HEALTH AND HYGIENE

SEPTEMBER 1935

FIFTEEN CENTS

STERILITY— CHILDLESS MARRIAGE

DANGER IN YOUR MEDICINE-CHEST

By ARTHUR KALLET

Articles on

WHY PULL TEETH?

WHO GETS RICKETS?

THE CAUSE OF "T. B."

CARDIACS MAY LIVE

Turn Cover for Complete Table of Contents

Fifty-two Doctors write for this magazine!

ABORTION IN THE S. U.

New York
TO THE MEDICAL ADVISORY BOARD:

—I received a letter from a friend of mine in the Soviet Union which I think would be interesting to readers of HEALTH AND HYGIENE. It reads as follows:

"I just got back from the hospital and as yet I feel a little weak. I had an abortion. You know I had an abortion in the states about nine years ago, and I still remember the experience as an awful nightmare.

"Now let me tell you how it is done here. You go to a clinic where a doctor examines you and advises you not to have an abortion because it isn't good for your health, and urges you to have a child. But when you tell him that your condition doesn't permit you to have children, he gives you a slip to an 'Abortorium' (a special hospital where specialists perform abortions). The name of the abortorium they sent me to is called the 'Gynecological Clinic of the Red Cross' under the name of the '8th of March.'

"There you are once more examined and given a bulletin which excuses you from work for ten days—with pay of course. It is called 'Decreed vacation,' in other words: a vacation for which, by the decree of the government, the organization for which you work must pay you during your absence.

"Then you enter the hospital. The personnel of doctors and nurses are of the finest, and most delicate in their attention, and treat the patient with utmost consideration. The operation is performed under the most highly sanitary conditions in the quickest possible time. Then you stay in the hospital three days under strict medical supervision. Three times daily, the temperature is measured, and twice daily the doctor examines you. Three nourishing meals are given daily.

"The surroundings are quiet and conducive to rest. There are four to six beds in a tremendous room. At every bed is a pair of earphones of a radio, so you could listen to concerts. The librarian brings you

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HEALTH and HYGIENE

THE MAGAZINE OF THE
DAILY WORKER MEDICAL ADVISORY BOARD

Vol. I SEPTEMBER, 1935 No. 6

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Drawings by Limbach and Mackey

Note: This issue completes Volume I. The index to Volume I will be printed in the October issue and will be available separately for librarians.

HEALTH AND HYGIENE is published monthly by the H. & H. Publishing Co., Inc., 50 East 13th Street, New York, N. Y. Subscription price, $1.50 a year, in advance; Canadian and other Foreign, $2. Single copies, 15 cents. Entered as second-class matter March 27, 1935, at the Post Office at New York, New York, under the Act of March 3, 1879. Copyright, 1935, by the H. & H. Publishing Co., Inc.

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FRANK LEONARD, *Editor*

Millions are Undernourished

An Editorial

The Figure Is Conservative

"ANY PLAN that proposes to elevate racial standards by means of improved nutrition must give serious consideration to political and economic factors." This was the advice given recently to the American Medical Association by one of the principal spokesmen for organized medicine in this country, the retiring head of the A. M. A., Dr. James S. McLester, professor of medicine at the University of Alabama.

"Something like twenty million American people," said Dr. McLester, "are living near or below the threshold of nutritive safety." That figure is, without a doubt, extremely conservative. If the conditions under which the Negro workers and poor whites exist in his own State do not indicate clearly enough the conservatism of Dr. McLester's estimate of 20,000,000, we point to another report. Dr. Adela J. Smith, assistant director of health education in New York City, has stated that: "Reflected citywide in the elementary school population, approximately 135,000 children are serious malnutrition cases, too weak and undernourished to profit by attendance in regular classes."

Education Not Enough

"ADEQUATE nutrition, then," Dr. McLester told the medical men (*The Journal* of the A. M. A., Vol. 104, No. 24), "is in the last analysis a problem of education and government." We agree fully with that statement, too—if, by speaking of the necessity of education, Dr. McLester does not join that New York official who answered Dr. Smith's report by blaming the parents of the 135,000 undernourished children for "ignorance in methods of purchase and preparation of adequate and proper foods."

Education is necessary. But something more is needed—something even more fundamental and prerequisite. The American people must be given the kind of genuine and complete social insurance, including health insurance, which will make nutritional education relevant and real.

Two bills are before the United States Congress now which answer Dr. McLester's desire for a solution of the problem of malnutrition through cooperation of "the economist and the lawmaker" with "the teacher, the physician and the publicist."

Work For These Bills

THESE BILLS are: H.R. 2827, known as the "Workers' Unemployment, Old Age and Social Insurance Act," introduced by Representative Lundeen of Minnesota; and H.R. 5549, the "Workers' Health Insurance Act," introduced by Representative Dunn of Pennsylvania.

We recommend to Dr. McLester, and to all other members of the A.M.A., that they join forces with those millions of professionals and laymen who have already expressed themselves in favor of these two bills. Enactment and enforcement of the two bills would not only help America rid itself of its dangerously large caseload of malnutrition. Enactment and enforcement of the two bills would also create the power to effect genuine socialization of medicine and, in turn, make possible the elimination of many other ills—economic as well as physical—from which both professionals and laymen in America now suffer.

(*Further Editorial Notes on pages* 33 *and* 34)

"SKIN GAME" In Industry

• Should Infected • Employes Lose Their Jobs?

When certain workers become infected on their jobs, the best thing to do is to fire them, according to some government authorities. What are some of those infections? Is there some other way of handling the situation? The skin specialist who wrote this article shows there is another way.

RECOGNITION of the subject of occupational skin disorders is not new. Skin diseases in metal workers and salt miners were described in the Sixteenth Century by the medical writers Paracelsus and Agricola. Until recently, however, references to industrial skin hazards were infrequent. Today, the subject is one of major importance. The tremendous growth of industry, with its innumerable new processes, has brought with it a large train of occupational diseases.

The remarkable advances of chemistry and physics have been utilized by industry and, under the stress of competition, manufacturers have been forced to call for newer and better short cuts to efficiency. Metal polishes, furniture polishes, leather preservatives, quick drying enamels and paints, varnishes, disinfectants, insecticides, rapid paint-removers, storage batteries, artificial plant manures, dyes, oils, and flour-improvers are only a few of the host of innovations called into existence. These improvements have, in a sense, made life easier—and the owners of industry have prospered—but the price in health and life of the workers has been great.

The skin diseases encountered in industry are numerous. Broadly speaking, they vary from mild, itchy rashes to severe ulcerations—and even to cancer. Within the confines of this article, it is obviously impossible to do more than give a survey of the subject.

Dermatitis (inflammation of the skin), is seen frequently in workers in the dye industry. Wearers of dyed material such as furs, and the users of cosmetic hair dyes are, too, subject to such skin irritations. Those afflicted may show small or extensive areas of inflamed skin. The skin is usually reddened, somewhat swollen, and may show small or large blisters. In some cases, the skin is reddened and scaly. Itching is a very common and distressing symptom. So severe and disabling are some cases that the patient is forced to lie in a hospital for weeks or months.

About 15 per cent of the workers in the synthetic dye industries get dermatitis, and the greatest number of cases occur in the repair or main-

tenance departments of these plants. *Paraphenylenediamin* (the trade name is "ursol") is a very common offender in this industry.

"Baker's eczema" is well known. There has been a great deal of controversy about this subject. Some investigators have held that its frequency is overestimated and that, in most cases, its appearance is a coincidence instead of being the result of this type of work. On the other hand, it has been shown that flour dust contains vegetable parasites, which cause an itchy and tiny blister-type of eruption.

Other investigators have shown that many cases of "baker's eczema" are caused by the use of "improved" flour. This flour is treated with a chemical called ammonium persulphate. Whether or not medical authorities are agreed as to the cause, the fact still remains that many bakers suffer irritations of their skin. Further scientific investigation of the subject is necessary.

Cancer and Anthrax

THE OIL industry provides a very potent cause of cancer. Ten per cent of all the workers in oil refineries, because of the almost constant presence of dirt and grease on their skins, were found to have wart-like changes on the skin of the backs of the hands, forearms or legs. These skin changes lead to cancer more frequently than is supposed. This fact is apt to be overlooked in many instances, on account of the long period which may pass before the cancer develops.

It is known that creosote and coal-tar and its derivatives can cause cancer. These substances are being increasingly used in road making, wood preserving, gas making, etc. Arsenic used in sheep dip, paints and smelting operations is also a cause.

In chromium plating, workers are exposed to the caustic action of chromic acid which is in the solution in which the articles to be plated, are immersed. The action of the chrome salts and chromic acid on the skin produces typical "punched out" ulcers. The mucous membranes (lining membranes), particularly of the nose, may be severely ulcerated by the dust of the chrome salts and the spray of chromic acid.

Those workers who handle wool, hair, hides and skins may be exposed to anthrax—a very serious and frequently fatal infection. These articles are sometimes infected with the germs which cause this disease; and, unless they are properly disinfected, they may produce this disease in those who handle them.

The only sure preventive measure lies in the disinfection of the infected material before it is handled. No practical method of disinfecting hides and skins has been devised; although treatment with the sulphur lime process, in those cases where it can be applied, does seem to reduce the possibility of infection. The disease shows itself by a rapidly growing gangrenous sore with a border of small blisters, surrounded by a red swollen collar. It is frequently accompanied by violent general symptoms such as chills, sweats and high fever.

Danger in Rubber

IN THE rubber industry, many cases of severe skin irritations occur in the workers handling *hexamethylenetetramine* ("hex")—a chemical which hastens the curing process. Since 1926, when this chemical was, in most instances, replaced by less harmful accelerators, the number of cases dropped considerably. To be serviceable, rubber is passed through many processes involving the use of various other chemicals and these, too, are known to cause serious skin disorders.

One could go on almost endlessly, it seems, enumerating the skin hazards for workers. There are the workers handling printer's type, and those making grids for storage batteries, who are exposed to antimony. This chemical may irritate the skin and cause inflammation of the lining of the nose, mouth and throat.

There are the bakelite workers, who frequently suffer skin inflammations. Those who spray lacquer are exposed to the injurious action of benzine on the skin. The skin of glass etchers, textile workers and laundry workers may develop eruptions because of contact with hydrogen fluoride. For our purpose it is enough to mention a few of the hazards, and to point out that industry provides an almost innumerable variety of ways of injuring those who are engaged in it. For us, it is more pertinent to discuss the remedy.

The Public Health *Bulletin* (No. 215, October, 1935), issued by the United States Public Health Service, suggests, in cases of dye dermatitis, that "when severe cases recover they should be placed in another part of the plant where they will not come in contact with the offending chemical, or, *preferably they should be discharged.*" The same bulletin admits that "the number of cases of occupational dematitis in the rubber industry is larger than the number of cases actually reported to the State Department of Health, because many cases are not reported either because they are trifling in character and the worker treats himself, or in other cases, he is afraid that if he reports himself to be suffering with dermatitis he may be transferred to another department where he will not earn as much money, or *that he may even lose his job.*"

Aim at Prevention

ALL MEDICAL experts agree that prevention is the first aim. Prospective workers should be examined before being hired. Those whose skins are over-moist, oily or excessively dry should be excluded from skin irritant industries. Where possible, the skins of applicants should be tested with the materials to be handled. If the skin of these applicants is found to be easily irritated, the workers should not be put to work where they may come in contact with these irritants. This seems logical. But, in our society, work is not so easily obtained—and such advice is bitter. Of course, under a different economy, a worker barred medically from one industry could easily obtain work in another.

It seems obvious that employers should see to it that the handling of dangerous substances is minimized by the substitution of machinery, and that proper cleansing and protective facilities are placed at the disposal of the workers. Workers should, too, be properly educated in the dangers of their work, and in ways of avoiding them. Dust should be reduced by adequate ventilation. Injurious chemicals should be replaced, where possible, by harmless ones.

The safeguarding of the workers' health is of major importance and requires thorough and expert study in each industry and in each factory. The solution would require adequate medical supervision together with the cooperation of expert chemists, physicists, physicians and *employees*—at the cost of the employer.

Some of the suggested preventive measures have been half-heartedly undertaken by many employers. Compensation insurance is expensive and compulsory in most places. The more industrial accidents occur, the higher is the cost of the insurance for the employer. Such a reason should, it seems, be sufficient to stimulate employers to go the whole way in health projects. There is, however, another factor and that is the ever-present large army of unemployed. Adequate preventive measures would be fairly costly, and employers believe labor is too cheap to waste money on it. It is cheaper to discard old and injured employees, and hire new ones, than to go to large initial expenses to institute proper health projects.

Actual treatment consists of removing the worker from the source of the skin irritation (his work) and the application of soothing lotions and salves. The warty skin-changes of those in the oil industry should be treated by the electric needle, radium or x-rays.

