

Food Beliefs and Practices - A Review

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It is an anthropological axiom that “in order to work with a people it is essential to understand their culture”. Such an understanding becomes all the more important when a conscious attempt is being made to change the habits and actions of a group for its benefit. An important programme that has been launched by the Ministry of Health in an attempt to reach the goal of Health for All by 2000 A. D. is the Primary Health Care programme, in which Food and Nutrition form an essential component.

It is seldom that man eats all available edible material. Cultural patterns set by his parents and associates, both by observation and by explicit instruction, classify for him food items as being appropriate or inappropriate in certain situations. The general food beliefs of the community are deeply entrenched in his mind, and practised. Such beliefs can therefore significantly influence the nutritional status of the community and become a factor of importance in any nutrition programme. Health workers whose duties include advising the public on the correct choice of foods, could profit from a study of food belief systems of the people among whom they work. Such a study would provide a clearer picture of the framework within which their advice will be followed.

There is no evidence that prolonged habituation to certain basic foods has ever generated a physiological resistance to change, although man often resists changes in his accustomed dietary. The acceptance during the past 40 years of wheat flour and bread by Sri Lankans, a large majority of whom did not consume any before World War II, is an example. The connotation of the term “food habits” is a social one. It implies that a set of dietary assumptions, expectations and methods of preparation, have become integrated over a period of time into the totality of the cultural beliefs and observances of the people. It is when such habits are enmeshed in domestic conservatism, in religious ideas, in notions of social prestige or status, in national self-identification or in a pattern of preferred tastes, that resistance to change may be very strong.

The origins of food beliefs and prohibitions are obscure. Primitive man had no set food pattern. He was a creature of acquired food habits, not one of innate physiological urges or “instincts”. He has remained exceedingly adaptable. For instance, about 20,000 years ago a people of the steppes

of Southern Russia trapped and killed large game although, in season, they relied on a diversity of roots, seeds and fruits (Mongait, 1961). The cave dwellers of Mexico of 12,000 or 9,000 years ago lived mainly on a large variety of food plants supplemented by small game such as rabbits, rats and turkeys (Mac Neish, 1964). There is no evidence that man or any other primate species has acquired an immense propensity for flesh-eating (Clark, 1968). Nor is there an indication that he has any physiological urge to supplement his diet with foods that would meet a protein or any other deficiency. Yet, even without built-in "food instincts", he has been able to survive and spread over the whole face of the earth. For this he had to depend solely on his wits. He did not adopt any practice or taboos that would be deleterious to the health of some members of the community. Primitive man did practise some food magic but this was directed towards ensuring an abundance of game and success in hunting.

Origins of food beliefs and prohibitions probably occurred in a later period when the community was stable in its habitat, with settled farming, and reasonably prosperous over a long period of years. With the growth of urban centres, beliefs and observances emerged about properties of the foods that were consumed. Those in the primitive urban centres depended upon the cultivations of the soil for their food. The latter had to be persuaded by fear and reverence to deliver to the centre regular quotas of grain, meat and other produce. Priests and medicine men held sway by their apparent ability to appease the gods who controlled the growth and failure of crops. Rituals and sacrifices associated with food would have developed, along with unhealthy prohibitions, taboos and priorities. There also arose the belief that certain foods were appropriate to each level in the social hierarchy, thus giving rise to the elements of a caste system. For example, the priests of ancient Egypt would not eat beans. In times of famine the priesthood was assured of a full ration of wheat. During a severe prolonged drought, when the rest of the population had to subsist on roots and seeds, there was rice in the palace of King Dutugemunnu.

Folk knowledge and folk medicine is not peculiar to some ignorant segment of the world's population. In one form or another principles of this kind are found in all settled communities. Among the sophisticated, there would be a tendency to provide a semblance of reasons, medical or scientific, for their beliefs. When such beliefs are left unchallenged for many generations, they tend to harden into elements of the total pattern of the dietary habits of the people.

