THERE was a time when the family physician prescribed sugar-coated pills for any number of the real or imaginary ailments of his patients. It was an early form of the Coueism of the last decade. It made the patient THINK he was going to get better.

TODAY it is also the general practitioner, the neighborhood dentist and the young research worker who are having "sugar pills" shoved down their throats... in the form of fake social security proposals which only make them THINK that times will get better.

A THOROUGH diagnosis of the country's conditions suggests three remedial agents for doctor and patient, alike. First, unemployment insurance; second, genuine health insurance; third, socialization of medicine.

THE course of treatment prescribed in this issue, unlike the nostrums of the lobbyists, is based upon an accurate case history of American workers. It shows why the "every day in every way" panaceas of our political soothsayers fail... and, what is more important, it is a course of treatment that will benefit the vast majority, instead of a small minority of the American people.

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Health Advice

Detroit, Mich.

To the Medical Advisory Board:

I just don't know how to begin to explain my case. We have two children. We couldn't afford to have any more. So, three years ago I took some stuff when I thought I was going to get another baby. The stuff nearly killed me, and when the doctor asked my husband over the phone what the case was, he wouldn't come near me. I got run down from loss of blood, and got a bad cold and a cough, just like whooping cough. One night I woke up with the pillow all bloody. A hemorrhage from the lungs. Well, I was afraid to go to any doctor in case he told me it was T.B.

For two years, my husband was out of work, so he did all the housework and I took care of my health and the hemorrhages ceased altogether. I felt good—never better, until eight weeks ago. I was hanging clothes, and all of a sudden I got a mouthful of blood. I let it go for a day. But the next day the bleeding got worse. I went to a doctor and, after he examined me, he said I had a touch of T.B. on both sides. The next day he sent me to another doctor who examined me and said I had no sign of T.B.

I was very weak and run down and had bad fever. I went back to the first doctor, and asked him to check the bleeding at once. He never paid a bit of attention to the awful bleeding, but gave me some tablets and tonic which never did a thing. By night, the hemorrhages came one after another, and made me very weak from loss of blood. So we called a third doctor. He examined me and said I had the kind of T.B. that comes on you suddenly, and if you don't check it you'll bleed to death. He said I either had to go to the hospital at once, or take treatments. Having a home with two children, one ten and one two, my husband working at

(Continued on page 31)
We Invite—

MILLIONS in America have expressed themselves in favor of the Workers' Unemployment, Old Age and Social Insurance Act, H.R. 2827. Too few, as yet, are aware of the introduction in Congress of still another bill which concerns itself with the well-being of the masses of the American population. We refer to the Workers' Health Insurance Act, H.R. 5549.

HEALTH AND HYGIENE is for genuine socialization of medicine. The power to effect such genuine socialization of medicine would be created through enactment and enforcement of H.R. 5549. A careful reading of Section III of that Act will indicate that the power to socialize medicine would be granted under the Act to the true representative of the broad masses of the workers, farmers, and allied professionals of America.

With this issue, HEALTH AND HYGIENE is opening a campaign for the passage of H.R. 5549. The magazine invites organizations and individuals to participate in the campaign and to enlist others in the move to force Congress to pass H.R. 5549.

While thus favoring the passage of H.R. 5549, HEALTH AND HYGIENE is mindful of the fact that too little discussion has been carried on, either among laymen or among professionals, on the general subject of real health insurance and genuine socialization of medicine. As it is pointed out in this issue by the writers of the article on "Health Insurance—How?" there is a great variety of opinion on the general subject of socialization of medicine. Many honest professionals oppose socialization because they recognize so many proposals as either ineffective or fraudulent. The laymen are apathetic because they have little confidence in plans which speak of "socialization" to be effected by closed corporations directed by representatives of the very same people who continue to impoverish them and to deny them the possibility of obtaining any medical care whatsoever.

HEALTH AND HYGIENE, therefore, opens up to all the discussion on the subjects of health insurance and socialization of medicine. We would like to hear from laymen as well as from professionals. We want to hear from opponents of socialization of medicine, and from proponents of various plans of socialization, as well as from those who join with us in endorsing H.R. 5549 and H.R. 2827.

THE ARTICLE "Health Insurance—How?" is the collective statement of three professionals who have previously expressed themselves publicly on the subject of social insurance. All three testified in favor of H.R. 2827 at the hearings conducted in Washington by the sub-committee on Labor. Dr. Young, a well-known Negro physician, represented the Interprofessional Association for Social Insurance. Drs. Schwartz and Schulte represented the Economic Federation of Dentists of Greater New York.

HEALTH AND HYGIENE is printing in this issue the full text of H.R. 5549 and H.R. 2827. To facilitate discussion of these measures, a special reprint of the two bills will be sent gratis by HEALTH AND HYGIENE to individuals and organizations who ask for copies.

JUNE, 1935

“C O”
DEATH
LURKS IN INDUSTRY

CARBON monoxide poisoning is one of the most widely distributed and most frequent causes of accidental death, both in industry and in the home. With the introduction of fuels such as natural gas, producer gas, carburetted water-gas (illuminating gas), and gasoline for heaters and combustion engines, the number of cases of carbon monoxide poisoning has mounted alarmingly.

Workers are totally ignorant of the dangers and deadly properties of this gas, and are constantly exposing themselves to the fumes. Thousands of workers die annually of carbon monoxide poisoning, and many more thousands suffer the constant ill effects of exposure to the gas. Workers suffering from chronic non-fatal forms of carbon monoxide poisoning often become more susceptible to the inroads of various other diseases not immediately connected with carbon monoxide poisoning.

In industry the workers come in contact with a great many possible sources of carbon monoxide. In the iron, steel and allied industries, leaky blast furnaces, gas valves or mains are a particularly frequent source of gas poisoning, especially to workers engaged in cleaning out furnaces. Examination of the blood of one thousand blast furnace workers in the steel industry in Illinois showed that about one-third of the men suffer from mild to fatal carbon monoxide poisoning during the year. The frequency of poisoning is particularly high in gas-producing plants where acute and fatal gas poisoning are not uncommon.

The carbon monoxide hazard attends all welding processes with acetylene gas, all soldering processes, and the melting and pouring processes in brass foundries. It is present in the garment industry and in steam laundries among workers using gas-heated ironing and pressing machines.

Carbon monoxide is present in death-producing quantities in the exhaust of all gasoline burning engines. Garage air is dangerously after an automobile engine has been running for only 15 minutes, particularly in small private garages. The newspapers often carry reports of death from this source.

The dangers of carbon monoxide poisoning are also prevalent in compressed-air work in tunnels, in mine fires, explosions, and blasting operations. The majority of deaths in mine disasters are to be laid to carbon monoxide poisoning; the actual force of the explosion causes a smaller percentage of deaths. Firing high explosives in improperly ventilated gun turrets, particularly on ships during the last war, often caused death from carbon monoxide poisoning. On one vessel alone, in the battle of Jutland, several hundred men were fatally affected by carbon monoxide produced by the explosion of "Cordite."

Finally, in the home, improperly constructed gas heaters and leaky gas ranges with lack of ventilation to carry off the deadly product of combustion, have contributed tremendously to the increasing death rates from carbon monoxide poisoning.
CARBON MONOXIDE is an odorless and invisible gas which is formed whenever a fuel is burned without a sufficient supply of oxygen. The lack of oxygen usually comes about through improper ventilation. A fresh supply of oxygen is not brought to the burning fuel, and carbon monoxide is produced. In addition, combustible gases, such as illuminating gas, producer gas, natural gas, etc., originally contain high percentages of carbon monoxide, so that all unburned quantities of these gases escaping are also highly dangerous. Other gases which have an odor and are mixed with the odorless carbon monoxide generally serve the useful purpose of leading one to suspect the presence of carbon monoxide in a gas-laden atmosphere.

Inhaling carbon monoxide so affects the blood of humans that it becomes incapable of absorbing the oxygen which is essential to life. Thus it acts differently from the highly poisonous, irritating gases used in modern warfare. These warfare gases produce their fatal results by intensely irritating and burning the linings of the breathing passages.

In city fires, the dense black smoke also contains irritating substances which cause coughing and tearing of the eyes. But suffocation from this smoke is caused by its high carbon monoxide content.

**Symptoms**

Dep ending upon the percentage of carbon monoxide and the duration of exposure to it, one finds the following symptoms in cases of gas poisoning: At first, headache, dizziness, dimness of vision, and weakness appear. These symptoms may occur among workers after one hour in an atmosphere containing two parts of carbon monoxide to every ten thousand parts of air. If exposure is continued, or the percentage of carbon monoxide rises to as high as fifteen parts per ten thousand parts of air—then nausea, vomiting, fainting and coma follow. If no treatment is given, then death results.

Workers who are constantly exposed to carbon monoxide fumes do not generally complain of the severe symptoms listed above. Usually, they suffer from headache, nausea and occasional dizziness. Loss of strength and awareness resulting from the “knockout” properties of the gas reduces the workers’ efficiency and leaves them open to other industrial accidents.