The real treatment, as pointed out above, lies in prevention. Knowing the attitudes of the employers, it is necessary that the employees in industries and factories unite and demand adequate health supervision.

WHO GETS RICKETS?

The Sun Shines for all Children

—But Many Acquire this Disease

RICKETS is a preventable disease affecting principally the growing bones of the infant and young child. The ends of the bones do not calcify (harden) normally. This results in deformities such as bowlegs, knock knees, misshapen chests, large square heads, etc. Sitting, walking or standing may be delayed. In severe cases, fractures may occur, and certain cases are complicated by convulsions. The muscles are weak, and because of this, the rackitic child usually has a prominent abdomen, called a "pot-belly." Such children tend to be anemic, and have a very poor resistance to infections. Recently it has been shown that the permanent teeth, in children who had rickets during infancy, have serious defects. The pelvic bones in women who have had rickets may be so badly deformed as to make child-bearing a danger for them.

This disease is most prevalent in the temperate zones, and develops usually in the late winter, and in the early spring. Particularly affected are the children of workers living in the crowded, unhygienic conditions so lavishly bestowed upon them by the present system. Negro children are very prone to develop this disease. During and following the imperialist World War of 1914-1918, many severe cases of the disease appeared in Europe. While the workers were shedding their life's blood on the battlefields, their children were paying with their health at home.

To understand why this disease develops in certain seasons, why it affects Negro children in particular, we must know something of the elements necessary for the normal growth of bone.

When we analyze bone chemically, we find that it consists mainly of calcium, or lime as it is commonly called, and of phosphorus. It is the combination of these two elements, in the form of a salt known as tri-calcium-phosphate, that furnishes the main building materials for healthy bone. Thus, if the diet does not contain enough of either or both of these elements, the bones will not harden normally—and rickets will result. The best source for these substances is milk. It is important to remember that, although human milk has less lime in it than cow's milk, the lime in it is much better absorbed. The breast-fed baby is therefore less liable to develop rickets. The growing baby needs a pint to a quart of milk a day, depending upon its age. (Of course, we know that many workers' families, and families on relief cannot afford to buy enough milk. The main reason for this is the exorbitant profits which the milk distributors make at the expense of the farmers and workers.) It is important in this respect to remember that canned evaporated milk (evaporated to double strength) is cheaper than bottled milk, and just as good.

However, it has been known for a long time that some infants may get enough milk and yet develop rickets. Why is this? In the first place, it has also been observed that the addition of cod-liver oil to the baby's diet prevents the development of rickets. The oil also heals the lesions of the disease where it has already developed. It is felt, therefore, that cod-liver oil contains a substance necessary for the normal growth of bone. What is this important material?

You will recall that rickets appears most often in the late winter and early spring months, that Negro children, whose skin pigment protects them against the sun, and children living in poor surroundings where they do not get enough sun-

— Can it be Prevented?

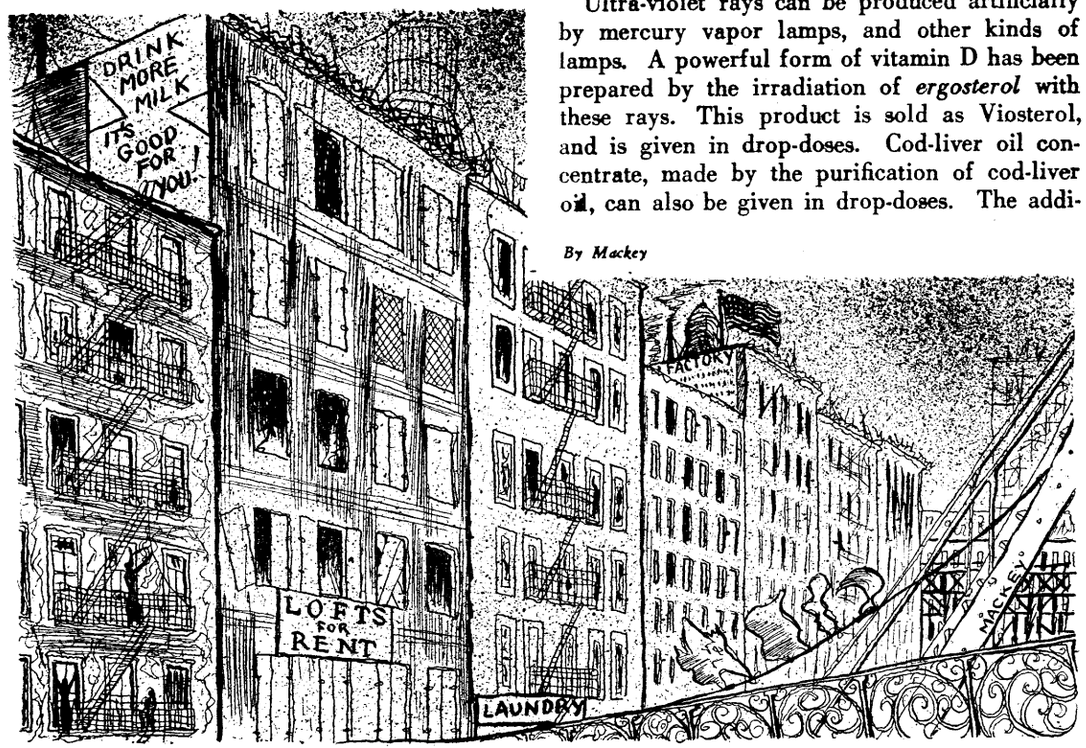
Rickets seldom is a worry in the families of the wealthy. Children of the poor are likely to suffer from the malady because of deficiencies which are due entirely to the economic circumstances of their parents. The child specialist who wrote this article could only indicate what those children need. Those needs can be obtained by the parents only through united effort.

light, are especially prone to develop this disease. We also know that rickets is not very common in the tropics, where the sun's rays are very intense. It would therefore seem that when and where the child gets enough sunlight, it is protected from rickets. Thus, in the winter months, when there is not enough sunlight, the disease develops.

Ultra-Violet Rays

WE KNOW NOW that only a small portion of the sun's rays, the invisible ultra-violet rays, have the property of preventing and healing rickets. The action of these rays on a certain substance in the skin, *ergosterol*, produces the all-important vitamin D. This vitamin enables the body to utilize the calcium and phosphorus furnished it in its food. It is used up during the winter when there is very little exposure to sunlight. It is this substance which is present in cod-liver oil. (Incidentally, cod-liver oil also contains vitamin A which prevents another disease.) Ultra-violet rays will not pass through ordinary window glass, and the smoke (from factories, etc.), over most of our cities absorbs a large part of these rays. Although this country possesses the means of providing smokeless fuels, the private interests, who operate only for profits, will not allow the substitution of smokeless fuels for the products which they are selling.

Ultra-violet rays can be produced artificially by mercury vapor lamps, and other kinds of lamps. A powerful form of vitamin D has been prepared by the irradiation of *ergosterol* with these rays. This product is sold as Viosterol, and is given in drop-doses. Cod-liver oil concentrate, made by the purification of cod-liver oil, can also be given in drop-doses. The addi-



By Mackey

tion of small amounts of Viosterol to cod-liver oil furnished the product known as 10D cod-liver oil, which is somewhat stronger than ordinary cod-liver oil.

The main difficulty with most of these stronger preparations is that they are too expensive for the average worker's family to buy. The irradiation of milk, the feeding of irradiated yeast to dairy cows, or the addition of cod-liver oil concentrate to milk, has produced a complete food ("Vitamin D milk") for the baby as far as the prevention of rickets is concerned. This milk contains not only the essential mineral elements, but also vitamin D. Here again we have a valuable scientific advance which is available only to those who can afford to pay the additional price.

One word as to vitamins before we go on with our discussion. There is a considerable amount of advertising about the universal healing values of vitamins. Vitamin D is specific for only one thing: the prevention and healing of rickets.

Prevention

TO PREVENT rickets then it is necessary to give the child enough milk and vitamin D. Breast milk, as previously mentioned, is the best form of milk—provided the mother is on a good diet. If for some reason the mother is unable to nurse the baby, then a pint to a quart of milk—depending upon the age of the child—is necessary. The cheapest source of vitamin D is, of course, the sunlight. However, children do not get enough exposure to the sun in the wintertime. In the summertime, in large cities, some of the ultra-violet rays are filtered out by the smoke. The sun's rays in our country are not strong enough to be of much value to Negro children, because the pigment in their skin does not permit complete absorption of the ultra-violet rays.

At any rate, all children should get some form of vitamin D in their diets. The cheapest at present is cod-liver oil, especially when bought in larger quantities. It should be started at an early age (three to four weeks), so that the baby forms a taste for it early. The dosage, to begin with, is one-half teaspoonful twice a day; this is gradually increased until the baby is getting a teaspoonful three times a day. Cod-liver oil should be continued at least through the second year for white children, and much longer for Negro children.

During the summer the baby should be given sun-baths, which are begun gradually, and slowly increased until the baby, undressed completely, gets one to two hours in the sun daily. On very hot days it is not necessary to place the baby in the sun, because even in the shade the baby absorbs some ultra-violet rays from the so-called "sky shine." Even during the summer time, cod-liver oil should be continued in reduced amounts (one teaspoonful a day), so that the baby will not lose his taste for it, and also because in the city the sunlight may not give complete protection. Negro children should get the full dose throughout the year. Vitamin D milk, where it can be afforded, is the easiest way of protecting the baby against rickets. Incidentally, some of the evaporated milks are also irradiated.

We must remember that not all individuals are alike. Some children may develop rickets, when taking ordinary amounts of cod-liver oil. Especially is this true of prematurely-born infants. This means that all babies should be examined at regular intervals for early signs of rickets, and where indicated should get larger amounts of vitamin D. This may have to be given in the form of Viosterol or cod-liver oil concentrate, and should be prescribed by a physician.

PEPTIC ULCER

— Description
— Treatment

PEPTIC ULCER (ulcer of the stomach or duodenum) is found among all classes of society, but there is some evidence that workers are the chief sufferers. In the present article, we shall attempt a brief survey of the disease and its treatment.

A peptic ulcer is an open sore in the lining of the stomach or the duodenum. The duodenum is the first part of the small intestine, and receives food and acid juice from the stomach. A certain amount of acid is always present in the normal stomach. But, in the presence of an ulcer, the acid is almost always increased in amount. This fact, and the fact that food is always passing over the ulcer, prevents the ulcer from healing rapidly.

Ulcer is a common disease. At least 5,000,000 people in the United States are suffering from peptic ulcers; of this number, there are many more men than women. Workers in the heavy industries, such as truckmen, transportation workers, and railroad men are particularly afflicted, while those in the lighter industries do not suffer as often.

Irregular eating habits, quick lunches, etc., seem to bring on the disease. Decayed neglected teeth, pyorrhea, and excessive mental strain are other factors in producing this disease. It is not known whether smoking and alcohol bring on the condition, but it is definitely known that they irritate an ulcer which is already present.

In the very early stages, the symptoms are indefinite. Usually, the patient complains of indigestion, such as fullness after eating, pressure in the upper abdomen, heartburn and belching. Later, there commonly appears pain in the upper abdomen. Still later, the pain may occur at definite times after a meal, generally 15 minutes to two or three hours after eating, and often recurring as regularly as clockwork. At times it wakes the sufferer in the early morning hours, from 1 A.M. to 3 A.M. This ulcer pain is usually relieved by bicarbonate of soda, or by food.

The symptoms of peptic ulcer are frequently more pronounced in the spring and winter. The seasonal attacks may occur regularly for many years, which means that the ulcer has become chronic. Nausea and vomiting are rarely symptoms of peptic ulcer.

Complications

IN THEMSELVES, peptic ulcers are not dangerous to life. But the complication may be very serious. The major complications are pyloric obstruction, bleeding, perforation and cancer.

Pyloric obstruction: The pylorus is the narrow stomach, and connects up with the duodenum. It controls the flow of the food from the stomach into the duodenum. Ulcers are most frequently located near the pylorus, and when they heal, scars are formed. Scars are the natural products of healing; and scars contract. When they contract, they make the pylorus still narrower. If the pylorus becomes too narrow, food cannot get out of the stomach quickly enough. This is known as obstruction. If some food gets from the stomach into the duodenum, the obstruction is partial. If no food can get into the duodenum, the obstruction is complete. Normally the stomach is empty within six hours. When there is obstruction food may remain in the stomach for days.

Bleeding: Fifteen to twenty per cent of ulcers bleed. This bleeding may be very slight or profuse. When it is slight, and lasting over a long period of time, the patient may be totally unaware of his bleeding but he may be anemic, feel weak, and look pale.

The physician can determine whether the patient is bleeding internally by examining the stool. When the hemorrhage is severe, the person usually feels very sick and vomits material

that looks like coffee grounds. Or, he vomits bright red blood if the bleeding is very rapid. The stools always look like tar. The blood in the stool of a patient bleeding from a peptic ulcer is not red, but is black. However, just because a person's stool is black, that is no proof that he is bleeding, for certain foods and medicines can produce black stools. A chemical examination of the stool is necessary to prove bleeding.