A comparison of results obtained from surveys carried out in Sri Lanka (Schuttelaar and Van Walsum, 1979; Weerasinghe, Karaliedde and Wikramanayake, 1982; Karaliedde, Weerasinghe and Wickramanayake, 1982; Liyanage and Wikramanayake, 1983) with those of surveys in Tamilnad (Ferro-Luzzi, 1973a; 1973b; 1973c) and in Malaysia (Wilson 1971; 1973) show

marked similarities in food beliefs and avoidances. The attitude of these populations to various types of foods will now be summarized, and an attempt made to analyse the reasons, if any, for these common beliefs.

Non-Vegetarian Foods

Meat : In India the cow has been considered a sacred animal and the eating of its flesh has been taboo for nearly 2000 years. Early domestication of common cattle probably occurred during the period 6500 - 5000 B. C. somewhere between Hungary and the Sahara Desert on the West and through Near East to Afghanistan in the East (Simoons, 1973). The only clear evidence of religious associations of cattle during the period derives from Anatolian excavations (dated 6750 - 5650 B.C.) where indications were found of a fertility cult where the bull was associated with a male god. Similar regard was paid to bulls in the Mediterranean and Near East. The bull, a symbol of masculine virility, continued to be associated with male deities and the cow with female deities. Such fertility cults appear to have spread eastwards. In the Indus Valley Civilization (c. 2500 - 1700 B.C.) and in Vedic accounts (c. 1500 - 500 B.C.) bulls were prominent in cult activities. Despite this, cattle were sacrificed and eaten freely. The cow was not sacred even to the Brahmins. The sanctity of the cow appears to have been first recorded close to the beginning of the Christian era, by which time Brahmins had not only abandoned cow slaughter and beef-eating, but advocated that society in general should abandon the practice. To modern Hindus, as well as to certain Sikhs and Jains, the cow is a sacred, gentle, innocent and beautiful animal, to be cared for and protected, and not slaughtered. Buddhists inherited the same tradition. However, the basic concept of *ahimsā* prohibits the taking of any life, and strict Hindus and Buddhists abstain from eating all flesh.

Beef and mutton are avoided by more than 75% of non-vegetarian girls at puberty. Flesh is believed to arouse passion. It should be avoided during periods of pollution, puberty, menstruation and puerperium. It is believed to be harmful in the first few months of pregnancy. For some, the sight or smell of meat would cause vomiting. In the latter half of pregnancy meat would make the foetus too big, and might produce skin eruptions in the baby. More than 40% of women (meat eaters) avoid meat and fish during menstruation and 66% become vegetarian for a month or more after delivery of a child or until the lochia stops. Meat is considered "heaty" and to impart a foul smell to menstrual fluid.

Fish : Fish appears to have been a forbidden food in ancient India (Simoons, 1974c), as in some parts of Africa (Simoons, 1974b). Evidence indicates that fishing was a regular activity in the Indus Valley civilization and, presumably, fish formed an important item of their diet. Evidence also indicates that the Indo-European Aryans who invaded North-West India (c. 1500 B.C.), like the Greeks, had an aversion to fish. It may be that a pastoral

people with plenty of other animal foods, would not need to fish. But most fish avoidance in modern India probably stems from the concept of *ahimsā*. The Jains are the most consistent in the avoidance of fish. The Buddha taught that one might not eat fish which he saw, heard or suspected were caught to provide his own self with food. In modern Sri Lanka, on religious grounds, people express a general dislike to eating fish (Wijesekera, 1949). Despite this, fishing continues to be an important activity, and fish is a desired food, both in India and Sri Lanka.

Three factors may have influenced people to avoid fish. They were considered as dirty creatures, eating dirt, and fishing and fish-eating were low-caste activities. This is especially common in areas with a nomadic tradition. There is also the belief in sacred water and sacred fish in connection with the worship of certain deities. In sections of rivers and streams, in ponds and tanks near holy places, fish may not be caught. The third factor is the commitment to *ahimsā* and vegetarianism.

