HERALD OF health

SPECIAL ISSUE
ON NUTRITION

APRIL 1974

our daily bread

by LYDIA M. SONNENBERG

German voll-korn bread. Scotch scones. Southern corn bread. Mexican tortillas. European barley bread. Indian chappatis. Bread is basic to the diet of almost all peoples, the staff of life.

Bread is as nourishing as its ingredients. It is made largely of flour; the kind of flour used is the principal factor in determining how nutritious the loaf is.

Whole grains are a gold mine of nutrition. Their carbohydrates contribute valuable calories, excellent protein, the B-complex vitamins, and minerals. They are especially rich in iron and phosphorous. Germ oils, although small in amount are largely polyunsaturated. In the United States, where the chief grain is wheat, Department of Agriculture scientists tell us that its products provide about sixteen per cent of the calories, twenty nine per cent of the protein, and twenty per cent of the iron in the diet.

Whole Wheat vs White

But someone has been robbing the gold mine of its richest veins! Grinding and blending, separating and bleaching, modern milling processes have produced a flour that makes plump, snowy white loaves of bread by removing the outer layers and the embryo (germ) of the grain. And it is precisely these portions that are the richest nutritional parts of the kernel.

Refined flour consists largely of the endosperm portion of the kernel,, composed mainly of starch and most of the proteins, gluten, and gliadin in the original grain. However, in the milling process some of the amino acids (protein building blocks) have been partial ly removed so that, nutritionally, maida flour is inferior to atta flour! There is a decrease in eight essential amino acids in bread made from "enriched" maida flour as compared with that from atta flour. Especially is this decrease important in diets where grain products, particularly bread, make a significant contribution to the protein in the diet.

Loss in Grinding

Serious mineral and vitamin losses also occur during milling. The enrichment programme initiated during World War II to combat certain common deficiencies in the United States restores flour nutrients—thiamine, riboflavin, niacin, and iron—to approximately whole-grain levels. However, it has been estimated that a total of twenty nutrients are at least partially removed from highly milled flour, so that the concentrations of other nutrients are different in refined products.

A number of the lesser-known B vitamins has been considerably reduced; these are not restored in enriched flour. Research has demonstrated the important roles of these vitamins. For example, experimental studies have revealed that atherosclerotic (coronary artery disease) patients tend to be deficient in pyridoxine (vitamin B_6.) When highly refined cereal foods are used liberally in the diet, there is the distinct possibility of only a marginal intake of this vitamin.

Again, relatively new information indicates the importance of the mineral magnesium. It is essential to many body processes as an activator of enzymes, the biochemical spark plugs of most of the body chemistry. Whole grains are one of the important food sources of magnesium. When wheat is milled into maida flour, however, more than three-fourths of the magnesium is lost. Also, there is three to four times the amount of phosphorus in atta flour as in maida. Research has given evidence that the addition of certain phosphates to the diet of both animals and human beings reduces the amount of tooth decay.

One of the nutrients not listed in the table is vitamin E. United States Department of Agriculture Scientists estimate that only about ten per cent of the vitamin E components survive milling and bleaching. Vitamin E is particularly sensitive to bleaching.

In considering the essentials of a sound nutritional programme, the presence in proper amounts of all the members of the nutritional team cannot be overemphasized. Next time when you bake (or buy) bread, consider the nutritive team naturally present in whole grains —you need a strong staff, not a broken reed. ***

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HERALD OF health

ARTICLES

FEATURES

Just briefly...

One Million Children Die

Nearly one million children die every year in India of malnutrition, said Dr. C. Gopalan, director of the National Institute of Nutrition at Hyderabad. He said there was an even greater number of child deaths from diseases resulting indirectly from malnutrition.

In India the mortality rate among children under four years of age is forty per cent. (In most Western countries it is less than seven per cent.) Measles, chickenpox and whooping cough help to push up the death rate. Such diseases are not normally fatal among children who are adequately nourished.

A recent survey showed that more than one million cases of blindness in India are caused by vitamin A deficiency. The only hope of combating the problems resulting from malnutrition in this over-populated country is a massive increase in food-crop production and a drastic reduction of the birth rate.

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VIEWPOINT

EDUCATING THE TASTE BUDS

Rising prices and stagnating incomes not only pinch the pocket but may also pinch the stomach. Prices and inflation now make it more imperative than ever that the householder should know the best value that his money can buy. Thus with good reason the World Health Organization has designated the month of April as "Nutrition Month."

In marketing for nutrition one has to keep in mind those foods which are necessary, those foods which are enjoyable but may not be so necessary, and those foods which may be classified a luxury. Many would rather eat what they consider tasty than food which is known to be good but not quite so tasty. This is a luxury that may be only a memory before long.

No doubt the basic concern in buying food is the calorie—a word that has been bandied about in nutritional circles for a long time. Few, however, seem to understand its real meaning beyond the fact that the obese seem to consume too many calories and the starving too few.

What is a calorie? According to Webster's Third International Dictionary a calorie is "a unit expressing a heat-producing or energy-producing value in food that when oxidized in the body is capable of releasing one large calorie of energy." A calorie may also be understood as the energy consumed in raising the temperature of one gramme of water by one degree. The word calorie is used in assigning to all foods their value on this scale. Foods are scientifically tested and the result of the test determines the amount of energy value as expressed in calorie terms. Thus, for example, it is known that an average banana has 104 calories whereas 100 grammes of parboiled rice has 348 calories.

What relationship does all this have to food? Simply that the body acts like an engine that needs fuel to make it operate. This fuel, or food, is measured in calories and therefore when the body ingests 2,500 units it also needs to burn up 2,500 units in energy expended. This leaves the body functioning at its optimum without an accumulated reserve. On the other hand the body that ingests 3,000 calorie units and expends only 2,500 units in energy builds up a reserve—a fat bank if you please.

It is often true that the foods and drinks that are palatable and therefore pleasant to eat as opposed to foods that are "good for you" are high in calorie content. Sweet, starchy foods have high calorie counts as do greasy, fried foods. Since these foods are more palatable, the average person tends to consume great amounts of them.

Unfortunately many of these palatable foods have "hollow" calories that easily turn into fat but are not such that give vitality and keep the body healthy. To get the full nutritional value from the rupee, large segments of the population will have to re-educate their taste buds and learn to eat food that has greater nutritional value even if this means eating that which may taste less good than one is accustomed to. An example of this may be rice. A sizeable portion of the population lists rice as the major content of its diet. Rice is high in calories and is quite starchy. In order to get full value out of rice, many will have to change their insistance on polished rice which has lost much of its nutritive value in the process of polishing. Unpolished rice is referred to in some circles as "dog rice." (Could this be the reason why some dogs seem healthier than their masters?)

Wheat too looses much of its nutritional vitality through bleaching. White flour or maida is only a pale resemblance of what it should be. Thus the ideal ingredient for baking is whole wheat flour or atta. In spite of the knowledge that atta is "good for you" millions will swear that "white bread" tastes much better than "black bread." This assertion, however, will never deny the fact that there are many empty or hollow calories in white bread. Tastes need to be educated.

Fruits and vegetables are similarly mistreated to make them less nutritive. The routine is the same in many households: buy, wash, peel thick peelings—and then the nutritional crime is committed in that the best part, the peeling, is thrown away. The fact of the matter is that it is, nutritionally speaking, much better to keep and eat the peelings and throw the pulp away, for it is the peelings that contain many of the vitamins and minerals. A better plan is to wash and clean the fruit and then eat all the edible portions.

Much can also be said for the fluid that vegetables are cooked in. This good source of vitamins and minerals is usually drained down the sink or thrown out the door. Unfortunately in doing this, many rupees worth of nutrition is also discarded.

It will take some "swallowing of pride" to make such traditional throw-away items palatable—but the re-education of the taste buds may lead to healthier bodies which will surely make for happier living on a shrinking budget.

—E. A. HETKE

CLIPPINGS AND COMMENTS

The rebirth of the windmill is being seriously talked about by some of America's energy experts. They say windmills, even built on roof tops eighty stories above city streets, could help solve the growing nationwide energy shortage. In one calculation, if the winds within reach of man could be harnessed, they could generate twice as much electricity for the world as water power does. The windmill was once, at the turn of the century, a $10 million-a-year industry in America. Twenty or more factories turned out 10,000 windmills in 1935, but by 1962 the number had decreased to 6,484 built by three factories.

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A new system allows physicians to make miniature photographs of an entire internal human body structure on a single 14- by 17-inch film. It provides much faster and more accurate procedures or diagnosis.

***

In East Germany a phenomenal 81.5 per cent of all eligible women of working age hold jobs. One-third of East Germany's doctors and judges, eleven per cent of its mayors and one-third of its college graduates are women. In the East German Parliament women hold 159 out of 500 seats. Women are everywhere on the working scene in East Germany—operating construction cranes, working on assembly lines, designing ship interiors and researching the potentials of nuclear energy. East German society today is more dependent on women than is any other society in the world.

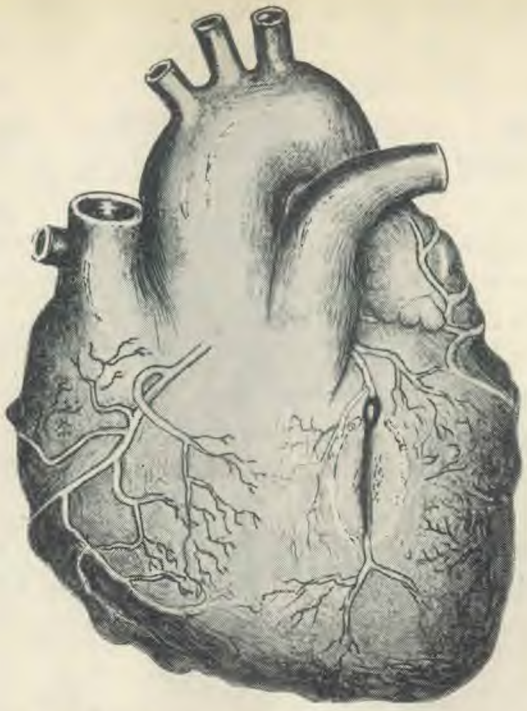
FIBRE FOODS AND YOUR HEART

by HUGH TROWELL, M.D., F.R.C.P.

Fibre may be defined as the skeletal framework of vegetable cells that is not digested by any enzyme in the human digestive tract. It remains undigested, a small portion being broken down by bacteria in the lower portion of the alimentary canal.