Perforation: This is one of the most dangerous of the complications. It may occur gradually, or suddenly, but, usually, it is gradual. The ulcer, instead of healing, becomes deeper and deeper until it bores its way completely through the stomach. When this happens, the patient has terrific pain in his belly, and cannot stand up straight. He bends over because he feels better in that position, but still the pain is terrific. The contents of the stomach go through the perforation into the belly cavity, the peritoneum, and infects the latter—causing peritonitis. This is very serious and, unless the patient is operated upon immediately, he will die.

Cancer: This is a very rare complication. Some physicians believe it never occurs.

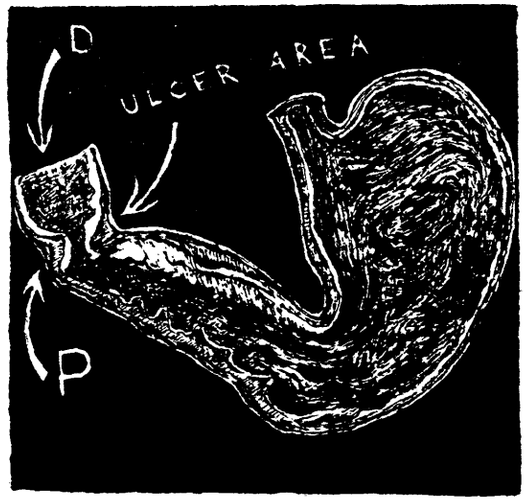
Diagnosis and Treatment

THE diagnosis must be made by a physician on the basis of symptoms, physical examination and x-rays of the stomach and duodenum. The stomach should be tested for acid and blood, and the stool should be tested for blood. The blood should be examined for anemia.

All cases should be treated medically first, unless the signs of perforation, obstruction or cancer are present. These latter require surgical treatment.

The medical treatment is for the relief of pain and the healing of the ulcer. Diet is the most important form of treatment. It consists of the use of milk, cream and bland foods like cereals, custards, eggs, pureed vegetables, etc. Smoking and alcohol and spices are prohibited. The patient is told that worry will delay or prevent healing of the ulcer, and he must have adequate rest. With this diet, alkalies (bicarbonate of soda) are usually given and help the treatment. Whenever there is a complication, the patient should be in a hospital.

In our society, a hospital is a luxury, and the



The diagram above shows the interior of the stomach. The front wall has been removed. The letter P *points to the pylorus. The letter* D *points to the duodenum, or first part of the small intestine. The ulcer area (where ulcers are most frequently located) near the pylorus, is also shown in the diagram.*

worker usually cannot afford to buy the diet that is prescribed. Although some of the public relief agencies add a dollar a week for a special diet, this is not enough to purchase milk which is relatively expensive. Also to prepare this special diet properly, time and care are required.

The food should be prepared at home, since one cannot buy these dishes in the average lunch room. Nor is regularity in eating easy for the average truck-driver who must grab a bite whenever and wherever he stops. To tell the average workman not to worry, is to advise the impossible. He will not worry when his daily life is not a continual struggle for a bare existence.

Doctors realize that the average working man cannot lay off work long enough to heal his ulcer and they will often advise operation because of the economic situation. They will say that, with an operation, the man will be well faster than with medical treatment, and therefore he will be able to earn a living sooner. However, the operation has a risk to life and is almost always unnecessary in uncomplicated cases of ulcer. There is a real class distinction in the treatment of peptic ulcer—and probably also a class difference in the distribution of the disease.

The Cause of "T. B."

• Second Article of a Series

In the July issue, an article entitled "T.B.—Workers' Plague" showed that pulmonary tuberculosis is "the most class-conscious" of diseases. The worker-readers of this magazine are now given the second article of this series, explaining the cause and symptoms of tuberculosis. The third article, in an early issue, will discuss treatment of this dread disease of the workingclass.

TUBERCULOSIS is a disease caused by a living bacterium or germ, the *tubercle bacillus*. This germ is so small that thousands can enter the body in a single particle of dust or a tiny droplet of sputum. The germ will die after exposure of several hours to sunlight and fresh air. In the human or animal body, however, the germs find favorable conditions for growing and multiplying.

The two most important varieties of tubercle bacillus are the human and bovine. The human type comes from man; the bovine type comes from cattle. Both the bovine and human types produce tuberculosis in man; but the human type causes far more numerous infections and more serious disease than the bovine type.

The germs cannot move about. They are either breathed into the body or swallowed. People who are in contact with the tiny droplets of sputum from a tuberculosis patient will inhale the germs. Tuberculosis sputum also mixes with dust in the room or street, and this germ-laden dirt can also be inhaled. Besides inhalation, the germ may be carried into the mouth on such things as dishes and fingers which have been soiled with the discharges of a tuberculosis patient, or in food which has been so infected.

The most important of the infected foods is milk from tuberculous cows. This is still a serious source of infection. The milk companies and the government have *not* done everything possible to eliminate tuberculous germs from milk. From 4,000 to 5,000 children in the United States die every year from T.B. caused by the bovine tubercle bacillus. Other thousands get tuberculous disease of the glands or bones, which deform or cripple them.

The most common way in which tuberculosis is acquired by human beings is by contact with material containing the human tubercle bacillus. When fine droplets of tuberculous sputum or dust mixed with such sputum is inhaled, an infection is caused. Children soil their hands and playthings with this sputum, and so carry the germs to their mouths.

Tuberculosis is not inherited. The disease is not transmitted from one generation to another by the sex cells. When T.B. occurs in several members of a family, it is not because the members of the family have a lack of resistance peculiar to them and not to other families—but rather because one member of the family has the disease and spreads the germs to other members. The repeated and prolonged exposure to the germs, especially during childhood, will overcome the natural resistance of any human being, even if his family has always been free from tuberculosis.

Infection and Symptoms

IN ALL industrialized countries, the people are intimately exposed to dust or other material containing tuberculous germs. Small wonder, then, that about 90 per cent of the entire population of the cities and industrial communities of the world has been infected with the tubercle bacillus. But infection does not mean disease. Infection merely means that the germ has entered the body—but it has not yet caused any harm. The germs have been entrapped in their lodging

place by the body cells which build a shell of hard tissue, frequently even bone, about them. We often carry the evidence of this infection throughout our lifetime, without ever being sick with tuberculosis or knowing that we were infected. It is only when the body has lost its fighting power, its power of resistance to the germs, that actual tuberculous disease occurs.

The body loses its resistance when it is overworked, when it is insufficiently nourished, or when it is attacked by another disease—such as measles. High emotional tension, worry, chronic anxiety, also play an important role in the development of tuberculous disease in adults. Workers who are exposed to silica dust, such as hard-coal miners, stone cutters, ore-miners, etc., are especially vulnerable to attack by tuberculous germs.

The most frequent avenue of entrance of the germs into the body is by way of the respiratory tract—the nose, throat, bronchial tubes and lungs. The germs are inhaled and they lodge in the lungs. For this reason, the most common type of tuberculosis is *pulmonary* tuberculosis or consumption. From the lungs, the germs can spread to every other organ in the body by way of the blood-stream and the lymph-stream, and to healthy parts of the lungs through the bronchial tubes. One can understand, therefore, why the first symptoms of tuberculous disease are frequently those connected with lung trouble such as cough or blood-spitting.

When a cough lasts more than four weeks, one should suspect tuberculosis. Spitting of blood, no matter how small the amount, is also strongly suspicious. Hoarseness lasting longer than an ordinary cold may be the first symptoms of T.B. An attack of pleurisy, especially when accompanied by fluid in the chest and occurring in a person below the age of 45, is almost certainly due to tuberculosis. Or, instead of pleurisy, there may be persistent or recurring pains in the chest.

A feeling of tirednes, for which there seems to be no particular reason, or steady unexplained loss of weight, may be due to tuberculosis. The only symptom in some people may be a poor appetite, or indigestion, or a little fever every afternoon, or night sweats. A fistula, or an abscess in or next to the rectum, should make one inquire about the presence of pulmonary T.B.

Children who are pale and underweight, or who have recently had enlargement of the glands in the neck, should be examined for tuberculosis. These symptoms do not always mean that the child has tuberculosis. Any one of them, however, should be regarded as a serious warning signal. Blood spitting, chronic cough or hoarseness, and pleurisy should be especially watched, and medical aid should be sought at once.

Importance of X-Ray

NO WORKER should be content with a doctor's glib diagnosis of chronic bronchitis or laryngitis, or feel reassured when told that the blood comes from the nose or throat, or when told that it is due to delayed menstruation. The worker must insist upon an x-ray of the chest. If the doctor does not think it necessary, he or she should seek out a tuberculosis specialist or a Board of Health clinic devoted to tuberculosis.

The diagnosis of "chronic bronchitis" or "a touch of pleurisy" is too frequently made by doctors or patients who have tuberculosis. These patients waste precious weeks or months taking vaccines and sunlight cures. The most careful and painstaking physical examination is not enough. Even a fluoroscopic examination is inadequate.

The only certain way of detecting tuberculosis of the lungs is by x-ray of the chest. It is impossible to emphasize this too strongly. No worker with any of the symptoms described above should feel certain that everything possible has been done to make a diagnosis unless he has had an x-ray of the chest. If his doctor can't, or won't give it to him, we repeat, let him seek out a tuberculosis clinic in the community where he lives and where he will be able to get an x-ray of the chest.

Since the sputum from tuberculous patients is the most important source of spread of the disease, we could soon wipe out T.B. if we could collect and destroy, at the moment of discharge, all such sputum. This cannot be done, however. All of us, in small and large cities—and to a lesser extent in rural communities—are exposed to the germs throughout our lifetime. Exposure is unavoidable. But intimate contact with the germs can be avoided.

We should try to develop habits which would

tend to prevent contact with the sputum or secretions of others. Children especially should be guarded against this danger, for during early childhood and adolescence they are more susceptible and develop a more serious form of tuberculosis than do adults. Fingers should be kept out of the mouth, and hands should be washed before each meal. Material soiled by the cough or sputum of a tuberculous patient should be burned. One need not avoid contact with a tuberculous patient, if the patient knows how to protect others from his secretions. Eating and drinking utensils used by others should be avoided unless they have been thoroughly cleaned.

Guard the Children

MILK IS STILL an important source of infection with tuberculosis germs. Mothers should therefore be certain that all milk used for the feeding of infants and children has been certified or pasteurized by reputable milk companies. If you are not certain that a milk is safe, inquire of your State Department of Health and the United States Department of Agriculture. This is particularly necessary for those living in small cities and rural communities. The safest milk is that which comes from cows that have been carefully examined, tested with tuberculin, and therefore certified to be free from tuberculosis.

Children who have been exposed to an individual suffering from T.B. must bear special watching. They should have a complete examination, including a tuberculin test. An x-ray of the chest is necessary if there are any suspicious signs. In a few of the larger cities, there are "preventoria" where children of tuberculous parents are segregated and observed for a few months and protected from further exposure to tuberculous germs.

There are hardly enough of such preventoria in the United States, however, to take care of exposed and infected children. More preventoria are needed, for they constitute an effective method of prevention of tuberculous disease in children who have been exposed to the tuberculosis germs. Where there are no preventoria, the children should live elsewhere, and not in the same apartment with one who has tuberculosis. Under the existing conditions of living for the majority of the working people and unemployed, there are no adequate sanitary and housing facilities (as was pointed out in the July issue of HEALTH AND HYGIENE). Consequently, for the vast majority of the working people of the world, exposure to tuberculosis germs is unavoidable.

Intimate exposure can be lessened by measures already described. There is a still better weapon of defence against the germ. That is the weapon of good general health. With good health, we can build up a powerful resistance to the development of tuberculosis germs in the body. The most important item in the building up of a healthy body is the proper amount of good food. Children especially require a balanced and abundant diet of meat, fresh vegetables, milk, fruit and eggs. Without good and adequate food, good health cannot be maintained and therefore the body's resistance against the tubercle bacillus is greatly weakened.

Resistance is also lowered by lack of sufficient rest and sleep. Living conditions at present tend to foster a state of chronic anxiety centering about economic insecurity. Chronic anxiety is frequently an important factor in reducing resistance.

Workers who are exposed to dust should have an x-ray examination of the chest every six months. If the exposure has been heavy, an x-ray should be had every three months. This holds for workers in ore mills and mines, employees of foundries or other metal industries, girders and buffers, stone and pottery workers, workers in the clay and glass industies. Where there is intimate exposure to dust, workers should insist upon adequate protection and regular x-ray examinations at least every six months at the expense of the boss and on the bosses' time. If the employer will not furnish the x-ray, the workers should report to a Board of Health clinic. These precautions are necessary, because silicosis easily predisposes the exposed work to tuberculosis.