In those cases where recovery has followed severe carbon monoxide poisoning because of prompt treatment, after-effects are often found—such as blindness, mental dullness, constant headache, and severe disease of the brain and nerves.

**Treatment**

Treatment of severe carbon monoxide poisoning consists of the following:
1. The victim should be removed to the fresh air as soon as possible.
2. If breathing has stopped, or the patient breathes in occasional gasps, artificial respiration by the Schaefer method should be given until normal breathing is resumed.
3. A mixture of five per cent carbon dioxide and 95 per cent oxygen should be administered by an inhaler for at least 20 minutes, and sometimes for as long as three hours.
4. The body must be kept warm by means of blankets or hot water bottles.
5. The victim should be kept at rest lying down. Alcoholic drinks, such as whiskey, should not be given. After partial recovery, he should be removed to a hospital.

**Prevention**

Prevention of carbon monoxide poisoning is achieved when the source of the escaping gas is discovered and eliminated. Recently, a very delicate instrument has been perfected, through the use of which the smallest amounts of carbon monoxide gas can be immediately detected. This instrument uses a chemical—iodine pentoxide—which changes color in the presence of carbon monoxide gas. Formerly, birds and mice, which are particularly susceptible to the ill effects of carbon monoxide gas, were lowered into suspicious enclosures and observed for signs of poisoning. However, the birds and mice are not nearly so sensitive as the iodine pentoxide indicator.

**Guard Against It**

Workers must guard themselves against practices which expose them to the carbon monoxide danger.
1. Automobile engines should not be run in a small garage, unless the doors and windows are wide open.
2. Workers should insist that large garages install systems of artificial ventilation to carry off the poisonous fumes.
3. Workers should not sit in closed cars or trucks with the engines running, since exhaust gases often leak into the car and may produce symptoms of gas poisoning.
4. Heavy, long-continued labor should not be performed on still days by workers repairing streets on which automobile traffic is heavy. Short working-shifts with intervals of rest in the fresh air should be demanded.
5. Before entering manholes for underground power and signal circuits, sewers, blast furnaces or any other enclosures where the atmosphere is contaminated with gas, workers should insist that the air be tested for carbon monoxide. If the gas is found present, the enclosure should be thoroughly ventilated until no trace of gas remains.
6. In fighting fires, and in mine rescue work, special two-hour gas masks should be used by men who have been previously trained to use them.
7. In the home, a gas heater should not be allowed to burn in a closed room in which persons sleep; especially if the heater burns much gas and has no flue. Where such a heater is used, it is absolutely essential that one or more windows be opened to supply plenty of fresh air. Gas heaters used in the home are often of improper design. They lack a proper flue for ventilation, necessary for the carrying off of the deadly fumes. The tubing of cooking ranges is often defective, and the unburned gas escapes through leaks.
8. In all industries where gas is produced or consumed, the iodine-pentoxide indicator should be utilized to ascertain the presence and source of the carbon monoxide fumes. Tanks, mains, valves, and blast furnaces should be kept in constant repair to prevent leaks. Where improper combustion produces carbon monoxide, a system of ventilation should be installed. The design of fuel burners should be modified to reduce the production of carbon monoxide gas to a minimum.

Workers are gradually coming to the realization that safeguards for their health are often neglected by the employers in a mad race to maintain profits.

The workers must demand of the owners of the industries that they be given proper protection. They must demand that proper tests be made, that rest periods be given those workers who may be exposed to the deadly fumes, that ventilation be installed and kept in repair.
HEALTH INSURANCE—
HOW

WE ARE FOR the socialization of medicine. We contend that genuine socialization can come only through the establishment of a comprehensive system of social insurance. Such a system must include health insurance. We submit that there are three elements which must be present in any program that promises health insurance for the working men and women of this country who compose the vast bulk of its population. Such a program must provide:
1. Full medical and dental attention to all working people—workers, farmers, and professionals, employed and unemployed, and their families.
2. Control only by those who are interested in its honest and efficient functioning, those who give the care and those who receive it.
3. Financing through taxation of those sections of our population which are able to pay, that is, those in the higher-income brackets.

Two bills have been presented to the United States Congress during its last session which, taken together, enacted, and enforced, would give the care and those who receive it. One of the accepted authoritative sources on the subject is the so-called Wilbur Report, being the final report made in October, 1932, by a Committee on the Costs of Medical Care headed by Dr. Ray Lyman Wilbur. This report showed that, in 1929, over 46 per cent of those in our population who earn less than $1,200 a year went without any medical, dental, or eye care. The report adds:

"The situation is actually even more startling than appears from these data because many of the persons who are counted as having had medical care may have had extremely little."

The report shows that in 1929, only 20 per cent of our people received dental care. Certainly that fact is not due to a lack of interest in dental care. It is certainly also true that, since 1929, with workers' incomes reduced by 45 per cent, with millions having been added to the ranks of the unemployed, the situation now is still more "startling."

On the basis of its studies, the Wilbur Report declared:

"The groups with smaller incomes obtain far less service. In spite of the large volume of free work done by hospitals, health departments, and individual practitioners, and in spite of the sliding scale of charges, it appears that each year nearly one-half of the individuals in the lowest income groups receive no professional medical or dental attention of any kind, curative or preventive."

And, in a footnote, the report adds: "Actually this is an understatement." (Italics ours.)

Dr. Thomas Parran, Health Commissioner of the State of New York, has reported that in this one state 50,000 people die every year for lack of medical care.

The Milbank Foundation reports that a study of the health of families shows disabling illness was 39 per cent higher in the families of unemployed than in the families of employed workers.

Worse for Negroes

THERE IS ground for belief, that, like the Bilbur Report, the reports by Dr. Parran and by the Milbank Foundation are also "understatements" rather than the reverse. Let us quote once again from the Wilbur Report:

"The Committee survey does not include data for Negroes. It is well known, however, that the 10 per cent of our population who are colored have health problems which are, on the whole, considerably more serious than those of whites. The Negro is America's principal marginal worker, and he suffers in the North as well as the South from the many disabilities that entail: Poor housing, less adequate diet, less sanitary surroundings, more employment of married women, and greater economic insecurity."

"Although Negroes have lower death rates than whites for a few diseases, rates double or more than double the rates of whites are recorded for tuberculosis, organic heart disease, acute and chronic nephritis, cerebral hemorrhage, pneumonia, typhoid fever, whooping cough, bronchitis, puerperal conditions, influenza, malaria, and poliomyelitis. Not only death rates are higher, but so also is the incidence of illness, at least from certain diseases."

The findings of the Committee on Maternity Mortality of the New York Academy of Medicine reveal that the economic status of the mother has much to do with the risk of maternity. In a study of 341,879 births that occurred in 1930, 1931 and 1932, it was found that there were 20 per cent more deaths of the newborn infants among the families living in "slum" districts than there were among the families in the wealthy classes.

In a study made recently in the Western States, it was found by statistical evidence that there is a connection between infant mortality and the lack of vitamin B. Mothers who were unable to supply themselves with sufficient milk, eggs, and fresh meats during pregnancy showed a higher infant mortality rate than those who were able to supply themselves with the necessities.

Where there is a high death rate under one month of age, and also a high premature birth rate, the mothers were found to be on a diet deficient in vitamins, especially vitamin B. With high vitamin consumption, the death rate and premature birth rate are low.

Plight of Practitioners

Physicians and dentists, pharmacists, nurses, and other health workers who are seriously interested in the welfare of the people as a whole, and in the welfare of their professions, must be in favor of genuine socialization of medicine.

Just as the people in general seek doctors to treat them, so the practitioners today—and more of them—seek patients to treat. There is genuine unemployment among the practitioners even as there is among those who would be patients. Lest statistics tire the reader, let one figure suffice: Of 7,000 dentists in New York City, 1,000 have indicated they would be interested in a job at $18 a week!
What keeps the patient from the doctor? The answer is clear and simple: He cannot pay for medical and dental care.

It is in the economic interest of the practitioner, as well as in the general interest of all our people, that we demand legislation enacting the two bills we mentioned at the beginning of this article: H.R. 2827 and H.R. 5549.

There are two camps among the doctors today. One is against socialization of medicine. The other camp, as yet, do not understand that a program of genuine socialization of medicine must include the three elementary factors which we have enumerated above.

In their anxiety to escape from their plight, many of these doctors hail any measure proposed by any group that promises to alleviate the lot of the patientless practitioner. They become interested in rationalized private practice, like group clinics. They think in terms of health "insurances" which would put more taxation in one form or another on the backs of those least able to pay, instead of on those who have the wealth. Some of them endorse various share-the-misery plans like the "model" health insurance bill proposed by the American Association for Social Security.

Many honest doctors are honestly opposed to socialization because the press has presented plans ranging from sincere and confused to fraudulent and misleading measures designed to bring about a "New Deal" in health for patients and doctors. Those honest doctors naturally see through those plans. Knowing the plans are inadequate, and not knowing that an adequate plan has been proposed and introduced in Congress, they turn against socialization itself rather than against the frauds.