It is impossible to estimate exactly the fibre content of any vegetable food. To do so would require detailed studies of digestion at many levels in the bowels. Food analysts report the approximate fibre content of foods by estimating the weight of the dry residue that remains after mixing the food first with weak acids and second, with weak alkalies. Even then estimates vary considerably; thus while bread, made from seventy per cent extraction flour, is stated to contain no fibre or negligible fibre, but in the United States the fibre content of white bread is stated to be 0.2 gramme per 100 grammes.

The main constituent of human diet is starch, which contributes most of the calories in modern Western society. Starchy foods are eaten in larger amounts in underdeveloped areas of the world such as Africa and Asia. Africans eat unprocessed starchy foods: millet, sweet potatoes, plantains, and maize. The latter is taken often as whole grain or as a lightly milled mealie meal. These persons, therefore, eat starch, which is the cell content, and also the cell wall. Many Africans would consume each day some 2,000 calories of starch and would, therefore, eat some ten to fifteen grammes of fibre.



Classes of Food

1. *Foods rich in fibre* (eight to fifteen grammes fibre per 1,000 calories). All fully mature leguminous seeds—peas, beans, lentils—are rich in fibre, also some nuts. Young soft seeds contain considerably less fibre.

2. *Foods with moderate content of fibre* (five to eight grammes fibre per 1,000 calories). All cereals and flours made from whole cereals—wheat, barley, rye, rice, maize, and millet. Starchy roots such as potatoes and yams contain almost as much fibre as wheat in proportion to their calorie content.

3. *Fruits and vegetables.* These contain from 0.5 to 2.0 grammes fibre per 100 grammes.

4. *Foods depleted of fibre.* Maize meal, sixty per cent extraction, has two grammes and polished rice has 0.6 grammes fibre per 1,000 calories.

5. *Fibre-free foods.* Fats, milk, eggs, sugar, meat, fish, and all beverages.

White wheat bread, seventy per cent extraction, has almost no fibre.

Modern diets often contain almost no fibre derived from cereals. That from leguminous seeds and potatoes may be as high as about four grammes daily. The amount taken from fruits and vegetables is extremely variable, from one to ten grammes a day.

In all advanced Western nations there has been, in recent centuries, a great decrease in the consumption of whole grains, cereals, tubers, legumes (foods in classes one and two), and a marked increase in foods of animal origin and in refined cereals (food in classes four and five). The consumption of fruits and vegetables (class three) has varied little; if anything, their use has increased.

The decrease in cereal fibre has been due to two factors. First, the consumption of bread has fallen during the past hundred years by seventy-five per cent. Second, whole-grain bread was consumed by most members of the community until white bread, of high-extraction flour (seventy per cent), became available for everyone when modern methods of milling were introduced toward the end of the past century. Customer, baker, and miller preferred white flour for a variety of reasons.

Composition of Fibre

Cellulose, in many variable forms, is the main constituent of fibre. It is composed of extremely fine, long threads; one million fibres can be placed in a bundle 1/250 of an inch (one millimeter) in diameter. Their length and thickness are extremely variable (molecular weight varies from 3,000 to 750,000.) This fine meshwork of fibres contains many other poorly digested complex sugars called polysaccharides (starchlike substances), groups of hemicelluloses, pectins, lignins, and

other substances. All these, except lignin, are partially broken down by bacteria in the large bowel. It is, therefore, impossible to analyze the stool (fæcal excreta) in order to estimate the total amount of fibre present in the upper part of the large bowel. Lignin is present in large amounts in all wood, so much, indeed, that wood cannot be digested by man; neither can any food that is extremely rich in cellulose. However, herbivorous animals, because of a type of digestive tract in which bacteria partially decompose cellulose, can digest it.

Action of Fibre in the Body

There is agreement among physiologists and nutritionists that the amount of fibre in food determines the time taken for food to traverse completely the alimentary canal. It also determines the softness of the stool and influences the bacterial content. Low-fibre diets tend to produce constipation. The evidence suggests that the fibre present in grains and whole-grain bread is far more laxative than fibre from fruits and vegetables. Those who rely on the latter can be severely constipated, but no one who takes one ounce of bran (ten to twelve per cent fibre) daily will be constipated, although he takes in this form only three to four grammes of fibre.

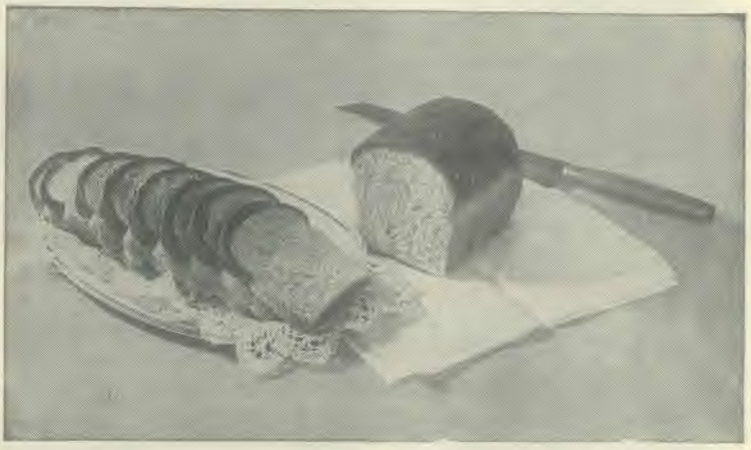
Cholesterol in the Blood

A certain group of fatty substances (lipids) present in blood are called cholesterol. Persons with a high blood cholesterol level are a high risk for coronary thrombosis or heart attack. Serum cholesterol, as it is called, tends to be higher in those eating much of animal fats such as meat fats, lard, butter, cream, or milk. Coronary-prone patients are therefore often advised to eat low-fat diets, but despite the strictest dietary regime many subsequently develop coronary thrombosis.

Cholesterol is excreted from the blood into the bile and enters the small intestine as different bile acids and their derivatives, the bile salts. A considerable portion of these bile salts, as well as some of the cholesterol, is reabsorbed from the intestines, travels to the liver, and is later re-excreted in the bile. Thus considerable bile salts and cholesterol may travel this circuit or be recycled several times each day.

Drugs that Reduce Serum Cholesterol

In recent years several drugs have been discovered that may reduce the level of serum cholesterol, among them cholestyramine. These drugs are not absorbed from the gut. They appear to have the property of binding (holding on to) a portion of the bile salts and preventing their reabsorption. As a result, increased amounts of bile salts are thus passed out of the body in the stool. The concentration of serum cholesterol falls, possibly because of the decrease in amounts of bile salts being reabsorbed. This recent research must be extended, as



Fibre present in grains and whole-grain bread is far more laxative than fibres from fruits and vegetables.

much uncertainty still remains in this field. Many technical points have intentionally been omitted in this present discussion.

Fibre-rich Foods

Nutritional science has paid little attention to fibre, considering it of little importance since it is not assimilated. Many dietary experiments have been performed to determine which foods *raise* serum cholesterol. The relationship between the intake of animal or saturated fats and heightened serum cholesterol has been established. But it has seldom been asked whether certain foods *reduce* serum cholesterol. Within recent years a number of studies have suggested that people whose diet is rich in fibre have low blood cholesterol levels.

Leguminous seeds, twice as rich as cereals in their content of fibre, have been mentioned in dietary surveys in both southern Italy and India in animal experiments and in human dietary trials. The role of bread is less clearly understood, and few persons eat large amounts of fibre-rich whole-grain bread in Western society except Trappist and Cistercian monks. These persons have lower serum cholesterol than men of comparable age, as do strict vegetarians. Both of these groups have less coronary heart disease than comparable persons in the same age group.

Experiments in human subjects show that the serum cholesterol is lower if large amounts of leguminous seeds (Bengal gram) are taken, even if much butter is consumed at the same time. The excretion of bile acids was increased when diet was changed from low fibre to high fibre, although at the same time the consumption of fat, cholesterol, protein, and calories remained constant.

A New Hypothesis

These views have been set forth in an article accepted for publication. Like all new ideas, they will prove contentious, even difficult to evaluate. Although it is not possible to obtain pure fibre for any dietary trial, it is possible to use fibre-rich foods, such as leguminous seeds or such products as bran. Even eating bran two or three times a day is not the same as consuming fibre-rich foods in their natural state. Some years must elapse before the role of fibre in the diet and its relation to serum cholesterol can be proved or disproved by long-term prospective studies of large groups of susceptible persons. At present many uncertainties exist in basic knowledge, such as the composition of fibre and its effect at various levels in the digestive tract of man.

I wish to suggest a personal, but unproved proposition, namely, that cereal fibre in the diet of Western man, *taken throughout life,* from the time of weaning, determines to a considerable degree the level of serum cholesterol and the incidence of coronary heart disease. I saw only one case of coronary thrombosis in East Africa (1929 to 1959) in an African; he as a high court judge, eating a Western-style diet. I was a physician and pædiatrician in that country. It seems to me that children who are breast fed for many months and then grow on foods containing their natural amount of fibre grow differently from Western infants who are bottle fed on cow's milk mixtures and soon weaned onto fibre-depleted foodstuffs.

Doubtless other factors, such as mental strain, may also operate and provoke an attack of coronary heart disease, but the extremely low incidence of this disease among the South African Bantu suggests that mental strain by itself seldom produces overt disease.

Because considerable uncertainty still surrounds this matter at present, not all physicians would agree with these views. For my own part, however, I have taken to eating more whole-grain bread, beans, peas, fruits, and vegetables. ***

ANDY, the Ethiopian goatherd, sat in the welcome shade of some small berry-clad trees idly watching his charges. With the curiosity so characteristic of "Goatus Ethiopicus," the animals experimented with both leaves and bright red berries, but soon seemed to zero in on the berries. Then, having nibbled to their hearts' content, they wandered out into the more open pastureland. As Andy's eyes followed them he leaped to his feet, alarmed by their unusual activity. Was some wild beast stalking his herd? No, they were gamboling and frisking about, but only in a spirit of play, with no evidence of danger. The boy's eager mind set to work. Red berries. Unusual friskiness. Could there be a connection? His curiosity aroused, he quickly picked a handful of the berries and crammed them into his own mouth. What a surprise to feel, a few moments later, a sensation of pleasant elation take possession of him. No wonder the goats were playing around as never before!