Fish, especially crabs, skipjack and tuna, shark, and catfish are considered heaty and are avoided during pregnancy by about 65% of fish-eaters, by 43% at menarche and by about 66% in the puerperium until the lochia stops. On the other hand, dried fish may be eaten after the third day after delivery as it is believed to increase the flow of milk. Fried fish is heaty and avoided for several months, even by Muslim women. Fish is believed to cause diarrhoea and fits in the child.

Chicken is said to be heaty and is avoided during pregnancy because it may induce abortion or cause deformity in the baby.

Eggs are fed at menarche and subsequent menstrual periods. They are believed to have a favourable effect on the girl, preparing her for pregnancy. Raw eggs are believed to be specially potent; they make the breasts grow. One or two eggs daily, usually with gingelly oil and other "strengthening" foods like black gram (*uñdu*, *Phaseolus mungo*) are prescribed to the young adolescent. More than 66% of women believed in the fertility-increasing power of eggs at puberty.

Only a small percentage of egg-eaters avoid eggs during pregnancy. Many believed that the baby will become too big. A few complained that it brought about vomiting. Others thought that eggs would produce baldness in the baby.

About half of the egg-eaters avoid eggs during the first few months after delivery, some during the entire period of lactation. Reasons given are that eggs cause *vāyu* (gas formation), breathlessness, asphyxia, and renders mother's milk indigestible, or makes the baby bald.

Milk and Milk Products

A very small percentage of women avoid milk during pregnancy and about half during the puerperium, especially buffalo milk and curd. Milk is believed to be too cooling. Milk fat produces *vāyu*. Fat is heaty and may cause abortion. However, the main reason for avoidance is the fear that the baby will become too big. After delivery milk is avoided through fear that it will produce fits in the baby. Some women said milk should be taken only after the period of impurity - after the lochia ceases.

Fruits and Vegetables

Yams: Of the yams the one most feared is the sweet potato (*Ipomea batatas*), then manioc (*Manihot utilissima*) and the Irish potato (*Solanum tuberosum*). Sweet potato is avoided by about 96% of Brahmin women during the puerperium, along with other yams. Most women avoid it for at least one month, some for the whole of the lactation period. Yams are said to produce *vayu*; some feared fits in the infant, cramps, diarrhoea or constipation, or that the milk will become too thick. The elephant-foot yam (*Amorphophyllus campanulatus*), colocasia and the ordinary yam (*Typhonium trilobatum*) are not avoided, although some avoid these too during the puerperium.

Pineapple is avoided by more than 96% of women during pregnancy because it is said to induce abortion. When abortion is desired, the fruit should be kept outside the house during the night "to be imbued with humidity" and eaten early in the morning. In Malaysia it is avoided during the first month. Unlike in India, all fruits are considered 'cold' in Malaysia with the exception of the durian (*Durio zibethenius*). Pineapple avoidance is reported in Indonesia but not in Central America where it has been cultivated since 2000 B. C.

Papaya : The papaw was brought from Central America by the Spaniards to the Philippines and later introduced to Malaysia and India towards the end of the 16th century. Avoidance of papaw is typical of the Dravidians. Few reports of avoidance are available from Andhra Pradesh and Sri Lanka, but none from North India.

The property of exuding milk and its shape makes the papaw resemble the female breast. Puerto Ricans call it "lechosa" or the "milky one", the Portuguese, "mamao", suckling. Ferro-Luzzi (1973c) points out that the statue of Artemis of Ephesus is one of a multi-breasted woman, resembling a papaw tree.

About 80% of women in Tamilnadu but only 22% among the Sinhals avoid papaw during pregnancy and after delivery until the lochia ceases. About 20% avoid papaw at puberty and during subsequent menstruation.

It is considered to be 'hot' and as a 'laxative' and therefore an abortifacient. It is said to be the cheapest and the least non-mechanical way of emptying the uterus and is used to cure delayed menstruation. Many eat it during lactation, believing it to be a lactagogue.