The three practitioners writing this article believe that a magazine like HEALTH AND HYGIENE, genuinely interested in the welfare of the largest section of the population, offers an excellent forum in which doctors and their patients might discuss the subject of genuine socialization of medicine. It is for that reason that we accepted the invitation of HEALTH AND HYGIENE to present the subject, and it is for that reason that we join with other doctors in the appeal to the professionals and laymen alike to thresh the subject out thoroughly and to back the Workers' Health Insurance Bill, H.R. 5549.

GUARDING

IVANOFF'S HEALTH

Ivanoff applied for a transfer to a new factory that had been recently completed. Accepted on the job, he found on arrival not only a new plant but also a new town that had grown up on what was formerly a stretch of waste-land. Here he found even greater comforts than he had been accustomed to. A light and airy apartment, a little garden, a club, a gymnasium, a lecture hall, a theatre, a department store and other conveniences were his. The history of the town and factory is a part of the history of Soviet industrialization.

Building a factory in the Soviet Union is the concern of the worker, not of the individual investor or corporation. The Soviet worker looks upon the factory as he looks upon his home. He spends nearly a third of the day in the factory and, as in his home, he demands all safety and comfort that modern technique can supply. The architect, the technical engineer, the sanitation engineer and the public health doctor cooperate in drawing up the plans and specifications. When the building is finished, and the machinery is installed, a model plant is ready to receive the workers to whom the hum of the wheels is the song of encouragement and an assurance that collective effort has made another leap forward along the road to Socialism.

The factory is spacious. There is no overcrowding. Powerful ventilators keep the air fresh and clean. Should it happen to be a dusty industry, such as tool grinding, the air is efficiently filtered for the number of dust particles per cubic centimeter of air—and proper adjustments in the ventilators are made to keep the dust particles in the air at a minimum. The factory has a sanitary water supply, an efficient lighting system, lavatories, showers, a factory kitchen, dining rooms and—all above all—a clinic, with doctors and nurses in charge, to take care of the health of the workers.

The factory is visited regularly by government inspectors. It is their duty to examine the efficiency of safety devices on machines, and to investigate accidents. In addition, inspectors are elected either by the shop committee or by the trade union. These inspectors are usually shock brigadiers who are thoroughly familiar with certain types of machines. They carry on safety campaigns, as a form of social service, doing this work outside of their regular work hours.

Health Comes First

When Ivanoff came to the new factory, the clinic doctor had on hand a summary of the health record from the clinic of the plant that Ivanoff left. Ivanoff was given a physical examination, and found in good health. Six months later he was examined again. A short time later, something went wrong along the power transmission line. Ivanoff suffered some bruises, narrowly escaping more serious injury. His injuries required three weeks' sick leave. (Of course, he was paid his wages in full during that time.)

An investigation of the accident was started by the mechanical engineer, the state inspector, the doctor, and the representative of the shop committee. They found that proper safety demanded replacing of an entire section of the transmission unit, although this unit appeared to be in good condition. Replacement cost several thousands of dollars. But the life and health of...
FOODS and FADS

**Is Vegetarianism Healthful?**

There are many kinds of vegetarians. They range from the strict or orthodox vegetarians who eat only foods of vegetable origin, to the broad or liberal kind who eat everything but meat or fish. There are even some who regard themselves as vegetarians, who will eat fish but not meat. However, good vegetarians regard these as renegades or fakers.

Vegetarians include special food faddists who eat only raw food, or exclusively nuts and fruits; some eat only those parts of the plant that grow above the ground, because they are exposed to sunshine, others only the roots of plants because they are in contact with mother earth. The more important of these varieties of vegetarians must be considered separately.

We will omit from consideration the special faddists, the fruit and nut eaters, the raw food eaters and the other more extreme sects.

**Strict Vegetarians**

The strict vegetarian does not eat milk, butter, cheese, eggs and sometimes honey, because these foods are of animal origin. Some of them do not wear shoes made of leather, or clothing containing wool because these also come from animals. Others carry this even further and do not use serums or vaccines or drugs of animal origin.

The arguments given for observing the strict vegetarian diet are of two kinds, health and sentiment. We will concern ourselves chiefly with the health argument. It is said that meat is unhealthful, that eating it leads to disease, and that it is unnecessary. It is supposed to be bad for the stomach, the kidneys, and to lead to acidosis, constipation and high blood pressure. These claims are entirely without foundation. There are no diseases that are caused by including meat in the diet. This does not mean that meat should be the only article in the diet. Only a very few faddists in the opposite camp would attempt such a thing. It is true that Eskimos live exclusively on meat and fish and maintain good health. But they live under special conditions and eat some of the meat or fish in a raw or frozen state.

**Meat Not Harmful**

Including meat in the diet does not cause constipation. Excluding vegetables and fruits may be a factor but that is a very different thing. Meat does not cause high blood pressure. What does cause high blood pressure is not really known. In the treatment of high blood pressure, especially if the person is overweight, the intake of highly nutritious foods, including meat, is diminished.

Meat eating does not cause kidney disease. In certain kinds of kidney disease the body cannot handle the usual amounts of protein, the chief content of meat. In these cases protein foods such as meat, fish, cheese, nuts, peas and beans are restricted. In other kinds of kidney disease a high protein diet must be given. But these facts have no bearing on the diet of the person without kidney disease.

Much publicity has been given in recent times to acidosis. Advertisers tell us to "get over on the alkaline side." The subject of acidosis is a complicated one. In certain diseases the blood is more nearly acid than at normal times. Except when a person is very close to death it is never really acid. In diabetes, in marked vomiting continued over a long time, starvation and some forms of kidney diseases, acidosis exists. At such times special medical measures are necessary. For the persons without these special diseases it is necessary to know that fruit, vegetables and milk provide the substances required to keep the blood in a proper alkaline state (the opposite of acid), and that tomatoes, oranges and lemons are particularly good for this purpose. Including meat in the diet does not cause acidosis or any tendency to it. In short, the use of meat does not cause any disease, and is in no way harmful to health.

**Vegetarianism and Health**

Can a person maintain good health on a strict vegetarian diet? It can be done but it is difficult. An infant or young child cannot do it. If he kept on a strict vegetarian diet a child will not develop normally and will be very susceptible to many diseases. For any parents to try to maintain a child on a strict vegetarian diet, if they could possibly do otherwise, would be an outrage. Fortunately few people are foolish enough to try it.

Two scientists of the United States Department of Public Health, Mathilde Koch and Carl Voegtlin, have found that monkeys which have been raised on a strict vegetarian diet developed degeneration of the brain and spinal cord, very similar to or identical with those found in pelagra. Strictly speaking, scientists should be careful about saying that the same thing always happens to humans which happens to animals upon which experiments are conducted. But when monkeys are the animals upon which the experiments are made, these doubts are reduced to a minimum.

Some healthy adults can keep healthy on a strict vegetarian diet, but they have a hard job before them. Meat, fish, cheese, eggs and milk, nuts, peas and beans contain large amounts of protein. A protein is a food element that is used to build up and maintain the body tissues. Proteins are necessary for life. They are made up of a group of substances called amino acids. These are simpler substances that are looked up to one another in different proportions to make up the different proteins. Some of these amino acids are not important because they are replaceable by others, or the body can make them. Some are essential and cannot be replaced, or made by the body. Meat, fish, milk, eggs and cheese are rich in these essential, irreplacable amino acids. Other foods are not. To get enough of these essential amino acids one would have to eat very large amounts of vegetables, amounts too large for comfort. In most people tables and milk provide the substances required to keep the blood in a proper alkaline state (the opposite of acid), and that tomatoes, oranges and lemons are particularly good for this purpose. Including meat in the diet does not cause acidosis or any tendency to it. In short, the use of meat does not cause any disease, and is in no way harmful to health.

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the eating of such large amounts of bulky food would lead to disturbances of the digestion. In addition, a vegetable diet that gives enough of these amino acids is expensive.

None of these objections holds for the liberal vegetarian diet. If milk, eggs, cheese and butter are included in the diet, meat is not essential. But many people feel that meat is an important item in the diet, and must be given.

As for those extremists who are opposed to the use of any animal product, including such thin ones as leather, woolens, and which are derived from the pancreas or sweetbread, antitoxin for diphtheria, which comes from the blood of horses, and many serums and vaccines, these extremists are going against the trend of civilization. They would condemn to death millions of sick people, in the form of chicken and pork.

For many people, meat has virtues not found even in the dairy products. To most people it tastes good. It stimulates the stomach to pour out a variety to the diet. In the form of fresh lean beef and liver it is an excellent source of vitamin G, the lack of which causes a disease called pellagra. In the treatment of pernicious anemia, a very serious disease affecting the blood, liver, or an extract from it, is replaceable only by stomach-wall extract. In other kinds of anemia meat is an important item in the diet, and must be given.