And, so, legend has it, coffee was discovered, way back early in the Christian Era, in Ethiopia, or, as one version relates, in Arabia. For centuries Arabia maintained a strict monopoly of trade in the beverage by permitting no seedlings or fertile seeds to leave the country. But somehow in 1690 the Dutch got hold of a few plants for their botanical gardens. From these, cultivation in Java was begun, and a few plants were sent to other European botanical gardens. Next, an adventurer smuggled a cutting from a French botanical garden and transplanted it in Martinique, where it flourished and became the ancestor of the West Indies coffee trade. From here other plants reached the mainland of South America. Later, when neither Dutch nor French Guiana, both of whom were cultivating coffee, would let any of the plants out of their country, a Brazilian diplomat who had negotiated peace between the two feuding nations was given a few precious cuttings and fertile beans, hidden in a bouquet by the grateful wife of the governor of French Guiana, the Brazilian coffee industry was born.

Today, enormous coffee plantations abound in the West Indies, Java, South America, and Africa. In value coffee is currently the most important product in international commerce and second most important in actual bulk of material! Careful estimates place United States imports at an annual $2 billion; the average user drinks three cups daily.

What is there about coffee that gives it

by MARJORIE V. BALDWIN, M.D.

COFFEE: *Friend or Foe?*

such widespread acceptance? Ask any coffee drinker, and he'll tell you, Gives me a pickup. I can turn out more work. Let's me drive all night when I'd fall asleep without it. Quiets my nerves. Makes me more alert; I can think better after my breakfast coffee, and I just feel better. And scientists find that animals fed caffeine can perform learned tasks more rapidly, and they are, like the Ethiopian goats, more active spontaneously. Caffeine improves mental speed in such areas as arithmetic and typing; the brain wave indicates arousal, with increased voltage and wake or "alpha" rhythm patterns. Breathing is increased, blood pressure rises, and reflexes are more active.

Buying on Credit

The question is, *how* does coffee do all this when, without sugar and cream, it has practically no food value? How can it impart more energy? *It can't!* Only food can give energy. But coffee contains the drug caffeine (trimethyl xanthine to chemists). And drugs can manipulate the release of some energy from body stores into the blood, thus making it available for immediate fuel—at the expense of future needs. You might compare it to buying on credit. You don't have the needed money now, so you borrow from the future. True, you have the use, now, of the purchased material, but, also true, the bills come in for payment, often when the merchandise is dilapidated or broken.

So it is with the caffeine-induced energy release. The payment date arrives several hours after one takes the drug: undue fatigue with decreased efficiency and alertness takes its toll, with interest.

One of the major ways caffeine forces energy release is by blocking the normal shut-off mechanisms which ordinarily stop certain body activities at the proper point. For instance, a most important chemical, called *cyclic AMP* (adenosine monophosphate), is released throughout the body by adrenalin and other hormones. Among its many actions, adrenalin negotiates with the liver through cyclic AMP to put more sugar into the blood. Good idea. But enough is enough, and when the blood sugar is at the ideal amount, another body chemical called *phosphodiesterase* (or *pde* for short) shuts off the cyclic AMP and thus regulates the release of sugar to the

A cup of coffee has anywhere from eighty to 150 milligrammes of caffeine which is approximately the amount a physician would prescribe for medicinal use.

blood. But along comes caffeine. It usurps authority and knocks out the pde. Then the cyclic AMP keeps on releasing sugar to the blood beyond the amount that is best for proper function. One group of researchers found that two cups of coffee significantly raise the blood sugar. No wonder that there is more functional hypoglycemia among coffee drinkers, and that caffeine definitely aggravates diabetes.

But that is not the end. Caffeine is double trouble. It pulls a similar stunt with fats. Here, too, it blocks pde from shutting down the release of free fatty acids from body stores of fat and thus increases fats. Elevated fats and sugar in the blood are associated with greater risk of coronary heart attack.

Caffeine also jams the brakes in the brain and nervous system, where another essential body chemical, *acetylcholine,* carries message from some nerve cells to others. Normally, when a message has been delivered, a "braking chemical," *acetylcholinesterase,* stops its action. Always the bustling expediter, caffeine antagonizes acetylcholinesterase, thus prolonging and magnifying the nerve messages. This no doubt helps explain the tremors, agitation, and even convulsions sometimes seen with large amounts of the drug.

In its haste, caffeine sacrifices accuracy. During World War II some experiments carried out in Germany "found that although caffeine was a strong mental stimulant, it resulted in very undesirable impairment of motor coordination (in target shooting, writing, and simulated auto driving). There was also a 'hangover' effect, in which mental efficiency, after having been improved fell off below normal values—from one to three hours after taking the stimulant."

Another well-known effect on the brain is caffeine's sleep stealing. True, some sturdy individuals can manage a night of unconsciousness after even three to five cups of coffee, but many cannot sleep after even one cup. It is interesting to compare the sense of well-being derived from regular sleep, exercise, and good food which build up your body, with the drugged feeling of well-being from caffeine.

It increases tremor, thus contributing to decreased hand steadiness, which interferes with certain tasks requiring skill. It is more difficult to break animals of bad habits when they are given caffeine. In fact, for this reason, caffeine has been called "bad habit glue."

One of the adverse effects of coffee drinking is its ability to make many users so dependent on its stimulating drug effect that when deprived, they suffer such symptoms as mental craving, irritability, nervousness, and severe headache, all of which are relieved by a cup of coffee. Recent studies in animals reveal that the addition of coffee to their diet led to a twofold to fourfold increase in their voluntary alcohol drinking. Does coffee have the same effect in humans?

Queer, isn't it—our human tendency to habituate ourselves to use and enjoy chemicals that contribute nothing to our health, but may even increase our suffering. Besides, some of us may become dependent on them. Fortunately, in the case of coffee, a few days' abstinence reorients the body to function well without it, and the symptoms disappear.

What Happens to the Stomach?

Bad news! Here caffeine has accomplices in the *caffeols,* which are irritating oils released by roasting coffee beans. All of these coffee constituents prod the acid-producing cells of the stomach to make more hydrochloric acid. Caffeine also increases the effect of other acid-stimulating substances. More acid means, in some people, more ulcers. No wonder coffee as well as other beverages containing caffeine is particularly harmful for persons with digestive disease. As Dr. M. I. Grossman, one of the world's leading specialists in the digestive tract, wrote: "Caffeine acts both as a direct stimu-

lant and as a potentiator of other stimuli. Because drinks with caffeine are frequently used without food, they produce high levels of secretion without the buffering action of food. Ideally, the use of all caffeine containing beverages should be permanently banned in patients with duodenal ulcer."

And the Heart?

Coffee, via caffeine, has some influence on the heart, blood vessels, and even on the blood, and sometimes the different effects are conflicting. It stimulates the heart muscle directly, and by two opposing actions can either slow the rate, increase it, or—if these actions happen to balance each other—no resulting change takes place. But with large amounts, the increase wins and a definite speeding up occurs. In some people caffeine beverages actually cause irregularity of the heart-beat, or palpitation.

Caffeine's action on the blood vessels is also conflicting. It tells those near the skin to dilate, but simultaneously orders the brain to have them constrict. And while it does cause the coronary arteries supplying the heart muscle to dilate, the heart muscle does not get any more oxygen because the heart has to work harder. It has various effects on other blood vessels—constricting those in the brain, and dilating those in the lungs and kidneys—which can decrease a vascular headache and increase urine formation. Too bad it does not limit itself to these things without dragging in all the accompanying harmful effects!

Blood itself is not exempt from caffeine's meddling. In addition to the increase of sugar and fats already mentioned, it also causes a drop in a special enzyme which removes fat from the blood; this is probably another reason for the quickening of blood clotting.

Which brings us to one potentially very serious problem. Although it is not completely proved that coffee *causes* heart attacks, there are several excellent research studies involving hundreds of heart attack patients which show consistently that these patients drank more coffee than similar patients without heart attacks.

In a report from the Boston Collaborative Drug Surveillance Programme, the coffee-drinking habits of 276 patients with acute coronary heart attacks were compared with those of 1,104 similar patients without heart attacks. Those who drank coffee had up to two and one-half times greater risk of heart attack than did the non-coffee drinkers. Both in men and women, the more coffee drunk, the greater the risk.

Even the Chromosomes!

Because chromosomes are the carriers of heredity from parent to child, damaged chromosomes can cause birth defects. Caffeine can cause chromosome damage in cells of human beings, as well as in a number of lower animals, and in humans it can pass freely from the blood to the ovaries and testes and from the blood of a woman who is seven to eight *weeks* pregnant into that of her baby! What this all means in terms of possible birth defects is unknown, but it might be very wise to leave off the coffee!

Drinks containing caffeine are used around the world. There are a number of plant families that provide the beverages. Coffee comes from roasted seeds of the coffee shrub, tea from the leaves of the tea plant. Mate comes from a plant in South America, and cola drinks get some of their caffeine from the nuts of a tree. Natives of the Sudan chew these kola, or guru, nuts.

As you look at the whole picture, coffee, tea, cola drinks, and other caffeine-containing beverages should have no part in your life if you want the very *best* health—which means the most ideal functioning of brain and the body. ***

The Nutrition Problem in India

by C. GOPALAN, M.D., Ph.D., F.R.C.P.

Director, National Institute of Nutrition, Hyderabad

THE three major factors that generally determine the nutritional situation of any country are population growth, food production and the distribution of food. The population of India, which stood at 361 millions in 1951, rose to 547 million in 1971. According to current projections, India's population, even allowing for the most optimistic estimates of the impact of family planning programmes, will touch the 990 million mark by the turn of the century. India's performance with regard to food production must be judged in the light of this relentless growth of population.

Apart from the vastness of her population, the age structure of India's population and consequently the dependency ratio are also unfavourable from the nutritional and economic standpoints. Children below twelve constituted thirty-eight per cent of the total population in 1971, as against just under twenty per cent in the technologically advanced affluent countries. It would seem unlikely that the situation will be materially different by the turn of this century.

The Green Revolution

Throughout the last two decades, India's food production managed to keep pace with population growth. During the 1950s, increase in food production was achieved largely through bringing more land under cultivation. It would have been impossible to continue this process during the 1960s and to increase the area under cultivation to levels necessary

to meet the demands of the growing population. Fortunately, however, during the 1960s a breakthrough in agricultural technology resulting in the propagation of high-yielding varieties of food-grains enabled India to register an impressive increase in food-grain production from a figure of 82 million tons in 1960 to 108 million tons in 1971. Thus, thanks largely to the green revolution, it became possible to ensure that food-grain production kept pace with population growth.

