the solid tissues and organs—a fact difficult of explanation—bubble formation, apart from bubbles seen in vessels, is uncommon except in fat, and in the central nervous system,—especially in the spinal cord. In the last situation the distribution of bubbles follows theoretical lines, as they are least found in the parts of the cord best furnished with blood (e.g. the lumbar enlargement) and are almost confined to the white matter. Areas of softening are chiefly found in the lower dorsal and upper lumbar regions. The explanation given is that the white matter being poorly supplied with blood-vessels, supersaturation lasts longer there, and, what is very important, if bubbles form in blood which is moving relatively slowly, these bubbles quickly increase in size by taking up more gas from the supersaturated surroundings. The succeeding softening is thus the result of embolism. The only other tissue where necrosis due to embolism was observed was in fat which, as stated above, is capable of dissolving a very great excess of nitrogen. An important corollary of this fact is that it is inadvisable for persons inclined to adiposity to engage in diving and similar pursuits. It is probable that occasionally bubbles may form after decompression which have only a temporary effect (e.g. transient paralysis, &c.). From this brief outline of the research it will be seen to be of the highest importance in elucidating the many difficult problems arising in connection with work under air pressure.

OPHTHALMOLOGY.

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THE RELATION BETWEEN NEAR WORK AND MYOPIA.

Even if there are very marked exceptions, that there is some relationship between the increasing myopia and the habit of near work will not admit of denial, but the precise nature of the connection is not quite so evident. In search of the real explanation of this we must put aside one or more fanciful ideas which have no anatomical basis, and come first to that theory which finds in the continual action of the muscle of accommodation the origin of the elongation of the globe. It was formerly supposed that accommodation raised the internal tension of the eye, and that to this hypertonus the weak posterior part of the globe yielded gradually, but it is now quite clearly proved that accommodation does not raise the tension, therefore the theory based on that idea must be abandoned. And even if traction upon the choroid could increase the crescent, it could hardly cause the sclera to bulge backwards. Besides, when the myopia exceeds a very small
amount, accommodation need no longer be employed, and yet the myopia goes on increasing. The theory can also be attacked from the side of clinical experience, for if it were true then correction of the myopia by lenses, the use of which necessitates active accommodation for near work, ought to cause increase of the myopia, which is contrary to experience. The theory dependent upon the over-action of the internal recti falls to the ground, for the obvious reasons, among others, that myopia is decidedly uncommon in persons suffering from convergent strabismus, and that it is not infrequent in patients with only one eye. Nor is there much to support the theory of the pressure upon the globe by the superior oblique muscle in a person with a low-roofed orbit.

Thorner (Berlin) has recently busied himself with this problem, and has put forward a new theory. In reading it is obviously necessary that the eyes should travel along the lines in minute jerky movements in order that the macula may have time to "catch" each letter or small group of letters before passing on to the next. Of this one is of course quite unconscious, but it is hard to see how this should not be so. According to Thorner seven of those jerks occur in one second of reading by a practised "hand," or about 25,000 in an hour's reading. Each of those little jerks, says Thorner, must tell upon the posterior part of the globe, and though each individual jar may be of no importance, yet the cumulative effect of thousands gradually injures the globe. The evil of holding books too near to the eye and the advantage of greater separation is thus explained by Thorner. Each jerk corresponds to approximately six letters; if the book is held close to the eye the group occupies a greater angular space than if the book is held further away; the effort is thus correspondingly greater, the jerk more severe, the momentum given to eye and optic nerve greater, and the deleterious effect itself more pronounced. Such employments as sewing have long been known to be less injurious than reading, although involving close application, because, according to our author, the movements executed are not so spasmodic but rather are continuous; the eye therefore is subjected to less jarring. The theory is certainly interesting, and no doubt helps to explain, even if it may not fully explain, the important and undeniable connection between long hours of reading and increasing myopia (Klinische Monatsblätter für Augenheilkunde, Stuttgart, January 1908).

**Subconjunctival Injections of Fluids and of Sterilised Air.**

Many clinical observers have experienced excellent results from the subconjunctival injection of various substances, normal saline, stronger solutions of chloride of sodium, sugar, cyanide of mercury, &c. Some have maintained that it matters very little indeed what substance is
injected, and that the effect, if effect there be, is due not to the substance itself but to the irritant action produced by the foreign fluid upon the tissues, that it does not obtain entrance to the eye at all. After subconjunctival injection of saline, for example, the aqueous is found to be more albuminous and richer in agglutinins and precipitins, which are normally present in minute quantities. Wessely showed this, and, further, that the difference depended almost altogether upon the enlargement of the lumen of the neighbouring vessels; the same effect can thus be produced by mechanical or electrical irritation, apart from any injection at all. Best has continued these investigations with the view largely of discovering the effects upon the cells themselves. Glycogen is practically absent from the normal eye of the rabbit, but is found in great abundance in the retina after subconjunctival injection. The other parts of the eye are not thus affected. Even in the retina glycogen is not equally distributed, but is chiefly to be found in the nerve fibre layer, in the ganglion and inner molecular layers, and in the space between the hexagonal pigment cells and the rods and cones. It is probable that its presence in these parts is due to local cell activity, for it is not found in the vessels of either retina or choroid; possibly the seat of active formation is the glia cells in the layers mentioned. It is also worthy of attention that exactly the same results follow injection of numerous different substances, and even such a procedure as cauterisation of the conjunctiva; it appears, that is, to be a result of irritation of tissues, the actual nature of the irritant not being of great importance.

