

felt for the martyr Báb among generously minded Persians may still give it a future.¹

Less dangerous than these bold communists are the Ishmaelites, direct descendants of the old Ismá'iliya, whose nihilist doctrines are now diluted into a harmless doctrine of incarnation. They are pretty numerous in India, at Bombay, Surat, and Burhampur, but hardly are found in Persia.²

Despite their mutual feuds, Sunnites and Shi'ites are at one in their hatred and contempt for the professors of other religions. Holding that faith and unbelief are matter of predestination, Islam is not given to forcible proselytizing, and on certain conditions Christians and Jews (and later on Zoroastrians also) have always been tolerated in the Mohammedan empire, except that 'Omar, mainly on political grounds, expelled all non-Moslems from Arabia. But none the less the adherents of other faiths are hated and despised as children of hell and enemies of true religion. To reconcile the present decay of Islam and prosperity of the unbeliever with their feelings and convictions, Sunnites and Shi'ites alike take refuge in the doctrine of a restoration of Islam before the end of the world through the "divinely guided" Mahdí. In view of the interest in the subject excited by recent events, some addition may here be made to the brief statement in the article MAHDÍ.³ Originally, as has been shown in that article, the idea of a god-sent deliverer from the illegitimate caliphs was attached by the Shi'ites to actual pretenders of the house of 'Alí; but later on, and especially since the days of the Mongols, the figure of the Mahdí was projected into the far future, and ultimately his arrival was made a sign of the end of the world. Among the Sunnites, on the other hand, who could not accept the Shi'ite pretenders, some of those who felt that the Omayyad sovereignty was not truly spiritual and worthy of Islam borrowed the Christian hope of the second coming of Christ, whom Islam acknowledges as a prophet and precursor of Mohammed, and whose return at the end of the world seemed to accord with some vague passages of the Koran; others looked, like the Shi'ites, for a deliverer from earthly tyranny, but did not tie themselves to the belief that he must spring from the house of 'Alí. When the theologians of 'Abbasid times began to systematize the religious traditions they found some that spoke of a return of Jesus and others referring to a Mahdí. These they combined together, so that Sunnites now believe that, when unrighteousness is at its height upon earth and the victory of the enemies of Islam seems sure, the Mahdí will appear to destroy the unbelievers and establish God's kingdom on earth. Then the Antichrist (*dajjal*) will work new mischief, but be destroyed by Jesus, who appears as precursor of the last judgment. Sunnite theologians have not all been at one in expecting a Mahdí as well as Jesus, but this is the view generally current in recent times; and Sunnites and Shi'ites are agreed that the Mahdí will destroy the external foes of Islam, i.e., all non-Mohammedan powers. Theologians have tried by artificial interpretation of Koran and Sunna to fix when and how the Mahdí is to appear, and have concluded that he must be looked for at the close of a century. Of this widespread belief Mohammed Ahmed, the Sudanese Mahdí, availed himself in coming forward in the year 1800 of the Flight (1882-83). Theological opinion is so unsettled as to all the details of the Mahdí's work that, according to trustworthy information, his death has not seriously impaired the impression produced by his victories. In Mecca, for example, in 1885 it was commonly held to be conceivable that the Sudanese fighting in his name might destroy England and the Western powers; and it is possible that the belief in this latest Mahdí has still an important part to play in the Eastern question. (A. MU.)

SUNSTROKE (*Heatstroke; Insolation; Coup de Soleil; Thermic Fever*), a term applied to the effects produced upon the central nervous system, and through it upon other organs of the body, by exposure to the sun or to overheated air. Although most frequently observed in tropical regions, this disease occurs also in temperate climates during hot weather. A moist condition of the atmosphere, which interferes with cooling of the overheated body, greatly increases the liability to suffer from this ailment.

Sunstroke has been chiefly observed and investigated as occurring among soldiers in India, where formerly, both in active service and in the routine of ordinary duty, cases of this disease constituted a considerable item of sickness

¹ See on Báb and Bábism, Mirza Kazem Beg, in *Journ. Asiatique*, ser. 6, vols. vii. viii.; Gobineau, *op. cit.*, where there is a translation of Báb's new Koran; Von Kremer, *op. cit.*, p. 202 *sq.*

² See Garcin de Tassy, *L'Islamisme*, 3d ed. (1874), p. 298, and Rehatssek, *ut sup.*

³ Compare especially Snouck Hurgronje, "Der Mahdí," in *Revue Coloniale Internationale*, 1885, an article based on wide reading and personal observations at Jeddah and Mecca.

and mortality. The increased attention now paid by military authorities to the personal health and comfort of the soldier, particularly as regards barrack accommodation and dress, together with the care taken in adjusting the time and mode of movement of troops, has done much to lessen the mortality from this cause. It would appear that, while any one exposed to the influence of strong solar heat may suffer from the symptoms of sunstroke, there are certain conditions which greatly predispose to it in the case of individuals. Causes calculated to depress the health, such as previous disease, particularly affections of the nervous system,—anxiety, worry, or overwork, irregularities in food, and in a marked degree intemperance—have a powerful predisposing influence, while personal cleanliness, which prevents among other things the healthy action of the skin, the wearing of tight garments, which impede the functions alike of heart and lungs, and living in overcrowded and insanitary dwellings have an equally hurtful tendency.