The initial success which attended the green revolution generated considerable optimism, and indeed at one stage led to the facile assumption that the final answer to India's food problem has been found. This mood of elation has now given place to a more realistic appraisal of the tremendous problems that still remain to be overcome, and there is at present a growing realization that some of the earlier expectations were perhaps unwarranted. The green revolution has so far been largely a wheat revolution. It has not been possible to repeat with other food grains the miraculous success achieved with wheat. While there has been some progress with rice, there has not been much headway with millet. It has been estimated that out of 40 million acres under sorghum cultivation, only one million acres have so far been devoted to high-yielding drought-resistant varieties.

The green revolution has also so far tended to distort the cereal-pulse ratio. A real beginning has yet to be made with regard to augmenting pulse cultivation. Also, a vigorous programme for overcoming the serious short-

age in edible fat has yet to be initiated. Apparently, many practical and logistic problems which are at present impeding the tempo of these programmes have still to be overcome.

The new agricultural strategy envisages substantial increase in the yield per hectare through better irrigation, increased fertilizer inputs and an intensive programme of intercropping using short-duration varieties of crops. If this new agricultural strategy is faithfully implemented, the country will be able to achieve food grain production of the order of 180 million tons per annum by the turn of the century. But this level of food grain production would enable the country only to maintain the *per caput* availability of food *at the present level*. Even on the basis of the low-cost balanced diets proposed by the Indian Council of Medical Research, India will have to boost its milk production by 200 per cent, its oil production by 430 per cent and its meat, fish and poultry production by 380 per cent to meet the demands of her population by the year 2000 A.D. The prospects of the country being able to achieve these targets do not at present appear rosy. A spectacular breakthrough in animal husbandry which would match the earlier breakthrough in agriculture will be necessary.

Maldistribution of Available Food Resources

On the basis of figures for food grain production and population for 1971, it may be computed that if all the food produced in the country were equitably distributed among the people, caloric intake in the adult male would be roughly of the order of 2000 calories, as against the requirement of 2400 calories for an average male adult engaged in sedentary occupation, and 2800 calories for a male adult doing "moderate work". Average caloric intake in the adult female would be 1900 calories for a female adult engaged in sedentary work and 2300 calories for a female adult doing "moderate work". The protein intakes would be between fifty-five and sixty grammes, more than adequate by accepted standards.

However, the diets of different groups of population in India vary enormously, so that computation of average availability of calories and proteins have no practical meaning. The unfortunate fact is that there are vast pockets of under-nutrition in different regions of the country where the calorie and protein intakes fall far below the minimum requirement. Thus, among the poorest groups, caloric intakes as low as 1700 calories among adult males and 1400 among adult females have been noticed.

Extensive surveys among different groups of people go to show that, in Indian diets, the major bottleneck is calories and not proteins. Though Indian diets are predominantly cereal-based, if these are taken in amounts sufficient to meet the daily calorie needs, the minimum protein requirements will also be usually met. But unfortunately, among the poor communities, even cereals are not taken in quantities sufficient to meet minimum calorie needs. In such a situation, protein in the diets tends to be used by the body in such a way that it is diverted for purposes of providing energy and not for building of body tissues. In effect, then, what we are dealing with primarily is not a "protein gap," as is often made out, but really a "food gap".

Surveys carried out among poor children have shown that ninety per cent of them have calorie intakes well below their minimum requirements, the deficiency being of the order of 300-400 calories daily. The calorie intakes in these children provide roughly only two- thirds to three-quarters of minimum requirements. Thirty-five per cent of children in poor communities have been found to have a protein intake below the requirement.

But, as pointed out above, the protein requirement in these children could be met to a great extent, if the diets on which they are now

subsisting were taken in quantities sufficient to meet their total caloric needs.

Such gross inadequacies in diets are naturally reflected in a high incidence of nutritional deficiency diseases. Using the widely accepted criterion of growth retardation, it may be computed that nearly sixty-five per cent of toddlers in poor communities in India suffer from moderate malnutrition and eighteen per cent from severe malnutrition. The incidence of nutritional deficiency diseases in school children of some poor communities has been found to be as high as twenty-two per cent.

Malnutrition among pregnant women of poor communities is also widespread. A large proportion of these women suffer from anæmias in the last term of their pregnancy. Such malnutrition has now been shown to be responsible for low birth-weights of infants (small-for-date babies) and to result in a high degree of pregnancy wastage—nearly thirty per cent.

Apart from the immediate effects, the long-term effects of malnutrition are now being appreciated. The "quality" of a very high proportion of human resource in the country is being undermined because of widespread malnutrition.

Protein-calorie Malnutrition

The major nutritional problem which has attracted global attention is so-called "protein-calorie malnutrition" in children. The fact which has emerged is that in the current diets of pre-school children in India, the major bottleneck is calories and not proteins. Asian diets, unlike African ones, are largely cereal-legume-based, and cereals and legumes provide a fair concentration of protein. The basic strategy in combating this problem in India is to bridge the "food gap," using the existing diets with marginal improvements in their quality.

It may be stated, with regard to most villages in India, that there is *no* problem of protein-calorie malnutrition in these villages which cannot be solved with inexpensive foods available within a radius of ten miles of the villages. The solution is to use inexpensive, locally available foods in proper combinations. Several recipes based on such foods, which the housewife can prepare in her home to feed her children, have been set out by the Indian Council of Medical Research. A major effort is now called for to educate mothers to use such recipes in the feeding of their children.

The Government of India has now started a massive decentralized programme of supplementary feeding of children at risk in poor communities. The supplements will be based entirely on inexpensive, locally available foods and every effort will be made to ensure local community participation in the programme. The supplements will be so designed as to bridge the calorie gap, using conventional food ingredients.

Vitamin A Deficiency and Blindness

Vitamin A deficiency is a major cause of preventable blindness in children in many parts of Asia. Unfortunately, keratomalacia, or xerophthalmia, the eye disease resulting from vitamin A deficiency and ending in blindness, is still commonly found in many pædiatric and ophthalmic hospitals in South-East Asia.

The logical answer to the problem of vitamin A deficiency is to encourage poor communities to include more green leafy vegetables in the diets of the children. But this approach involves intensive nutrition education and will take time to yield results. Since vitamin A can be stored in the body for prolonged periods, it should be possible to build up sufficient vitamin A stores in a child through the administration of one or two massive oral doses of vitamin A in a year. This approach

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So, You're Going to Have a Baby!

by ELEANOR HETKE, R.N., B.Sc.

YOU have just returned from seeing your doctor. And he has confirmed your expectations. Yes, you're going to have a baby! You are filled with excitement, awe, and a little fear as you wonder what lies ahead. The question foremost in your mind (and your husband's too) will be, "Boy or girl?" Then other questions will start creeping into your thinking: Will our baby be normal—have all its fingers and toes? Will my husband still love me when he sees me growing more out of shape as the months go by? Will my attitude toward him change?

Yes, this is a time for questions—and answers, too.

A Boy or a Girl?

The desire of just about 100 per cent of the fathers-to-be is to have a son, and of course, you would like to oblige. But how? That is the age-old question. Does the sex of the child depend on the phase of the moon at the time of conception, or the diet of the husband or the wife, or how strong the husband is, or just what?

The whole matter of determining the sex of your child is very simple and it is up to your husband. But not in the way that most men think.

Here are the facts: The sex cells, the spermatozoa from the father, and the ovum from the mother, have a special chromosome in them besides the twenty-three regular chromosomes (the ones which help determine what colour eyes, hair, features, etc., the newly developing child will have). They are referred to as the "X" and "Y" chromosomes. The ovum contains one "X" chromosome (which is the female-determining chromosome and the spermatozoa contains either a "X" chromosome or a "Y" chromosome (the male-determining chromosome). So whether your baby will be a girl or a boy depends on which gets to the egg first and fertilizes it—a sperm containing a "X" chromosome or a sperm containing a "Y" chromosome. If a sperm with a "X" chromosome fertilizes the egg, it will then contain "XX" chromosomes and a girl will develop. But if a sperm with a "Y" chromosome fertilizes the egg, it will then contain "YX" chromosomes, and a boy will develop.

When it comes right down to it, half the fun and surprise would be gone if you parents-to-be knew in advance what your baby was going to be. A real family quarrel may develop if the choice could be

made beforehand. Even the grandparents might like to make the decision—and wouldn't that be a real picnic? So it's just as well that Mother Nature has the upper hand. Sit back and relax and consider both boy and girl names.

But don't relax too much by thinking that everything is out of your hands. The responsibility of parenthood is now yours. Your main concern will be to have a pregnancy with the minimum of mental and physical discomfort and the maximum of mental and physical fitness with a healthy baby as a reward. So it is up to you to start out on the right foot.

A Good Beginning

And what is that right foot? *A quick step to your doctor on a regular visiting basis, preferably every three to four weeks during early pregnancy and oftener during the last two months.* Each doctor has his own system. During these periodic visits, he will be able to spot any trouble that might arise by doing some routine tests and examinations, such as urine, blood, and blood pressure.

The following are some danger signals that you must report to your doctor at once.

1. Vaginal bleeding, no matter how slight.
2. Swelling of the face or the fingers.
3. Severe and continuous headache.
4. Dimness or blurring of vision.
5. Pain in the abdomen.
6. Persistent vomiting.
7. Chills and fever.
8. Sudden escape of fluid from the vagina.

Staying on the Right Foot

Now that you are on the right foot toward motherhood, you will want to stay there. The main concern should be to keep yourself in good health and stay in good health. Adequate nutrition and proper dental care are a must for the mother-to-be.

Adequate diet during pregnancy is essential to help prepare for the crisis of labour and delivery by building up the muscle tone of the body; to hasten your convalescence after delivery; to prepare for better nursing of the baby; and to provide the essential building materials for the developing fœtus.

During the prenatal state, you are providing nourishment for two. The second individual is, of course, very tiny. But it is growing very rapidly and it requires a variety of nutrients. So the emphasis in the diet should be on quality rather than quantity. The average pregnant woman requires 2,500 calories per day.

Scientists at the U.S. National Institute of Neurologi-

cal Diseases and Blindness suggest that a child's learning capacity and intelligence may be impaired even before the child is born! In view of this, malnutrition of a pregnant woman may endanger her child's mental development.

