of the pupil under the influence of mydriatics. It is to be accounted for by the thickening and stiffening of the iris and not, as is commonly suggested, by atrophic conditions. The causes of these changes in the iris are various. There is, first and foremost, pre-eminent in the causation of senile cataract, arterio-sclerosis; there are rheumatism and gout, the circulatory changes of Bright's disease and of diabetes and the results of other chronic inflammations of the intra-ocular structures. Any of these may be the cause of changes which eventuate in cataract. But the abnormal, rough, thickened iris is the medium through which the cataract is started. It is not all cataracts but only a majority that are formed in this way—there are certain forms due to other causes, *e g.* trauma. With regard to treatment, Dr. Jervey says: Interrupt the iris and prevent its activity in those eyes — and they are many—in which iridian friction is irritating the anterior capsule and leading to opacification, and the cataractous process will be arrested. To do this iridectomy is necessary. This operation he thinks will only hasten the process if it be done so that the lens is injured during the operation, and to avoid this the utmost skill and delicacy will be required. All that is wanted is a tiny piece snipped out of the pupillary border of the iris sufficient to break the continuity of the sphincter. This will result in partial dilatation of the pupil and cessation of hippus. If, in the course of the operation, the forceps rub upon the surface of the lens, even with the iris tissue intervening, the purpose of the effort may be thwarted, and instead of arrest there may be increase of progress of the opacities. Should this happen no great harm will have been done, and nothing at all to endanger the success of a subsequent extraction. He does not advocate sphincterectomy, as he calls it, to the exclusion of all other efforts; constitutional treatment is still important, and glasses should invariably be adjusted to keep pace with any refractive changes that may occur. The measures indicated must be resorted to early—in the very commencement of opacity formation.

[1] New York Medical Record, Feb. 28.

HEAT STROKE.

The subject of heat stroke is one of much interest to all those who, in the course of their professional career, may come to be placed in some portion of the globe where affections due to the heat of the sun's rays claim any considerable number of victims. Dr. Duncan, in a paper dealing with this question, and published in the *Edinburgh Medical Journal* this month, classifies the clinical varieties of heat stroke under three headings—(1) heat collapse; (2) direct heat stroke; (3) indirect heat stroke. A patient suffering from heat collapse suddenly becomes giddy and falls; the skin is moist and cool, the breathing hurried but not stertorous, the pulse small and soft, the pupils dilated, and the temperature at or below the normal; loss of consciousness is not as a rule complete, and recovery is usual. Of direct heat stroke or sunstroke proper there are several varieties. In one the victims are mostly unaccustomed to the fatigues of marching, and the affection is especially liable to occur when the air contains much moisture; violent headache is first complained of, and later the patient falls in convulsions, the teeth are clenched, insensibility is absolute, respiration is difficult, the pulse is small and irregular. In another the subject streams with sweat, becomes pale and cyanosed, with respiration shallow and quick; consciousness is not generally entirely lost, and revival occurs if the patient be laid down and relieved of all impediment to free respiration. In a third kind no fatigue is complained of, but the patient is thirsty and suddenly falls forward comatose; the state of coma may last 24 to 36 hours, and may end in death without recovery of consciousness. In a fourth variety, after a hot and wearying march in the sun the subject is seized with severe headache; this gradually becomes more intense, so that within twenty-four hours he may be rolling about in agony; soon great intolerance of light occurs, and after perhaps forty-eight hours unconsciousness sets in. Should the patient recover, the intense pain in the head may last six or eight weeks, and then it gradually abates. The commonest form of heat stroke is the indirect form. Here the patient is usually attacked after retiring into a hot and close atmosphere. At the onset the skin is pale; there is nausea, colic, and incontinence of urine; convulsions follow, to be succeeded by cyanosis, dyspnœa, and insensibility; the breathing is stertorous, and the temperature of the body may reach 108° or 110°. The affection is more liable to occur among new arrivals in a hot climate than among old residents, and hot days in the cooler season of the year are especially dangerous. The plethoric and intemperate, those suffering from fatty heart, or who have had syphilis are found to be particularly predisposed. Alcohol can destroy the comparative immunity possessed by the coloured races. In this connection it has been shown in America that the negro, when he removes to the cities and drinks to excess, becomes as liable to heat stroke as the white races. Overcrowding is a dangerous factor, both in the open and under cover; and marching in close order is to be avoided in a tropical climate. Moist air, absence of wind, and hot winds are all predisposing causes. Alcoholic drinks should also be eschewed where there is exposure to a hot sun. As to dress, the head covering should be made from some substance which is a bad conductor of heat without being unduly heavy. Old European residents in Egypt, whenever they make an expedition into the desert, are accustomed to wear a tight jean skull-cap, similar to that worn by Arabs under the turban, next to the head, and experience seems to have quite established the efficacy of this method. It is most important to protect the eyes by the use of neutral-tinted glasses; and, finally, the spinal cord must be protected by a thick woollen pad sewn into the coat. The dress must be loose round the neck, chest, and abdomen, and the material should be a light woollen one. Dr. Duncan himself suffered severely and repeatedly from the effects of the sun until he adopted the plan of lining his helmet and coat with yellow, after which, although exposed for some years to extreme heat, he had no further attacks. He therefore strongly recommends similar measures to be made use of by all those who cannot withstand the direct heat of the sun. With regard to treatment during an attack, the patient should be moved into the

shade where possible, his clothes unfastened, and cold water poured upon his head and neck; ammonia also should be applied to his nostrils. The douche must be repeated until a favourable effect is produced. If convulsions occur, a few whiffs of chloroform are indicated. Venesection should not be performed.