Economic Pressure

There are millions of people who exist practically on a vegetarian diet, not from choice but because of economic pressure. The most severely exploited workers, especially those in the colonial countries like China and India, are forced to live almost exclusively on grains. Meats and milk are available only to their bosses. In many parts of the world, a worker's economic status can be measured by the number of times a week he can get meat.

From an agricultural point of view vegetarianism is highly impractical. Have you ever met a farmer who is a vegetarian from choice? Animals have an important job. They convert plants into concentrated useful food. There are millions of acres of land that are much too poor in quality for the raising of crops, but are very useful as grazing land for steers. Animals like pigs convert what would otherwise be waste into wholesome food products. To attempt to produce milk and eggs without using some of the animals as food would be very wasteful and would greatly raise the social cost of these products. This is so because males and females are born in about equal numbers, but only a few males are needed for propagation. The other male chickens or bulls must be eaten or wasted.

But a thing can be good even though it is not necessary. Meat has virtues not found even in the dairy products. To most people it tastes good. It stimulates the stomach to pour out a variety to the diet. In the form of fresh lean beef and liver it is an excellent source of vitamin G, the lack of which causes a disease called pellagra. In the treatment of pernicious anemia, a very serious disease affecting the blood, liver, or an extract from it, is replaceable only by stomach-wall extract. In other kinds of anemia meat is an important item in the diet, and must be given.

THE SICK BABY

ONE OF the worries of every young mother of the working class, who cannot afford the constant attention of a physician, is how to recognize illness in the baby. The sensible young mother knows that there is a difference between being "too fussy" with the baby and being cautious about any ailment that the child might suffer. But how is she to know what is the matter with the baby? How is she to know, for that matter, whether the baby is ill, or whether the child is merely fretful, restless, or temperamental.

Very often, signs indicating illness in a baby are hard to recognize until definite changes have set in. It is wise, therefore, to learn to observe the child so that the parent could tell that something is wrong with the baby, something that should need special attention.

The mother should learn to observe certain things about the baby when the child is ill. Then she will recognize changes when the baby is ill. Watch the baby's normal activity, and try to get the baby to keep quiet, and even hold the legs, so that the baby will show signs that it is ill.

If the baby develops any signs of sickness, put him to bed immediately. Under these circumstances, treat the baby as if he is sick, until the doctor comes and give specific directions. Do not take him outdoors. Do not bathe him. Feed him lightly, giving him such foods as milk, barley water and cooked cereals. Watch his temperature and be on the lookout for other symptoms such as pains, vomiting, loosen bowel movements, convulsions, running nose, sore throat or difficulty in breathing.

WEIGHT

Very often, the parents of a young child could save themselves great trouble, and the baby great discomfort. If they only knew whether the young hopeful was really ill or only "setting up" in a natural way. The child who is ill is not only acting the part they would have a child whose weight, temperature, loss of appetite, vomiting, diarrhea, convulsions, and coughing. When the baby is ill, he is also likely to have a different kind of cry. The various ways of a baby's crying are described here.
the temperature should be taken. Remember that a baby is more likely to develop a fever than a grown-up, and that, when he is ill, the fever is apt to be higher than in an adult. A daily rise in temperature, even if slight, lasting for a long time, is often as important as a higher temperature for a short period. A sick baby may have fever at any time of the day or night, but the temperature is likely to be higher in the evening than in the morning.

A slight fever associated with sneezing, a running nose, or cough, may be due to merely a cold in the nose or throat. But it may be the beginning of a more serious illness. When these become associated with pain or restlessness, an inflammation within the ear may be setting in. Often babies with pain in the ear keep turning their heads from side to side. When fever is accompanied by a rash, it may be caused by a disease like measles, scarlet fever or chicken pox. It is also safest, however, that a doctor be called whenever the baby’s temperature goes over 100 degrees.

Refusal to Eat

W HEN THE baby refuses to eat the kind of food he has been used to eating, that may be the first sign of illness. This does not mean you should be alarmed if the baby refuses to eat the kind of food he dislikes. (You should never force food on a child, whether he refuses because he is ill or for any other reason.) But if he refuses to eat when you are certain it is the kind of food he is used to, then he may have a pain in the throat.

Crying

I T IS NOT always easy to tell what is wrong with the baby if he cries. The cry may be due to discontent, discomfort, hunger, temper, pain, or illness. A certain amount of crying is normal for a baby. However, when the crying lasts much more than a half hour to an hour, the cause should be investigated.

One who has experience with babies is able to distinguish several characteristic cries. The cry of a healthy baby is often a scream. It is loud, and strong, and so it is noticed that the baby is sick. The cry of temper is loud and strong too, and is accompanied by kicking and stiffening of the body. These cries of habit are usually continuous, and stop when the baby gets what it wants. The cry of pain is seldom continuous and is sharp, shrill and loud. This cry is accompanied by drawing up of the legs and other signs of distress; it rarely ceases with the baby. It is carrying him about. The cry of hunger is usually continuous and fretful. Often the baby, in such a state, sucks his fingers or the whole hand. He is relieved if you give him slightly sweetened water or milk. The cry of an ill baby is a fretful, moaning cry.

Vomiting

T HERE are two main types of vomiting. One consists in the infant spitting up some or all of the contents of the stomach. The vomitus runs over the face, clothing, pillows, etc. It is due to faulty feeding, over-feeding, too much handling of the infant during or after feeding. Often it is due to the baby swallowing too much air, then expelling it. The expelled air carries with it the curded milk, etc.

The other type of vomiting consists of sudden and forceful expulsion, often shooting out through the nose as well as the mouth. This may indicate indigestion, or it may be the first sign of a contagious disease. If this happens two or three times a day, a physician must be consulted.

Vomiting may be present with indigestion with, or in absence of, loose bowel movements. If the vomiting continues more than two or three times a day, it should be called to the attention of the physician. In the meantime, no liquids or food should be given.

Vomiting is often present at the beginning of an infection. In such cases, the baby will usually have fever.

Diarrhea

A HEALTHY baby usually has from one to three soft stools a day. The stools of a nursing infant are orange in color; those of a bottle-fed baby are yellow to dark brown in color.

When the stools are loose and watery, diarrhea is present. In every case, one should observe if blood and mucus are present. If blood is found, a physician should be called, for it is often an indication of a serious illness. There is just one exception, and that is in a constipated baby whose hard stool may have one or several streaks of bright blood.
ABORTION
By ‘PILL’?

By Dr. Vivian Terry

THERE are many medicines on the market that fail to help.

Your problem of abortion is advertised in magazines. Some assure you of sure success. Most are expected to work at least 75% of the time that the preparation contained aloes, iron, tansy, turn to anything which they think may give you relief. They usually contain a physic (cathartic) such as aloes, phenolphthalein (the same stuff that is used in Feenamint and Ex-Lax), castor oil or cascara sagrada. Some of them also contain tansy oil, perrynal, or cotton root bark. All these irritate the lining of the intestine and, indirectly, irritate the womb. Many of them have quinine, ergot, or rue—which act directly as irritants of the womb.

All of these drugs will cause miscarriages if taken in large enough quantities. But, at the same time, they will cause generalized poisoning of the system. Many cases have been reported in medical literature in which even small doses have caused women to become deathly sick because of sensitivity to the drug. In fact, that is the way ergot was discovered. Many pregnant women, having eaten rye which had been attacked by ergot (which is a parasitic disease of rye), were taken violently sick with vomiting, pains in the abdomen and convulsions. In other cases gangrene of the toes and fingers set in and spread rapidly to other parts of the body. If these women were pregnant, a miscarriage occurred. If they were not pregnant, the drug simply caused nausea, vomiting, frequent bowel movements, nervous spells with twitching, and general convulsions. When it is taken in small doses, it does no more than leave the woman unhappy, nervous, irritable, with stomach complaints—but still pregnant. Similar effects have been observed from the use of quinine.

In the magazine Motion Picture, the February, 1934, issue, there were six such advertisements, inserted at a cost of about $400. These quack concerns expect at least 100 times the money spent in return—and they get it—from credulous, uninformed people who, in their great distress, turn to anything they think may help.

Another such company, whose advertisements are widespread, is the Southington Remedy Co. As a result of an investigation conducted by the Federal Trade Commission, the owner was forced to sign a stipulation “to cease claiming by inference or directly that his preparation would cause abortion, or that it was competent treatment for the relief of suppressed menses, or that stubborn and abnormal cases could be relieved by its use.” We find reference to testimonials without number in the advertisements of this company. Most of the letters, supporting the claims of the manufacturer, are either paid for or come from women in whom the menses were normally delayed and by coincidence occurred after the pills were taken.

The Snyder Co., another concern which advertises its wares in these magazines, states: “Often successfully relieves some of the longest unusual unnatural cases—often produces the most unbelievable and most remarkable results—worth $5.00—send $2.00 box—double strength $3.00; two for $5.00.” The results are most remarkable; the woman is $5.00 poorer and has nothing to show for her money: She is still pregnant.