And so you, as a mother-to-be, should eat a good balanced diet. You should take a relatively large proportion of liquid, including one litre of milk a day; proteins from meat, eggs, fish; dark cereals and dark breads; a generous allowance of green, yellow and leafy vegetables; fruits—raw and cooked; and butter.

Dental Care

There is an old saying, "For every child, a tooth." But this need not be true if proper attention is given to the care of the teeth and nutrition during pregnancy. Proper care should be given to the teeth at all times, but as soon as you know you are pregnant, you should see your dentist and have all cavities filled at least temporarily, and your teeth cleaned. If your diet does not contain adequate amounts of lime salts and other minerals in sufficient quantity to build the baby's bones and teeth, they may be absorbed from your own body. This is one reason emphasis is placed on good nutrition and dental care during pregnancy.

Weight Control

Do not get the idea that good nutrition means overeating with too much poundage gained. A gain of about three pounds per month after the first three months of pregnancy is considered satisfactory. A gain of twenty to twenty-five pounds may be expected for the duration of pregnancy. Approximately ten pounds of the weight is due to a general accumulation of fat and the increased amount of fluid which tissues tend to retain at this time. The other fourteen pounds are distributed as:

Baby — 7 lbs.
Amniotic fluid (fluid surrounding baby) - 1½ lbs.
Placenta—1 lb.
Increase in weight of uterus—2 lbs.
Increase in blood volume —1 lb.

Increase in weight of breasts —1½ lbs.

Usually those extra ten pounds are lost after pregnancy.

Keeping Fit

Now that you are pregnant, you will find yourself becoming more tired and possibly not able to do some of the things you used to do. This is because of a general lack of energy. In addition, you may experience irritability, apprehension, tendency to worry and restlessness. It is much more important to avoid fatigue than to have to recover from overfatigue. A nap or rest for one half hour, morning and evening will do wonders for these feelings of physical and mental fatigue. Sit down whenever possible, and elevate the legs to help the flow of blood from the extremities.

Open air exercise in the sunshine and fresh air is very beneficial. Walking is the best form of exercise for you because it stimulates the muscular activity of the entire body and strengthens some of the muscles used during labour. Consult your physician as to the amount of exercise advisable, for it differs during the first part and the last part of your pregnancy.

Smoking for anyone is dangerous, but for you it is doubly so since it also affects the baby. Studies have shown that smoking mothers have higher premature births and more stillborns than non-smoking mothers. So if you are a smoker, give yourself and your baby the best chance possible —stop smoking NOW!

Care of the Breasts

Prenatal care of the breasts and nipples is important in preparing for breast feeding. Often the breasts have a feeling of fullness and weight. A well-fitted supporting brassiere may relieve these discomforts. There may be sufficient secretion from the nipples to necessitate wearing a pad to protect the clothing. The daily care of the nipples should begin between the sixth and the seventh months. This is necessary because by this time the breasts begin to secrete, and the secretion often oozes out on the surface of the nipple and, in drying, it forms fine imperceptible crusts. If these crusts are allowed to remain, the skin underneath becomes tender, and if left until the baby arrives and nurses, this tender skin area is likely to crack. With this condition there is always a possibility of infection.

A good way to avoid this condition is to bathe in warm water daily and dry the breasts well. Then use a recommended water-soluble oil such as lanolin. By using the ends of the index and middle fingers and the thumb, work the lanolin into the tiny creases found around the surface of the nipple. This care toughens the nipples and prepares them for the baby's nursing.

Marital Relations During Pregnancy

If ever there is a need for understanding on the part of your husband, it is during this period of pregnancy. Because of the hormone changes that are taking place in your body you may find your desires toward your husband changing, too. If this should be the case, do not overly worry about these feelings, as they are only temporary.

However, as this is not always the case, you may wonder if marital relations are still advisable during pregnancy. The answer lies with the advice of your doctor as he is in the best position to evaluate your health. Most doctors do not advise complete abstinence during pregnancy, but there are times when coitus should be avoided, especially during the first three months of pregnancy at the usual menstrual time and during the last two months of pregnancy. (There are two reasons for this: agitation may bring on premature birth; and germs may be introduced which would be harmful to both mother and child if

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condiments in your food

by RUBY OHDONEZ

Many articles commonly classed as foods are consumed more for their condimental properties than for nutritive value. In commerce and in food legislation there is no boundary between foods and condiments, thus the definition of food covers all articles used as food, drinks, confection, and condiment.

Food adjuncts claim a place in food products, even those which have not been shown to have nutritive value in themselves but may play a role in the utilization of major articles of food. Thus vinegar and perhaps the spices are concerned in the preservation of perishable foods; the leavening agents are associated with the diverse forms in which grain products enter into the dietary; and for many people a beverage contributes to the sense of well-being that accompanies the eating of a satisfying meal. But remember, food adjuncts have their place in food economics too, because expenditure for these materials may curtail seriously the money available for essential foods.

Many foods have their own characteristic flavours that may need only to be brought out. Salt does just this; so to all prepared dishes one adds salt—not much but just enough to bring out the natural flavour of the food.

Salt, or sodium chloride, is universally used. Possibly the liking for salt is a protective measure. Salt supplies the chlorine for the hydrochloric acid in the gastric juice needed for digestion in the stomach. The amount of salt present in the body helps to regulate the water content of the body tissues and fluids. Under normal conditions, well-seasoned foods carry enough salt to meet the needs of the body.

Salt is obtained from salt beds or by the concentration of salt water pumped from surface salt water. Common table salt is ninety-six to ninety-eight per cent sodium chloride and, on a water-free basis, contains not more than 1.4 per cent calcium sulfate, not more than 0.1 per cent insoluble matters from the water, and not more than 0.5 per cent calcium and magnesium chloride. Salt is hygroscopic, which means that when exposed to atmospheric conditions it absorbs water from the air and thus becomes caked. To make it free-running, small amounts of alkaline salts as sodium and magnesium carbonate are added. Iodized salt contains ninety-nine per cent table salt and one per cent potassium iodide which is, of course, thoroughly mixed.

A large number of flavouring extracts are available in the market, the extracts of vanilla and of lemon being most commonly used. A flavouring extract is a solution in ethyl alcohol of proper strength of the sapid and odorous principles derived from an aromatic plant, or parts of the plant, with or without its colouring matter, and conforms in name to the plant used in its preparation.

Vanilla extract is made from the vanilla bean, the fruit of a climbing vine, Vanilla planifolia, which belongs botanically to the orchids. When the pods turn brown, they are gathered and allowed to undergo a process of fermentation which develops the characteristic aroma. The beans are then dried for market and the commercial extract is made by cutting them up and soaking them in alcohol, usually with addition of sugar. The odour of vanilla and vanilla extracts is due chiefly to a substance known as vanillin.

Imitation vanilla extracts may be made from coumarin extracted from the tonka bean in combination with sugar and/or dextrose and glycerine; they frequently contain synthetic vanillin prepared from eugenol, a constituent of oil of cloves. These imitation extracts may contain a small amount of true vanilla extract.

Lemon extract is made by soaking lemon peel in strong alcohol. The chief component in this volatile oil is called citral. Percentage of lemon oil present in such extract is five.

Almond extract is a flavouring extract prepared from oil of bitter almonds, free from hydrocyanic acid and contains not less than 1 per cent by volume of oil of bitter almonds.

Spices come from various parts of tropical plants, shrubs, and trees; they owe their condimental properties to their volatile oils too. Among the stimulating condiments are cayenne pepper, white and black peppers, mustard, and chilli powder. They are irritating to the mucous membrane, producing a sense of heat in the stomach.

Pepper, which may come as black or white, are the powdered dried fruits of *Piper nigrum*, a perennial vine, native to India, Malaysia and nearby islands. The fruits are called peppercorns.

Black pepper is made from the immature peppercorns whereas white pepper is made from ripened peppercorns (thus more starchy) and in which the coating has been removed.

Chilli is a designation used to cover many varieties of peppers used to flavour foods in many countries—both East and West. Some are relatively mild while others are like white fire. It generally comes from red-hot chilli fruit.

Cinnamon comes from the dried bark of *Cinnamomum zeylanicum*. It owes its characteristic properties to a volatile oil of which cinnamic aldehyde is the chief component. Cinnamon is a mild heart stimulant.

Paprika is made from sweet, red pepper of the Capsicum specie. It is used for colour as well as flavour. It gives vitamins A and C.

Curry is a mixture of ground spices with pepper, in which turmeric, a powdered yellow ginger product, is the principal ingredient.

Anise is an herb of the carrot family having aromatic seeds with a strong licorice flavour. The seeds may be used whole or ground and are usually incorporated in cookies, *guinatan, puto* and other native cookery dishes.

Yes, seasoning is an art. No definite rules can be laid down as tastes differ and condiments vary in strength. If we were to use these things at all, let us remember that condiments have no definite food value, but are considered by some as important in stimulating the flow of digestive juices. When used in excess, they cause congestion and inflammation. The highly stimulating and irritating ones certainly have no place in the healthful dietary. ***

Don't Overburden Your Heart !

by T. STRASSER, M.D.

In this "strangest of all possible worlds" it is not an entirely surprising paradox that ill-health due to overnutrition is in many places an important public health issue, while numerous population groups at the same time suffer from a lack of food. Overnutrition is, and always has been, a reality. The physicians of antiquity associated gout with over-eating, and severe obesity is, of course, an old phenomenon as well, although some of its endocrine and metabolic mechanisms may be understood better nowadays. Overnutrition impairing the health of entire populations is, however, a relatively recent development, brought about by two new factors that affect many people in technically advanced countries: easy availability of purified, high-calorie food produced by the food industry, and decreasing levels of physical activity due to advances in transportation and machine work. In fact, only in the last two decades has it been recognized that mankind is facing a widespread epidemic of heart and vessel disease in the sense that it affects entire populations and that overnutrition is one of the most important contributing factors.

Overnutrition may be defined as food intake exceeding calorie expenditure. It is thus a state of imbalance, resulting in an accumulation of fat in the fat cells, which manifests itself as obesity. There are several ways of assessing obesity (or its opposite, leanness). Body weight is not informative enough unless considered jointly with sex, height, and shape of the body. Obesity can be estimated by measuring the thickness of skinfolds with a simple caliper. More reliable but also more sophisticated methods are measurement of the specific gravity of the body, or measurement with radioactive isotopes.