ADHERENT PERICARDIUM.

In a space of 16 years there occurred among the in-patients of St. Mary's Free Hospital for Children, New York, 18 cases of adherent pericardium. That is to say, one case in every 300 was of this nature, admission being limited to children between the ages of two and 14 years. Basing his observations on these 18 cases, together with five others which he has met with in adults, Dr. G. M. Swift [1] discusses the affection, mainly in its clinical aspects. All the hospital cases ended fatally, and autopsies were performed in most of them. Usually it has been found that the outer surface of the pericardium is adherent to the chest wall and to the diaphragm, while the pericardial sac has become completely obliterated. The pericardium and heart muscle appear to be fused. The process seems to extend in some instances over a period of years, and is an active growing one. In long standing cases the appearance of the heart is one of enormous hypertrophy; probably there is less hypertrophy and more degeneration and dilatation than is sometimes taught. From the point of view of the clinician, it is certain that the condition prior to death has been rather that of a degenerated and dilated heart, and it is a fact, pointing to the same conclusion, that the administration of cardiac stimulants in this affection produces unfortunate effects. In many of the patients no valvular lesions have been present, the murmurs noticed before death being due to dilatation of the orifices. One lesion which Dr. Swift has observed is very great enlargement of the liver, greater, he thinks, than is met with in cases of dilated heart due to valvular disease. Two of his patients whom he was able to watch for periods of years showed an enlarged liver as the first indication of commencing failure. Rheumatic cases appear to follow a different course from those due to pneumococcus infection. The latter variety seems to occur earlier in life, and may be primary or secondary to a pleuro-pneumonia. The symptoms in all cases are those due to a dilated heart. Hearts with adherent pericardia are unusual in the marked irregularity and turbulency of their action. In three adult cases attacks of dyspnœa and apprehension of death were marked symptoms during the last months of life. Physical examination shows a bulging of the left chest, a large area of diffused impulse instead of a localised apex beat, and in some cases a recession of the intercostal spaces during systole. Percussion dulness is, of course, present over a larger area than is normal. On auscultation double murmurs are audible at base and apex. With regard to prognosis Dr. Swift notes that every one of the hospital cases had a fatal termination, but the private cases have been more successful, and he thinks a plentiful supply of nitrogenous food is essential for the patient's well-doing, while it is equally important to arrest the constant rheumatic poisoning.

[1] New York Medical News, Feb. 28.

BACTERIA AND BUTTER-MAKING.

Butter-makers, so Mr. W. Marston informs us, are on excellent terms with the bacteria, and have been profiting considerably by the products with which the microbes have supplied them. Cream is rarely churned while fresh; there are exceptions, but in the majority of cases it is subjected first to a process known as ripening or souring. In this method it is allowed to stand in a vat for a time varying from twelve hours to three days, during which interval the bacteria which it contains have an opportunity to multiply. When the ripening is complete, and the micro-organisms in the cream have become very numerous, the churning is done, and after this, the services of the bacteria being no longer required, they are forgotten. Some of them remain in the butter where for the most part they soon die, the rest are washed away in the butter-milk. Those which survive are the agents by which butter subsequently may become rancid. The reason for the ripening of cream is to render it better for butter-making; it churns more rapidly and yields more butter than it does when fresh. But the principal object is to develop the nice flavour characteristic of the highest product, and this good flavour is developed during the microbic process of souring. Whether good or bad tasting butter is obtained depends upon the various kinds of micro-organisms which are present in the cream. Attention is now being directed towards the artificial culture of the most favourable species of bacteria, with a view to obtaining in the future the best flavoured butter alone.

HEMIANOPSIA.

In the *New York Medical News* of February 28th, Dr. Edward Jackson gives a detailed report of two cases of hemianopsia which occurred as a result of definite, localised cerebral injuries. In one of these patients the half-blindness was complete, in the other it took the form of a partial right hemianopsia, affecting the right lower quadrants of the fields of vision only. Dealing with the condition in its general aspects Dr. Jackson remarks that it is one which is particularly liable to be overlooked, and for this reason, that unless the patient is examined with special reference to such a defect and the field of vision is carefully investigated, a diagnosis cannot be made. The patient's statements are occasionally very suggestive if the loss of vision affects the immediate neighbourhood of the fixation point; in such a case the complaint may be that only half of an object looked at is visible. More often advice is sought for blindness in one eye; this is explained by the difference in size between the nasal and temporal portions of the field of vision, the latter being much the larger, and consequently the defect is more noticeable in the eye whose temporal portion of the visual field is curtailed. Dr. Jackson has noted that the division line between the two portions of the visual field is not a straight one, but that the seeing field encroaches upon the blind part at the region of the fixation point. Besides this there are other irregularities in the line of demarcation, and these irregularities correspond in the two eyes. The first case described is that of a labourer, aged 48 years, who four years previously fell on to his head and was stunned. No serious symptoms followed immediately.