

HYGIENE

OR THE

PRINCIPLES OF SANITATION,

BY

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INTRODUCTION.

The sanitary condition of Hyderabad and its suburbs, and in fact, of many other parts of India, has recently been the subject of a most searching and anxious enquiry, that it is therefore hoped that no apology is needed for the present work, and that the practical suggestions herein made may be somewhat useful, and with the help of Divine Providence, the author sincerely trusts that his local confreres may not consider it presumptuous on his part to have produced this pamphlet, as he considers that he would be doing an act of justice in setting forth his opinions before the public in a concise way. If there are any defects in this production he is confident that his readers will kindly stretch a point in his favor, for the subject is so vast that it should have been placed in better hands to be exhaustively dealt with.

Through the kindness of His Highness the Nizam, whose interest in the prosperity of his state and subjects is unwearied, education has been making rapid strides. Institutions have become numerous, and the population is daily on the increase. The subject of Hygiene has not been lost sight of, and in order to supply this want, the author ventures to offer some information connected therewith, fully trusting that his humble efforts will not have been in vain.

It is no secret that the sanitation of the City of Hyderabad itself is defective in the extreme. Leaving aside the sanitation of roads and public thoroughfares, the houses of the inhabitants themselves are so ill ventilated, and the presence of foul air which they constantly inhale, more or less, from the filthy state of their dwellings, and moreover the sale of unwholesome vegetables, fruits, flesh, &c., in the bazaars are sufficient evidence of all the calamities which so frequently occur and cause so much anxiety to the populace. Once these defects

are remedied, and the roads and thoroughfares properly cleansed, then we may safely expect what is termed proper sanitation. Until this is done, all the study of the principles of Hygiene would not be productive of good fruit. In every well-regulated City or Town where Municipalities exist, and thorough reforms of sanitation enforced, the citizens should, of themselves, assist in aiding those authorities, without which co-operation, sanitation must, and will remain, a dead letter. In support of this view I may be allowed to quote the words of a distinguished writer on "Public health." He says :—" In a wide sense therefore the science of Public Hygiene enlists the services of the people themselves in continuous efforts at self improvement ; of the teachers of the people to inculcate the best rules of life and action ; of physicians in preventing as well as curing disease ; and of law given to legalise and enforce measures of health preservation. But whilst it is the special province of the medical profession, as guardians of the public health to study the causes of physical deterioration and disease, and to point out how far these causes may be controlled or averted, the general well-being of the people must mainly depend on their own exertions and self restraint."

It is essentially necessary further, for the people to observe proper cleanliness, not only in their persons, but also in their wearing apparel, to be regular in their habits, and to obtain good ventilation as prescribed for by Hygienic rules. Many individuals cannot afford to procure information from valuable books, nor can they secure the advice of a professional man ; and these considerations alone have led the author to furnish that information in a small Urdu treatise (of which this is a true translation by Mr. Mirza Abdoolla Beg, Translator, duly revised by Mr. W. A. François) drawn up in a simple manner for the guidance of the people.

Preventive medicine or state medicine or Hygiene is exactly the term which is in all civilized states known to be the foundation which provides certain measures in order to secure health according to the popular adage that " prevention is better

than cure." It is useless to foster the growth of epidemics and other diseases and then subsequently to allow such cases to be medically treated. This is a most deplorable practice; for it leads to many complications; as for instance, in an ordinary case through efficacious treatment a person might recover, but his future good health would very much depend on his strict observance of Hygienic laws; while, in a serious case the patient would most probably succumb. In order therefore to avoid any such complications it is incumbent on one and all to adhere as closely as possible to the rules of sanitation, so as to avoid disease rather than by courting it to appeal to professional skill; and again it may be added, that although profitable aid may be obtained, success is not very frequently attained.

It should be distinctly understood that to sustain existence healthy nourishment, pure air, and clean clothing, &c., are the indispensable requisites. Of course the climates of different countries vary and people follow the habits and customs of those countries without any detriment to the maintenance of health. Although the above remarks apply to every individual but in consonance with the custom prevailing in every country, it may be observed that some countries produce articles of a cold and heating nature such as animals, vegetables, &c., which by certain people is taken advantage of voluntarily, and indulged in indiscriminately, while those people differ in the habits of that country. For instance flesh is consumed in some countries while in others vegetable and grain form the staple food. Again in some countries the dwelling houses are spacious, airy and light, whereas in others they are close and confined. Then again in some countries warm clothing is worn and in others materials of a lighter nature, such as, cotton clothing. Some people walk fast and others slow; and in like manner also the customs of every country appear to differ. But each primary cause for such difference is owing to the indifferent manner and voluntary inclinations of people; this is a point much to be lamented as health cannot be maintained by the freedom of actions alone.

CHAPTER I.

FOOD.

Food is essential to mankind as it sustains life and nourishes the whole system, besides keeping the temperament free from disorder; these latter can only be attained by using such food as will accord with the constitution of each individual and the influence of the climate in which he resides, or otherwise sickness must ensue. Physiologists have defined the diet to be of three kinds of which food is composed, *viz* :—(1st) Mineral substance, such as water of various kinds and salt, &c. Watery substances tend to rarify the blood and aid to the introduction of food through certain narrow passages of the stomach. Food is thus enabled to enter the system wholly by dissolving in it; therefore watery substances are very necessary. They further tend to remove effete products and equalise the temperature of the body by evaporation. Salt and other articles possessing the same properties generally help to nourish the tissues of the brain, bones, and other tissues of the human frame in which phosphate of lime exists. (2nd) Substances which possess carbon are sugar, starch, ghee (clarified butter), grease, meat, and milk; these contain carbonic substances more than can be found in chemical preparations: by the use of these articles the temperature is increased, carbon being an excellent portion of diet to uphold the system. (3rd) Nitrogenous substances are substances containing nitrogen in the form of albumen, febrine and caseine, to help in digesting food. Nitrogen is very essential and comprises properties that form an important part of diet, and is a valuable adjunct in promoting the general health. It may be said that animal food is more substantial than vegetable, by which the temperature is increased; and if life and health is to be preserved, such diet should be consumed which contain all the properties mentioned above, and by these means the system will be cherished and the temperature kept healthy and uniform. Even infants thrive on by milk alone which

combines all the aforesaid properties, and is therefore classed as a natural food.

Another point should also be noticed, that if life and health are to be prolonged great care must be taken to observe caution against variations of climate and to regulate the diet. In cold countries where great chillness is felt it is very necessary, in order to preserve the temperature of the body and to increase the same, to partake of food in the shape of meat, milk, ghee, &c. In hot countries where great heat is felt such diet would never suit, therefore it is necessary to alter the diet so that the temperature may not rise to the height as required in cold countries. For this purpose grain and vegetable should be used. In temperate climates both of the above diets can be used. This is the reason why every one regulates his diet, according to the climate of the country. For instance, those of extreme cold climates use fatty matter, &c., in which carbon is contained, and which maintains the temperature at normal heat. The inhabitants of temperate climates consume both animal and vegetable food together, whereas those of hot countries partake of vegetable food, only, in greater quantities than the others. Such consumption, it may be observed, does not rest entirely on intentions or inclinations of the inhabitants themselves, but it is supposed to be an involuntary act, if I may use the expression, which nature itself dictates to them, therefore the diet of each country differs; as, for instance, the diet of Europe varies much from that of the inhabitants of Asia.

