thru successive ages has been treated by our ophthalmic colleague, Dr. James A. Spalding, in his presidential address on "The Eyes in War," published in the *Journal of the Maine Medical Association* for March, 1919. He says "In the beginning of the world, savages fought for similar reasons, and met with just that same sort of injuries around the eyes as are seen today, amongst savages hardly yet more civilized than our remote ancestors." With different weapons and

methods of attack, very much the same damage has been done to the combatants.

Again, as Dr. Spalding points out, the value of the eye, even a single eye, to the warrior, has been recognized in legend and history, in tapestry, and painting. The eyes of the fabled Argus are a prophecy of the modern army with its observation service. It is extremely interesting to trace, as Dr. Wood has done (p. 220 of this volume) and as Dr. Spalding does in his address, the history of the eye in previous wars.

Dr. Spalding cites Baron Larrey with regard to the Napoleonic wars. His own study of eye injuries during the American Revolution and the War of 1812 reveals nothing more serious than burns of the eyelids and eye from flashings of powder from old-fashioned flintlock muskets or from bits of flint itself." In the American Civil War, the number of cases of sympathetic ophthalmia was notable. Many eyes were injured by buckshot, and shell explosions began to figure as an important cause.

In the Franco-Prussian War of 1870 ophthalmology was recognized as a special branch of surgery. "Soldiers with eye injuries were for the first time carried to the rear and put in charge of ophthalmic surgeons. The left eye was hit more often than the right, due, as was surmized, to the better protection furnished to the right eye by the butt of the rifle. It was now observed that if an eye suppurated after an injury, it was much less likely to induce sympathetic ophthalmia than if insidiously inflamed. Sutures were also now first utilized for sewing over extensive injuries of the sclera, and with unlooked-for good results, many an enucleation being thus avoided. A man of whom I lately heard, lost the sight of an eye totally, the bullet lodging in the orbit and only being removed at death, thirty years later. In another instance, a soldier was hit in the right eye, without apparent injury, but could afterward 'see but half of objects with this eye.' Dynamite and gun cotton explosive injuries were studied, and strychnia util-

ized hypodermically for optic atrophy following concussions without material injuries. Much was said of the early or late operations for traumatic cataract, and first aid bandages, covered with aseptic ointments, for protecting orbital, eyelid, or other injuries, were utilized in military surgery at this time."

Dr. Spalding goes still more extensively into the lessons that have been learned since 1914, and especially the limitations of the value of our usual tests for visual acuity, color vision, and the equilibrium of aviators. He also takes up the reeducation and provision for the war-blinded.

His interesting address fully establishes the claim thus expressed, "Without detailing a hundredth part of all that might be said concerning the eyes in war, let me here reiterate the main idea of this paper that from time immemorial the eyes have been injured in quarrels of all sorts, and that as such injuries occurred, methods of defense were invented. In spite, however, of all that we can do, injuries will occur; so that the study of their cure will forever be worth the efforts of the keenest minds in medicine."

E. J.

OPHTHALMIC EXAMINATIONS.

The American Board for Ophthalmic Examinations will hold its next examination at the Wills Eye Hospital, Philadelphia, 3 P. M., Friday, June 6, 1919.

This examination will be the fifth to be conducted by the Board. The Board is composed of representatives of the American Ophthalmological Society, the Section on Ophthalmology of the American Medical Association, and the Academy of Ophthalmology and Otolaryngology. By arrangement with the American College of Surgeons, the Board has become the Ophthalmic Credentials Committee of the College, and conducts the examinations of the ophthalmic candidates for Fellowship in the College.

For a certificate of this Board, the examination in ophthalmology consists of first, case records; second, written