Most of these companies attempt to lure the prospective buyer by claiming some secret formula—either French (perhaps based on the much exploited notion that these people are supposed to have the art of love developed to a high degree) or East Indian—which lends a note of mystery to the product.

All of these preparations, regardless of the name given to the product or the claims made for it, or the testimonials to substantiate these claims, are worthless. There is no drug, or combination of drugs, which when taken by mouth will with certainty produce abortion.

June, 1935
Prevention of Abortions

All of these conditions exist and flourish because the burden of bearing a child and caring for it after birth are so distressing, especially during this depression, that women seek any means which will help them avoid such responsibility. In the history of medical science this era is one of prevention. There is antitoxin for prevention of diphtheria and scarlet fever. There are injections of serum against measles and infantile paralysis. There is vaccination against smallpox. But, when we consider prevention of abortion (there are about 1,500,000 abortions performed illegally throughout the United States every year) or the useless expenditure of millions of dollars on patent medicines which harm mothers—then, organized medicine, as exemplified by the American Medical Association, no longer thinks in terms of prevention.

There are, however, many individual physicians who are opposed to such a stand. These doctors willingly give birth control advice to women. These physicians realize the havoc that an undesired pregnancy plays on a woman, physically and mentally. They realize the medical need, and the social need, for such advice. In spite of the great social need, our government still has on its statute books a law that makes it illegal for even the doctor to send any pamphlet, book or device for prevention of pregnancy through the mails or by express. That is not all. Right now, there is a bill before Congress—the Higgins Bill in the House, and the Hayden Bill in the Senate—sponsored and initiated by Postmaster General Farley, to make the receiver as well as the sender liable to punishment of a fine of $5,000, or five years' imprisonment.

While there is growing opposition to such illiberal legislation, it has not assumed the proportions that it should. Men and women of America should not only oppose this type of legislation. They should also organize to force the establishment of birth control clinics throughout the country. To date, there are about 200 such birth control centers located mainly in large cities, at which women can be instructed in scientific methods for the prevention of pregnancy.

“This will cause general poisoning.”

By Macky

This number is so inadequate—even for our urban population—that it is almost negligible.

The remedy for the wiping out of those quacks who become wealthy because women in distress will buy almost anything, and the way to reduce the number of illegal abortions, is to advocate repeal of anti-birth control legislation; organize to defeat extension of legislation of that kind, like the bills sponsored in Congress by Postmaster General Farley; and organize to force establishment of more birth control clinics in rural communities as well as in the cities.

In some states, birth control advice can be given legally under laws that permit doctors to give information to married women for the protection of health. In the birth control clinics, or “Mothers’ Health Centers” as many of them are called, conducted in accordance with the standards of the American Birth Control League, contraceptive advice is given by competent gynaecologists. In many of these clinics, the patient pays only from 10 cents to $1 for the service.

In one large city where the population is nearly 3,000,000, there are only three such clinics. The last report of these clinics shows that 782 women were given contraceptive advice in one year. These women ranged in age from 17 to 47. Most of them were the wives of workers earning not more than $15 a week, and some were the wives of unemployed workers. Their husbands are factory workers, laborers, porters, longshoremen, truck drivers. In these clinics Negro women are given the same care as white women.

It is interesting to note two factors in the report from the clinics in this city. One factor is that the 782 women given advice had a total of 3,613 pregnancies—or nearly an average of five children each. Certainly, in these times, when the average of the pregnancies these women had is nearly five—which means that some of them may have had as many as eight or ten pregnancies—these women were entitled to contraceptive advice.

The other factor which should be noted about this report is that religious taboos about birth control are being gradually broken down. In one clinic where 275 patients were given advice in one year, 157—more than half—were Catholic. In the second of these clinics, 39 out of 165 patients were Catholic. In the third center, located in a Jewish neighborhood, there were nearly as many Catholic women applying for advice as there were Jewish women.

The American Birth Control League, 689 Madison Avenue, New York City, is fighting against legislation that would stop what little birth control information is being spread now, and is advocating bills permitting the further spread of information. There may be a clinic in your city, or near your rural community, affiliated with the American Birth Control League, where you could get information about how to spread the organized demand for legalizing birth control.

Get in touch with that clinic or with the League, and help fight for the repeal of anti-birth control laws. Bring up the subject in your trade union, lodge, Women's Council, Neighborhood Assembly, Unemployed Council, or social club. Help drive the quacks out of business and help to reach the workers with genuine information about contraception. When such information is spread widely, it will be unnecessary for women to jeopardize their health on the exploded theory that “pills” or other drugs bring on miscarriage, and it will be unnecessary for many of them to go through abortions.
MASSAGING THE GUMS

Using the tooth brush properly is easy enough, if you follow the directions patiently. Incidentally, one of the leading dentists in New York who writes this article, tells you to save your money and not to buy "fancy" curved tooth brushes or expensive mouth rinses—and he prescribes a simple mouth wash for you.

Methods usually used to clean the teeth may be called brushing the teeth, or even sweeping the teeth. The stroke of the brush is usually up and down, across the teeth, or a rotary motion.

Any one of these is suitable to cleanse the teeth, but they do not take care of the gums. Hygienic precautions are as necessary for the gums as they are for the teeth or for the rest of the body.

The muscles of the body need exercise. We get some of these exercises by the various methods known to all of us: Walking, bending and breathing exercises, and all kinds of athletic activities. The muscles of the body, and the gum tissue, should also be exercised. The gums, too, have to be stimulated, to maintain good circulation and proper function.

This can be done partially by chewing hard foods, such as apples, nuts, fibrous meats, raw vegetables or bread that's a few days old—not bread that is just out of the oven. Unfortunately not all workers can get foods of this kind often (except, possibly, stale bread). The present economic order does not provide enough of those foods that are necessary for sound teeth and healthy gums.

But even when those foods are used, all they do is to help circulation of the blood in the gums. In addition to that, the gums must also be massaged with a toothbrush.

Massaging the gum with toothbrush bristles is somewhat similar to massaging or kneading the body muscles with the fingers.

How to Use It

Place the bristles of the toothbrush on the lower gum as shown in Figure No. 1. The side of the bristles should touch the gums; some points of the bristles will be on the teeth, and some between the teeth. That part of the brush handle into which the bristles are set will be between the lip and the gum; it will not touch the gum, it will be just off the surface of the gum. With the brush in that position (as in Figure No. 1) force the bristles gently between the teeth, then vibrate ("shimmy") the brush in a circular movement. Do this while you count twelve. Then lift the brush—do not drag it. Place it in the next area, and do the same thing again while you count twelve. Repeat this until the gum on the outside part of the lower teeth is massaged.

Now place the bristles on the upper gum, as in Figure No. 2. Note that now the bristles are reversed, and pointed down. Repeat the motions until this surface of the gum is massaged. Place the bristles as shown in Figure No. 3 for the tongue side of the upper gum. Continue the count of twelve for each area. Lift and place the bristles on the next area, as shown in Figure No. 4. Keep the handle of the brush as nearly in line with the nose as possible.

This will help you placing the bristles in the proper position. Finish massaging the tongue side of the upper gum, then place the bristles as in Figure No. 5 for massaging the tongue side of the lower teeth.

In placing the bristles on the tongue side of the teeth, try to have the points of the bristles touching the teeth first. Then push the brush slightly (pushing upward for the upper teeth, and downward for the lower teeth). If you do that, the side of the bristles will come in contact with the gum. In that way, the points of the bristles will not prick the gums. When you have the bristles in proper position, start the vibration motion of the brush.

Try not to press too hard, so that the bristles will move easily. See that the bristles do not bend backward. If that happens, the points of the bristles may prick the gum tissue. Also, if the brush is dragged from one area to the other, the gum tissue may be injured.

When the points of the bristles are in motion, and are between the teeth and on the surface of the teeth, the food is loosened. In that way, you are less likely to have cavities formed in your teeth. But these bits of food that are brushed off should be rinsed afterward with a mouth wash. It is necessary to get rid of these food particles, otherwise your job of cleansing your mouth is only partly done.

The chewing surface of the teeth should also be cleansed. This is done by placing the bristles at right angles (perpendicularly) to the chewing surfaces. Again, a vibrating motion should be used, and not a long stroke back and forth. When you stroke the brush back and forth, you simply glide over the teeth, missing all the tiny crevices. But when you use the vibrating motion, the bristles get into the small pits and spaces. Then the food caught in these small spaces is brushed out. When this is followed by rinsing, the result is that you prevent decay of the teeth.

If you use the toothbrush as described in this article, your gums will be massaged properly. But, in some cases, the film on the outside surface of the teeth will not be removed by the points of the bristles during the massaging movements. In these cases, it is necessary to use the vibrating motion on the surfaces of the teeth, exactly as it was done on the chewing portion of the teeth.