The matter of treatment of tuberculosis is, itself, a large subject. In the next article, concluding this series, the subject of treatment for T.B. will be taken up in detail.

CARDIACS May Live

Proper care may save the cardiac—sufferer from heart disease—for many years. Just what this disease is, how the cardiac can be saved in many instances, is told by the heart specialist who wrote this article.

HEART FAILURE usually suggests to the layman sudden death or tragic invalidism. To the physician, however, it may mean any stage of the disease in which the heart fails to do adequately and consistently the work required of it by the human body.

The work of the heart is to pump blood through the blood vessels to all parts of the body in amounts adequate for its needs at work as well as at rest. Heart failure, briefly, means that the heart is no longer able to do this work.

The first indication of "heart trouble" is breathlessness, or unusual breathlessness, on ordinary effort—such as stair climbing. Shortness of breath, in itself, is not abnormal. Anyone, however healthy his heart, will become short of breath when he exerts himself strenuously. It is only when this symptom begins to appear under circumstances which formerly failed to produce it, that it should be regarded as a warning.

As heart failure progresses, shortness of breath is experienced upon less and less effort. The progress may be quite gradual, over a period of years.

It is well to remember that shortness of breath is not always due to heart failure. Fat people suffer from it while possessing perfectly healthy hearts. Chronic bronchitis and asthma cause breathlessness. The symptom may appear in anemia, disease of the thyroid, in tuberculosis; or it may be due to nervous causes.

Dropsy, the accumulation of fluid in the chest, abdomen and legs, is one of the symptoms of heart failure that appears in later stages of the disease. When the heart has failed to such a degree that it can no longer do the work required of it when the body is at rest, it ceases adequately to pump out the blood. The blood backs up in the veins, and the patient begins to show swollen neck veins, enlarged liver, fluid in the chest and abdomen, swelling of the ankles and legs, and congestion of the lungs.

The cause of cardiac dropsy is an increased movement of fluid from the small blood vessels to the surrounding tissue spaces. Normally, the pressure of fluid in the tissue spaces is maintained at approximately the same level as the pressure in the veins. These pressures balance each other, and fluid does not accumulate in the tissue spaces. However, if the pressure in the veins is increased because the heart is lagging in its work, fluid passes from the veins into the tissues, and accumulates.

This same process can be observed in a normal individual. If a tourniquet is put around the arm and left there, it interferes with the return of blood through the veins to the heart. The pressure in the veins beyond the tourniquet is increased, and recognizable swelling of the arm will appear in two or three hours.

Standing perfectly still, or sitting without moving the legs for several hours, will cause the legs to swell noticeably. [redacted] limbs do not become swollen [redacted] moved about constantly. Contraction of muscles squeezes the veins, and forces the blood on toward the heart.

In the early stages of dropsy, the ankles swell slightly toward the end of the day. The shoes feel small, and the instep may be swollen and ridged where the shoe fits tightly. Gradually this swelling increases, affecting the calf and thigh. However, a small degree of swelling present after standing for a long period is not abnormal. A person with normal circulation will have an increase in the size of his feet on standing. Many men will testify that the loose garters they put on in the morning feel much tighter as the day draws to a close. Individuals with varicose veins (many working class women have them) also have swelling of the ankles. The swelling must be more than slight and occasional to indicate failure of the circulation.

Temperature influences the rate at which dropsy forms. The higher the temperature of the part, the faster the fluid accumulates. That is why the feet are more noticeably swollen in summer than in winter in sufferers from varicose veins. Dropsy of the legs may form rapidly when one sits before a fire.

Weak Muscle

THE PRIMARY cause of heart failure is weakness of the heart muscle. While leaking valves and irregularities of heart rhythm embarrass the heart muscle by increasing its work, and so contribute to heart failure, they do not cause it. The essential cause is a weakened muscle which cannot pump blood in amounts enough to meet the ordinary requirements of the individual's daily life.

Anything that damages the muscle fibers of the heart makes a "weak heart" and paves the way for heart failure. Certain diseases injure the heart particularly. Chief among these is rheumatic fever, especially in younger people. In this disease, inflammation of the heart may develop, the heart muscle is then damaged, and if sufficient heart muscle is destroyed, failure follows. Therefore, during an attack of rheumatic fever, it is not uncommon for heart failure to develop.

Patients with acute rheumatic fever usually recover. The heart muscle which has been destroyed by the inflammation is replaced by scar tissue, leaving the muscle weaker than it originally was, but still able to maintain the circulation under ordinary conditions. A second or third attack may, however, destroy so much of the heart muscle that failure develops.

Likewise, the germ of syphilis may attack the heart muscle and destroy it in a similar manner. Whereas rheumatic fever generally attacks rapidly, syphilis does its damage more slowly. The symptoms of heart failure appear quickly or gradually, depending upon the rate at which the heart muscle is damaged.

Heart muscle, once damaged, never again becomes perfectly healthy. For a moment, let us think in terms of a comparison in order to explain this fact. If the finger is badly cut and heals, a scar forms. The skin is replaced, but the scar which replaces it is not skin—it has no hairs or sweat glands in it. It cannot act as the skin does. So it is when the heart muscle is damaged. The muscle heals, and the destroyed portion is replaced by scar tissue. But this scar tissue cannot do the muscle's work.

Hardening of the Arteries

ARTERIO-SCLEROTIC heart disease is the most common cause among older people of heart muscle damage, with its subsequent weakness of the heart. In this condition, the arteries which supply blood to the heart gradually become sclerotic (hardened), narrow and inelastic. Some of them close off by becoming narrower and narrower until the walls come together. The areas of heart muscle formerly supplied by these now closed-off blood vessels are without nourishment, and soon degenerate. Scar tissue replaces the degenerated portions and the heart muscle is weakened. If so much muscle is destroyed that the remainder is too weak to pump an adequate amount of blood for the body's needs, heart failure begins.

Sometimes the coronary artery, a very large blood vessel which carries blood to the heart, suddenly becomes blocked by a blood-clot within its walls. In this condition, there may be a sudden extensive destruction of so great an area of heart muscle that the heart never has a chance to heal. Heart failure may occur rapidly and cause death.

Early diagnosis of heart failure is important because it permits early treatment. Today, the early diagnosis is not always made. Careful, thorough, unhurried examination of the patient, including a trial exercise test, an x-ray of the chest and an electrocardiogram, is only for the well-to-do who can afford to pay for the physician's time and for laboratory tests.

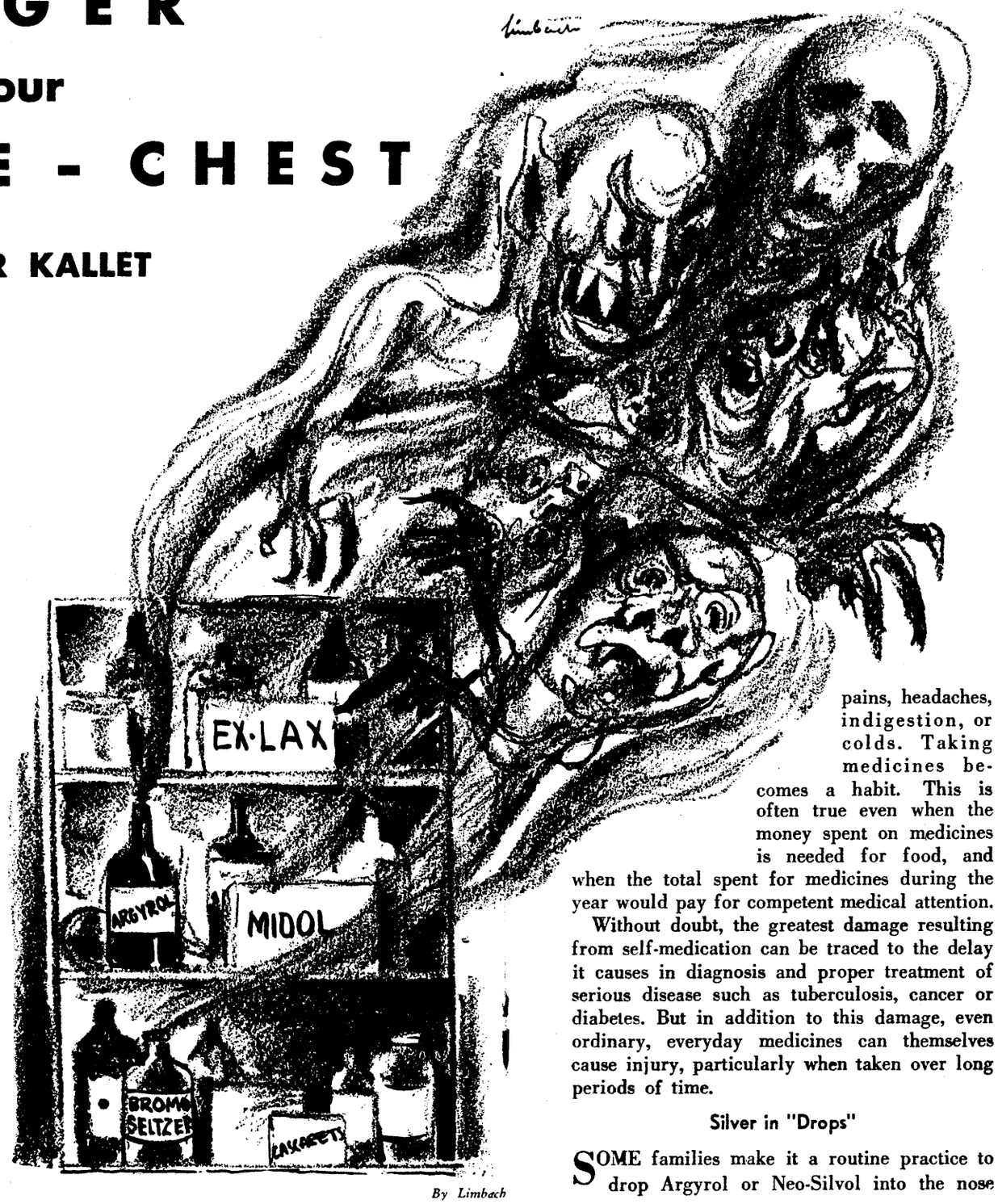
Even if the poor patient is fortunate enough to have his disease diagnosed in its early stages, the treatment required is not possible for an individual who must continue to carry on hard work in order to earn his living. Under a socialized system, all diseases would be recognized and treated in their early stages.

Rest is the chief remedy in the treatment of heart failure. Rest reduces the work of the heart; it gives the heart muscle a chance to heal. The heart beats constantly day and night. Its only chance to rest is between beats. Since the heart beats more slowly when the body is at rest, the opportunity for recovery is greatest when the amount of rest is greatest.

Although heart failure is a condition which requires that the sufferer live a careful life according to the directions of his physician, with adequate rest, good food and reasonable freedom from worry, anxiety and undue excitement, it has been shown through extensive studies that individuals suffering from this disease may outlive their fellow men with normal hearts—if they are able to receive the proper care.

DANGER in your MEDICINE - CHEST

By ARTHUR KALLET



By Limbach

WHEN THE average worker, employed or unemployed, gets sick, he can't afford such "luxuries" as competent medical care. Instead, he pours some kind of drug or medicine into his body, or rubs something on his body, and feels that he has done the best he could.

Perhaps he bought the medicine or ointment after reading an advertisement in a newspaper, forgetting—as no worker should ever forget—that the medicine manufacturers, the advertising agencies, and the newspaper publishers will gladly persuade him to buy worthless, dangerous, even deadly drugs, if money can be made out of such sales.

Hundreds of thousands of Americans are persuaded by clever advertising to take Grove's Laxative Bromo-Quinine for their colds. This nostrum is advertised as "utterly harmless and perfectly safe to take." Yet it contains the drug *acetanilid*, which has been responsible for many deaths.

But advertising is by no means the only cause of unwise self-medication. You have a pain in your shoulder? Your neighbor remembers that he has a medicine his doctor gave him for a pain in his back, and he urges you to try it. Or you continue to use, month after month, a medicine prescribed by your doctor for a particular illness a year ago, and you are sure your present trouble is the same thing.

It is comforting to take medicines when you are sick. It gives you a feeling that you are doing something, at least, to fight the illness. And if you are one of the millions who are overworked, or undernourished, or forced to live under unhealthful conditions, you always have pains, headaches, indigestion, or colds. Taking medicines becomes a habit. This is often true even when the money spent on medicines is needed for food, and when the total spent for medicines during the year would pay for competent medical attention.

Without doubt, the greatest damage resulting from self-medication can be traced to the delay it causes in diagnosis and proper treatment of serious disease such as tuberculosis, cancer or diabetes. But in addition to this damage, even ordinary, everyday medicines can themselves cause injury, particularly when taken over long periods of time.