Ideal Body Weight

Obesity is a graded characteristic. Severe obesity is, of course, easily recognizable, but between a clearly lean and markedly obese body there are many stages of transition. A person with a mean (median) body weight in one society can be considered as being obese in another social environment. The question of "normality" in biology is a very complicated one. A practical way out is defining the "ideal body weight" as that which is associated with the lowest general mortality, if bodybuild, age and sex are taken into consideration although such data may differ in some societies. In affluent societies this "desirable" body weight may be considerably lower than the average values.

Indeed, even slightly or moderately obese persons statistically seem to have higher mortality rates, i.e. shorter life-expectancy, than lean persons from the same age-cohort. Understandably, these relationships have been studied extensively by life insurance companies. It has been found that, in the United States of America, people who are ten per cent overweight have an excess mortality of around ten per cent while for those who are thirty per cent overweight excess mortality is also thirty to forty per cent. This is not solely due to cardiovascular diseases and diabetes, the most frequently associated conditions, for deaths due to pneumonia and influenza, diseases of the digestive system, and even

accidents are more common among the obese. Finally, those who had been overweight, but had subsequently reduced, had considerably decreased mortality rates.

Not all cases of obesity are due only to over-eating. Heredity plays an important role and in some, though relatively rare cases, obesity is due to frank endocrine disease. On the other hand, it is often the case that people are ingesting too much of one of the normal components of a diet, without gross calorie overfeeding. This qualitative imbalance—too much fat is the most important feature of "western" diets—may not lead to marked obesity and yet greatly increases the risk of heart disease.

Prospective studies during the past two decades on the occurrence of heart disease in entire, initially healthy population groups have identified a number of factors which contribute to the development of atherosclerosis, especially to that of the coronary arteries—those which supply the heart itself with blood. Myocardial infarct and sudden cardiac death are the most important consequences of coronary atherosclerosis.

Obese people are more prone to develop coronary atherosclerosis than those who are lean. However, statistical analyses have shown that obesity itself is not an independent factor of risk; those who are obese and later develop a myocardial infarct or die suddenly of a heart attack usually also have high blood lipid levels and other characteristics such as elevated blood pressure, or are heavy smokers; while those who are not markedly obese but still get the disease have the same "risk factors, i.e. high blood lipids, high blood pressure, and so on. Obesity thus is a sign of overnutrition, which may lead to heart disease, but heart disease often occurs without significant obesity, though rarely without eating too much fat.

The blood serum contains several kinds of lipids (fatty substances). Cholesterol is the lipid whose relationships with the occurrence of myocardial infarction are best established. A forty-five year old man has, for example, a 2.5 greater probability of getting an infarct within the next six years of his life if his blood cholesterol level is as high as 310 mg/dl, than if it is as low as 185 mg/dl. The level of serum cholesterol, on the other hand, very much depends on the diet, to the extent that if the composition and amounts of food someone usually ingests are known, for scientific purpose his serum cholesterol level can be calculated with reasonable accuracy.

In practice, however, the reverse procedure is used. Physicians take blood samples from individuals supposed to be at high risk of infarction. Chemical analysis of the sample shows whether the cholesterol level is high, and if the suspicion is confirmed advice is given to alter the diet, to make it more balanced and less rich in fats and calories. Briefly, overnutrition is banned.

Myocardial infarct and sudden death are not the only cardiovascular conditions associated with over-

nutrition. High blood pressure occurs more frequently in people who over-eat. Elevated blood pressure itself contributes to coronary atherosclerosis and considerably enhances the risk of a stroke. Similarly, overeating contributes to diabetes, which itself is another danger to the blood vessels, particularly to those of the heart and the brain.

In extreme obesity there are other complications. It imposes an increased workload on the heart, leading also to hypertrophy of the left ventricle. Because obese people get easily tired, they move less and less further decreasing their energy expenditure. However, as they continue to overeat, in accordance with deeply rooted habits, their obesity may become a self-perpetuating, progressively incapacitating condition.

Cases of incapacitating obesity are rare but overnutrition leading to heart and vessel disease is, in societies, an extremely common phenomenon, almost one of the fundamental biosocial characteristics of many groups. Why do people, if they can afford it, so often eat more than they need? There are many reasons for such behaviour—social, historical and psychological ones. What matters is the fact that overnutrition is largely a behavioural disorder and thus, in principle, could be corrected relatively easily.

In practice however, there are many obstacles, education early in childhood being one of them. A fat child is likely to become a fat adult. Deeply implanted habits of over-eating may become a lifelong handicap and can shorten a person's life. It is extremely important to educate children early to acquire healthy, well-balanced eating habits, if a change is to be induced in society's attitude and behaviour toward overnutrition. ***

—Courtesy of WHO

SUPERTAMPON:

revolution in family planning

by Dr. FREDERICK JOHNS

A revolutionary new method of family planning is just around the corner. This new system is amazingly simple. It merely requires the use of a special chemically impregnated vaginal tampon one day per month. This is inserted at the time when normal menstruation is expected. It is followed without fail in a day or so with what appears to be normal menstrual bleed.

The key to the new proposition is a potent new hormonal-like product called "Prostaglandin." This drug has an amazing power to make the muscle wall of the womb contract. Therefore its use close to normal menstrual time will produce a potent uterine contraction that initiates bleeding.

Of course, at this stage, it is not known whether or not the woman is pregnant. There is no reliable test that can indicate her state by the twenty-seventh day of an apparently normal cycle. However, if she is pregnant, it would be in the very early stages. Therefore, what is akin to a miscarriage occurs.

If she is not pregnant, the normal hormones of the cycle take over and permit a routine cyclical bleed.

With the advent of this supertampon, the need to take the Pill for twenty-one days each month would immediately lapse. Therefore, the huge number of worrying side-effects rightly attributed to the Pill would vanish.

Women would be emancipated and freed from the shackles that

at present tend to make life a "computer-like misery," as one unhappy liberationist recently described her lot in married life!

An alternative method of use of the newcomer would be to wait and see what occurred each month.

If a menstrual bleed occurred, this would indicate that pregnancy had not occurred. If there was no bleed, this would be subjective evidence that pregnancy could have taken place (particularly if it was accompanied by some of the other usual signs). It would then be just as effective to use the tampon and secure the same result as if it had been used just before menstruation was due.

However, in the present state of local laws, and the feeling that currently surrounds abortion, this could have deeper implications.

Nevertheless, the majority of researchers and departmental heads who are working on this new aspect of birth control see few (if any) barriers or objections to the once-a-month tampon routine when used on the twenty-seventh day.

At present the World Health Organization is conducting a massive research programme into newer and more effective ways of family planning. The headquarters for these projects is Geneva.

Professor Rodney Shearman, obstetrics professor of the University of Sydney, has taken twelve months leave to organize this vast programme. Professor Shearman is a world authority on contraceptive technique. He has experimented widely with the prostaglandins, and has written several papers on the subject which have been published in authoritative medical journals.

The World Health Organization expected to spend Rs. 3.6 crore on its family planning projects in 1973, and is expecting to spend another Rs. 5.84 crore in 1974.

The plan is to develop up-to-date and new methods of contraception. Work is being carried out by twenty-three special "task forces" in research centres in twenty countries around the world.

The idea is to produce a series of suitable methods. Any country will then have the right to apply for methods that seem best suited to its own economic and social levels.

It is quite likely the prostaglandin method will be up with the leaders in the field. Indeed, the Geneva experts have already stated that "the once-a-month method for women based on the prostaglandins should be ready within six months."

History of the Prostaglandins

Although it is only in the past few years that particular interest has been focused on the prostaglandins, they have been around since the early 1930s.

They were first identified by two researchers working independently in England and Sweden. Little was done about this chance discovery however, until the mid 1950s. At this time, the Swedish workers asked the massive Upjohn chemical company for financial support. They said that they believed they had a revolutionary new drug in the test tube and felt it could have tremendous repercussions if followed through.

So, with Upjohn's money and Sweden's brains, research continued.

The chemical, prostaglandin, occurs normally in male semenal fluid. For this reason it was originally believed that it was produced in the male prostate gland—a smallish organ that sits just under the bladder in the male. It has been found that it is manufactured in the semenal vesicles, the storehouse for the fluid after its production. But the name, related to the prostate ("prostaglandin"), has remained, and will probably stick forever.

Securing an adequate quantity for research presented a problem. Early supplies were obtained from sheep. But finally the chemists were successful in synthesizing prostaglandins in the test tube. This was ultimately accomplished at Harvard University in the 1960s.

With adequate supplies readily available, widespread programmes were then commenced at major research centres around the world.

It was soon discovered that actually fourteen differing chemical structures existed, and these collectively make up the prostaglandins family. But for practical purposes, only two are in major use.

In November, 1972, the Upjohn company inserted a full-page news item in the *British Medical Journal*. This stated clearly: "Following extensive clinical trials carried out in major centres in the British Isles and elsewhere, Upjohn is proud to announce the forth-coming introduction of the first commercially available prostaglandins, Prostin E2 and F2 alpha."

So it is finally on the way. Commerce has got its hands on it, and it now seems that it will be only a short time till it is possible to purchase it across the counter from the local pharmacist.

Just as the Pill burst upon the world a decade and a half ago and revolutionized the habits of women everywhere, so the prostaglandins could have an equally dramatic social effect.

Moral, social and legal implications may play a part. But the way society is changing, it is certain that these will be overcome. It is merely a matter of time. It's all changing face of society. Just how much better off we are as a result —how much happier or unhappier —still remains an unanswered question. ***

The Doctor Advises

This counselling service is open to regular subscribers only. In reply to questions, no attempt will be made to treat disease or to take the place of a regular physician. Questions to which personal answers are desired must be accompanied by self-addressed and stamped envelopes. Anonymous questions will not be attended to. Address all correspondence to: The Doctor Advises, Post Box 35, Poona 411001.

Parkinson's Disease

What is Parkinson's disease? Is it much like multiple sclerosis?

Parkinson's disease is a degenerative condition of the portion of the brain called basal ganglia. It is entirely unrelated to multiple sclerosis except that they are both nervous system disorders. The commonest symptom of Parkinson's disease is tremor, usually of one or both hands. Characteristically the tremor is seen when the patient is at rest and tends to disappear when he attempts to use his hands. It is often described as a "pill-rolling" action. The patient walks with a shuffling gait and he tends to deteriorate as the years go by. Fortunately, several medicines are available. Although they don't work for everyone, the physician can almost always help. For severe cases, delicate surgery may provide relief.