Mango (*Mangifera indica*) and jak fruit (*Artocarpus integrifolia*) are considered too hot to be eaten during early pregnancy. They are believed to result in fits in the baby and are therefore avoided in the puerperium.

Custard apple (*Annona spp.*) is believed to be too 'cold' for pregnant women, and so is coconut milk.

Banana (*Musa sapientum*) causes digestive trouble. As in many other parts of the world, double bananas are avoided in India and Sri Lanka to prevent the birth of twins. In Sri Lanka there is also the belief that one would be born with a twin in the next birth.

Jambu (*Syzygium cumini*) is said to produce a dark baby. It will also bring about blueness (asphyxia), venereal disease and induce abortion.

Egg plant (*Solanum melongena*) is also believed to transmit its dark colour to the baby. During the puerperium it is avoided until the baby's stump falls off. During menstruation avoidance is due to the fear of foul odour and indelible stains on the menstrual cloth.

Most fruits are avoided during the puerperium because they produce diarrhoea or gas or constipation, or fits and vomiting in the baby; they are either too 'hot' or too 'cold' or too sour. Exceptions are grapes, apples and oranges.

The palmyra is considered a stimulant and is therefore avoided at puberty. During pregnancy it is avoided as it produces sickness, and by some, during the puerperium also.

Sesame (*Sesamum indicum*) was probably introduced into India from the Sunda Islands before the arrival of the Aryans. Its oil has been used widely for a variety of purposes. Sesame seeds have a significant place in ritual. In the *navagraha* ceremony, heavenly bodies such as Mercury, Venus, Mars, Jupiter, Saturn, Sun, Moon and Moon's ascending and descending nodes are invoked as deities. If their position is inauspicious at the time of ear-piercing, weddings, etc., they are propitiated by offerings. Nine grains are offered - wheat, paddy, salt, sesame, Bengal gram, green grains, horse gram, black gram and bamboo seeds. At the *śraddhā* ceremony at every new moon the eldest son of a deceased person offers black sesame seeds to the *manes*.

Sesame seeds, more than other seeds, are believed to have power of life and fertility. They are believed to stimulate the ovaries and hasten maturity. *Ulluruñdu*, a mixture of sesame seeds, juggery and palm sap, is eaten at puberty.

The seeds are said to act as an emmenagogue and are avoided during pregnancy. The oil is considered less dangerous. It is massaged on the abdomen to help uterine contractions.

Gourds and squashes are the 'coldest' among vegetables. The ash pumpkin (*Benincasa hispida*) is said to produce pain during pregnancy and the bottle gourd (*Lagenaria siceraia*), to produce headache and itching.

Ladies fingers (*Hibiscus esculentus*) is cold and is avoided during the puerperium.

Condiments

Of the condiments, ginger (*Zingiber officinale*) is believed to cause bleeding and abortion, and is therefore avoided during pregnancy. It is used as an antidote against harmful effects of mango and ground-nuts eaten during the puerperium. Chillies (*Capsicum annuum*) are avoided at puberty because it raises passion. It is forbidden during pregnancy as it results in sore eyes.

Pulses are all prohibited for some time after delivery.

Cashew nuts (*Anacardium occidentale*) and ground nuts (*Arachis hypogea*) may be avoided for a month after delivery, by some during the entire lactation period. They contain fat which would not agree with the child and cause gastric troubles, *vāyu*, *pitta*, giddiness in mothers, and asthma and fits in the child.

Interpretations of Food Beliefs

Various explanations have been given for such temporary avoidances of foods. Common to all are

- i. the belief in the 'hot-cold' theory of foods
- ii. the influence of domestic or folk medicine
- iii. the belief in the purity or impurity of a food

In all forms of Indian and Sri Lankan medicine the humoral theory predominates, probably derived from the teachings of Suśruta (c.600 - 500 B. C.) and Caraka (c. 200 B.C.)