Silver in "Drops"

SOME families make it a routine practice to drop Argyrol or Neo-Silvol into the nose of any member who develops a cold or even the suggestion of a cold. In most cases, perhaps, no serious harm is done. But Argyrol and Neo-Silvol are compounds containing silver, and some of the silver may be deposited in the skin. If enough is deposited during the course of a year, or in five or ten years, a condition called *argyria* develops. Just as the silver in photographic film darkens when exposed to light, so the silver deposited in the skin darkens when it is exposed to light.

Dr. L. Edward Gaul and Dr. A. H. Staud, writing in a recent issue of the *Journal* of the American Medical Association, warned physicians about the dangers of silver compounds. ". . . . Within the past year," they said, "following intranasal applications with Argyrol and Neo-Silvol in fifteen children under 10 years of age, an *argyrosis* developed. Ten of these fifteen children were girls. All of these children will present throughout their lives a conspicuous and permanent bluish or slate-gray discoloration that will select them as objects of whispered comments by friends and strangers. At present there is no treatment for *argyria*."

Just as Argyrol has become a routine treatment for colds in many families, so amidopyrine has become a routine treatment for headaches and other pains. Amidopyrine, usually sold as Pyramidon, has been increasingly used during recent years. It was considered one of the least injurious of the pain relieving drugs.

A few years ago, it was discovered that amidopyrine causes, in some persons, a strange and often fatal blood ailment characterized by a sharp decline in the number of white corpuscles in the blood. The doctors and the manufacturers are aware of the danger, but the sale of amidopyrine still goes on. Thousands of women take this dangerous drug without knowing it in Midol, which is widely advertised and sold for the relief of menstruation pains.

Probably no drug used for the relief of headaches and pains is entirely safe. Acetanilid, an ingredient of Bromo-Seltzer, Dr. Miles' Anti-Pain Pills, Antikamnia Tablets, the previously mentioned Bromo-Quinine, and numerous other drug store remedies, are to some persons deadly drugs, and they may be injurious to anyone who takes them constantly, as so many do.

Another drug in this same class is acetphenetidin, which is also present in many headache remedies, such as Anacin and Kohler's Antidote.

True, the Federal Food and Drugs Law does require a statement of the presence of these ingredients on the labels of medicine containing them, but it does not require a statement that they are poisons—which few know.

Aspirin and Laxatives

THE SAFEST of the drugs valuable for the relief of pain is aspirin, but even this must be used with caution. Taken excessively, it can be injurious to many persons. Some are especially sensitive to aspirin and can be made seriously, even fatally, ill from small doses. Certainly no one should take aspirin constantly in large doses, as so many do. Even if serious injury does not result immediately, there is no assurance that irreparable damage will not be done during a period of years. Many take aspirin, without knowing it is present, in such advertised remedies as B. C. Salicon, and Alka-Seltzer.

Another drug used for the relief of pain in arthritis and rheumatism is cinchophen, often sold under the trade name Atophan. Cinchophen can cause serious and sometimes fatal disease of the liver. Drugs such as this are often prescribed by physicians for a particular ailment, or for limited use. But because they are effective in relieving pain, people continue to use them for every new pain, often with serious consequences.

Even common laxatives cannot be used without caution, and this is true even of that safest of laxatives—mineral oil. When mineral oil is taken while there is still undigested food in the stomach, it can interfere with digestion, besides dissolving and carrying off the fat-soluble vitamin A.

One of the most widely used laxative drugs is phenolphthalein, the active ingredient of Ex-Lax, Feen-a-Mint, Cascarets, and innumerable other laxatives, many of which are advertised and sold especially for children.

Phenolphthalein is a poison which at the best is irritating to the intestines and kidneys, and at the worst can cause serious illness to those who happen to be especially sensitive.

It cannot be too strongly emphasized that it is unwise to take, habitually, any kind of medicine into the body, no matter how simple or harmless it may appear. Many persons constantly take bicarbonate of soda, or milk of magnesia, to combat what they believe is "acid stomach." But since the stomach is normally slightly acid, and must be so to function properly, these remedies can seriously interfere with digestion instead of aiding it.

Mineral Oil

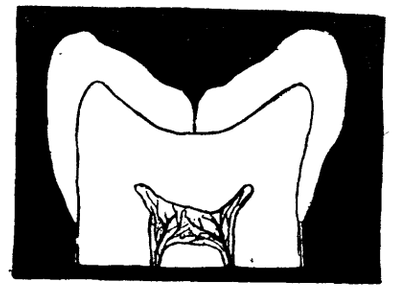
SOME drugs, like amidopyrine, are for years considered safe even by doctors. Then it may be discovered that their use is hazardous. Gradually knowledge of the hazard filters into the medical profession, but still the drugs continue to be advertised and used in the home without medical advice.

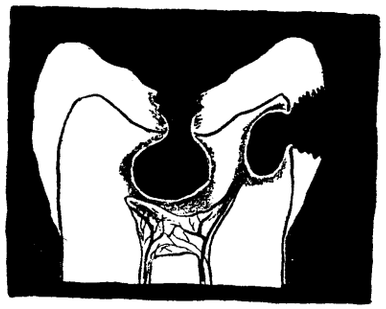
Probably no medical product has been considered safer than mineral oil. Many mineral oil products, such as Mistol, are advertised and sold as cold cures to be dropped into the nose. Doctors often tell parents to use mineral oil to relieve irritation in their children's noses when they have a cold. But some few doctors have found, during the past several years, that mineral oil dropped into the nose can do serious damage to the lungs. Oil, such as mineral oil or cod-liver oil, sometimes gets into children's lungs when it is given them by mouth and they resist swallowing it.

According to scientific reports, a physician of Bellevue Hospital, New York, has reported that both mineral oils and animal oils, drawn into the lungs in small quantities, can cause pneumonia. He told of six fatal cases. "The report received vigorous support among the 500 pathologists and bacteriologists before whom it was read," said the *New York Times*. But the mineral oil cold remedies will continue to be sold.

These few examples are not exceptional. Almost every type of drug is potentially hazardous, especially when used over extended periods. When drugs are taken on the advice of an advertiser, or a neighbor, or simply because they happen to be in the medicine-chest, their usefulness approaches the zero point; and their hazards, present even when drugs are prescribed by physicians, become serious.

WHY PULL TEETH?





Is it necessary in every case to extract teeth, or can they be retained? The dental surgeon who wrote this comprehensive article shows that teeth can often be saved. Clinics sometimes prefer extraction to save time.

TOOTH PULLING is perhaps one of the earliest surgical procedures practised by man. Evidence of the extraction of teeth has been found in skulls dating back to ancient, long-buried civilizations. Naturally, a vast mass of folk lore and mythology has arisen about this operation, much of which persists to the present day. It is the purpose of this article to discuss in as simple terms as possible the problem of tooth extraction, its indications and its effects.

The introduction of the x-ray marked a tremendous step forward in dental diagnosis. Some of the more important conditions revealed by dental x-ray are:

The extent of decay (caries) in the crown; hidden caries (decay); the amount of bone supporting the root; presence of embedded (impacted) teeth; presence of "dead" teeth (non-vital teeth); presence of areas of diseased bone, such as cysts; presence of fractures of the jawbone; presence of infection at the root ends of teeth; the shape and size of the roots of the teeth; and the relationship of the roots to the surrounding anatomic structures.

Because it is able to give so much valuable information, it is obvious that the x-ray is of indispensable aid in dental work.

The most common cause for the extraction of a tooth is decay. Decay spreads, if left untreated, until it invades the pulp. When this occurs, one of two things may transpire: either the pulp dies, and a chronic infection develops at the root-end; or an acute inflammation of the pulp sets in, which rapidly becomes an acute abscess. The typical cartoon of a man with his eye closed and a bandage around his head represents more or less accurately the latter condition.

When decay invades the pulp, then either the tooth must be extracted; or the decayed pulp must be removed and the root-canal filled. Unless the tooth is in the front, extraction is wiser. The extraction of a front tooth, however, is a serious loss from an esthetic point of view. If the patient is in good health, every effort should be made to retain the front teeth. Since root-canal filling is tedious, unprofitable work, most clinics will advise the extraction of front teeth of this type. Remember that no artificial substitute can approach the esthetic appearance of a natural front tooth. This is particularly true when one tooth is lost.

Pyorrhea Is Curable

THE SECOND most common cause of extraction is pyorrhea. Pyorrhea is a disease which does not attack the body of the tooth itself, but rather destroys the supporting structures of the teeth. The roots of all teeth are embedded in the jawbone. This part of the bone is known as the alveolar process. The root is attached to the bone by a delicate membrane known as the *pericementum*.

Rather than enter a detailed analysis of the cause of pyorrhea, which in truth has yet to be finally determined, suffice it to say that lack of oral hygiene is one of the most common contributory factors. The early manifestations of the disease are chronic inflammation of the gums, which tend to shrink away from the necks of the teeth; and heavy deposits of tartar. As the disease progresses, the attachment of the pericementum is destroyed, permitting organisms to penetrate to the deeper structure. The crest of the alveolar process is soon attacked, and absorption of this bone follows.

As the bone is absorbed, deep pockets are formed from which pus exudes freely under slight finger pressure. By this time, the teeth have loosened markedly. The breath is usually offensive.

One of the most widespread beliefs among laymen is that pyorrhea is an incurable disease. This is not true. If treated early enough, the progress of the disease can be definitely stopped, and the symptoms can be entirely eliminated. Here, too, treatment is tedious, painstaking work; and, in the clinics, the tendency is to order the extraction of these teeth—when all too often they might be saved. When the x-ray reveals that more than two-thirds of the alveolar process has been destroyed, treatment is rather hopeless; extraction, then, is often the wiser course. When, however, one-half or more of the process remains intact, extraction should absolutely not be allowed.

"Wisdom" Teeth

THE PROBLEM of keeping or extracting non-vital ("dead") teeth, is one which the dental profession has argued for many years. On one side are the men who advocate the removal of all non-vital teeth regardless of whether the x-ray shows evidence of disease or not. On the other side are those men who do not advise the extraction of these teeth under any circumstances unless they give rise to pain and discomfort. Both sides offer excellent arguments backed by case reports, which the scope of this article doesn't permit us to enter.

The procedure of the majority of men is to remove these teeth when the x-ray reveals definite evidence of disease at their root-ends, and to retain them if the x-ray appearance is normal. The exception to this rule is generally observed when *focal infection* is suspected.

Focal infection means a source of infectious material in the body which feeds organisms directly into the blood-stream. These organisms are carried by the blood to remote parts of the body, where they may settle and produce lesions. Non-vital teeth may act as such sources of infection, even if their appearance in the x-ray is quite innocent. In cases, therefore, where focal infection is suspected of causing an arthritis, iritis or other serious bodily ailment, extraction of all non-vital teeth is considered wise.

It is necessary, also, to consider briefly at this point the problem of the third molar, or "wisdom" tooth. This tooth normally erupts between the ages of 17 and 21. Since the jaw of modern man is only rarely large enough to accommodate fully 32 teeth, it is quite common to find the "wisdom" tooth either completely embedded in bone or, at best, only partially erupted. A third molar which is completely unerupted is less a potential menace to health than is the partially-erupted one.

The partially-erupted third molar always has a soft tissue pocket about its circumference. Food and bacteria readily lodge in these pockets, where ideal conditions for growth of germs exist, namely: food, warmth and darkness. Because of the intimate anatomic relationship of these teeth to the soft tissues of the throat and neck, acute infections arising from these pockets may be very severe.

It is a fairly safe statement to assert categorically that the most dangerous infections in the mouth arise from the partially-erupted lower third molars. In view of these facts, the early removal of third molars, which due to anatomic limitations cannot possibly erupt normally, is strongly advised. It is foolhardy to wait until acute infections set in.

Novocaine and "Gas"

WE SHALL touch but lightly on the subject of anesthesia. The two most commonly used anesthetics among dentists are novocaine for local anesthesia, and nitrous-oxide and oxygen ("Gas") for general anesthesia. Both have their time and place in dental surgery.

When properly used, both are splendid anesthetic agents which should completely do away with all pain from the dental operation. In these days of great mental and physical strain among the mass of the people, resulting from the intense daily struggle for existence, general anesthesia is often the anesthetic of choice. Under general anesthesia, the cooperation of the patient is not needed, and psychic shock to an already overwrought nervous system is avoided.

For some reason which is difficult to explain, the average person grossly under-estimates the seriousness of the extraction of teeth. The removal of a tooth is a surgical procedure, and is fraught with all the dangers incident to any surgery. Post-extraction complications are not at all uncommon, and are often serious. We can divide the effects of extraction into three divisions.

First, we have the uncomplicated rapid recovery. The socket fills with a healthy blood-clot, and nature rapidly repairs the wound—filling in the socket with new bone. This is the ideal result, and the dental surgeon always seeks to secure this result.

Next, we have the minor complications which occur often. Chief among these is what is known as the "dry socket." In these cases, the blood clot breaks down; the socket is either filled with greenish dead tissue; or it is left quite empty, with its bare bone walls exposed to the secretions of the mouth.