While attacks of sunstroke are frequently precipitated by exposure, especially during fatigue, to the direct rays of the sun, in a large number of instances they come on under other circumstances. Cases are of not unfrequent occurrence among soldiers in hot climates when there is overcrowding or bad ventilation in their barracks, and sometimes several will be attacked in the course of a single night. The same remark applies to similar conditions existing on shipboard. Further, persons whose occupation exposes them to excessive heat, such as stokers, laundry workers, &c., are apt to suffer, particularly in hot seasons. In the tropics Europeans, especially those who have recently arrived, are more readily affected than natives. But natives are not exempt.

The symptoms of **heatstroke**, which obviously depend upon the disorganization of the normal heat-regulating mechanism, as well as of the functions of circulation and respiration (see *PATHOLOGY*, vol. xviii. p. 394), vary in their intensity and likewise to some extent in their form. Three chief types of the disease are usually described.

(1) *Heat Syncope*.—In this form the symptoms are those of exhaustion, with a tendency towards fainting or its actual occurrence. A fully developed attack of this description is usually preceded by sickness, giddiness, some amount of mental excitement followed by drowsiness, and then the passage into the syncopal condition, in which there are pallor and coldness of the skin, a weak, quick, and intermittent pulse, and gasping or sighing respiration. The pupils are often contracted. Death may quickly occur; but if timely treatment is available recovery may take place.

(2) *Heat Apoplexy or Asphyxia*.—In this variety the attack, whether preceded or not by the premonitory symptoms already mentioned, is usually sudden, and occurs in the form of an apoplectic seizure, with great vascular engorgement, as seen in the flushed face, congested eyes, quick full pulse, and stertorous breathing. There is usually insensibility, and convulsions are not unfrequent. Death is often very sudden. This form, however, is also amenable to treatment.

(3) *Ardent Thermic Fever*.—This variety is characterized chiefly by the excessive development of fever (hyperpyrexia), the temperature of the body rising at such times to 108° to 110° Fahr. or more. Accompanying this are the other symptoms of high febrile disturbance, such as great thirst, quick full pulse, pains throughout the body, headache, nausea, and vomiting, together with respiratory embarrassment. After the attack has lasted for a variable period, often one or two days, death may ensue from collapse or from the case assuming the apoplectic form already described. But here too treatment may be successful if it is promptly applied.

Besides these, other varieties depending on the prominence of certain symptoms are occasionally met with. The chief changes in the body after death from heatstroke are those of anemia of the brain and congestion of the lungs, together with softness of the heart and of the muscular tissues generally. The blood is dark and fluid and the blood corpuscles are somewhat altered in shape. Attacks of sunstroke are apt to leave traces of their effects upon the constitution, especially upon the nervous system. A liability to severe headache, which in many cases would seem to depend upon a condition of chronic meningitis, epileptic fits, mental irritability, and alterations in the disposition are among the more important. It is often observed that heat in any form is ever afterwards ill borne, while there also appears to be an abnormal susceptibility to the action of stimulants. The mortality from sunstroke is estimated at from 40 to 50 per cent.

Treatment.—In respect of this disease means should be adopted to prevent attacks in the case of those who must necessarily be exposed to the sun. These consist in the wearing of loose clothing, with the exception of the headress, which ought to be worn close to the head, in due attention to the function of the skin, and in the avoidance of alcoholic and other excesses. Cold water may be drunk in small quantities at frequent intervals. Sleeping in the open air in very hot seasons is recommended. The treatment of a patient suffering from an attack necessarily depends upon the form it has assumed. In all cases he should if possible be at once removed into a shaded or cool place. Where the symptoms are mostly those of syncope and there is a tendency to death from heart failure, rest in the recumbent position, the use of diffusible stimulants, such as ammonia or ether, &c., together with friction or warmth applied to the extremities, are the means to be adopted. Where, on the other hand, the symptoms are those of apoplexy or of hyperpyrexia, by far the most successful results are obtained by the use of cold (the cold affusion, rubbing the surface with ice, or ematation of ice-cold water). The effect is a marked lowering of the temperature, while at the same time a stimulus is given to the respiratory function. Mustard or turpentine applied to the nape of the neck or chest is a useful adjuvant. Should the temperature be lowered in this way but unconsciousness still persist, removal of the hair and blistering the scalp are recommended. The subsequent treatment will depend upon the nature of the resulting symptoms, but change to a cool climate is often followed by marked benefit. (J. O. A.)

SUPERIOR LAKE. See LAKE and ST LAWRENCE.

SURABAYA. See JAVA, vol. xiii. p. 605 *sq.* The population in 1880 was 122,234.

SURAKARTA, or SOLO. See JAVA, vol. xiii. pp. 601, 606 *sq.* Its population was 124,041 in 1880.