It would be possible, but most unlikely to mistake multiple sclerosis for Parkinson's disease.

Salt-free Diet

I'm in good health, but wonder whether I should go on a salt-free diet. I understand that a low salt intake helps prevent heart attack. Would I become weak and tired if I weren't eating salt?

A total of one teaspoonful of salt per day from all sources, including purchased, home cooked, fresh, and frozen foods, is more than adequate to supply the needs of a normal person. Most people use two to three teaspoons of salt each day. Excessive salt intake tends to high blood pressure, stroke, and heart disease, but we need some salt. This is required for the proper maintenance of the acid-base balance of the body, for proper functioning of brain and nerve cells, and for the formation of the stomach acid, to mention a few of its uses.

Head Injuries

My children are very active, and it seems that they are always getting hurt. In the last six months we have had one broken arm, a sprained wrist, and one bump on the head in which one of the children was "out" for several minutes. It is the possibility of brain damage that worries me. I hope there won't be any more bumps on the head; but tell me what to do in case another one does occur.

In general head injuries are more serious in children than in adults. The younger the child, the greater the damage to the brain may be. You need to be alert to the danger, but I advise you not to worry. Instead, keep a plan of procedure in mind so that you will know what to do.

The commonest sign of brain injury is headache after the accident. Unconsciousness, when it occurs, is a significant symptom, and so is vomiting. Even when the unconsciousness does not last long, there may be severe damage or bleeding inside the skull. A child should be watched closely for at least two days after a severe head injury; and if lethargy, stupor, severe headache, or vomiting develop, a doctor should be consulted at once.

First aid procedures may be summarized thus: 1. Lay the injured child on his back and let him lie quietly. 2. Give him nothing to drink and use no stimulants.

3. Do not shake him or otherwise try to rouse him from stupor. 4. Do not try to make him talk. 5. Consult a doctor at the earliest moment, preferably before moving the child. 6. If he must be moved, do so gently, without changing his position and without sudden starts or stops.

Headache Relief

I am troubled by headache due to eyestrain. Is there danger in my using aspirin, in one or more of its various combinations for relief of the headache?

Headache is perhaps the most common symptom with which a physician deals. There are so many causes for headache, some of which are serious, that the basic rule for providing relief requires that the cause be discovered before a remedy is recommended.

You do not state your reason for assuming that your headache is caused by eyestrain. If you have good reason for this assumption, consult an ophthalmologist and allow him to correct the cause of your eyestrain if his examination verifies your assumption.

Even such a remedy as aspirin can mask a symptom which may be the only present clue to some underlying disease or problem. Better discover and remove the cause of the headache rather than use a drug which eases the symptom without removing the cause.

Exercise and Angina Pectoris

I have attacks of severe pain around my heart which usually come when I lift something heavy or when I get perturbed. Sometimes the pain extends down my left arm. My doctor calls it angina pectoris and has given me nitro-glycerine tablets to take whenever I think an attack might be coming on. These seem to help. But what perplexes me is that he insists that I begin a programme of physical exercise. He says that he wants me to begin walking and increase the exercise gradually until in twelve weeks I will be walking two miles in thirty minutes each day. How come? If exercise causes the attacks, then why exercise?

In this connection there are two kinds of exercise. The first is sudden, strenuous exercise which makes great demands on the heart for an all-out effort. The hazard of this kind of exercise is increased if there is an associated emotional crisis (anger, fear or resentment) which reflexly raises the blood pressure and thus increases the heart's work load. When the heart is in poor condition and the blood supply to its own tissues is meager, this type of exercise may overwhelm the organ by subjecting it to a greater demand for work than its limited blood supply makes possible. It is such an inadequacy of blood supply to the heart that causes the pain of angina pectoris.

The second kind of exercise, such as the walking your doctor recommends, is less strenuous and is sustained for a period of time each day. This increases the heart's work load just enough to bring a gradual improvement in its own blood supply and thus makes it better able to tolerate the occasional sudden demands made upon it.

Colour of Urine

Is it possible and/or normal that eating beets would affect the colour of one's urine? Apparently this occurred the other day. I never knew it to happen before, so was naturally concerned that there may have been a change in my kidney function.

It is possible that the eating of beets would affect the colour of one's urine as well as one's stool. Almost any food that is highly coloured may have this affect.

Vegetable Oils Versus Animal Fat

Which is better for me nutritionally—vegetable oil or butter? Am I right that vegetable oils are superior to any of these?

Vegetable oils are generally the most desirable kind of fat. Cottonseed oil, corn oil, olive oil, peanut oil and other vegetable oils which are liquid at room temperature are better for you than butter, margarine, vegetable shortenings, and fat of animals.

Fats that are solid at room temperature tend to raise the cholesterol level of the blood and cause hardening of the arteries.

Even the vegetable oils should be used in moderation, however.

How Much Sleep?

I am a seventeen-year-old high school student, and like many others of my age, have a great quantity of school work to do, including homework. How much sleep should I get each night? What is the minimum?

The amount of sleep required varies from person to person, but generally a student of seventeen years requires at least eight hours. It is true that one can go for a short time with less than that, but generally one is drawing on one's reserves when one gets below that figure. It pays off to take time not only for rest but for exercise when you are engaged in mentally taxing pursuits, as the memory and intellect are sharpened by healthful habits.

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has been found feasible in the extended field trials carried out by the National Institute of Nutrition, Hyderabad, and today a national programme for the prevention of blindness in children through the use of such massive doses of vitamin A given twice a year has been undertaken.

The evaluation of this programme in two states of India—Kerala and Karnataka has indicated a decline in the incidence of vitamin A deficiency. A similar programme has now been initiated in Indonesia and the reports from that country, presented at the recent Second Asian Congress of Nutrition held in Manila, indicate that a satisfactory impact may be expected from the programme. This is an approach feasible in the current socio-economic context of many Asian countries. Through a systematic and vigorous action, it should be possible for us to eliminate this major nutritional deficiency disease, which afflicts large segments of the child population in South-East Asian countries.

Anæmia

Anæmia is a problem of global importance. It is widespread not only among women of the reproductive age-group but also among pre-school children. It may be safely assumed that anæmia is responsible for undermining the stamina and impairing the productivity of large segments of the population in many developing countries.

Anæmia is again a problem which can be controlled, even in the current socioeconomic conditions obtaining in many developing countries. Either through the systematic distribution of iron supplement to women and children, or through the fortification of suitable items of food with iron, it should be possible to control anæmia. Currently, the possibility of fortifying common salt with iron is being explored. There are hopeful signs that this may be technologically possible and physiologically acceptable. Should this be proved to be the case, we would have taken a big step on controlling the anæmia problem. It would indeed be a major contribution towards improvement of the state of health of India and other Asian countries.

Goitre

The vast sub-Himalayan region of India has for long been the major goitre belt of the world. With the introduction of iodized salt, there has been an appreciable decline in the incidence of goitre in recent years. This success has generated the optimism that at long last the final solution to the goitre problem was to hand. However, recent surveys by the National Institute of Nutrition have revealed the disturbing finding of a very high incidence of goitre in the Deccan Plateau of India, south of the Vindhya Mountains—a region which had so far not been known to be endemic for this disease. The goitre problem in India would now appear to be more extensive in its distribution than was earlier believed. The programme of distribution of iodized salt has therefore to be extended immediately to these newly discovered endemic areas.

Nutrition: a Part of Health Care

It must, however, be pointed out that malnutrition results not only from poor diets but also from poor environment. Malnourished populations are most susceptible to various infections, and such infections further aggravate malnutrition. Poor communities are often caught up in this vicious circle. In such situations, control of infections and improvement of environmental sanitation can often bring

about as great an impact, if not an even greater one, on the nutritional status of a population as ad hoc feeding programmes operating in isolation.

Several studies have also indicated an inverse relationship between family size and nutritional status. Nearly seventy per cent of all cases of malnutrition are to be seen in children of birth order of four and above, and restriction of family size to three children will serve to eliminate at least two-thirds of the total amount of malnutrition seen among children in poor communities in India. The family planning programme has thus to be looked upon as a major nutrition programme.

A comprehensive nutrition programme should thus aim not only at improvement of the diet but also at improvement of the environment, control of infections, nutrition education, health education and family planning. An integrated programme including such mutually reinforcing components will be the most rewarding strategy for the conquest of malnutrition in India. This concept of an integrated comprehensive health programme has now been accepted by the Health Ministry of the Government of India.

In recent years, there has been increasing appreciation of the importance of nutrition among the planners and policy-makers of India. The budgetary allocations for nutrition programmes in the Fifth Five-Year Plan are expected to be truly impressive. Actual implementation of the nutrition programmes proposed will present many practical problems, and it is to be hoped that these practical problems will be tackled vigorously.

We must be careful to avoid the danger, as a result of the new awakening of interest in nutrition, of ending up by doing *something, but not enough,* to eradicate malnutrition. In the past, when no large-scale nutrition programmes were attempted, probably several thousands of children were dying of malnutrition. The effort needed to stave off mortality arising from malnutrition is much less than the effort needed to promote a state of good nutrition and positive health. From the national and economic points of view, reduction in mortality which merely results in increasing the pool of survivors of sub-standard stamina and poor "quality" cannot be considered a desirable achievement.

In the initial stages of any programme of nutritional rehabilitation, such a "transitional phase" is perhaps unavoidable. It must, however, be our effort to reduce this dangerous twilight to the absolute minimum duration. In the campaign against malnutrition, there can be no half-way house. The real criterion of success is not reduction in mortality but the promotion of positive health and good nutrition.

***

—Courtesy of WHO

FOR JUNIORS

Life Will be Wonderful

by MYRTLE O'HARA

"When will daddy come home? I want my daddy," Madhu wailed from his bed.

"It is only four o'clock and he can't get home before half-past five," mother said. Madhu gave a big sigh and turned over. Tears squeezed out from under his closed eyelids. In about half an hour he stirred uneasily.

"Do you think he will come soon now?" he asked. Mother came over to the bed and tried to make him more comfortable.

"I'll get you a cool drink," she said. Then she sat down beside Madhu and talked to him to while away the time till daddy got home.