A dry socket is probably the most painful condition observed in the mouth. We have seen powerfully built men, capable of withstanding severe pain, on the verge of tears because of a dry socket. It is the continuous, unremitting character of the pain which breaks down the strongest resistance. Dryness may be caused by several factors which cannot be entered into fully at this time. The treatment must be conservative, since any attempt at surgical intervention may lead to more serious complications. Soothing medicaments in the socket, along with the regular administration of drugs to still the pain during the acute painful stage, are very helpful.

Another minor complication, following extraction, is the throwing off of small pieces of the alveolar process, commonly called "shelling." Often, when removing a tooth, a small section of the process will break away from the body of the bone. If these sections are not removed at the time of the extraction, they will be thrown off by the body some two or three weeks following the extraction. During this "shelling" process, pus will be excreted from the wound. The pus will stop as soon as the shell comes away or is removed by the dentist.

More Serious Cases

FINALLY, we come to the more serious complications which are happily much less frequent. Bleeding of a more or less critical character may follow the extraction of a tooth. Because of the problem of reaching the spot, the interference from the saliva, and the sensitivity of the mouth tissues, controlling hemorrhages in the mouth is a difficult procedure. (In the presence of blood diseases, such as *hemophilia* or *leukemia*, the patient may bleed to death.) The patient with normal blood, however, will usually respond to proper treatment in a short time.

When bleeding is persistent and profuse, go to the dentist at once. Minor cases of bleeding in the mouth can be readily controlled by the patient himself. A large wad of gauze or cotton soaked in milk of magnesia, or in a solution of alum powder, should be placed directly over the bleeding area after the mouth has been rinsed with salt water. The jaws should then be brought firmly together, and this pressure should be maintained for from twenty to thirty minutes.

Never attempt to stop bleeding in the mouth by continually rinsing. This measure is totally ineffectual, merely washing away the clot which nature is attempting to organize.

Grave infections may follow tooth extractions. These cases are characterized by severe swelling and pain following the extraction. The symptoms do not abate within a few days, but become progressively worse. *Trismus*, or locking of the jaws, may follow. If the infection is pointing toward the throat, great pain may be experienced upon swallowing. The temperature mounts rapidly. These cases require prompt and adequate treatment by a competent oral surgeon. If the infection enters the body of the bone, "*osteomyelitis*," (inflammation of the bone-marrow), a very serious disease, develops. Osteomyelitis runs a long course, and usually results in marked deformities, if the patient recovers at all.

In conclusion, let us stress some of the more salient features of this article:

1. A tooth need not be removed when decay penetrates the pulp, particularly when esthetic considerations demands that it should be saved.

2. Pyorrhea, if treated early enough, *is definitely a curable disease.*

3. Partially erupted third molars should be removed if there is no hope for their normal eruption.

STERILITY—
CHILDLESS MARRIAGE

Why is it that some people simply cannot have children? What percentage of childless marriages can be made productive with proper treatment? Has diet any effect on sterility? The answers to these questions and others relevant to the subject are given below.

STERILITY may be defined as the inability to conceive or become pregnant. Sterility and infertility mean the same thing; they are the opposites of fertility. Men and women differ greatly in their degree of fertility. A couple may live together five or ten years before the first pregnancy occurs, although nothing is done to avoid it. The marriage of perfectly healthy individuals may be infertile; yet the re-marriage of each may result soon in the birth of a baby.

Some people ask: "How long a time should elapse before a marriage is to be considered infertile?" While no definite answer can be given, the old rule is generally applicable that the marriage of young people between the ages of 20 and 30 cannot be regarded as sterile until at least four years have elapsed. Where one or both partners are past thirty, however, childless couples should not delay seeking help. Fertility, that is the ability to conceive or become pregnant, declines with age.

In childless marriage, the causes of the trouble are seldom to be found in husband or wife alone. Both partners usually share the responsibility. Therefore, question of fault or blame should never enter into the matter. The first thing always to be kept in mind is the necessity for investigation of both husband and wife.

Human reproduction is a complex affair. For reproduction to take place, the man and woman must be in good general physical health, and must be adequately nourished. They should be comparatively free from stress. In both partners, there must be normal function of the endocrine glands. These glands of internal secretion produce powerful hormones which influence the generative tract. The sex glands (testicles in man, and ovaries in the woman), the thyroid and the pituitary are chiefly involved.

Reproduction further requires that the male produce an enormous number of sex cells or spermatozoa. These male sex cells must not only be produced in large quantities, but must be very active and of healthy form. No condition should exist in the male organ which, as the result of disease, keeps the spermatozoa from coming out, or blocks their passage.

In the female, ovulation (the casting off of an egg, or *ovum*) must occur. There should be no blockage of the passage of the egg into the tube where fertilization by the male cell takes place. The lower part of the generative tract of the female must be normal and healthy, so that the spermatozoa can pass into the uterus and enter the tube. This brief summary gives some idea of the extent of the problems involved where a couple does not have children. It indicates that hit-or-miss methods of treatment, before thorough investigation, are futile.

Examination of Male

A study of the husband is always necessary. It should be the absolute rule for the husband to be checked up before any elaborate procedures, especially of an operative nature, are considered for the wife. It is nothing less than criminal folly to operate on a supposedly sterile woman before determining the condition of the husband, for he may be utterly incapable of the capacity for reproduction.

Serious disorders in the generative organs are not common as a cause of sterility in men. The vast majority of infertile men are sterile not because of any local trouble, but rather because of general or constitutional causes. Thus we find the sterile man is often the victim of the stress and strain of modern economic life. His mental and physical condition may have been undermined by overwork or lack of work, by lack of adequate food, or through some occupational disease. Such a man may present evidence of anemia, marked under-weight, or nervous exhaustion.

Having determined that the husband is in good general physical health, he should next be examined, preferably by a doctor specializing in urology or genito-urinary conditions. Modern methods of investigation of the male partner include what is known as "appraisal of the male secretion or semen." The number of spermatozoa present in the semen are counted under a microscope, in a way similar to a blood count. In fertile individuals, over seventy million spermatozoa are usually found in a cubic centimeter of semen. However, a single count is by no means a reliable index of fertility; for there are no set limits as to the number of spermatozoa. Spermatozoa must also be studied as to the length of time they remain active. Lastly, the number of abnormal or defective forms of spermatozoa are studied. Often all that is required to improve the quality and quantity of the sperm is a period of rest and improvement in the general health.

In rare instances, no male cells at all, or very few, may be found in the semen. In these cases, sperm may be produced by the male sex glands —but their exit may be blocked as the result of previous disease, such as gonorrhea. In case of blockage it is sometimes possible to effect a cure by operation.

The impotent man is not necessarily sterile. Impotence is incapacity for the *act* of intercourse; it must be distinguished from sterility, which is an incapacity for reproduction.

Wife's Examination

HERE again it should be borne in mind that severe local defects in the organs of generation are rare as a cause of sterility. Most generally, many little causes are the explanation. Examination of the female partner begins with a general physical survey to rule out conditions of chronic ill health which affect fertility. As in the male, inadequate nutrition, either marked under-weight or over-weight, anemia, nervous strain, overwork and economic stress play a role.

An adequate diet, especially as regards the vitamin content, is not only essential to health and growth but also to reproduction. Lack of vitamin A causes failure of reproduction through interference with ovulation or the casting off of the egg by the ovary. Even though ovulation occurs, inadequate vitamin A hinders fertilization or the union of the male and female cell. Should fertilization occur, implantation or the bedding of the fertilized egg in the lining of the uterus or womb is hindered.

Since cream, butter, eggs, fresh vagetables, fruit and liver cannot be bought on starvation wages, we find even the problem of human fertility directly affected by an economic system which deprives most of us of essential food which should be available to all in abundance.

Certain disorders of the glands of internal secretion interfere with reproduction. The thyroid, the pituitary and the ovaries are the endocrine glands chiefly involved here. There may be over-activity, or under-activity, or the glands may not be working in balance. Menstruation may be absent for long periods; it may be irregular, scanty or delayed; or menstruation may be too profuse. Women who menstruate normally usually have a high degree of fertility.

Gland Trouble

CERTAIN types of women may be readily recognized as suffering from glandular disorders. The so-called subfeminine or infantile type of woman shows a lack of development of the pelvic organs at puberty. Menstruation is either absent or scanty, and the ovaries probably throw off eggs infrequently.

Then there is the masculine type of woman, with heavy bones and a male distribution of hair. The pituitary gland is generally involved in this type. Many cases of women who are too fat and suffering from sterility are of glandular origin.

While much has been learned in recent years concerning the function of the endocrine glands, and some of the secretions or hormones have been isolated in pure form, medicine is still just at the beginning of an understanding of this subject. Hand in hand with this increase in knowledge has gone the commercial exploitation of glandular products. Many such products given by mouth have no action at all and are therefore *worthless*. Even when given by injection, their validity is questionable. It may be said that in most instances gland injections for sterility are useless. Indeed some of them given without adequate study of the patient may be harmful. At the present time, endocrine disturbances

are best treated by general hygienic measures, such as exercise and diet. Usually, in sterility study, a basal metabolism test is done to determine the rate at which the body burns up fuel. Where the rate is low, thyroid substance which is active may be given by the doctor.

Blocked Tubes

THE most important disorder of the pelvic organs in women causing sterility involves the tubes. The fallopian tubes, or oviducts, may be partially or totally blocked on both sides. The two chief causes of inflammation damaging the tubes are gonorrhea and abortion. Inflammation of the tubes, known as *salpingitis,* does not always permanently seal off the tubes; sometimes, complete recovery takes place.

There are two methods generally used to determine the condition of the tubes. One method, known as the Rubin test, consists of the use of gas injected into the uterus. If the tubes are open, the gas will pass through at a certain pressure. Another method is to inject oil opaque to x-rays into the uterus, visualizing the condition of the tubes. These tests, which are primarily used for diagnosis, sometimes have a curative effect on the tubes. If, after several tests, the tubes are found to be permanently closed—operation may be considered, but success is very dubious.

There are, of course, many other causes of sterility beside those mentioned above, but they are less common. Fibroid tumors occasionally cause sterility. Large doses of x-ray or radium will lead to sterility. So-called displacement of the uterus or womb—known as tipped womb—does not prevent pregnancy.

From 25 to 50 percent of childless marriages can be treated successfully. Good results, however, require the help of a specialist or a women's clinic with a special sterility department. Obviously, the cooperation of many departments of modern medicine are required, such as the gynecologist, the metabolism clinic, the laboratory, and the x-ray department.

As a method of last resort, artificial insemination may be considered in sterility. Semen is introduced into the uterus by a syringe. In cases where the husband is incurable, some couples may prefer having a child by the introduction of semen from a suitable source, rather than adopting a baby. While this method has been successfully used in animal breeding, the results in human beings are uncertain and would hardly seem likely to enjoy much popularity.

VACCINES and SERUMS

WHAT ARE vaccines? What use is made of them? How do they help control communicable diseases? How do they differ from serums?

These are the questions which people often ask. Seldom do they receive adequate answers. There are, perhaps, two main reasons why this phase of immunity is so little understood. First, because persons on whose word many laymen depend for sources of information make such ambiguous remarks as: "Vaccines are poisons which are given to counteract other poisons." Such statements are as unfortunate as they are misleading. Second, the terms *vaccine* and *serum* are used interchangeably, and nothing so confuses the understanding of a subject as wrong usage of its terms.

It is not only non-medical people who use these terms loosely. One often hears practicing physicians speak of a cold "serum." Recently a state health officer was addressing a health committee and spoke of sending typhoid "serum" to victims of a flood district. Of course, both of these immunizing agents are vaccines, not serums.

The first thought to straighten out is the difference between a vaccine and a serum. A vaccine is given *to prevent* a disease, or to make a disease *less severe* once it has started. A vaccine consists of germs or their poisons (toxins), and does not contain any animal products. A serum,

Immunization and Prevention

Vaccines and serums have saved many lives. Some opposition to vaccination still remains in various communities. The author of the two articles on the subject explains clearly this phase of disease prevention. The second article will be printed in the next issue.

however, is given as a rule *to help cure* the disease. A serum is obtained from the blood of an animal or from the blood of a human being.

Vaccines cause the body to manufacture protective substances, called antibodies. No one knows what antibodies are except that they work against disease germs and that, if we have enough of them for specific germs, we will not "take" that disease.

Serums have the antibodies already in them when they are given to the sick person. They are given to the patient after the disease develops because he needs quick help to fight the germs. He hasn't time to manufacture enough antibodies himself, so they must be supplied from the blood of another animal.

Why is it then, it might be asked, that in injecting vaccines (germs or their toxins) into our bodies, we do not come down with the disease itself instead of becoming immunized to it? The reason is that the germs are killed or weakened, so that they cannot multiply in the body. When they cannot grow, they cannot bring about infection or disease. When the vaccine is made from a toxin instead of the germs, the toxin too is weakened so that it cannot cause symptoms of the disease.