It is very necessary that when people of different countries visit those other than their own, they should regulate their diet in keeping with the foreign climate in which they may enter, for otherwise health cannot be maintained. It is well known that Divine Providence has empowered man to consume all kinds of food for his sustenance which every country produces, regardless of climate. Furthermore, food should be used according to seasons: in the cold season "kawabs," ghee, butter, rich sweetmeats, &c., and in the hot season vegetables of a refrigerant nature and articles containing acid substances, regulating at the

same time the hour for meals for both night and day, suitable to the climate of the country. In cold countries, as the digestive power is stronger and especially when the natural heat is produced, meals are taken three or four times, while in hot countries, as the digestive functions are less strong and the temperature lower, food is consumed only twice, which is considered sufficient. It ought also to be borne in mind that food should be used according to the age and strength of each individual constitution, because tender and old age require such food as would be easily digested, and be in accordance with their habits. It is desirable also that meals should be taken at regulated hours, for if there be a breach in this principle, the constitutions of persons would be impaired by reason of the stomach being kept disturbed by this irregularity. Of course, by this it must not be inferred that stipulated hours for the partaking of meals are herein prescribed, but it rests on the practice adopted by each individual, so that if he ate at a fixed time daily, he should so regulate himself as to have his meals at that proper time.

Food should be eaten slowly and properly masticated, and not "bolted," as is the practice in America, or otherwise indigestion will follow. Food should be taken so as not to overload the stomach, in order that there may be no distension, and the food itself easily digested. After each meal if it is felt that it has not been properly digested, a second meal should not be partaken of, and always there should be at least an interval of six hours between each meal, as it is known that it takes five hours more or less before each meal is properly digested, and the stomach should be kept at rest at least for one hour. Much will depend on the nature of the food that is partaken of and the digestive power of each individual stomach. The most easily digestible food is calf's foot jelly as it digests within half an hour; rice boiled softly takes an hour, good-water fish and ripe sweet fruit one and half hour, stale jowarree or wheat bread two hours, acid fruit two and half hours, cow's and she-goat's flesh, domesticated fowls, fresh wheat bread and fried fish, three hours; salted beef, duck, hard boiled eggs, butter, cheese,

potatoes, turnips, carrots, &c., three and half hours; salted fish, wild duck, and other things containing oily substances, within five hours. As regards vegetables, if eaten with vinegar, they are digestible sooner, provided they are not mixed with what is called “Gurruṃ Massala” or spices and chillies, as these would lead to griping pains, resulting very often in dysentery. Although a person might get used to that diet, still after the lapse of some time the stomach becomes weakened. As a rule, food should be properly cooked in order that digestion may be easily effected; if it is otherwise the powers of digestion will be weakened and this also may lead to some disorder. It is advisable that a healthy constitution should be free in diet, combining both animal and vegetable foods, for if any particular diet were to be adhered to and increased by quantities, there will certainly arise some impairment of the stomach. Under the foregoing circumstances it is incumbent upon all to see exactly what food is necessary and agreeable in order to preserve health. In the following a brief description is given of what human food should consist:—

Wheat.—Wheat bread is a very agreeable food, nourishes the system and invigorates the temperature. It contains no oily or watery matter in excess, and to make up for this want, man prefers using this bread with some greasy substance. Wheat should be of good quality, not the worse for weather, and unmixed, and the bread therewith can be prepared well. Leavened bread, being spongy, is nutritious and easily assimilated. Ordinary bread is not so. “Wheat flour should contain very little bran, be quite white, or slightly tinged with yellow, and should give no acidity or musty flavour to the taste. It should not be lumpy or gritty to the touch, nor yield any odour of mouldiness to the sense of smell. When made into a paste with a little water, the dough should be coherent and stringy.”

Bread from “Meda” (flour) is less nutritious, indigestible, leads to constipation. That made from the ordinary flour, as it contains a mixture of bran is nutritious and laxative, while that from “Rava” (or prepared rough flour) is hard, more nutritious, but indigestible. Biscuits for children should be

made out of the “Rava” flour which, after being powdered and boiled in milk, is very tasty and strengthening and soon digestible.

Rice.—Boiled rice is very nutritious, soon digestible, and in case of illness is more agreeable than sago and arrow-root. In countries where rice is not obtainable, sago and arrow-root are used. Old and thin rice is agreeable. Thick rice would be quite the reverse, but among the poorer classes, owing to their having been habituated to it, it does not harm them. Stale boiled rice should not be eaten as it is difficult of digestion and brings on dysentery. NAWAB SALAR JUNG BAHADUR.

Meat.—Meat is an excellent food whereby the system is nourished and the temperature kept uniform; but it can only be considered good when the animal slaughtered is not old and diseased, and very much depends upon the preparation of the same. The flesh of young animals is not very strengthening; that of a full-grown one possessing, as it does, nitrogenous matter combined with fat, is solid, while that of old animals, being quite bereft of nitrogen and fat, is less solid, unwholesome and indigestible. In short, flesh from fresh and healthy animals would afford strength, and that from old and unhealthy ones would create various diseases and indigestion. Beef, as it possesses fat, does not agree with some persons. Mutton, being less fatty, is more used and is wholesome. Veal is of a middling nature. Birds and fish contain less fat than the goat, and are therefore sooner digested and useful to weak and debilitated persons and to those who are dyspeptic. Venison, being fibrous and tough, should be so prepared that the fibrous matter may not injure the consumer. When “kawabs” are to be made, they should be turned quickly so as not to allow the suet to drop on the fire. If soups or broths are to be made, they should be on a slow fire. The more water evaporated the more concentrated will the soups or broths be; and therefore more nutritious. Strong broths, &c., are made in various ways. To make a good broth the meat should first be fully boiled down, and, after straining, a powdered “Massala” of cloves, cardamoms,

coriander and cinnamon should be sprinkled over and then placed in a jar, the mouth of which should be wrapped up by flour around the lid and placed in a vessel of water over a slow fire; as the water becomes heated, the juice of the flesh in the jar is fully extracted. This is called "Jar broth," is very palatable and strengthening, as the water that has been extracted is purely the juice of the meat. Sometimes a stronger broth, known as an "Essence," is done by a special process, *i.e.*, by putting the flesh into an air-tight tin, which does not allow the air to escape or enter, and thus the substance is preserved intact for any lengthened period without corruption for use at any moment. Out of this essence, which is so very strong that if one part is taken and added to 408 parts of water with the necessary ingredients and then boiled for 10 or 15 minutes together, a very palatable broth can be made. From this essence "Iknee Palloos" can be made, and it is also very useful and handy when travelling even on board-a-ship. In preparing the flesh and to make it tasty, so much spicy matter should not be used as for other meats, or otherwise it will become deleterious as described heretofore. When the meat is good itself and prepared skillfully, it will be very palatable.

Recipé for Beef or Meat Essence:—

"Cut up a pound of lean beef or meat into small pieces, put it into a pint bottle, without water, cork it loosely and immerse the bottle to its neck in cold water in a stew-pan. Bring the water to a boil, and let it boil for two hours. Then pour off (do not filter) the essence." Hartshornes' Essentials of Medicine, page 521. There is another point on this subject to be observed, that if the flesh is to be eaten with the object of gaining strength, it may be said that the meat itself possesses all the nutritious qualities required to sustain the normal heat, but it is desirable that it should be accompanied by either bread, rice, or some kind of vegetable. Man is omnivorous, and can therefore indulge in both flesh and vegetables. If meat alone is eaten, it will bring on constipation; but if it is coupled with vegetable or fruit, a liquid secretion will be

formed in the intestines, and lead to digestion as well as aiding an extra flow of urine and purifying blood. Eggs and milk are also excellent food if agreeable to the constitution.