According to their teaching all matter is composed of the five *mahābhūtas*: *ākāśa* (vacuum or ether), *vāyu* (gas or air), *tējas* (radiant energy), *āp* (liquid or water) and *pṛthivi* (solid or earth substance). The created world is composed of two distinct classes, the mobile (animal) and the immobile (vegetable), each subdivided into two orders, hot and cold. The body is composed of three principles or humours: wind in the form of breath (*vāyu*), fire in the form of bile (*pitta*) and water in the form of phlegm (*kapha*). Health and

sickness depend upon the harmony or disharmony of the three humours. The activity of these elements can be modified by 'heating' or 'cooling' the body. Diet was one of the four factors employed to cope successfully with disease, the other three being pacification of the deranged humours, external and internal cleansing and conduct of the body, speech and mind. Food should have a composition of the *mahābhūtas* which is favourable towards maintaining the body's equilibrium. If the balance is disturbed, it can be corrected by taking foods or medicines, the composition of which can restore equilibrium for that particular patient under that particular set of circumstances.

Food is therefore classified into 'hot' or 'cold' foods, some in between -neutral. A 'hot' food in the diet could be balanced by the presence of a 'cold' food. Foods are also gas-producing, bile-causing or phlegm-causing. The latter three labels are used mainly when referring to diseases.

There are close parallels between the humoral system of India and that of Greece as taught by Hippocrates (c. 400 B.C.) indicating an exchange of philosophy between the East and the West even in the remote past. There are also beliefs in the 'hot - cold' nature of foods among American Indians, in Malaysia, Philippines, Vietnam and China. The basic 'hot - cold' ideas appear to have been conceived by different peoples independent of each other.

Characteristics of the Hot — Cold Theory

Certain sensorial characteristics appear to play a role in 'hot - cold' beliefs about food. The water content seems to be important. Water is considered a cooling agent. Foods with a high water-content would be very 'cooling', ex., gourds, spinach leaves.

The sense of taste is another characteristic that is implicated. Dryness would stand for 'heat'; so also a burning sensation produced by spices, ex., ginger; sweetness is also considered 'hot'. So is sour taste.

Colour seems to be important. Man has always distinguished between 'warm' and 'cold' hues. Red, orange and yellow are 'warm'; green, blue, violet and white are 'cold', black is 'neutral'. Such intuitive grading corresponds with the physical reality that red lies between the infra-red wave lengths (the 'hot' end of the spectrum) and blue and violet occupy the opposite end of the visible wave-lengths.

Yet another characteristic is the energy-giving property of the food. Foods that satisfy the appetite and supply energy are 'hot', e.g. foods of high carbohydrate content (sugar, honey, breadfruit, jak fruit, yams), foods providing fat (oils, butter) and high protein foods (animal foods, some pulses).

Judging foods by the above criteria, all cultures and all people in one culture should be able to agree which foods are 'hot' and which are 'cold'. But such agreement does not exist, probably because of varying importance given to the contradictory qualities in the same food. For instance, Tamils in South India consider sweet fruits to be 'hot', probably on account of their sugar content, whereas in Malaysia all fruits (with the exception of the durian) are 'cold', because of their water content. In Tamilnad acidity, because of its association with unripeness and lack of sweetness, will denote 'coldness', while others, as in Sri Lanka, interpret the burning sensation left in the mouth by acid foods as being due to 'heat'. Pineapple, passion fruit, unripe mango and tomato are 'heaty'. Curd is more heaty than milk.

Green leaf vegetables are regarded as 'cold' by most people. The tomato, being red and sour, would be 'hot' in Sri Lanka and Pakistan, while to others (as in Andhra Pradesh) it would be among 'cold' vegetables, probably on account of its water content.