For instance: typhoid vaccine is made from actual typhoid germs, grown in a laboratory in test tubes, then killed by heat. The physician injects them into the arm of the patient. The presence of these dead typhoid germs in some way stimulates certain tissues of that patient to begin manufacturing antibodies against living typhoid germs as well as against the dead ones. Should some living typhoid germs get into the body of the patient after the antibodies have developed, these antibodies will kill the germs and keep them from growing—thus preventing typhoid fever.

Whooping cough vaccine is made in practically the same way. To date, this vaccine has not been 100 per cent preventative; where it does not prevent the disease, it lessens its severity, especially in young babies. In many cases, however, complete prevention is effected. In many cases, giving the vaccine after the whooping cough develops, helps the body in overcoming the infection and relieves the severity of the disease.

Preventing Smallpox

SMALL POX vaccine is made quite differently. The principle, however, is the same. The germ which causes this infection is called a filterable virus. This means it is so small that it passes through the finest filter (a filter is like a sieve, only it has a mesh many times finer) and cannot be seen with the most powerful microscope. In making vaccines from these viruses they, too, are weakened so that they will not produce smallpox when injected into the human body.

The process of weakening smallpox virus depends on a very interesting fact. When germs are grown in the body of one species of animal, they are made stronger for that species but weakened for others. In this case, the weakening process is brought about by growing the virus in the skin of a calf.

There is, perhaps, another reason why smallpox vaccine does not give the disease to human beings. It is thought by some medical authorities that the virus which grows in the skin of the calf is not a human pox virus, but a bovine one. In that case humans do not "catch" smallpox from the vaccine because it really is a cowpox virus. However, its presence in the human body stimulates the latter to manufacture antibodies which will protect against smallpox because the two viruses are so closely related.

Perhaps this explains why vaccination against this disease does not always produce immunity for life, while a real case of smallpox does act as a preventive for life nearly always. If a child is vaccinated before he (or she) is 1 year old, again before he starts to school, and a third time when he is about 12 years of age, life immunity can usually be expected. To be safe, even then, it is best to revaccinate every time a case of the disease appears in the community or when one travels.

The vaccine for diphtheria does not contain a single germ dead or alive. It is made of the poison or toxin which has been secreted by the diphtheria germs (grown in a laboratory) and to which has been added a chemical which kills the poison portion of the toxin. Toxin which has had its poison portion destroyed is called a *toxoid*. The toxoid stimulates the body tissues to manufacture antibodies against the true toxin and, at the same time, it does no harm itself.

When diphtheria vaccine was first made, the poison was neutralized by adding some antibodies from the horse. These antibodies, because they work against the toxin, are called antitoxins. Such a mixture is known as *toxin-antitoxin*. It is still used in some instances, especially in older people, but the toxoid is rapidly taking its place. One of the advantages of toxoid over the toxin-antitoxin mixture is that only one injection of the toxoid is necessary for immunization, while three injections of the toxin-antitoxin mixture must be given. Another advantage, the reason for which is explained below, is that toxoid does not contain animal serum.

There are two types of vaccine for scarlet fever. One is a toxin which has been partially changed into a toxoid, and the other is the same thing with scarlet fever germs (killed) added. Scarlet fever vaccine has not been as effective as diphtheria vaccine has. In the first place, it is too toxic to be given in a single dose. Most children cannot tolerate it in three doses. Many physicians are finding that if they break the course of injections up into five, seven or even nine doses the child has no bad reaction from the toxin and develops immunity quite rapidly.

Cold "Vaccine"

THE TERM "cold vaccine" is misnamed. As far as is known, it contains neither the germs which cause a cold, nor a toxin from these germs.

The true cold—the condition which begins with a running nose and eyes, sneezing, and numerous general conditions such as aches and pains in the joints, etc.—is now known to be caused by a germ which, like that in smallpox, is a filterable virus. So far, the manufacture of an effective vaccine from this virus is still in the experimental stage.

However, it has been known for some time that colds pass through two stages. After the sneezy, nose-running stage is passed, there develops thick yellowish or whitish secretion which is hawked down from the head or up from the chest. This material is usually teeming with germs which are normally found on the skin, in the mouth and on the mucous membranes generally. But these germs do no harm until something breaks the skin or mucous membranes, or lowers their vitality.

Apparently, after the cold virus weakens the mucous membranes, the secondary invaders—as these ever-present germs are sometimes called—start growing rapidly and cause such infections as "cold in the head," "cold on the lungs," sinus infection, mastoid and sometimes meningitis.

Cold vaccines, such as are available today, are made of these secondary invading germs which, also, have been killed by heat. While they do not prevent the beginning of a true cold, they do in many cases prevent that second stage which seems to do most of the real damage.

Individuals vary a great deal in regard to being helped by cold vaccines. Those who are helped, vary as to the number of times they find it necessary to take this preventive during the winter in order that a cold should not develop. Some people can take a few injections of the vaccine in the fall, and not have a cold all winter. Others have to take them every month in order to get help. The latter condition seems to exist particularly with persons who suffer from sinusitis.

Vaccines for Boils

THERE ARE two kinds of vaccines for boils. These are called *stock* and *autogenous*. Like the second stage of colds, boils are also caused by germs that normally remain on the skin and cause no harm until something happens to lower the resistance of the skin.

In making stock vaccine for boils, the germs are grown in the laboratory and killed by heat. When the stock vaccine does not clear up the infection, the physician, sometimes, has an autogenous vaccine made. This requires opening one of the boils and taking out some of the pus in which there are live germs. The pus is taken to the laboratory, and from it a pure culture of germs is grown, killed by heat, and then injected back into the patient from which the pus came.

One might ask why the vaccine in these cases cause the patient to manufacture antibodies while the living germs in the boil do not. The explanations given by those who have studied immunity is that the germs in the boil remain in one local area, and do not come in contact with those tissues which manufacture the antibodies. The dead ones, injected artificially, have a chance to be absorbed, and reach those tissues which produce the protective substances.

Above, the statement was made that vaccines are given to *prevent* a disease while serums are given after the disease develops in order to help cure it. Giving vaccines for boils after they start forming may seem to be inconsistent with this former statement, but in reality it is not. Boils usually come in a series. One or two will develop at a time, reach a crisis then subside—and others arise. The vaccine is thought not to cure the ones already developed, but prevents the forming of new ones. In this sense, this type of vaccine is a preventive.

For Rabies

RABIES or hydrophobia is another type of disease for which the vaccine is given after the infection has begun. However, it, too, is a preventive—not a cure.

When a person is bitten by a rabid animal, the virus is deposited from the saliva of the animal into the open wound. The germs (these, too, are filterable viruses) attach themselves to the small nerves, and make their way slowly toward the brain or spinal cord. Once they reach these centers of the nervous system, the patient dies. The prevention lies in starting the vaccine as soon after the bite occurs, in order that the body can begin immediately to manufacture antibodies. In other words, it is a race: between the virus reaching the brain or spinal cord by way of the nerves, and the formation of sufficient amount of antibodies to stop the virus by killing it. This vaccine is called the Pasteur treatment, because Louis Pasteur was the first person to immunize a human being successfully against rabies.

Rabies vaccine is made by giving the infection to rabbits, then killing the latter, removing their spinal cords, and drying them varying lengths of time in order to kill or weaken the rabies germs. Giving the vaccine requires from fourteen to twenty-five injections. The first injections contain cords which have been dried long enough to kill all the viruses. As the injections progress, less and less weak germs are given. This procedure stimulates the body to produce stronger and stronger protective substances.

Except in instances where the bite has been on the face near the eyes, or, in instances when the immunizations are not begun immediately following the bite, the vaccine is a successful preventive. It should always be given where there is any doubt as to whether the biting animal was mad.

There are other vaccines which are given to prevent other infectious diseases, but the ones mentioned above are the most commonly used in this country. There are also the vaccines for sensitization to certain plant and animal proteins not in the form of germs. Included in this group of ailments are hay fever, asthma, food idiosyncrasies, animal hair and dandruff sensitization. But their story is one by itself and cannot be told here. (An article on these allergic ailments and their prevention and cure was printed in the July issue of HEALTH AND HYGIENE.)

Health Advice by the M. A. B.

Spastic Paralysis

I.

Chicago

To the Medical Advisory Board: I should be very much obliged if you informed me with regard to the following: Is there any place in the world where persons with spastic paralysis can be materially helped? The Soviet Union? Berlin? Vienna? I have been to the —— Hospital in this city many times, but they have not aided me in the least.

Because of my disabilities, I am unable to adjust myself in this country. I have become very neurotic, and am losing my health and mental balance. Therefore, as I have said above, I would be glad if you would advise me.

T. F.

II.

T. F.—Spastic paralysis may be a symptom of various diseases of the brain or spine. We assume that your condition has been present from infancy. If this is true, you can be greatly helped at a clinic which treats just this type of condition. Such a clinic is conducted by Dr. ———— at the Institute in your city. We note that you have been treated at that Institute, but you do not say whether at that particular clinic, which has been functioning only recently.

If, however, your condition has not been present since early infancy, the problem is an entirely different one. Please send us details of your illness, in that case. So far as we know, foreign clinics do not offer any treatment which cannot obtained here.

By all means, try to interest yourself in some form of occupation. Perhaps you have heard of these very numerous cases of disability much worse than your own, where the patient has become proficient in some occupation and has made an excellent adjustment. Do you read revolutionary literature? Have you tried your hand at writing anything? Wood-carving, rug-weaving, and various other crafts might be suitable for you.

III.

Chicago

To the Medical Advisory Board: I received your letter and was very glad to hear from you. I say this despite the fact that your letter answered none of my problems. I am sorry that I didn't give you more details. I take this opportunity to do so.

You quite correctly surmised that my case of spastic paralysis was a result of birth injury. I am surprised that you suggested Dr. ————'s treatments. Perhaps you may change your suggestion after you have read the details of my case and my objection to the treatments.

I am 24 and have two degrees from ———— University, an A.B. and an M.A. I can get around town as well as anyone, although I do not walk normally. I can speak almost normally when not *excited*. However, my hands and arms are very disconcerting. When excited, they definitely get into my way. I can't eat; I can't do anything. When not excited, they carry me through. I can typewrite; I have run various simple machines. But I can't get a job because people don't think I can do anything.

It would seem that the best remedy for my condition would be to minimize the times in which I get excited. Moreover, I only become excited just when I shouldn't. This makes relationships with people difficult. Obviously, excitement or nervousness depends on confidence, one's position in society. Dr. ————'s method of treatment teaches one to do things when one is relaxed. It does not create objective or subjective conditions in which one is always relaxed. Certainly in my case, there is no success like success.

Dr. ————'s preachments of having the will to overcome difficulties is like Hoover's "confidence" statements. This is especially true if the difficulties to be overcome lie outside one's self. For example: although I have the educational requirements to apply for many civil service positions and fill them competently, I am not even considered for the position. This reduces one to a feeling of frustration. It does not matter how competent I am, I have but one choice: to sit home and sponge. Dr. ———— can't help me feel that life is worth living; he can't help me acquire a feeling of confidence and contentment as long as I have no chance of leading an integrated life. This is why I am looking, and will continue to look, for help that lies outside of myself.

I must ask you to forgive the length of this letter. If understanding my situation will help you suggest something more portent, I trust you will forgive it.

T. F.

IV.

T. F.—From the contents of your letter, it would almost seem that you are faced, essentially, with two or more distinct problems, although we must hasten to add that these problems do not exist as separate entities, but rather are interrelated and dovetailed. For instance, you have spastic paralysis; but, in addition to this, the result of an unfortunate birth experience, you also have a certain psychological or, better still, emotional reaction to this organic process. And it seems to us that the focal point of your present problem is precisely this reaction to your situation. This is a striking example of an old medical postulate—namely, that one does not treat diseases; one must treat sick human beings—a complicated problem since the human being is a complex structure. Throughout your life, no doubt, you have had to face this vexing problem of adaptation, and it was bound to have had some influence on your emotional conditioning, on your attitude toward society and toward yourself.

We grant you, and agree with you most heartily that the vicious social order in which we live is largely responsible for this, and that another society would have known better what to do about your problem. But here, too, let us point out that there is again involved an interaction—in this case, between you as an individual and your environment. Even in the most normal developmental process, conflict always arises between these two opposing forces—the individual must learn to adapt himself accordingly.

This does not necessarily imply a fatalistic, bloodless and spineless resignation which can only terminate in emptiness, the Nirvana of Middle-Age Scholasticism. It can also lead one to a realization that there is work to be done, important and vital work—both with oneself and with the environment. In such situations both must be changed. The individual must learn that his own reaction to his milieu, both internal and external, is unsatisfactory and at the same time recognize the fact that he can find ways and means of altering his environment so that a greater degree of compatibility exists between the two forces involved.