The characters of good meat may be stated as follows :—

- (1) *On Section.* It should present a marbled appearance from intermixture of streaks of fat with muscle. This shows that the animal has been well fed.
- (2) *Color.* Neither too pale nor too dark. If pale and moist, it indicates that the animal was young and diseased; and if dark or livid, it shows that in all probability the animal was not slaughtered, but died with the blood in it.
- (3) *Resistance to touch.* Both muscle and fat should be firm to the touch, not moist or sodden, and the latter should be free from hæmorrhagic points.
- (4) *Juice.* Any exuding from the meat should be small in quantity, of a reddish tint and of a distinctly acid reaction. The juice of bad meat is alkaline or neutral.
- (5) *Fasciculi.* These should be free from a mucilaginous or purulent looking fluid in the intermuscular cellular tissue.
- (6) *Odour.* Should be slight and agreeable. An unpleasant odour indicates commencing putrefactive change. By chopping a portion of the meat into small pieces and afterwards drenching with warm water, any unpleasantness of odour will be more readily detected. Another good plan is to thrust a long clean knife into the flesh and smell it after withdrawal. Slightly altered from “Wilson’s hand-book of Hygiene,” Fourth Edition, page 41.

CHAPTER II.

CLOTHING.

To protect the body against heat and cold, sun and rain, clothing is necessary. As mankind is bereft of wool, feathers, &c., such as animals have, and as the body is plain and soft, God has endowed man with sense so that he can select clothing best suited to his wants. As regards animals, Providence has favored them with a sufficient covering to battle against all kinds of weather. In extreme cold climes, very warm clothing should be worn in order to preserve the normal temperature and free action and circulation of the blood. Nature itself requires that clothing should be worn suitable to climates according as heat or cold may prevail, *e.g.*, in cold countries clothing of wool and other warm textures are worn, while in hot climes cotton, silk and other light materials; and then again the country itself produces the necessary materials according to its climates, where the customs of the people also differ. In northern latitudes, owing to the extreme cold, the inhabitants envelop themselves so much that only their nose and eyes are exposed; if they fail to do so, great damages to the constitution arise to an extent that even the tips of the fingers and ears will drop off through mortification, properly known as frost-bite. In addition to the above practice, in less cold countries the inhabitants only expose their hands and face, and fully wrap up the remainder of their bodies, and any exposure of the latter would bring on such disorders as pneumonia, &c., and in these climates the feet are kept very warm to avoid their getting affected and thereby preventing a swelling in the limbs; therefore the well-to-do-class wear tightly-fitting shoes and boots with the object of guarding against those ailments. Their clothing also is tightly worn, so that the cold may not affect their body. In hot countries loose clothing is worn, so that circulation of air may freely be effected, whereas according to the climates of the cold countries the throat is bandaged by a woollen comforter, for should the cold draught strike or blow against it, it will bring on quinsy, pneumonia, phthisis, &c. If a person from Hindustan were to travel to Europe, he should

order a comforter and provide himself with flannel shirtings in wear to keep the chest warm, or use a chest-protector. In hot countries the head and abdomen should be protected, for if they are exposed mental disorders will certainly arise in the way of headaches, &c., and if effected by cold, running of the nostrils; and when affected by heat and cold together diarrhoea, dysentery, &c., emanate. The inhabitants of these countries, according to the variations of season generally protect their head and abdomen as they are forced to do by nature itself. As seasons vary clothing should likewise be matched, and kept up for ten or twelve days, so that the body might get accustomed to it, *e.g.*, in animals also it may be noticed that nature provides for them; according to seasons in the cold season their furs are thickened and fat increased, and during the hot season it is *vice versâ*. Loose clothing should be regulated according to young and old, as both are prone to cold, or otherwise harm will result even after the recovery from any illness; this practice should not be despised as it would debilitate and otherwise do harm. To preserve health it is very necessary that clean clothes should be used. When the author was in charge of the hospitals at Bhir and Aurungabad, he found a number of patients from whose clothing very offensive smells arose, and when questioned they replied that it was over and above a month since they had a change. This is a most lamentable habit, for the air itself becomes contaminated, and by filth accumulating in the clothes which sticks on to the person, block up the pores of the body, and much sickness is brought on, and also transferred to others.

CHAPTER III.

AIR.

It is known to everybody that to sustain life air is an important factor, for without air life would become extinct; and for the free action of breathing and purification of the blood, pure air is required. And it is an established fact that oxygenation is much dependent upon the purity of the breathing air which passes in through the lungs and is exhaled. As much pure air

as is inhaled, so much the better for the blood and entire system. By observing this fact many disorders will be prevented ; for by a neglect of this principle many “Gosha” or “Purdah” ladies suffer from diarrhoea, and dysentery, due to the narrowed streets and imperfectly ventilated dwellings in which they reside ; and what is the main element, but the circulation of impure air loaded with carbon and the poison of exhaled vapours. It very often happens that from want of open-air exercise the constitution of persons becomes enfeebled and apathetic, dormant and weakened although it may not create any special disorders. The air that is drawn in by the lungs is quite different from that which is breathed out. The inhaled air acts upon the blood in the rudely-extended capillary system of the lungs, whereby oxygen is received and carbonic acid liberated. Oxygen, the vitalizing agent, invigorates the system and stimulates internal action, while carbonic acid, which is a deleterious agent, is exhaled and forms food for plants. By the law of diffusion of gases, the exhaled matters mingle with the surrounding air and are again rendered fit for human consumption. The air which is inhaled, or atmospheric air, contains one in 2,500, or 4 parts in 10,000, and air passed out contains, besides carbonic acid, aqueous or watery vapour, ammonia, a portion of hydrogen and animal matter.

Physiologists aver from experiment that life would not be sustained if pure air were intermixed with 10 parts of carbonic acid gas in 100 parts of pure air. This is well known to all, for if a number of people seat themselves in a small room with the doors and windows closed, very soon a headache would be felt and a drowsiness ensue from the very fact of the air in the room being overloaded with this poisonous gas. To instil certain facts into the minds of the readers of this treatise, the following are mentioned:—Some years ago 200 persons proceeded on a sea voyage, and on the way accidentally a cyclone overtook them and they were amassed into a cabin, the dimensions of which were only 18 feet in length, 11 in breadth, and 7 in height, with the entrance closed against them, and these unfortunate people owing to the want of air became quite exhausted ;

headache set in and all were drooping, just at a time when one of them fortunately managed to make his escape and inform the authorities on board who, on inspection, found to their amazement 17 men dead, many lying in a precarious state with blood oozing out of their ears and nostrils, and the remainder in a high stage of fever. A second instance may be noted, which Indian History readers must be familiar with, that during the time of Nawab Siraj-ud-dowlah 146 persons were thrust into a room rightly called the "Black-hole" in Calcutta, that from the want of air 121 actually perished by the following morning, and the remainder also were found in a dying state. It is therefore clear that free ventilation is necessary, without which life would be imperilled, as owing to the want of pure air the poisonous vapours are inhaled. Each breath draws in air to the quantity of one pint or half a quart bottle, that is, the vital capacity of the chest of an individual 5·7 in height is 225 cubic inches at a temperature of 60° F. In ordinary tranquil breathing, 30 to 35 cubic inches are exchanged. If the air were to contain one part of carbonic acid against 100 parts of pure air, it would lead to restlessness, or should it contain 10 parts of carbonic acid, the results will be fatal. Besides breathing of foul air there are many other causes which may render the atmosphere impure, *i.e.*, by rank vegetation, decayed fruit, and the decomposed carcasses of animals which produce noxious vapours and are very injurious. Flesh contains sulphur and phosphorus. During the fierce heat of summer flesh decomposes and sulpho-hydrogen gas (H_2S) is evolved. This itself, if inhaled pure and unmixed, is deadly poison. And besides animal flesh in its decomposed state produces many other harmful substances. It is useless to narrate the many other evil products which arise from rank vegetation, &c., as they are too well known, but a simple description is here given to point out how injurious stale and putrid vegetation is to the public health.