Rice, if white could be 'cold'. Classified according to its energy-giving properties, it should be hot. For most people, therefore, white rice is neutral. Due to its colour, red or brown rice should be classified as being more 'heaty' than white rice, but in some Sinhala areas, white rice is considered heaty and red rice neutral (Schttlear *et al*, 1974). Maize and wheat are nutritious and therefore 'hot'. All pulses are nutritious and energy-giving and should be classified as 'hot'. But green gram (due to its colour) is 'cold', cooler than red dhal, while black gram (*uñdu*) is 'hot', even as 'hot' as meat. Ayurvedic doctors consider juggery and brown sugar to be 'hot' and white sugar 'cold'. Cold water is 'cold' but ice is 'heaty', probably due to the burning sensation it leaves on the skin.

Molony (1975) has demonstrated that in a Mexican community a systematic coding is used for determining 'hot' and 'cold' labels to foods. "There may be a system for attributing a valence to a food, based on its growth history and preparation history: and, furthermore, that this code may be adhered to whatever the label decided upon". Schuttlear and Van Walsum (1979) tested this hypothesis during their study of two small Sinhala communities. They report that the labels given to many foods indicate a systematic coding, although it may be sunk so deeply in the common knowledge that people could not explain it when directly asked about the matter. For example:

Cow's milk is moderately cooling, while curd from it is very heaty. Buffalo's milk is very cooling, too cooling to drink. Curd from it is less cooling. They explain that there is a difference in the "growing history" of the two animals; the buffalo likes to be in water whereas the cow lives

on land. Water is cooling. In making curd (preparation history), milk is boiled (heat is added) and fermented, converting a sweet milk into a sour curd. Therefore, 'cooling' milk is converted to 'heaty' curd. Buffalo milk being too cooling, gives a less 'heaty' curd, which is preferred.

Purity and Pollution

Fundamental to Indian and Sri Lankan culture, and affecting many aspects of life, including food habits is the concept of purity and pollution. The concept of *killa* (*kilutu*, *kili*) is associated in particular with bodily dirt. Most *rites de passage*—birth, puberty, menstruation, death—spread *kili*. On all these occasions dirty or decayed matter is ejected from the body. Blood lost during menstruation and blood and placenta ejected during delivery, are polluting. At death, although no blood is lost, the viscera begin to rot and smell, faeces cannot be expelled and *kili* spreads. Those who live in the *kili-gedera* (the associated household) have certain disabilities, are in a negative state and must avoid auspicious objects and acts. There are also food taboos on members of the pollution-house.

Foods may be intrinsically pure, like the five products of the cow (*pañcagāvyā*), or intrinsically impure, like pork, toddy, etc. Foods may also be defiled by contamination with impurity (ex. food left on the plate, contaminated by saliva), with death and decay, with animals or persons of a ritually lower level than the eater.

All meat is impure, being contaminated by death. Meat is also passion-raising, which must be avoided during pollution periods. As non-vegetarians also abstain from animal food when ritual purity is required, the avoidance of such food cannot be explained on the ethical principle of *ahimsā* alone. The pollution concept seems to be more fundamental for such abstention. Pork, buffalo meat and beef are the most defiling meats. The pig is discredited by its habit of eating excrement. In Thailand, pigs are now reared in special sheds, on raised platforms, washed daily with a hose and fed on mash and other prepared, clean food, making pork a more acceptable food there than in other predominantly Hindu and Buddhist countries.

Fish occupy an uncertain position on the purity scale. It is normally considered defiling. Fisherwomen and those living by the sea abstain from fish at puberty but not during subsequent menstruation or during lactation.

Chicken and eggs are impure due to the bird's feeding habits. However, temporary avoidance during the puerperium and egg-eating at puberty are probably due to a belief in the magical powers of the egg. Further, the egg-breakfast of the European has abolished purity scruples in many, converting many vegetarians to "eggtarians", a term used in India in place of ovo-lacto-vegetarian.

Vegetables that recall meat in colour or texture may be considered impure. Examples are the avoidance of the red Massor dhal by some North Indians, because of its colour, and jak fruit because of its stringy, meat-like structure. Among Tamils, pulses, sesame grains, chillies and pepper may be temporarily avoided because they are "passion raising".