One should not sit back and wish, wasting a lot of useful aggressiveness hating himself, society and his "Fate." One can learn, with help, that this very aggressiveness, this driving, dynamic force, which is being dissipated in an unwholesome manner, can be turned into productive channels, for the common benefit of both the individual and society.

With proper and sensible assistance, we feel that you can do this—you obviously have the intelligence and, even more important, the will. It will require a lot of work and training to alter your attitude, change your conditioning and redirect it, improve your "*weltanschaung*" as it were. But it can be done, with effort on your part, plus satisfactory insight into the nature of your problem and also into that of society—the two are practically inseparable. You can get assistance in such matters from a skillful psychiatrist who will help you understand yourself and view yourself objectively. Go to such a person privately, if you can: if not, to a clinic. Between ourselves, not all the psychiatrists you will meet will view your problem in a sufficiently broad manner, but we feel assured that some will.

Negative Wassermann

Seattle

To the Medical Advisory Board: My wife gave birth seven weeks ago to a boy whose weight was 7 pounds, 12 ounces. It is her first baby.

Toward the end of her stay in the hospital, I was told that the baby had had a Wassermann test made at birth and that the test had shown *three plus*. The doctor ordered us to take a blood-test which was sent to the Board of Health. The result was negative for both of us. We have both had two tests, and all have been negative. We asked the doctor if it was possible for us not to have syphilis and the baby to have it. He said it was impossible.

Now, as to the circumstances of the case: I, the husband, am 5 feet 6 inches tall, weigh 148 pounds, and my age is 24. I have always felt fine physically, and also mentally, except when I think about our crazy economic and social system, and of the great contrast between what could be and what is. However, about four months ago I was operated on for a cyst, and stayed in the hospital eight days. Now the cut is practically all healed. I had a Wassermann test done at that time. It was supposedly negative, as nothing was said about it. I have never had any sign of syphilitic infection, and only had intercourse with women twice before I was married—and then not before three years ago. I have never been troubled with headaches, and have always felt well.

My wife, 22 years old, is not strong physically and has been troubled with headaches for some time. During the first months of pregnancy, her headaches were so bad that I had a doctor examine her. He found everything O.K., and even gave her a Wassermann test which came back negative. After this she had pre-natal care and felt fine almost throughout the entire nine months of pregnancy, better than she had ever felt before.

However, some years before we were married, my wife boarded at her sister's house. Her brother-in-law since then was found to be syphilitic. While there, he broke out with what later was known to be a syphilitic infection on his arm. He went to a doctor who lanced it and did not give him a Wassermann test. About a year later, because of his queer action, his wife had him examined. A Wassermann test was made which showed *four plus*. He was found to have general paresis, took malaria treatment, and is now home and receiving injections.

Now the question is whether my wife contracted a syphilitic infection at her sister's home? Her sister and four children have had Wassermann tests taken in the last few years and all were negative. Her sister is 34; the ages of her children are from 3 to 13. Her husband did not get his infection until about eighteen years after he believes he contracted the disease. He is married sixteen years, and claims he did not have outside intercourse in that time. His wife reports for a Wassermann every six months, and they have always been negative so far.

Do you believe:

1. That my wife was infected by her brother-in-law while eating in the same house and sitting on the same toilet bowl?

2. That I might be a syphilitic, although I could not have been infected before three years ago, and the child is alive and apparently healthy, and I have had two negative Wassermanns.

3. That my wife's sister and children are infected and that it will show up in time?

Additional information is that all of our parents are alive, past 50 and in good health, our grandparents lived past 60, that our brothers and sisters have never shown signs of being infected.

The Answer

J. K.—A negative Wassermann test does not absolutely rule out syphilis. If a new-born child has syphilis, the mother in all probability has it too, despite a negative Wassermann test. There are quiescent (quiet) cases of syphilis in which, for a variable period, no signs or symptoms of the disease present themselves. We are not in a position to decide the original source of the infection in your family.

We suggest the following: 1. You, your wife and child should place yourselves under the observation and care of a competent syphilologist (specialist in syphilis) or a syphilis clinic. 2. The Wassermann test should be repeated on all of you. 3. If you and your wife are still negative, a special fluid test should be done. 4. Treatment of your child, your wife and possibly you will have to be decided on and managed by the syphilologist. 5. Attend to these things immediately.

Letters to the Editor

Complaint

New York

TO THE EDITOR: I am a regular reader of your fine magazine and consider it to be one of the best health magazines on the market today. But I find one fault with it. That is that you published in your August issues two advertisements that seem to me uncalled for in your magazine.

One of them is the one on electrolysis; the other reads "Drink Gold Brand Matte." They are respectively on pages 31 and 35.

Have you by any chance investigated these two advertisements? If so I would like to know. Your magazine takes the stand of being against any and all patent medicines. Now I want to know why you published these two advertisements.

PETER A.

Explanation

PETER A.—We believe that our acceptance of an ad for electrolysis is justified by the facts. Electrolysis is one of the best ways of removing superfluous hair. Of course it must be done by a competent person, or scarring will result. It is also true that removing one hair does not prevent one next to it from growing. Yet this is a legitimate method, and we can see no reason why we should not advertise it. Your criticism would be justified if we accepted an ad for x-ray treatment of superfluous hair, which we have denounced as dangerous and to be strictly avoided.

On the subject of Matte, you are entirely right. There is no excuse for an ad of this sort. Matte, or Paraguay Tea, is a beverage closely resembling tea. It contains caffein and tannin. A drink prepared from it has all the faults and merits of tea. It has no advantages over it. It is misleading to state, as our ad did, that "it supplies vitamins and minerals to the body." The drink made from it may contain a little minerals and a minute amount of vitamin C, but the amount is so small that anyone depending only on Matte for vitamin C would suffer from scurvy, the disease caused by vitamin C deficiency. We should get vitamin C from fresh fruit and vegetables, not expect to get it from Matte.

For allowing such an ad to get into our magazine we can only blame our over-zealous advertising department and *our own failure to weed it out.* We will try to avoid such errors in the future. However, this should teach a valuable lesson. Don't believe *any* advertisement of a food or drug, regardless of where it appears. This applies to HEALTH AND HYGIENE or to the *Journal* of the American Medical Association.

The Article Is Ordered

The Bronx

TO THE EDITOR:—Is it possible to run an article in a forthcoming issue of HEALTH AND HYGIENE on food combinations? It seems to me to be of importance, since foods are chemicals ultimately and certain chemicals have no affinity for each other.

I should like to know about such combinations as orange with milk, carbohydrates with acid foods, etc. Isn't it possible that wrong combinations can cause irritations in the lining of the stomach and this, extended over a long period, may cause ulcers or cancers?

E. O.

One Says "No"

Brooklyn

TO THE EDITOR: I do not like the new design on HEALTH AND HYGIENE. I don't see why you wanted to improve on the old one. The design you had, before this new one, is more modern and attractive. However, if you expect to change your design, I recommend that your cover be modern above all things. The New Masses is a good example.

Your contents are fine—keep it up.

B. H.

Another Likes It

New York City

TO THE EDITOR: The cover on your magazine is excellent. I really think it is rather different, and more outstanding, than any magazine on the stands.

You mentioned in your magazine that any suggestions would be welcomed. I wonder whether the idea of showing a diagram of the human body would help the reader. Many parts of the anatomy are unfamiliar by name to the readers; an arrow pointing to the parts mentioned would help give us a better understanding.

I am enjoying the magazine immensely and hope it has a long life.

C. S.

C. S.—*We have some in this issue. Do they help?*—ED.

Novinger, Mo.

TO THE EDITOR: — Greetings! Please send me as many copies of HEALTH AND HYGIENE as this dollar will pay for.

Once we make people acquainted with it, the subscriptions will roll in. It is destined to play a large role in winning the petty bourgeoisie. It is the best ice breaker I ever saw. More power to it and its staff.

I. N. B.

From a Doctor

Syracuse

TO THE EDITOR: Your recent article on "The Doctor, the Patient and the Clinic" hits the nail on the head. I am one of the victims. Very good.

Dr. F. W. V.

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books wrapped in snow white paper covers. The books she brings are generally classics in literature.

"On the third day, before the patient checks out, one of the doctors lectures to the patients, on the inadvisability of abortions, the danger of frequent abortions, the necessity for women to have children; and, finally, he advises how to prevent pregnancy. He gives *concrete* advice on contraceptives.

"While I was there, forty operations were performed without a hitch. Just speak to any woman in the United States who had an abortion performed, then compare this description and you will be able to see how the Soviet Union takes care of us women." S. B.

Addressing the Readers

"We defend the Ethiopians against Italian fascist attack. We help the Chinese people in their fight for national liberation, in their battle against their Chinese oppressors as well as in their war against Japanese and other imperialists. We are for a free Cuba and for freedom of all colonies from imperialist domination. We help the American Negro people toward freedom from white imperialist rule and toward self-determination in the Black Belt. We consider any war against capitalist oppressors—whether internal or external—as a defensive war justifying the fullest support of the working class."

Two readers have challenged our minimal definition of defensive war, as stated editorially in the August issue of HEALTH AND HYGIENE. They have asked whether we would not accept the paragraph quoted above as an extension of our statement that the Soviet Union—as the only non-imperialist country—is the sole country that can wage a defensive war.

We meet the challenge by accepting that extended statement of the correct position of workers on the question of war. We must point out, however, that the editorial in our last issue was intended to state only the *minimal* position. Acceptance of the maximal position, we believe, was implicit in the entire tone of the editorial. The emphasis, clearly, was on the concluding statement, which read: "And to the imperialists we shall say: WE WILL FIGHT—*against your war,* not for it."

They Deserve Your Support

IN OUR July issue we spoke editorially on behalf of the locked-out workers of Beth Moses Hospital in Brooklyn and Lebanon Hospital in the Bronx. Since then, the more than 100 workers of Beth Moses Hospital have been reinstated. They won the first substantial victory in the country-wide movement toward the organization of hospital employees, including nurses, technicians, and maintenance workers.

The twenty-six locked out workers of Lebanon Hospital, however, are still out. Furthermore, they and their sympathizers are being terrorized through the cooperation of police and hospital officials. Only the backing of organized labor and the general public made possible the victory of the Beth Moses Hospital workers. Increased backing of a similar character will mean victory for the Lebanon Hospital workers too. We urge our readers to send protests to Lebanon Hospital, New York City; and to support the locked-out workers with contributions which may be sent to the Association of Federation Workers, 685 Jackson Avenue, New York City.

Further Editorial Notes

HEALTH AND HYGIENE is publishing the sixth issue of its magazine, completing Volume One with the present number. The magazine has now reached a circulation of 15,000 including 3,000 yearly subscribers.

The magazine is a labor of love for the Medical Advisory Board. But for its continuance, a firm financial foundation must be built. The Medical Advisory Board, therefore, has decided to lay its case before the readers.

Five thousand more subscribers would give HEALTH AND HYGIENE the financial base that it needs. A special subscription price of $1 per year has been fixed for the next four months, until January 1, 1936, in the belief that 5,000 new subscribers would be obtained by that date. We urge our readers to help us reach that goal by January 1. Other special offers to subscribers will be announced soon in the working class newspapers.

We count on each subscriber to secure at least one additional sub.

WHILE QUOTING Dr. McLester in our editorial this month, we mentioned undernourishment and starvation in this country alone. Conditions for workers are similar in other countries. We print the letter below as an illustration of what those conditions are in one other country. Incidentally, please note how far our fame has spread. We are selling the magazine now in every State in the United States, every Province in Canada, and in eighteen other countries, reaching readers as far as New Zealand. The letter, from a New Yorker, follows:

TO THE EDITOR:—I am enclosing a clipping from the Banffshire (Scotland) *Journal*, dated July 2, 1935. If you ever have occasion to publish articles about children of the poor in "civilized" countries, the clipping may be useful.

The article, you will note, tells about the death of a girl, aged 2 years and 10 months, after discharge from the Chalmers Hospital, Banff, in northeast Scotland. The child died in April, during the King's jubilee celebration. The jury which made an inquiry found that "there was a lack of proper treatment of the deceased child during the time she was in Chalmers Hospital."

The child was the daughter of a crofter, the youngest of sixteen children. In the part of the country where her parents live, there are large estates owned by the Duke of Fife and Gordon, the Earl of Seafield, and a host of lesser lights. The "nobility" has model farms, where pure-bred cattle are kept in tiled stalls equipped with running water. But the crofter families, to one of which this child belonged, live in the most squalid misery and receive "lack of proper treatment" when they are taken down with disease. But then, these are the families that are bred not for immediate profits—as is the case with the cattle—but rather for the purpose of supplying cannon-fodder dressed in elaborate uniforms and called Highland Regiments when the dukes and earls set out to extend their Empire.

I like your magazine. The clipping of which I write was sent me by a friend in Banff who reads HEALTH AND HYGIENE regularly.