Sulphuretted hydrogen gas is contained in the air and in putrefied eggs, according more or less, to the extent of their decomposition. This gas is transparent, and without

colour, of the disagreeable smell of rotten eggs, and is readily produced from putrid vegetation and other filthy drains, sewers, &c.

Sulphuretted hydrogen gas occurs free in nature in volcanic gases as well as in certain springs, *e.g.*, Harrowgate. It is so injurious that if one particle were contained in 1,500 of air, death will be caused to small birds, and if 250 parts of air were impregnated into a single particle of this gas, a horse would die; and, furthermore, in one particle of water two and a half parts of this gas is soluble, affording at the same time a smell and taste; and this impure gas always exists in quagmires and marshy places.

(PH_3) Phosphoretted hydrogen gas is also colourless and arises from the decomposed animal carcasses and emits an odour of rotten fish. This gas is also highly injurious to the human body.

Carbonic acid gas is also inodorous and colourless, but with a slightly acid taste. It is exhaled from the lungs of man and animals; this gas is likewise more readily produced from rank vegetation and decomposed animal matter. This gas is very deleterious to human existence, and even in a high state of diffusion produces serious disorders. To prove the presence of this gas in a concentrated form, a lighted taper when brought to its vicinity is immediately extinguished.

Ammonia is another kind of transparent gas, the taste of which is very disagreeable and pungent, the smell resembling that of stale urine. This gas is also produced from rank vegetation as well as from the decomposition of animal matter, and if an animal were to be thrust into this gas, life would become immediately extinct.

“Ammonia is extensively soluble in water, one grain of water at 0° absorbing 0.872 grammes, or 1,149 times its volume of ammonia under pressure of 760 MM.”—Roscoe. If this water is used, the pores of the body will become closed and will consequently bring on scurvy and blood discharges.

Besides the above, certain harmful substances are produced from putrid matter contained in the air, and the facts thereof have not yet been fully ascertained; but it is proved beyond doubt that according to the above these gases are combined in the food and water; if the quantities of these gases are increased, many diseases will be created, especially of the zymotic kind, such as cholera, fever, dysentery, &c., in very acute forms. If a less quantity of the gases is retained in the system for a time, it will be the causation of lassitude, weakness, headache, indigestion, dysentery, and the color of the skin will also become pale. It should be remembered that air enters the body through the lungs, mixes itself with the blood and nourishes the internal organs, &c., and thereby purifies the blood. It is therefore necessary that the places in which we reside should be healthy and open, in order that we may inhale pure air. Houses should be kept clean to allow the free entrance and exit of air and should not be crowded, for overcrowding of houses is productive of unhealthiness. As the wastage of air is larger, contamination will be in equal proportion, thereby leading to the many ills which flesh is heir to. It is desirable that every dwelling house should be so constructed as to freely admit of air, as, for example, an ordinary house should have a door and a window on one side to allow fresh air to enter, and another door and window on the other side to allow that air to escape; it is however objectionable to lie or sit in front of the window or the door through which the breeze passes, and it is therefore advisable that persons should guard against it, and sit or lie towards a side. A house containing only one door does not permit of the free circulation of air, and consequently on sanitary grounds houses should be kept scrupulously clean by the removal of all filth and uncleanness as a preventive measure against the rise of any disease; this would not only harm the dwellers themselves, but also afflict or affect the surrounding neighbours in the way of fever, headache, lassitude, and breaking down of the general constitution; and in the case of epidemics spreading, such persons are readily attacked. In England, where houses are kept in an insanitary state, the neighbours make a report of the circum-

stance to the sanitary officer who, after due inspection, carries out a reform by force, besides imposing fines, to have future deterrent effect. In this country persons who can afford to do so are permitted to construct suitable houses, otherwise such permission is not granted, but the necessary permit should be given to those wishing to construct houses on sanitary principles for the preservation of their health. In every country until a disease breaks out, the inhabitants seem quite indifferent. Although houses may be tidily kept in the city and its suburbs, yet to be in perfect health out-door exercise in the open air should be practised. Cold air is preferable to hot air, as thereby the system is somewhat braced and is made active. For this purpose exercise should be taken in the cool of the mornings and evenings without much exposure to the sun and heat of the day. By the inhalation of the cool air the system is strengthened, breathing is more free and easy, and the blood is purified in addition to the mental faculties being kept in active order, the appetite is increased, the circulation of the blood becomes more free, and lassitude, &c., are entirely removed. Pure air is essential to healthy persons as well as sickly persons while under treatment. It very often happens that persons under medical treatment, if not wholly recovered, are greatly benefited by a change of air and scene.

It is not generally known here what benefits to health accrue from a change of air, but it may be remarked that such change is preferable to a thousand other remedies, whether they be a simple external application or a useful internal remedy.

CHAPTER IV.

WATER.

It is generally admitted that water is a most important element for the sustenance of life, and that a large percentage of all living organic matter consists of water; for example, a person weighing 154 pounds, if brought under chemical examination his component parts will be found to contain 116 of aqueous matter

and 38 of solid. To 1,000 parts of the human blood there are 784 parts of water. Besides, much water escapes by the skin, lungs, and kidneys. It is very necessary that the human body should have pure water for inward consumption. It will be at once evident from what has been expressed above, that water in a great measure absorbs and extirpates from the system all vile matter in the shape of bad animal and vegetable food, and physicians have determined from experience that many ills arise consequent on the drinking of impure water, such as indigestion, diarrhœa, dysentery, and other epidemics, &c. This impure water, if used for a time, will certainly vitiate the blood, and thus bring on all kind of further and greater disorders. In short, the inhabitants of the city are not aware of the modes of obtaining wholesome water, as the ordinary sources from which water is obtained are the tanks, rivers, wells, reservoirs, besides the annual rainfall materially adding to the quantity. These are generally impure, and therefore a few practical hints are here given. To some people, through constant habit, the drinking of impure water as described above engenders itself into the system, and although they labour under many disorders, the fact of the unwholesome water is not noticed. Some years back in a small hamlet of the city of London, owing to impure water many persons suffered, and when steps were taken to remedy that evil all fears were removed by the mortality becoming lessened. Since then after the usual remedial reforms were introduced in the Presidencies of Bombay and Madras, the public health improved considerably and death-rate fell.

I append a table from Dr. Wilson's valuable work which I trust, will be of use to many of my readers:—

Wholesome ...	{	1. Spring water ...	}	Very palatable.
		2. Deep well water ...		
		3. Upland surface water. ...		
Suspicious ...	{	4. Stored rain water. ...	}	Moderately palatable.
		5. Surface water from ...		
		cultivated land ...		
Dangerous ...	{	6. River water to which ..	}	Palatable.
		sewage gains access...		
		7. Shallow well water		

The above has been arranged "in respect of wholesomeness, palatability and general fitness for drinking and cooking."