Koster was among the first, if not actually the first, to inject sterilised air into the anterior chamber, and he found benefit from the procedure in cases of tuberculosis of iris and cornea. In a number of cases of ulceration of the cornea, both suppurative and non-suppurative, the two Tersons employed subconjunctival injection of air, and found the method harmless and not painful. It appeared to great advantage in the treatment of photophobia, where it had almost a specific action, and was useful also in cases of sclerotising keratitis and of marginal keratitis. In hypopyo nuleer, too, good has seemed to result from its use. The analgesic action is very marked. Frenkel is uncertain whether to attribute this to compression of the nerves or to a direct action of the oxygen in the air upon the nerve fibres. Air injections do not seem to have any value in diseases of the posterior portions of the eye (Archiv. für Augenheilkunde, 1907; Annales d'Oculistique, March 1908).

The Aspect of the Retinal Vessels.

It seems curious that notwithstanding that the ophthalmoscope has now been in use for many years, the differences in the appearance of the retinal arteries and of the veins respectively, and their peculiarities,
are not yet explained to the complete satisfaction of all observers. The arteries, as is well known, show a double outline, with a fairly broad light red streak between the two darker sides; veins, under favourable conditions, show a very narrow white line between two broad very dark lines. Of these light streaks on arteries there are two explanations; those of Loring’s school hold that it is due to the refraction of light from the subjacent fundus through the convex cylindrical lens formed by the blood column, while those of Dimmer’s opinion assert that it is the visible axial blood stream—in the veins, on the other hand, the streak is caused purely by reflection from the anterior surface of the blood. When one looks through a microscope at the blood in the frog’s mesentery one is working, it must be recollected, not by reflected but by transmitted light, so that the two conditions are not quite analogous, and arguments drawn from the aspect of affairs in the one case must not be too hastily applied to the other. This warning, obvious though it may seem to be, is not unnecessary, it would appear. Were it the case, as argued by the disciples of Loring, that the blood column acted as a concentrating lens, then in entoptic examination the blood-vessels ought certainly not to appear as opaque lines, which they do; and on opthalmoscopic examination at any part at which an artery passes across a white portion of fundus (a patch of atrophy of choroid, for example) or over a black pigmented area the light streak ought to become distinctly lighter and darker respectively. Now this is not the case, as anyone can readily satisfy himself. Further, it is quite true that if the blood column acted as a lens the image would be red, and red it is in the case of the arteries, but in the case of the veins it is not red but quite white; in them, therefore, at any rate refraction cannot be the cause of the streak, whatever may be the truth regarding the arteries (Klinische Monatsblätter für Augenheilkunde, Stuttgart, April 1907).

Ocular Manifestations of Systemic Gonorrhoea.

A recent monograph on this subject which comes from Montreal gathers up and criticises our present knowledge of this subject. While there have been described from time to time gonorrhoeal affections of the retina, of Terson’s capsule and other parts of the eye, the real seat of election is the uveal tract, and disease of this part forms the chief section of Byers’s monograph. Besides the familiar acute, directly infected, conjunctivitis, which, being a local infection, is not included under the present heading, probably the three most important lines of attack by gonorrhoea are the metastatic conjunctivitis, iritis (or more correctly irido-cyclitis) and neuro-retinitis—the last being more rare. These metastatic inflammations are very uncertain in their time of onset, and are, as a rule, transitory in their action. At the hands of the
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general surgeon they have perhaps received less than their due amount of attention. Fortunately these are usually amenable to treatment; they have a curious tendency to recur should a subsequent re-infection with gonorrhea take place. The glutinous character of the exudate in the iritis of gonorrhea is, in Byers’s opinion, related rather to the severity of the affection than to its origin, but this is a matter in which a different opinion may also be held. It is the view of many that iritis is always preceded by rheumatism, but this also is a little uncertain. (Studies from the Royal Hospital, Montreal, ii. 2, 1908).

DERMATOLOGY.

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SKIN DISEASES IN THE NEGRO.

Though the incidence of skin diseases among the coloured races does not directly affect us much in Britain, still it becomes a matter of consideration in many of our colonies. The observations of Howard Fox, therefore (Journ. Cut. Dis., N. Y., February 1908), claim attention. His statistics suffer from one defect, though dealing with large numbers, viz. 4400, equally distributed between the white and dark, in that they include an unstated proportion of mulattos, varying from the octo-noon to the full-blooded black. Certain difficulties in the study present themselves. Diseases characterised mainly by congestion, hemorrhage or pigment are not easily recognised, at least in their early stages. Perplexity, too, arises from the unreliability of many negro patients, due largely to dense ignorance, as to statements of age and duration. Again, negro patients are only apt to apply for treatment for such affections of the skin as cause positive annoyance or pain. Still his conviction is that they suffer less from skin diseases than do the whites. As to the causes of the differences, some seem inherent in the skin. Negro babies at birth are of the colour of tallow, and when both parents are pure blacks the tint deepens in a few hours, attaining its full depth in about two months. Old age in them leads to a degree of decoloration. The entire skin of the negro is thicker than that of the white, the glandular system is more highly developed, while the soft, velvety feel is ascribable to deficiency in lanugo hairs. The negro is less susceptible to pain than the white. His integument responds less to such irritants as the sun’s rays, or those of vegetable or mineral origin. It is very difficult to blister a pure negro, while rhus poisoning is, to him, almost unknown. On the other hand, frost-bite and chilblains