Cow's colostrum is avoided because it is believed to be contaminated, having been formed when the cow was calving. Human colostrum is not fed to babies because it has become stale, having been stored during several months of gestation.

Though purity concepts are obviously important, they are seldom mentioned by the women questioned. The reasons given are usually physiological, ex. nausea when eating animal foods during menstruation or pregnancy, or the fear of diseases that might befall the mother or the baby.

Scientific Considerations

Considering the confusing and contradictory nature of the classification of foods into 'hot' and 'cold' categories, the absence of a scientific basis for such beliefs is not surprising.

A property of food that could lend support to the 'hot - cold' theory is the thermic effect of feeding (TEF), formerly referred to as the specific dynamic action of food. Less than 40% of the energy in foods is trapped as useful energy for synthetic reactions, for pumping water and other substances in and out of cells and for muscular contraction. Most of the energy is therefore lost as waste heat and helps in maintaining body temperature. TEF, the extra heat produced after eating, has been the subject of much research. TEF probably arises from increased energy expenditure in converting dietary components into body constituents. It could also arise from the activation of specific heat-generating metabolic cycles. The TEF response depends on the composition of the meal being high for high-protein diets. A high-protein diet in cold climates helps one to keep warm. Such a diet in warm climates will make one feel warm and uncomfortable. Therefore, foods rich in protein may, for this reason, be considered 'heaty'. It is, however, difficult to understand why some high-protein foods (e.g. green gram) are considered 'cold'.

When* fed 'hot' foods, subjects on experiment complained of a burning sensation during micturition and in the eyes. These symptoms in no way interfered with their normal activities. The urine was more acid than during the period when 'cold' foods were fed, and excretion of sulphur was also higher. The high sulphur content of the urine may be the cause of the high acidity. Nitrogen retention was lower on 'hot' foods than on 'cold' foods although the total nitrogen and energy content of both diets was similar (Ramanamurthy, 1969).

Foods may contain small peptides that may be absorbed without prior digestion and these foreign proteins could produce, in some individuals, allergic reactions such as urticaria and asthma. Others might not be affected. Foods such as shell-fish and pineapple, are known to produce allergic reactions in certain sensitive persons, the effect being attributed to the heaty nature of the food.

A food may contain a chemical that causes dilatation of small blood vessels in the skin. The resulting increase in blood flow to the skin could give rise to a sense of warmth, and such foods may be classified as 'hot'. Foods containing chemicals that have the opposite effect may be considered cooling.

The observation that tuberculosis patients developed some unusual symptoms on a hospital diet that did not develop in other (non-tuberculosis) patients led to the discovery that a high histamine content may be the cause of 'heatiness' of some kinds of fish. Among the symptoms observed were headache, palpitation, erythema, wheezing, redness of the eyes and diarrhoea. The symptoms produced by histamine are more or less the same. Isoniazid, a drug given to tuberculosis patients, inhibits diamine oxidase, an enzyme that plays a significant role in the inactivation of histamine. *Bala* fish (skip jack, *Katsuwonus pelamis*) has the highest concentration of histamine recorded for any food (Kottegoda and Uragoda, 1976). Tuberculosis patients fed skip jack, *kumbalāvā* (*Rastrelliger kanagurata*), *hurullā* (*Sardinella sardinella*) and *kelavallā* (tuna, *Neothunnus macropterus*) develop untoward symptoms and even cerebro-vascular accidents (Senanayake, Vyravanathan and Kanagasuriam, 1978; Uragoda and Kottegoda, 1977; Uragoda, 1978a; Uragoda, 1978b; Uragoda, 1980; Senanayake and Vyravanathan, 1981). The skip jack protein also contains a high concentration of the amino acid histidine. Bacteria are capable of converting this to histamine, and a temperature of about 20°C that obtains in fish transported inland assists in the maximum conversion of the amino acid to histamine. A person who might experience no 'heaty' symptoms on eating skipjack in an area where the fish is caught might react unfavourably to the same fish sold, say, in Kandy.