A healthy adult requires daily from about 3 to 6 pints of water for the purpose of nutrition, $\frac{1}{3}$ rd being contained in articles of diet and $\frac{2}{3}$ rds in the form of liquids. The amount for cooking is about $\frac{1}{2}$ a gallon to one gallon for each individual, when the calls for washing purposes must vary according to the needs of the individual. A soldier is allowed 15 gallons daily, no extra allowance being made for women and children in a regiment. Professor Rankin has given the following estimate:—10 gallons daily per individual for domestic purposes; 10 gallons daily for Municipal purposes, 10 gallons daily for trade purposes in manufacturing towns; Glasgow receives 35 gallons daily per head of population; Edinburgh and Southampton 35 gallons daily per head of population; Paris gets 31, and Liverpool 30, gallons.

It may be here remarked, that for the purpose of drinking water free from impurities, a filter may be employed, either the costly ones of the Water Purifying Company, London, or Lipscombe's, or the various filters devised by Halliday & Co., Manchester, or the much simpler three-pot filters, so often seen in private houses or railway stations.

Animal charcoal is a filtering medium, the most efficient. It requires to be frequently removed. It exerts a chemical as well as a mechanical action on impure organic substances held in solution in water according to Professors Frankland and Parkes. Water may be purified without filtration by the addition of a certain amount of lime water to a water which contains carbonate of lime rendered soluble by the presence of free carbonic acid. This is a very expensive process and is not used except on the large scale in cities.

I would suggest, in all cases where any suspicion exists, to examine water microscopically, and thus much information may be obtained. In Hyderabad there is virtually no Medical Officer of Health, whose whole time can be devoted to the interests of the people in the matter of their health, and I am of opinion that a

gentleman should be selected who can have his time unburdened by the professional calls of a regiment of individuals. He should be well paid and free from the trammels of red tapeism.

CHAPTER V.

HEAT AND COLD.

It is understood that contaminated atmosphere contains quantities of heat, dryness, cold and dampness, the predomination of any of these would materially affect, either for better or worse, the various constitutions and ages of persons. *e.g.*, the dry atmosphere in hot seasons would be beneficial to those who are phlegmatic, old and debilitated people, and those who are subjected to chronic diarrhœa, cough, asthma, &c., as it plays on the skin and lungs causing a diversion through other channels of the accumulated offending particles. Such will not be agreeable to full-blooded or corpulent persons, as the heat would affect their constitution by the blood rising upwards to the head and causing many ailments, *viz.*, headache, discharges of the blood, fever and other inflammatory diseases; cold and dry winds, during the cold seasons, act quite differently to that enumerated above. It will be disagreeable to those ailing from the above complaints, but be favorable to others. This atmospheric change generally brings on the following diseases:—affection of the glands, running of the nostrils, catarrh, bronchitis, asthma, and sometimes dysentery, diarrhœa and ophthalmic disorders. During the rainy season the air is loaded with moisture, so that persons whose lungs are affected will feel a difficulty in relieving their chests. The skin furthermore is not

active as usual and so double work is thrown upon one organ ; and various deleterious products which should be thrown out are retained within and cause various disorders as cough, dyspnœa and fevers. The effects of heat and cold can be averted by clothing and food adopted, and in extreme hot or cold countries houses should be regulated in relation to the prevailing winds. Before any sickness is treated upon, the above sanitary measures should primarily be adopted. It is understood that the human temperature should be at 98 degrees, whether in the hot or cold climes of any region. Experience dictates that from the internal heat the external should be at least from 60 to 70 degrees ; if less or more, it would be hurtful, for if the cold is increased the circulation of the blood becomes inert and the system itself is rendered inactive and various diseases are produced to those predisposed to cold as hereinbefore described ; and if too much heat prevails the reverse results will follow. In Europe the atmospheric temperature is in the winter seasons either 24 or 27 degrees, and during the summer season it is never more than 80 degrees, for which arrangements are made to regulate the required normal heat. In places like Africa and India where the heat varies during cold seasons from 50 to 70 degrees, and in the hot seasons from 100 and upwards, in order to keep away the heat in hot seasons some measures should be adopted. For this reason the habitations of the different countries are constructed according to the climates of the soil, that the entry of cold and warm air may be admitted as circumstances may require. In India houses are constructed which are least likely to act as an obstacle to the free circulation and movement of air to all parts of the house, while in Europe the structures are so lofty and airy that it is not deemed advisable to regulate them, though even the heat may be at 80 degrees, and in the cold seasons several measures are adopted to preserve the heat to the normal tone of 60 or 70°. In some houses fire chimneys are kept, and in some, heated pipes are introduced so as to warm the surrounding atmosphere. In hot countries, as in Hyderabad, the cold seasons preserve the health and constitutions of people tolerably well inasmuch as the weather is

temperate and persons coming from cold climates do not find a necessity of heating the atmosphere, but those predisposed to cold, and suffering from bronchitis and other lung affections, provide themselves in their rooms with heated furnaces, &c., in the middle of the doorway, so that the air that enters may first be heated within. In hot seasons to prevent the heat, measures are also adopted in the way of watering the places, keeping of “kuskus” tatties and thermantidotes, &c., thus the air is cool, perspiration prevented, and the system kept calm. Of all the modes of keeping the air cool, thermantidotes will be found the most useful as they are a sort of “punkahs” on a revolving principle which produce and circulate much air when worked, and are effectually a kind of

Thermos=heat. antidote against heat, and thereby derives its
 Ante=against. name thermantidote. Wherever therman-
 tidotes are used the doors of the rooms

should be kept shut to prevent any other heated air entering, but the sky-lights may be kept open in order that the hot winds may escape as well as the foul air breathed out. Besides the thermantidote, the usual long punkahs suspended by ropes should also be employed for the circulation of the air produced by the thermantidote, from which air is obtained in one straight direction. Care must be taken that it may be raised above the heads of children and adult members, and that a light cotton fixture may be applied to the mouths of the thermantidotes in order that it may not injure anybody, and the current of the air may not be so forcible even when seated nearly opposite. Many persons of this country are in the habit of lying out in the open air during the hot seasons and appear to think this a sort of luxury as sleep is soon produced, but this is a very injurious practice as the air varies at the beginning of night and gradually increases in force as the night grows on. The injury that is done is as follows:—Heaviness of body, lassitude, and sometimes catarrh, coughs, colds, paralysis, rheumatism, &c. Therefore it will be preferable to have punkahs, &c., inside the house, instead of sleeping out in the open air.

CHAPTER VI.

SLEEP.