SURAT, a district of British India, in the Guzerat division of Bombay presidency, lying between 20° 15' and 21° 28' N. lat. and 72° 38' and 73° 30' E. long. It has an area of 1662 square miles, and is bounded on the N. by Broach district and the native state of Baroda; on the E. by the states of Rájpplá, the Gáikwár Bánsda, and Dharampur; on the S. by Thána district and the Portuguese territory of Daman; and on the W. by the Arabian Sea. It has a coast-line of 80 miles, consisting of a barren stretch of sand drift and salt marsh; behind that is a rich highly cultivated plain, nearly 60 miles in breadth at the embouchure of the Tápti, but narrowing to only 15 miles in the southern part; and on the north-east are the wild hills and jungle of the Dangs. The only important rivers are the Tápti and the Kim, the former of which is ordinarily navigable for native craft of from 18 to 36 tons. The district contains a large number of tanks for irrigation; and a canal is projected from the Tápti with head works at Kamlápur, 35 miles from Surat. The fauna of the district consists of a few tigers, stragglers from the jungles of Bánsda and Dharampur, besides leopards, bears, wild boars, wolves, hyenas, spotted deer, and antelopes. The climate of Surat varies with the distance from the sea. Near the coast, under the influence of the sea-breeze, an equable temperature prevails, but 8 to 11 miles inland the breeze ceases to blow. The coast also possesses a much

lighter rainfall than the interior, the annual average ranging from 30 inches in Olpád to 72 in Chikhli, while at Surat city the average is 46 inches. The Bombay, Baroda, and Central India Railway runs through the district from north to south. A magnificent iron-girder bridge crosses the Tápti at Surat city.

The census of 1881 returned the population of Surat at 614,198 (306,015 males, 308,183 females), of whom Hindus numbered 415,031, Mohammedans 55,547, Parsis 12,593, and aboriginals 118,664. There are only two towns in the district with a population exceeding 5000,—namely, SURAT (*q.v.*) and Bulsar (13,229). The cultivated area in 1884-85 was returned at 726,583 acres, and the area available for cultivation at 81,663. The total area of crops in 1884-85 was 550,233 acres, including 66,096 twice cropped. Rice occupied 103,972 acres, wheat 38,617, and *joár* 108,644; cotton is also largely cultivated, and its culture is greatly increasing. Grain, cotton, timber, oil, sugar and molasses, and piece goods are the chief articles of export. Almost the whole female population is engaged in spinning cotton thread, and the weaving of cotton cloth in hand looms is carried on in the chief towns; silk is also manufactured in considerable quantities, as well as brocades and embroidery. In 1884-85 the revenue of the district amounted to £378,061, of which the land-tax contributed £268,644. Surat was one of the earliest parts of India brought into close relations with European countries, and its history merges almost entirely into that of its capital, long the greatest maritime city of the peninsula. By an arrangement made in 1799 the English were placed in possession of Surat city and the town of Rander; subsequent cessions under the treaties of Bassein (1802) and Poona (1817), together with the lapse of the Mandvi state in 1839, brought the district into its present shape. Since the introduction of British rule the district has remained comparatively tranquil; and even during the period of the mutiny peace was not disturbed, owing in a great measure to the steadfast loyalty of its leading Mohammedan families.

SURAT, capital and administrative headquarters of the above district, is situated in 21° 9' 30" N. lat. and 72° 54' 15" E. long., on the southern bank of the Tápti, distant from the sea 14 miles by water and 10 by land. Its origin appears to be comparatively modern, tradition assigning the foundation of the town to the beginning of the 16th century. As early as 1514 it was described by the Portuguese traveller Barbosa as a "very important seaport." During the reigns of Akbar, Jahángír, and Sháh Jahán it rose to be the chief commercial city of India. From 1573 to 1612 the Portuguese were undisputed masters of the Surat seas and part of the seaboard. But shortly after 1612 the city of Surat became the seat of a presidency under the English East India Company, and the Dutch also had made it their principal factory in India. During the 18th century it probably ranked as the most populous city of India, its population being at one time estimated as high as 800,000; but with the transfer of its trade to Bombay the numbers rapidly fell off, until in 1847 its inhabitants numbered only 80,000. Thenceforward the city began to retrieve its position, and in 1881 its population numbered 107,154 (54,524 males and 52,630 females).

SURBITON, a suburb of Kingston in Surrey, England, is finely situated on the river Thames, 12 miles south-west of London by the London and South-Western Railway. It consists chiefly of villa residences embosomed in woods and gardens. Along the river an esplanade has been constructed, forming a pleasant promenade. Surbiton is the headquarters of the Kingston Rowing Club and the Thames Sailing Club. The recreation ground, in connexion with which there is a reading-room and library, is much frequented for athletic meetings and bicycle races. In the town there is a cottage hospital. The population of the urban sanitary district (area, 1000 acres) in 1871 was 7642, and in 1881 it was 9406.

SURETY, in law, is the party liable under a contract of GUARANTEE (*q.v.*). In criminal practice sureties bound by RECOGNIZANCE (*q.v.*) are a means of obtaining compliance with the order of a court of justice, whether to keep the peace or otherwise.