Removal of the intestines of these round fish before packing in ice for transport would significantly reduce its toxicity. Persons suffering from atopic diseases like eczema and bronchial asthma also react unfavourably to skipjack (Nimalasuriya, Senaratne and Kottegoda, 1978). All four varieties of fish mentioned above are popularly classified as 'heaty', so that any food with histamine content could be classified as 'hot'.

Among bananas, the 'āmbul' variety is considered heaty, whereas 'ānamālu' is cooling and 'kōlikuṭṭu' is 'neutral'. 'Āmbul' and 'ānamālu' have high concentrations of serotonin (5-hydroxytryptamine) and are avoided in diarrhoea. Serotonin hastens peristalsis (Waalkes *et al.*, 1968; Dharmatileke and Kottegoda, 1966).

No reasons can be given why all foods listed as 'hot' should be considered 'heaty', if by that term one refers to the specific effects listed above. Neither can one demonstrate a 'cooling' effect of foods listed as being 'cold'.

Folk Medicine

Folk medicine or domestic medicine is a kind of preventive medicine common among ordinary people in many cultures. The principles may still be based on concepts of traditional medicine. In addition folk medicine is thought to be confirmed by personal observations or by experience of other people in the immediate surroundings.

Simple communities have become aware of herbs and preparations that are specific against deficiencies and so have incorporated them into their food habits. Hunters and trappers in the far North drink infusions of fir and pine needles to prevent scurvy. American Indians treated maize with lime water and thus avoided pellagra. A variety of plants figured in their diets - rose hips, pine needles, fern shoots, lily bulbs, wild garlic, and also a variety of worms, insects, fish roe and insect eggs. The habit of rubbing oil on a painful joint was practised universally. Fish liver oil thus applied was found to be superior in preventing rickets. It was sometimes swallowed. Therefore man has been an experimentalist with edible substances, and became acquainted with a wide range of their virtues as well as of their toxic qualities. Left to a free choice members of any primitive tribe would readily have, in course of time, established a dietary pattern that was, in all respects, adequate.

Domestic medicine applies primarily to pregnancy and the puerperium. Whenever there is a complication during pregnancy or the baby suffers from an ailment, it is natural for a person to reason "post hoc, ergo, propter hoc" and to look for a fault in her actions, and the first responsible agent that comes to her mind is the diet. The avoidance of the incriminated food can therefore be looked upon as a kind of preventive medicine.

Ferro-Luzzi, who has carried out extensive studies on food avoidances and beliefs, suggests that analogical thinking lies at the root of the 'hot - cold' theory. Through association of ideas the papaw becomes a female symbol. The fruit is therefore connected with fertility and menstrual blood and hence is 'hot'. Through association of ideas buffalo milk is 'cold' and believed to cause swollen feet and rheumatism.

Analogical thinking may enter into considerations of purity and impurity. Animals are equated with the food they eat. By eating impure feeders, the eater is polluted. The quality of the eaten is believed to be transmitted to the eater. "Der Menschen ist was er isst." The impurity of the eater may also be transmitted to the eaten. The impure girl is held to be able to pollute food from a distance. In these examples analogical thinking may constitute a second level of explanation. The thermal qualities of purity - impurity beliefs, may be at the first level, explanations in their own right.

In its primary form analogical thinking appears in beliefs such as eating *jambu* (*Syzygium cumini*) transmits its colour to the baby; eating egg-plant (*Solanum melongena*) prevents the umbilical stump from healing; correspondance between the dormant life-force in eggs and seeds and fertility.

Beliefs and reasonings about food, though not necessarily confirmed by science, seem to be part and parcel of human nature, binding together all races, cultures and levels of education, from the lowliest to the most sophisticated. If analogical thinking is responsible for many of these beliefs, the widespread belief in the 'hot - cold' theory reveals a world-view where man and nature are linked by a network of meaningful correspondance.

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