Sleep affords rest to the mind and body, by which all the senses become dormant and other actions of the body are so concentrated as to create a calmness and freeness from all worldly cares; but, nevertheless, for the preservation of life the circulation of blood and other internal actions move slowly. It must be understood that the human system becomes both weakened and injured if rest be not attained, and for this reason sleep has been described by Young as "Tired nature's sweet restorer, balmy sleep." During much exertion, both mental and bodily, the system is weakened, and sleep alone renders a perfect restoration of the fibrous members and nervous material that were exhausted and absorbed during those exertions. If there be no sleep the system would become quite deranged, and therefore sleep is essentially necessary to such an extent as it may not be less or excessive, for by much sleep lassitude and weakness arise and the appetite is lowered, thereby disordering the whole system; and the disposition also becomes morose. Too much sleep necessarily deprives a man of time for active exertion. In all persons the time allotted for sleep varies; as very much depends upon their habits and constitutions, age and sex, as well as the different climates of the countries in which they reside. During childhood, for the development of the nervous system, sleep should be prolonged. This can be noticed by infants sleeping as nature enforces, and while in that state they should not be disturbed. In healthy adults seven hours' sleep are quite ample; females being of the weaker sex, an extra hour is necessary; and, in the case of pregnant women and suckling mothers, one or two hours more. In the case of the aged and infirm people it is necessary that, although they may not sleep at once, they may be allowed to rest for a longer period, and although very many persons who may sleep for only a few hours are quite healthy, yet debilitated persons require more rest as well as those who exert their mental capacities. Divine Providence has ordained that the night

should be set apart for sleep, and day for work. It is not necessary for persons to sleep during the day, as this practice is injurious in the long run, and is productive of indigestion, unhealthy features, and mental imbecilities. In youth, during the winter season of cold countries sleep is not produced, nor are such persons inclined to sleep during the day, and the inhabitants of those countries do not accustom themselves to sleep. But whereas in hot countries, owing to exhaustion persons are inclined to sleep, and the system naturally demands rest during some part of the day. Although the day is meant for work, yet after a meal a little rest becomes necessary and aids digestion; and yet if work is undertaken immediately after a meal, the blood is drawn away from the organs requiring an increased supply, causing thereby weakness to the digestive organs; and in the nights a meal should not be immediately followed by sleep inasmuch as it would create restlessness and indigestion, for, "early to bed and early to rise" could not prove a beneficial practice after a bad night's rest. By rising early the mental faculties are in order and can undergo any mental strain, but by sleeping and rising late the whole system becomes sluggish and the brain inactive. It is desirable that the hours of sleeping and awakening should be regulated, which will ensure a comfortable sleep; and if a person were to retire after the usual hour it will be hard to obtain rest; and it is necessary also that children should be habituated to regular hours, so that in their after-life they will follow the same practice. As the clothing worn during the day is removed when retiring, so also should the day's thoughts be abandoned, and thus will a comfortable and easy sleep be procured; when retiring there should not be much bodily exertion, as the circulation of the blood will be increased, and if hard-worked during the day, sleep will not be produced until late. The bed-room should be kept clean, open, and airy, and must not contain much heat or cold, and a person should not sleep just in the direction of a door or window through which the draught enters, as otherwise it will bring on colds, catarrhs, &c. When all worldly cares and thoughts are suspended a sound sleep is produced; but if the system be

labouring under indigestion or any disorder in the circulation of the blood, or if there be any important considerations, fears or sorrows, cold or heat, they will lead to all kinds of dreams. If sleep is not produced it is easily excitable by low singing (of nursery rhymes when rocking children), soft music from the piano and other such instruments, and sometimes by reckoning up to a hundred, or reading. Sleep is also produced by mesmerism, which gradually suspends all the senses, and some healthy persons take to stimulants to induce sleep. This is much to be deprecated, for if one is habituated to this practice, it will be found that sleep will not come on unless the usual dram is taken.

CHAPTER VII.

BODILY EXERCISE.

In the maintenance of health, as in rest, exercise is also essential. It aids muscular action, and maintains an important influence on the circulation of blood, producing its effects on the respiration, at the same time regulating the heat of the system. By exercise the blood is purified, the appetite increased, and there is free perspiration, laxity in the movement of the bowels and the urinary organs; and a person is therefore able to consume a greater quantity of food, which, all combined together, ordinarily signify a pure activity of the muscular system. It does not produce corpulence, but is a tonic to the constitution and keeps the brain in order. It is necessary that exercise should be proportioned to the strength of the individual, for if carried beyond this it would unfavourably affect the mental powers and would lead to debility and general weakness; if less exercise is taken the circulation of the blood is retarded, the temperature becomes low and renders the blood impure. The breathing powers are also lessened and disease pertaining to lassitude arise, such as indigestion, piles, increase of corpulence and dulness of the mental powers. Practically, exercise should

be regulated according to climates and constitutions of the people; for instance, in cold countries greater exercise is taken than in hot countries, and if seated in one place, the body becomes quite chill, the circulation of the blood is inactive and the temperature low, and in such countries persons are desirous of exerting themselves, while in hot countries through the heat the body becomes quite exhausted and needs rest, therefore the habits, customs and occupations of the different countries materially vary. In cold countries active exercise is adopted, and in hot countries sedentary exercise is followed, both of which is deplored by some people, but on due enquiry and closer examination it will be discovered that there is a natural cause for the adoption of such varied exercises. In cold countries the inhabitants are always on the move, and when necessity arises, and, if able, prefer fast walking either to riding or driving, thus enabling the free circulation of the blood and increase to the normal heat. In hot countries like India, persons go riding, and when they walk they do so slowly; if a person were to be seen walking fast or running, he would be considered very indiscreet. To sit in a shady place is deemed prudent, and in the rainy season to prevent indigestion, &c., some exercise is necessary, and even the young feel it a pleasure to knock about, therefore children should not be prevented from running or jumping, care being taken that they do not slip or fall, and this practice will engender itself as to make them active, when grown older. But gradually they have not that anxiety and seek only a perfect quietness and rest. In old age, owing to the various joints being slackened and the fibres of the blood vessels toughened and weak, such exercise need not be taken as it proves injurious, causing thereby affections of the lungs and liver complaints besides apoplexy, not to speak of aneurisms. Therefore in youth and manhood bodily exercise is necessary; among children a little running and walking would be sufficient, as they are still tender and cannot be expected to over-exert themselves; in youth bodily exercise is needed, old age only requiring light exercise, but all exercise should be combined with pleasure and no wise irksome. For this purpose several choice games have

been invented in Europe to suit the many forms of exercise. Young people fond of much exertion take to horse-racing, wrestling, &c. Those above forty years take to dumb-bells, twisting of hand-chains and other weighty instruments of like nature. In these countries besides the above the “Dhund” (by placing the hands on the ground and then bending down, go as almost to touch the earth with the breast) is practised, which is a most strained difficult exercise. Persons suffering from chest or mental maladies above forty should not follow this practice as it is hurtful. Places of exercise should be clean, airy, and roomy. Soon after meals exercise should not be undertaken as the blood by rushing on to the skin will cause indigestion; when the stomach is empty also, exercise should be avoided, as owing to exertion it weakens the system, and the only proper time for exercise is when something remains in the stomach. After intellectual labour and bodily exertion it is not advisable to exercise oneself. By adopting reasonable exercises it is a preventative against many diseases and ailments, but in many cases exercise is required and in others a perfect rest is necessary.

CHAPTER VIII.

INTELLECTUAL EXERCISE.