Madhu was sick and he wanted his father. Things seemed easier to bear when dad was around. Mom helped a lot too. She was such a comfort. When she came into the room and looked at Madhu with shining eyes and a lovely smile on her face, and when she touched him with cool, gentle hands and told him what a good, brave boy he was, he felt much better just because she was there. But dad was different. He was big and strong and when he put his arms about Madhu, the boy seemed to gather strength and courage from his father's strength. He needed both his mother and his father just now. He couldn't do without either of them.

The clock crept around slowly. At last Madhu, who had heard every car pass the house for the last hour, said, "There's daddy's car!" He eagerly watched the door and in a few moments his father was there and the day seemed brighter. Mother left them together while she went into the kitchen to catch up on her work. Dad put his hand in his pocket and brought out a little gift for Madhu. He told him everything that had happened during the day and made plans for all the interesting things they would do when he got better. And in a few weeks he did get better. The doctor said his father and mother did him more good than all his medicine, and Madhu knew the doctor was right!

But he still wasn't very strong, so dad packed the car and they went camping together. Every day they explored the bush. They roamed far and wide. Dad helped Madhu over the rough places and up the hilly places, and he felt he could go anywhere and do anything as long as dad was with him. Once they were caught in a thunderstorm. Dad found a place

where they could shelter behind a big rock and he shielded Madhu with his body. Lightning flashed, thunder crashed, the wind roared and rain fell by the bucketful, or so it seemed to Madhu. Branches were hurled from trees and he was really frightened. He looked up at dad and was surprised to see he was enjoying the storm. He smiled at Madhu and tightened his arms about him.

"It's a grand storm," he shouted above the noise, "but it will soon be over." Then Madhu wasn't frightened any more. Having dad to look after him was wonderful.

At last the holiday was over and Madhu returned home, brown as a berry and fit and well. Life was exciting and was brimming over with happiness. But then an awful day came. Mom and dad had to go away for a month and Madhu would have to live with his uncle and aunt till they returned. Whatever would he do without his mother and father! They took him to the station and put him on the train. His uncle would meet him at the other end. Madhu had never been away from mom and dad before and he began to cry. Mom whispered a few words to dad and hurried out and bought another ticket.

"Don't cry, Madhu," she said when she came back." "I'm coming with you. I will stay a day or two till you get used to your new home, then I'll come back here to dad. The month will soon pass and we will all be together again." Madhu smiled through his tears and squeezed his mother's hand. He wouldn't mind going to the ends of the earth as long as mom or dad was with him. He knew he had the most wonderful mother and father in the world.

Madhu was happy enough in his uncle's home while his mother was with him, but when the time came for her to return to dad he felt most unhappy.

"Whatever will I do without you?" he said with trembling lips.

"You will be quite all right with uncle and aunty," she said. "And besides you will have your heavenly Father to look after you. I have to leave you now but He has said 'I will NEVER leave you.' He will comfort you better than I can and care for you better than daddy can. Now be a good boy and I will bring you something nice when I come home again." Mother kissed Madhu, gave a big hug and then she was gone.

Although uncle and aunty were very kind to Madhu he missed his mother and father very much. Then he remembered what mother had said about his heavenly Father. Each day he talked to Him in prayer and he *did* feel comforted. At last the month was over and Madhu was home once more. "Don't you ever go away from me again," he said.

Dad took Madhu on his knee. "Son," he said, "we will always do our best for you but I'm afraid we won't be with you always. Never forget what mom told you about your heavenly Father. No matter what happens in your life or where you may go, He will always be with you, so you need never again be afraid."

As Madhu grew older he remembered what his mother and father had told him when he was small. In time his heavenly Father became as real to him as his own mother and father, and just as precious. He found strength, courage and comfort in His companionship.

He can be very real to you, too, boys and girls. He will always go with you if you ask Him and trust Him, and He will do more for you than your mother or father could ever do. Things won't always be easy, but because God will be with you, you need never be afraid. Having your heavenly Father to look after you will make life wonderful. ***

What the parents are, that, to a great extent, the children will be.

—E. G. White

SO YOU'RE GOING TO HAVE A BABY

From page 21

labour should begin shortly after intercourse.)

Two factors should govern marital relations during pregnancy: scrupulous cleanliness and care and understanding.

Is This Labour?

If you are having your first baby, you would probably like to know how you can tell if you are going into true labour. Due to false labour many a woman is taken to the hospital only to return back home again after some time.

False pains begin as early as three or four weeks before the termination of pregnancy. They are merely an exaggeration of the intermittent uterine contractions which have occurred throughout the entire period of gestation but are now accompanied by pain. They occur at irregular intervals, are confined chiefly to the lower part of the abdomen and the groin and rarely extend around to the back. These pains are short and ineffectual, unlike true labour.

A Painless Childbirth

In the two-part article, "Childbirth Without Pain," appearing in the November and December 1971 issues of the HERALD OF HEALTH, Dr. Macquarie Street writes that painless childbirth is possible. But it "calls for a thorough knowledge by the mother of various physiological events that take place inside her body throughout pregnancy, right up until the delivery has been completed."

Where can you attain this knowledge? Your physician is a good source of information. Doctors, of course, would not be able to spend all the time necessary for the indoctrination you will need for you to succeed in a painless childbirth. However, along with advice, there are many books that can be of great assistance. Dr. Dick Read, an English obstetrician, is the one that perfected the scheme and advocated the method of a painless childbirth. You will find his book, *Childbirth Without Fear,* helpful in explaining the mechanics of childbirth pain and how it can be overcome by overcoming fear. Other books that would be helpful are *Painless Childbirth* by Dr. Lamaze; *Six Practical Lessons for an Easier Childbirth, the Lamaze Method* by Elisabeth Bing; and a personal account of Marjorie Karmel of her own successful painless childbirth as told in her book, *Thank you, Dr. Lamaze.*

The book, *All About the Baby,* available from this publishing house for Rs. 21.50 plus 2.50 postage is full of valuable information for every parent-to-be. With the aid of diagrams and pictures, you will get a thorough understanding of the baby from the moment of conception through to early childhood.

Ask at your local bookshop and you may find other books that will help you prepare for that easy, painless and unforgettable moment of the birth of your baby.

Childbirth is a marvellous experience. It is up to you to make it come true in your case. ***

Signs of True Labour	*Signs of False Labour*
1. Pains starting in small of the back and sweeping around to the front part of abdomen.	1. Pain in abdomen and groin.
2. A pink show of blood-tinged mucus.	2. No pink show.
3. A rupture of the membranes.	3. No watery discharge.
4. Regular contractions starting about every ten minutes and decreasing in time as labour progresses.	4. Irregular contractions.

Polarizing Solution Checks Ventricular Fibrillation

"A two-quart liquid mix pumped into the veins has cut by fifty per cent the death rate from wild heart beats that often follow heart attacks," claims Dr. Abdo Bisteni of the National Heart Institute of Mexico in Mexico City. "The brew, called 'polarizing solution,' consists of glucose (a form of quick-energy sugar), potassium and insulin.

". . . It is designed to correct a chemical imbalance in damaged heart cells which can give rise to ventricular fibrillation, uncontrolled beating of the heart."

Moon Food for Patients

In spite of the fact that most of the patients did not like the taste of it, a space travel diet or powdered preparation of amino acids, fat, sugar, vitamins, and minerals called Vivasorb is easily absorbed in the small intestine, gives total nourishment, and paves the way for successful colon surgery and speedier post-operative recovery.

—*Life and Health*

Treatment for Smallpox

Smallpox was the first disease shown to be preventable by vaccination, but doctors are still searching for an effective way of treating it when it does erupt—usually among the unvaccinated.

A team of Bangladesh and Canadian physicians believe that they have now found a way. They report that cystosine arabinoside (ara C), a drug known to check the multiplication of several viruses that have DNA cores, may be potent against variola, the virus of smallpox.

During the recent epidemic in Bangladesh, they gave ara-C by continuous-drip injection to nine victims. Seven made rapid recovery with minimal scarring. By contrast, among ninety-seven untreated cases in the district, there were forty-two deaths. The doctors suggest that these preliminary results are encouraging enough to warrant further tests.

—*Health and Home*

Artificial Vitreous Being Used

"A temporary, artificial vitreous for the eye is being used at several medical research centres. Vitreous is the clear gel material inside the eye which gives it shape and helps hold its parts in place. Shrinking vitreous is a major cause of retina detachment, which affects the vision of many people every year. The retina lines the inner wall of the eye and transmits light to the brain via the optic nerve. Loss of vitreous also can damage vision in other ways. The temporary vitreous is used to hold a retina in place during healing after it has been reattached through surgery or other means."

Too Much of a Good Thing

Long overuse of vitamin A (*hypervitaminosis A*) may result in excessive calcium in the blood (*hypercalcemia*). A severe case was recently reported in an eighteen-year-old college student.

Vitamin A is commonly used to treat acne. It is also essential for normal vision. Unfortunately, some people believe that large amounts of vitamin A will make them healthier. Too much of a good thing is not always good. Many people do not realize the harmful effects of too much vitamin A.

—*Life and Health*

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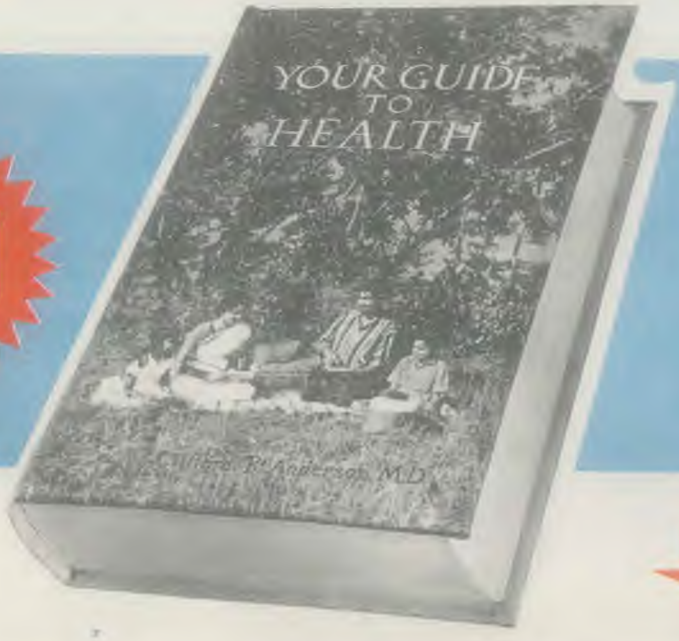

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