What Kind of Brush?
The shape of the toothbrush, the kind of bristles, and the number of bristles, are all important for proper use of the methods described here. However, do not allow yourself to be misled by advertisements, or by fancy displays at drug counters or in department stores, into buying expensive tooth brushes which are supposed to do all kinds of wonders for you.

There are tooth brushes in which the bristles curve inward, and some curve outward. Some have impressive looking angles. Other brushes have bristles which are shaped so that some curve inward and some curve outward on the same brush. And then, of course, there is just
the plain tooth brush, with a straight handle and a straight line of bristles arranged in tufts. That's the best kind of tooth brush to use.

The twists and curves given those other brushes, on the idea that they conform to the curves of the teeth, accomplish very little. One curve may fit the outside surfaces of the teeth accurately. But the same curve will not fit the inside surfaces of the teeth. For that reason, the straight handled brush, with the tufts all arranged in equal length, is the best. This brush strikes the happy medium.

The brush should have two or three rows of bristles, with five or six tufts in each row. The bristles should be about seven-sixteenths of an inch in length, and of good quality. When you first start using the method described in this article, use a medium bristle. Later, use a hard bristle.

Massage the gums twice a day, before breakfast and before going to bed at night. It is not necessary to use tooth paste or powder with this method. Just wet the brush with water. For a rinse, you need not buy an expensive mouth wash. You can make your own. Take a cupful of dry salt, another cupful of sodium bicarbonate, and a third cupful of borax. Mix them well and place in a dry, covered jar. When you are ready to rinse your mouth, put one level teaspoonful of this mixture into a glass of warm water—and you have an inexpensive mouth wash.

**LAXATIVES**

**Cause Constipation**

"Constipation can be cured in most cases," says the author of this article, who is a famous stomach specialist. But the way to that cure never lies through the laxatives. These, in many cases, will not only fail to cure constipation, but will make it worse.

One of the most vicious rackets in our land of rackets is the attempt of drug manufacturers to sell the cathartic idea to workers. Over the radio, through the press, on billboards, everywhere, workers are being led to the absurd belief that one cannot be healthy unless one is addicted to the continued use of cathartics. As a lure these cathartics are put into pleasant-tasting chocolate tablets or chewing gum form so that children as well as adults can learn to clear their "systems" of "poisons." The indiscriminate use of laxatives is the attempt of drug companies to make a fortune at the expense of those who do not get much exercise, is charged by a group of investigators as weakness of the muscles of the intestines. This type is called atonic constipation. In this type of constipation the muscles of the bowel are too weak to move the contents of the undigested food in the bowels. The second type of constipation occurs usually in people who are underweight and of high-strung temperaments and is marked by a cramp-like condition of the muscles of the intestines. This type is known as spastic constipation and in this condition the muscles of the intestines clamp down on the bowel contents, thus interfering with the process of expulsion. It is especially in spastic constipation that inflammation of the bowel (colitis) may occur if cathartics are habitually used.

**Eight Rules**

The treatment of the atonic type of constipation consists mainly in trying to re-establish a normal healthy rhythm of bowel movement. This is achieved by the following procedure.

1. Proper diet; to a full diet of meat, fish, vegetables and fruit are added foods which contain "roughage" that is, foods which leave a large amount of undigested remains in the bowel. Such foods as whole wheat and bran products, coarse vegetables such as lettuce, spinach, celery, cabbage, beets and carrots; fruits such as prunes, apricots, plums (best cooked at first) and figs, dates and raisins. (All roughage is avoided in spastic constipation.)

2. Sufficient water drinking; from 6 to 8 glasses of water should be taken daily, both with and between meals.

3. Regularity of time for the bowel movement. It is usually most convenient to go to stool regularly soon after breakfast. Here one must sit relaxed for 5 to 10 minutes. The regular rhythm of the bowel movement is not easily re-established in some cases. But in the beginning, while the process of re-education of the bowel is taking place, it is not a great calamity if the bowels do not move until a later hour.

4. Exercises should be taken. It should be moderate exercise and done out-of-doors if possible.

5. Agar-agar may be added to the diet. It is best if taken in the coarse form. Two table-

6. Mineral oil is often of use in the treatment of constipation. One or two tablespoonsful is generally the dose which will be effective. It is important to make sure that the mineral oil does not contain any added drugs. The widely advertised forms of agar-agar are not effective and are actually more expensive and less effective.

The use of agar-agar and mineral oil should be discontinued as soon as regular bowel movements are established. Yeast products have been widely advertised for the cure of constipation. There is no scientific basis for the use of yeast. Acidophilus milk products are also of doubtful value.

7. Laxatives such as senna, aloes, rhubarb and phenothein must not be used. They will make the constipation worse, since soap or other material added to the water do not increase the effectiveness of the enema and may cause irritation.

The foregoing rules apply to the spastic type of constipation as well as the atonic type, with the exception of rule 1. The diet should be different in the spastic type.

In spastic constipation, "roughage" containing food like bran and wheat products and coarse raw vegetables and fruits, are to be avoided. Cooked vegetables and fruit may be gradually added to the diet as the spastic constipation is being cured.

Constipation can be cured in most cases. Observation of the above rules and the strict avoidance of the ballyhooed laxatives will do the job.
So THIS is BLOOD!

We all know the importance of the blood. But few of us realize why the continued flow of our blood is so vital to life. One of the foremost of hematologists—blood specialists—in New York tells in the simplest language exactly what the blood is, what it does for us in our body, and how it is made up.

HEALTH and HYGIENE runs in every issue one article telling how the body works.

Blood is a very complex fluid. In order to understand just what it is made of, a little review of man's life history is in place. All animal life began under water many millions of years ago. At that time the form of animal life was very simple. It was made up of single cells, or colonies of single cells, laid in one layer or two layers. As this animal life floated or moved in the water, it had all the stuff necessary for its existence around it. But evolution went on. The forms of life became more complex, more involved. Soon animals arose which were built up in three layers—an inner layer, an outer layer, and a middle layer. The outer layer was in contact with the world. The inner and middle layers were shut off from the outer world by the outside layer. Therefore, nature was confronted with a new problem—she had to create some means by which the inner layers of the body got food and air from the outside world. The answer of nature to this problem is the blood.

The function (or purpose) of the blood is to bring to the cells of the body the stuffs that are necessary for life, and to carry away from the cells of the body the waste-products of their own activity. This purpose is absolutely essential for life. Any part of the body will die if the blood coming to that part is shut off. Some parts (like the brain) die very quickly. Some parts last longer. But, sooner or later, that part of the body which loses its blood supply will die. Therefore, without blood there is no life possible.

In former articles you have learned about the foods necessary for the body. You have learned that fats, carbohydrates, proteins, minerals and vitamins are necessary in our diet. These substances should be present in proper amounts in our diet. But the blood stream carries not only the "raw materials"; it carries also the "finished product." And that is not all. The blood has still other functions. To understand these other functions, let us examine the blood itself.

If we look through a glass of tea with sugar dissolved in it, we can see right through it. It is transparent. But if we take a glass of blood that has just been taken out of a vein or artery and look through it, we cannot see anything through the blood. If the blood were just a fluid carrying substances in solution (as the tea carries the sugar in solution), it would be clear and transparent. But it is not. There must be other things in the blood which are not in solution with the naked eye, you cannot see what other substances are present. But with the aid of a microscope, your eyes are opened and your question is answered. When you look at a drop of blood on a piece of glass (called a slide) under a microscope, you see little forms. There are three kinds of forms (or formed elements as we call them) in the blood. These are: 1. Red blood cells; 2. White blood cells; and 3. Blood platelets.

These forms are very small. Yet they have "form," that can be seen through a microscope. The other substances which we discussed above, those that are in solution, have no form that could be seen even with the aid of a microscope. But the red and white blood cells, and the blood platelets are not in solution. They can be seen when we use a microscope—although they are so small that one ordinary glass filled with blood holds something like twelve and a half billion red blood cells.

The Red Cell

The RED blood cell is very interesting. Its shape is like a little plate that is thinner in the center than about the edge. It has one peculiarity that is very strange. Let us see what that is.

All animal and plant life is made up of cells. The cell is a form of life that is made up of certain parts. There are millions of different kinds of cells, but they all have an outer shell (the cell-membrane); the substance that fills the cell (the protoplasm); and a nucleus.

The nucleus is a little body inside the cell that has certain important duties. The most important duty is to superintend and take part in the birth of new cells from the old cell. But the red cell has no nucleus. That means that it cannot have new cells come from it. It is a cell that cannot "bear children." But that doesn't mean that the red blood cell itself has been born by Immaculate Conception. It is made in the bone marrow. We have all seen bones of cattle. These bones contain fatty parts and red parts. The red part of the bone marrow is the "factory" for red blood cells. There lie certain cells that first appeared in our bodies when we were still inside our mother's body. These old cells (they are called primitive cells) lie in the bone marrow, and throw off little red blood cells. At first the new red blood cells have a nucleus. But the nucleus is thrown out of the cell, and the red blood cell is ready for its big adventure. It leaves the bone marrow and gets into the blood pipes. And now its important work begins.