For the purpose of sustaining the mental capacities, exercise is as necessary as it is in the development of the body. By this exercise the brain is not incapacitated for mental work, and the whole frame is kept cheerful and pleasant; failing this exercise weariness ensues, and the comprehensive powers become dull and enfeebled, thereby leading to further derangements. When the mental powers are not exercised it is lamentable to say that it leads to vicious habits by which the whole system becomes injured to the core. For this reason if no mental exercise is performed, the result would be similar to a fruitful garden,

where, from want of care, wild weeds grow with impunity. The exercise of the mental faculties is certainly very advantageous and the mind itself is anxious for it, and the absence of that exercise renders a person ignorant and imbecile. This important factor can be observed from the very instinct which children possess. Children, as a rule, always have a desire to learn something new of anything which is presented to them and they scrutinize it so carefully and are so curious as to its "make up" which they bear in mind. They follow also the speech, customs and habits of the society in which they mingle. After the age of six or seven, children fresh in the field of life are able to discern good from bad and generally possess honest principles. Parents are the best judges of the nature and temperament of their children, and they should so regulate them that by instilling into them good morals and principles they may be prevented from indulging in evil companionship. Vulgar actions, expressions of obscene words, and fibs should not be committed and uttered in the presence of children, inasmuch as from their immature knowledge such propensities are easily acquired and retained to their disadvantage in future life. It is universally known that tender plants require attention, and accordingly as they are bent they follow the same direction when grown. 'Tis education forms the common mind, just as the *twig* is bent the tree's inclined." Nevertheless mental exercise is necessary in all cases according to age and constitution, solely for the preservation of health. In youth too much intellectual exertion should not be undertaken, as owing to the tenderness and immaturity of the mental faculties such strain cannot be borne. Too much exertion cannot be exacted from the young, nor should they be introduced to book learning till after the age of 6 or 7, as this would confuse their intellect and otherwise weaken their constitutions. Light oral lessons may be given and gradually increased in difficulty according to the development of the mind. In youth, as the mental faculty is enlarging there is a wide scope for the diffusion of knowledge and the undertaking of greater mental exertion ; on the other hand, care must be taken that they do not over-exert their minds, for whilst doing this they

naturally impair their organs and are generally disinclined for physical exertion, and the chances are that in the long run they would suffer from some mental derangement. In the several forms of intellectual exercise it is incumbent that some rest should be given to the brain, and that out-door exercise should also be taken advantage of. During old age much exertion could not be practised, and old people should undertake such work as would not be a burden to their mental capacities. Children of mature age may be tutored with tales from books, reckoning up figures, leading historical facts, logical conclusions, &c., for their improvement. As the muscular powers are strengthened by bodily exercise, so also are the mental powers increased by intellectual exercise.

CHAPTER IX.

EFFUSIONS OF THE SYSTEM.

It must be remembered that for maintaining health the quantity of the bodily outflow, such as urine, excreta, perspiration, &c., should effuse according to the constitution, age, habits, and special dispositions, as well as to the seasons of the countries to which a person belongs. If the outflow be more or less, the system becomes disordered by indigestion, restlessness, want of appetite and other complaints. Free evacuations of the bowels depend on the habits and constitution of each individual person according to his own peculiarity. Some persons ease themselves once a day, and others two or three times. Females once every alternate day; this is not owing to constipation, nor harmful. If any means are adopted for their daily evacuation it may prove harmful, and in the case of old women also, this habit generally prevails, as it is caused by the weakness of their intestines, &c., which are inactive. Notwithstanding the peculiarity of constitution, constipation arises also from vari-

ous causes, such as the use of opium, sedentary habits, eating dry and less food, &c. According to habit, if a person does not resort at the usual hour, the stool will not be free and easy, and the constitution will be damaged. Persons not predisposed to constipation, if in any way costive, should not take any immediate treatment, but the bowels could be easily moved by adopting any of the following simple and laxative measures, such as a good drink of milk, drinking of cold water early in the morning, and food containing plenty of ghee, bread containing bran, spicy articles, sweet fruit in the shape of grapes, figs, peaches, mangoes, &c. There are other means of tonicising the intestinal organs to remove costiveness, by rubbing and applying cold water to the abdomen, walking about or riding on horseback, and by smoking a "hookah" or cheroot. If the above measures prove of no avail, then a medicinal aperient may be taken to remove the complaint. If the motions are too frequent they should be stopped at once, and the urine allowed to pass free, by which all deleterious matter will escape, and the blood becomes purified. Persons specially subject to gout and rheumatism should allow a free discharge of urine, as it is very advantageous to them. For the free passage of urine the following are useful adjuncts, *viz.*, the drinking of milk, tea, or cold water, and cold baths, and bodily exercise; by these means perspiration will also be produced, biliousness prevented, and the body kept in health. There is a relation between the liver and the skin, and one does very often duty for the other. Horse-riding and other manual exercises lessen the tendency to biliousness. Perspiration occurs normally in every body, and when the water is evaporated, the solid substances are left behind on the skin, popularly known as "dirt" and if this be not removed, it will be re-absorbed into the system and be productive of much injury.

The ordinary constituents of perspiration according to Georup, Besanez, are :—water, fats, urea, salts and acetic, butyric and formic acids. Under the surface of the skin there are numerous glands which secrete perspiration, and to each of

these glands, a tube is attached, the mouths of which open on to the surface of the skin ; within the space of one cubic inch there are about two thousand eight hundred of these glands. According to Krause, their total number is 2,381,248. By experiments Physiologists have reason to believe that if all the glands of a human frame were to be accumulated and spread, it would cover a distance of 28 miles (or 14 “koss”). It is understood that in hot countries perspiration is greater than in cold countries. Perspiration is of two kinds, one is sensible and the other insensible ; the former is felt, but when produced, evaporates ; the latter is that which is perceptible, containing two different substances, one liquid, vanishing into the air, and the other being of an oily nature, and remaining on the skin ; besides the above there are many other substances in the shape of acetic acid and other salty and animal matter of an acid smell. If that animal matter be retained a variety of congestions will arise. As an instance, it may be noticed that if varnish is applied all over the body of any animal, perspiration would be suppressed and the animal itself cease to exist. This is the experience of an eminent Philosopher who tried the experiment. In the same manner, human life would cease to exist if perspiration be suppressed. By perspiration the clothes on the human body are stained with the oily matter, although that matter be not apparent. However, if it be not washed away, it will adhere to the garments and produce an offensive smell. It is necessary that the skin should be kept clean and that the filth remaining after perspiration should not be retained, for otherwise the pores will be blocked and the action of perspiration seriously interfered with, causing many ailments thereby. But in cold countries, where the perspiration is less, the clothing is more frequently changed ; how much more in hot countries where it is greater ; and where absorption by the clothes are more readily effected ! The body should be cleansed daily by baths. Some prefer warm water and others cold, and some tepid, and others again add salt to their bathing water. To the young and hearty cold baths are very advantageous, as it keeps the system in order and gives it a tone. By

bathing in warm water weakness follows. Children of 4 or 5 years, aged people, and females when menstruating, and debilitated persons should use warm, or tepid warm water, with propriety. After bathing the skin should be well rubbed, and dried by some rough sheeting. There are various ways of bathing. Some adopt pouring the water over the head, others seat themselves in a bath tub, and others again are in the habit of diving plunging their heads into the water. When intending to bathe or in a bath tub containing warm water, the feet should be first put in and then the body introduced. If cold water, one or two bucketfuls should be poured on the head before entering the tub. By this process the free circulation of the blood is aided towards the cranium, and after bathing, headaches, &c., are removed. Another kind is the shower bath, which females generally dread. Again there is another kind of bath called the vapour bath or Turkish bath which, is not considered very favorably both in India and Europe, as it embraces many complicated processes. In Russia there is an extraordinary way of adopting this latter bath : persons expose themselves first in a heated bath-room, and, after perspiring, they skate on ice until the body becomes fresh and glowing, but, strange to say, this does them no harm.

CHAPTER X.

VICIOUS HABITS.

It is advisable that liquors and other intoxicating drugs should be avoided, as they are an ultimate ruination. Although at first when imbibing these, pleasure may be found, still after a time persons actually become enslaved to them, by which the constitution is wholly impaired and many evil effects are produced. The features become disfigured, the complexion pale and dark, and the nervous system deranged, and therefore intelligent people do not indulge in this practice.

Under this head I may refer to that very abominable practice carried on in its widest extension in Hyderabad—I refer to sodomy, masturbation and bestiality. I may be pardoned for introducing this subject ; but it is done with a view that the dangers of these proceedings may be understood, and that my readers may be in a position to correct these ill-doings when they even happen to observe them. These by their enervating effect, narrow the mind, enslave the passions, and make the subject of them irresolute, dull, and imbecilious.

CHAPTER XI.

TEMPERAMENT.

The individual essences of mankind are contentment, joy, sorrow, anger, affliction and despondency, the actions whereof operate upon the internal system, producing thereby good or bad effects, according to circumstances. Contentment, as is well known, affords pleasure in all things, the mind kept at ease and the health preserved against all ailments. Sorrow, affliction, despondency, and mental considerations affect the general health, and create indigestion, sleeplessness, weakness, and other mental derangements, *i.e.*, insanity, melancholia, &c. It is therefore necessary that in the utmost cases a hopeful spirit should be maintained and all imaginary fears dispelled. Some persons suppress their sorrows, while others disclose them. When a Medical attendant is taken into confidence, a patient does not hesitate to lay forth before him the causes of illness or grief. Persons labouring under any mental affection should adopt some occupation whereby those thoughts may be driven away, and those that are spiritually inclined should seek proper consolation, and they should not be in anywise molested by the thoughts and cares of this mundane sphere.

CHAPTER XII.

SANITARY CONDITION OF TOWNS
AND VILLAGES.

In order to preserve the sanitation of the City of Hyderabad, its suburbs and districts, the following hints are given which are manifestly important to be observed. It is beyond doubt that what is explained here, tends to decrease the spread of serious epidemics, and thereby to diminish the death-rate. Even were diseases to break out by accidental circumstances they would not be of a virulent type. Records and experience have also proved that longevity of life has been steadily maintained by the excellent measures of sanitation. Previous to sanitation the average death-rate in healthy spots was 15 out of thousand annually, and in unhealthy spots 36 out of a thousand. In conserved places there are three Registers kept, the first or Marriage Register, containing the names of both male and female members, and the dates of their nuptials. In the second book or Birth Register, the entries of the dates of births of children (male and female) are made, together with the names of the parents. In the third or Death Register, entries are made of deaths, at what ages, whether male or female, and the cause of death. Residents not affording the necessary particulars are punished by a fine. Government benefits by this principle and can afford benefit also to its subjects:—From the perusal of certain author's works, the following particulars are recorded. During what appointed interval a patient was attacked, his age and profession, and period after which he became a victim, and also whether the disease became epidemic, in what localities or villages they were so? By these particulars the attention of Medical men are first drawn to the diseases of each individual person. By the spread of disease and increase of mortality Government also sustains a pecuniary loss for making provision for the surviving relatives and orphans. This circumstance is no doubt a great burden to the State and many others as well. It has also been noticed that the spread of disease is owing

mainly to want of proper timely treatment and also proper diet, whereby the mortality increases. It is therefore absolutely compulsory that such effectual measures should be adopted so as to benefit the country and Government:—

- (a) For the better sanitation of a town or village it is necessary that large deep pits in low grounds at a great distance should be dug for the deposit of all refuse. These pits should be in such localities far from wells, tanks, rivers, &c., so that the air emanating therefrom should not affect such villages or towns. After the daily refuse has been deposited in the pits it should be covered over with a little earth. At a little distance from the neighbourhood two latrines should be constructed, one for male and the other for females.
- (b) It is necessary that the inhabitants should collect all their rubbish morning and evening and throw it into dust-bins provided by Government for the purpose, so that it may be removed by the Conservancy carts. The drivers of these carts should be particular that they do not forget the precaution of throwing a little earth over the rubbish.
- (c) It is desirable that cattle should not be picketted in the yards of houses, for the air is contaminated by their urine and dung. It is also necessary that no filth or rubbish should be allowed to accumulate, and that the latrines should be cleansed daily, care being taken that no “Sundasses” or sink holes are made within houses and that the drains from latrines are not let on to roads or public thoroughfares; small closed drains should be so constructed as to flow into a regularly made public drain, and

these public drains should at least be cleansed once a week by water from running streams. These measures will remove all offensive smells in the streets and all the filth that is unsightly.

- (d) Burial grounds should not be at or near wells (as in the case of the English cemetery at Shorapore) or drinking fountains, and should be at a distance from a town or village. Graves should be dug deep to allow of the greatest filtration of gas and water.
- (e) Slaughter-houses also should be at a distance and on low grounds, and butchers should be warned to bury all intestinal filth underground, for that would otherwise contaminate the air.
- (f) A watch should be kept upon all tanks, rivers and wells, so that the public may be prohibited from bathing or washing clothes, cattle, &c., near them.
- (g) Small houses should not be overcrowded and they should be properly ventilated by small openings in the walls; and it is objectionable that cooking or the curing of fish or meat should be effected in the sleeping apartment. Valvular openings in the roof will admit of smoke from the fire-ovens ascending, and finding its way out. During the prevalence of cholera and other infectious diseases, bags containing charcoal ought to be suspended from the roof, and these changed once a month.
- (h) If a new street is to be opened, and a fresh neighbourhood populated, it is necessary that the roads therein should be so wide as to admit of free ventilation of air, and that the inhabitants may not in a measure be huddled together.

- (i) Prickly-pear and other wild hedges should be removed from their very root, for otherwise they would foster various reptiles whose prey are enclosed amongst these hedges, and after a time they cause offensive smells and likewise contaminate the air.
- (j) The evils arising from the dirtiness of the body and uncleanness of clothing has been mentioned in a previous page. Suffice therefore to say that the body should be washed daily and the clothes changed in like manner.
- (k) For the purpose of avoiding filth from local drainage, embankments should be constructed on the sides of any outflow of water from rivers. Nuisances should also be prevented and dead bodies should not be interred in close proximity thereto. The author of the present subject is able to affirm from his own personal experience that swampy places are generally the hotbeds of all diseases, and these are of a most virulent type.
- (l) Any business that would by its process be injurious to the public health should be forthwith put a stop to.
- (m) In large cities the water-supply is a very important matter. It is the want of this pure and wholesome element which gives rise to the majority of the evils or drawbacks attending sanitary defects in any country. By a good water-supply the health is preserved, and by a plentiful supply the rubbish, through a public drainage, can be easily removed.

CONCLUSION.

Perhaps some people may consider that the above hints are invidious and uncalled for, though written with the best of

intentions, the author firmly believing that the prosperity of a good Government mainly depends on the welfare and longevity of its subjects. If medicine can be of any use to persons who may be subjected to diseases, it would be lamentable on the part of intelligent Medical men not to eradicate those diseases by timely advice and treatment. Trade, agricultural and other pursuits would be suspended if the necessary preventative measures are not adopted, and this would also prove a source of loss to Government and the community at large. Besides, as already described, if one man were to die, it would expose his family to great misery, for the loss of a bread-winner would send a family of even 20 members a-begging, which, if not successful, a livelihood must only be obtained by dishonest means; and here again is another instance in which Government is a loser, surviving members who undertake the maintenance of a family in case of death happening as aforesaid, generally find some honest means of doing so sometimes by raising the prices of their manufacture. If burdens of this nature were to fall on a light-minded person it would certainly lead him to commit riots, thefts, &c., for the purpose of gaining a livelihood, however dishonest it may be. In fact, the reader will perceive from the foregoing that the welfare and the prosperity and the longevity of a people are the pillars and support of a good Government. The general principles described in each of the preceding chapters, if carried out in their entirety without prejudice, the author is confident that much advantage will accrue, that public health will be maintained, and, above all, life, which is most precious, will be prolonged.