The blood carries these foods in solution. By this we mean that these foods are dissolved, like sugar in water. There are many substances that are carried away from the blood in this way. An idea of how many substances there are, may be gained from a small list of substances carried by the blood from the intestines to the rest of the body. Some of these substances are:

1. Amino-acids
2. Fatty-acids
3. Cholesterol
4. Sugar
5. Calcium
6. Phosphorous
7. Uric-acid

The Blood Stream

These are substances that are necessary for life, or are necessary for good health of the cells of the body. But the blood carries other substances in solution. It carries the cells' waste-products away from the cells to the kidneys, lungs and intestines, where the body puts them out. Among these substances are:

1. Carbon dioxide
2. Urea
3. Ammonia
4. Pigment

The blood is, in some respects, like a river. The water in the river carries in solution many substances; it carries gold, silver, filth, etc., down to the sea. So the blood carries these substances in solution to and from the cells of the body. But the blood stream carries not only the "raw materials"; it carries also the "finished product." And that is not all. The blood has still other functions. To understand these other functions, let us examine the blood itself.

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The RED blood cell is very interesting. Its shape is like a little plate that is thinner in the center than about the edge. It has one peculiarity that is very strange. Let us see what that is.

All animal and plant life is made up of cells. The cell is a form of life that is made up of certain parts. There are millions of different kinds of cells, but they all have an outer shell (the cell-membrane); the substance that fills the cell (the protoplasm); and a nucleus.

The nucleus is a little body inside the cell that has certain important duties. The most important duty is to superintend and take part in the birth of new cells from the old cell. But the red cell has no nucleus. That means that it cannot have new cells come from it. It is a cell that cannot "bear children." But that doesn't mean that the red blood cell itself has been born by Immaculate Conception. It is made in the bone marrow. We have all seen bones of cattle. These bones contain fatty parts and red parts. The red part of the bone marrow is the "factory" for red blood cells. There lie certain cells that first appeared in our bodies when we were still inside our mother's body. These old cells (they are called primitive cells) lie in the bone marrow, and throw off little red blood cells. At first the new red blood cells have a nucleus. But the nucleus is thrown out of the cell, and the red blood cell is ready for its big adventure. It leaves the bone marrow and gets into the blood pipes. And now its important work begins.
It is carried by the blood to the lungs. There it comes in contact (through two thin layers of human tissue) with the air. The air contains oxygen. Oxygen is absolutely essential for life. It is for oxygen that we breathe. It is for oxygen that the fishes breathe. It is oxygen that is necessary in many chemical processes that take place in our body. Without it we cannot live. The oxygen in the air. How can it get into the tip of our fingers, our toes, our bones? It is the red blood cell that carries the oxygen from the air to all parts of the body. It has, therefore, a most vital part to play in our body. We can compare the red blood cells to the trains and ships that carry sugar and bread and steel to where they are needed. The red blood cell carries oxygen—the life-supporting chemical of the air. Since we could not live without oxygen, we see, therefore, how important the red blood cells are.

Under the microscope, the red blood cell appears in color a pale yellow to a pink. The white blood cell, seen under the microscope, is pale tan, or almost white.

**Fighting and Defenders**

The white blood cell is about three times the size of a red blood cell. It has a nucleus. It has no definite shape. It moves about by sticking out little lumps of living flesh (protoplasm) and then moving into this projection. This is called ameboid motion because the amebae, a certain simple type of animal that biologists study, very often moves this way. The white blood cells come from the bone-marrow, too.

The job of the white blood cell is to defend our bodies. They are our army. They give forth certain juices that kill bacteria. They themselves attack and eat up bacteria and poisons. Whenever we have an infection of a certain part of the body, that part is swollen. That is due to the pouring out of fluids and white blood cells. The white cells get out of the blood pipes and attack the bacteria. This can be easily compared to the army that is moved to the troubled spot from its armories or barracks. The soldiers get off the train and get into action to disperse the enemy.

After the battle is over, there are dead soldiers, wounded soldiers to take to the hospital; and bridges and houses to be rebuilt. And so, in the body, there are different types of white blood cells. One is a simple rank-and-file soldier. He fights the enemy, and gets killed or wounded. There is another type of white blood cell that eats up the dead soldier cell; otherwise, the bacteria which killed the cell would live on the cell—and get too strong. And finally, there is a type of white blood cell that superintends the building of new tissue in place of the old that has been destroyed during the battle.

The platelets are much smaller than the red blood cells. They are round or oval little bodies about one-fifth to one-tenth the size of a red blood cell. They are really not cells, but parts of cells that lie in the bone-marrow. The platelets have a very important job; it helps in clotting the blood. While the blood flows in its pipes (arteries, veins, capillaries), it is fluid, or watery. But when we receive a cut, something happens. At first the blood flows out easily. But after a few seconds to a few minutes, it starts flowing slower and slower—until it stops flowing altogether. At the wound, there soon forms a thin cover, a clot. The blood platelets have a chief part in making this clot. If the platelets are not there as they should be, or if they are not doing what they should, the smallest cut continues to bleed until the patient bleeds to death.

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**In Vienna**

In Vienna, more than thirty years ago, a middle-aged physician who kept in touch with scientific literature discovered that fever is at times a help in the cure of certain diseases. His name was Dr. Julius Wagner-Jauregg. In 1927, at the age of 70, Von Jauregg (as he is now called) received the Nobel Prize for the use of malaria as a cure in cases of general paresis.

Malaria is a dread disease which gives the patient very high fever. General paresis is a form of insanity caused by syphilis. General paresis was then considered hopelessly incurable. Von Jauregg discovered that some of his patients who had suffered from general paresis had become entirely well. In every one of these cases, however, something similar had happened to these patients before they became well. They had suffered either from malaria or from typhoid.

Investigating the medical literature on the subject, Von Jauregg found that other physicians had also had the experience of patients suffering from general paresis being restored to reason again. In these cases, too, the patients had suffered either from malaria, or from typhoid, and in some instances from erysipelas (a severe infection of the skin which also produces high fever).

No genuine scientific advance has ever been made by one man alone. True scientific progress in any field must always be collective. But often there is one man who stands out of the collective for his particular contribution. In this case, Von Jauregg was the man. Von Jauregg's contribution was apparently simple. If fever will cure general paresis, he said, then why not give fever to the patient suffering from general paresis? Other physicians had thought of the same idea, but were afraid of the experiment. But Von Jauregg reasoned that, if some of the sufferers from general paresis did die in the process, little would be lost since their paresis was in itself "a living death."

He decided that if he could give a patient malaria, and cure this patient of general paresis, it would then take care of the malaria itself. Quinine had been established by that time as the cure for malaria. Von Jauregg suggested injecting general paresis patients with malaria germs.

Other doctors were horrified. They were afraid that Vienna would be laid open to an epidemic of malaria. They would not let Von Jauregg go on with his experiment, in spite of his argument that the malaria itself could be checked with quinine.

It was not until 1917, after many years of arguing his point, that Von Jauregg's viewpoint was finally accepted. Two patients were inoculated with germs of malaria. The patients recovered—both from general paresis and from...
malaria. In ten years more, the theory of curing general paralysis with fever was proven through its use on thousands of patients.

Just a few years before Von Jauregg's epoch-making work, a great American physician who helped found Johns Hopkins University Medical School, William H. Welch, suspected the role of fever during illness. He stated that it was a method by which nature came to man's aid during sickness when the body was fighting its parasitic invaders, the cause of the disease. Welch said that fever not only helped to destroy the germs and their injurious poisons, but it also helped the body get rid of such harmful substances.

New Methods

DURING the past six years, a group of clear-thinking scientists and physicians took up work on fever. The broadcasting set and, instead of using densers, used two large plates. A dog was experimented on, and under the watchful eye of a doctor and nurse, it was found that they could kill the germs that cause gonorrhea with the fever. Now a large group of men from coast to coast in this country is investigating the value of fever produced by mechanical methods.

Among the newer facts that have been produced by this work were the more simple and inexpensive methods of giving patients fever. At present hot baths, electric blankets, special cabinets with ordinary electric bulbs, hot vapor machines and the special electrical device, called the diathermy, have proved successful.

These treatments must be given in a hospital under the watchful eye of a doctor and nurse skilled in the administration of the treatment. More than 40 deaths, some because of ignorance and incompetence, have been reported.

No longer is it necessary to give a patient one disease to cure another. The doctor can now control the level of the fever and maintain it for as long as is necessary. This could not be done with the older methods of injecting malaria and dead typhoid germ.

Those men found that they could produce fever in the human body. It was then decided to try to find out the nature of fever, what diseases it could help and why it should help. A few machines were built and given to a limited group of physicians to study. In this group were Drs. Carpenter and Warren, now continuing their studies at the University of Rochester Medical School, Dr. Bierman of Beth Israel Hospital and Dr. Leland Hinshie of Columbia Medical Center, New York City. Dr. Bierman named this machine the radiotherm, or radio heat.

Dr. Hinshie studied its effect on paresis and found that it could accomplish the same work as malaria without giving the patient such a serious disease as malaria. Drs. Carpenter, Warren and Bierman found that they could kill the germs that cause paresis with the fever. Now a large group of men from coast to coast in this country is investigating the value of fever produced by mechanical methods.

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Health Advice

Health and hygiene can be a real health magazine for workers only if workers are induced to write of their own conditions for this column. Names will not be used unless authorized. But no anonymous letters will be accepted.

New York: To the Medical Advisory Board: I have a girl whom I love. She has become infected through an operation in which her ovaries, tubes and womb were removed. It is our desire to continue "keeping company," in spite of this condition. Is it advisable to do this in spite of this condition and in view of the psychological result that this may have? Would it be likely to result in some psychopathic condition for either of us? Since we are very much in love with each other, and affect one another, we hope it may be unnecessary to part. However, we are both very young mentally, and understand perfectly that we may be doing the harmful thing. If that is your decision, we are ready to part using your advice. Please have the psychologists on your staff advise us exactly what do under the circumstances. Thanks.

The Answer—Mrs. W. C.—Your case is similar to many of those who have pulmonary tuberculosis or consumption. The frequent spitting of blood means that there is a cavity in the lung. Only an X-ray can show the exact situation of the cavity and how much disease of the lungs is present. If a cavity is present in one lung, then the bleeding comes from that lung. The doctor who is treating you gave you poor advice when he suggested that you take treatments at home. The tuberculosis sanitarium is the best place for the treatment of the early case. There you can get the treatments with the greatest benefit to you and with least cost. The treatments you are getting are called "Pneumothorax" treatments, and consist of injecting air into the space between the lung and the chest wall. The air replaces the infected lung and, if the treatment is successful, the cavity is also closed. This is one of the best methods we have of treating tuberculosis.

You have been receiving the Pneumothorax treatments for eight weeks, so that it is far too early to consider any other operations such as cutting the phrenic nerve. Even after a longer time of Pneumothorax treatment, it is unlikely that cutting the nerve will be of any help. In only a very few special cases of tuberculosis does the nerve operation do any good. Many specialists have given up this operation entirely.

You should make an effort to enter a sanitarium as soon as possible. There your case can be considered by several doctors who are specialists in tuberculosis. You should try to get someone to take care of your children until you are well, because if you stay at home your children can become infected and sick, and you won't have the best opportunity to get cured. We suggest that you go to the Detroit Board of Health for examination. There is an excellent sanitarium near Detroit, managed by the city. There you will probably get excellent treatment. We suggest that you obtain "Rules for Recovery from Pulmonary Tuberculosis," by Dr. Lawson Brown.
"Don't Part"! — Other Advice

To B. C.

B. C.—You ask if there can be any untoward effects from continuing to see the girl whom you love. There is no reason why you should part because of the operation which she has undergone. The removal of the tubes, ovaries and womb means however, impair her capacity to part because of the operation which be emotionally upsetting to the avenues of work and self-expression are claimed for such products as corn oil. You will, therefore, be wise to THE MEDICAL

In our society, woman is not as the equal of a man. Many ed as the equal of a man. Women have an asphalt base, and both (used in sealing high voltage tanks of a highly refined asphalt) have an asphalt base, and both

H. R.

H. M.—Asphalt is very dangerous to health. It has a number of effects. First it affects the skin. It causes pus-containing pimpls to appear, especially on the face and hands. Secondly it affects the urinary tract. It causes growths in the bladder, ureter and kidneys. These growths may become cancers. We need not stress the danger of cancer. Asphalt has also an effect on the liver (producing cirrhosis—extensive scarring) and also on the blood (producing polychromy, or too much blood). To prevent trouble, the following advice is given by industrial physicians:

First: Anoint your hands and face with anhydrous (waterless) lanolin before using any oil before beginning to work and after the bath you take after work.

Second: Drink plenty of water.

Third: Ventilation is absolutely essential. Cancer, cirrhosis of the liver and polychromy are dangerous diseases and should be prevented.

Fourth: The more refined the oil, the more harm before it does. If possible, use the cruder oils.

As far as the sand goes, it causes silhouette, a dressing of the lungs. To try a copy of the April issue of Health and Hygiene for a description of this illness. Ventilation is also extremely important here.

Sun as Cure?

Clemanston, Pa.

To THE MEDICAL ADVISORY BOARD:

H. R.—Sunlight has been used with greatest effect in tuberculosis of bones and joints. Treatment of tuberculosis by sunlight was used extensively for the first time by a Swiss physician, Rollier. Rollier found that the exposure of a tuberculous joint or bone to graduated doses of sunlight resulted in a high percentage of healing, particularly in children. Substitutes, such as various types of artificial light from sun lamps, were found to be much less effective than direct exposure to the sun.

The use of sunlight treatment in other forms of tuberculosis—such as tuberculosis of the lungs, has netted discouraging results. Some observers have occasionally noted severe ill effects following exposure to the sun, and it is generally conceded that concentrated sunlight treatment is not among the useful procedures in the treatment of lung tuberculosis.

We have assigned the other subjects you mention to another specialist on our Board for extensive treatment in an article which will appear in the next issue.

HEALTH AND HYGIENE

JUNE, 1935

Work for These Two Bills

Section 2

The Secretary of Labor is hereby authorized and directed to provide for the immediate establishment of a system of unemployment insurance for the purpose of providing compensation for all workers and farmers above eighteen years of age, unemployed through no fault of their own. Such compensation shall be equal to average weekly wages, but shall in no case be less than $10 per week, plus $3 for each dependent. Workers willing and able to do full-time work but unable to secure full-time employment shall be entitled to receive the difference between their earnings and the average local wages for full-time employment. The minimum compensation guaranteed by this Act shall be increased in conformity with rises in the cost of living. Such unemployment insurance shall be administered and controlled, and the minimum compensation shall be adjusted by rules and regulations which shall be prescribed by the Secretary of Labor in conformity with the purposes and provisions of this Act through the unemployment insurance commissions directly elected by members of workers’ and farmers’ organizations.

Section 3

The Secretary of Labor is hereby further authorized and directed to provide for the immediate establishment of other forms of social insurance for the purpose of providing compensation for all workers and farmers who are unable to work because of sickness, old age, maternity, industrial injury, or any other disability. Such compensation shall be the same as provided by Section 2 of this Act for unemployment insurance and shall be administered in like manner. Compensation for disability because of maternity shall be paid to women during the period of eight weeks before and eight weeks following childbirth.

All moneys necessary to pay

(Continued on Page 34)
Letters to Editor

"Retardo" Objects—and the Editor Answers

GENTLEMEN:—On page 28 of your magazine, Health and Hygiene, dated April, 1935, you stated that RETARDO has as its chief constituent Urea-Ortho-Borate. In your quasi-stupidity you possibly mean this to represent Ortho-Borate. In any event, your statements never did contain urea-ortho-borate. If Retardo did contain urea-ortho-borate, that would mean your product contains a form of boric acid. And of course you will agree with the American Medical Association Bureau of Investigation which says that: "Boric acid has for many years been used as a basis for certain quack 'obesity cures.' Any reduction that may follow their use is due to so upsetting the digestive apparatus that the victim will naturally lose weight."

But the A.M.A. Bureau of Investigation has also had its chemists look into what they call "this nostrum" of Retardo. The report states that the chemists found "urea-ortho-borate as the essential ingredient, together with what seems to be a small amount of phenolphthalein." Really, Mr. Braverman! This, in spite of your letter to us and in spite of your advertisements which state that Retardo is guaranteed "not to contain urea or its salts."

It looks like our proofreader against your chemist, Mr. Braverman. Under the circumstances, we shall have to assure our readers that we still stand by what we said about Retardo in the April issue.

Brooklyn.

For Wo-Chi-Ga

TO THE EDITOR:—Health and Hygiene should be welcomed by all workers. They, of all classes of the population, need the kind of information you are giving them. But they need also to help care for themselves and their children under the present system. In New Jersey, a summer camp is being opened for children of unemployed. It is called Camp Wo-Chi-Ga. I am enclosing $3 which please forward to support that camp. I challenge others of your readers to do likewise.

FRED PIERPONT.

From Fascist Austria

Vienna, Austria.

TO THE EDITOR:—A group of American medical students at the University of Vienna greets with joy the appearance of Health and Hygiene and wishes it all the success in the world. . . . Health and Hygiene comes just at the right time. By now the American medical profession, excluding the A.M.A., is seeing the light. We prophecy a surprisingly good reception for the magazine. Once more, best wishes.

FRED PIERPONT.

(Continued from page 35)

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THE EDITOR

Please let me hear from you immediately.

Very truly yours,

SHELLEY BRAVERMAN, President
American Clinical Laboratories, Inc.