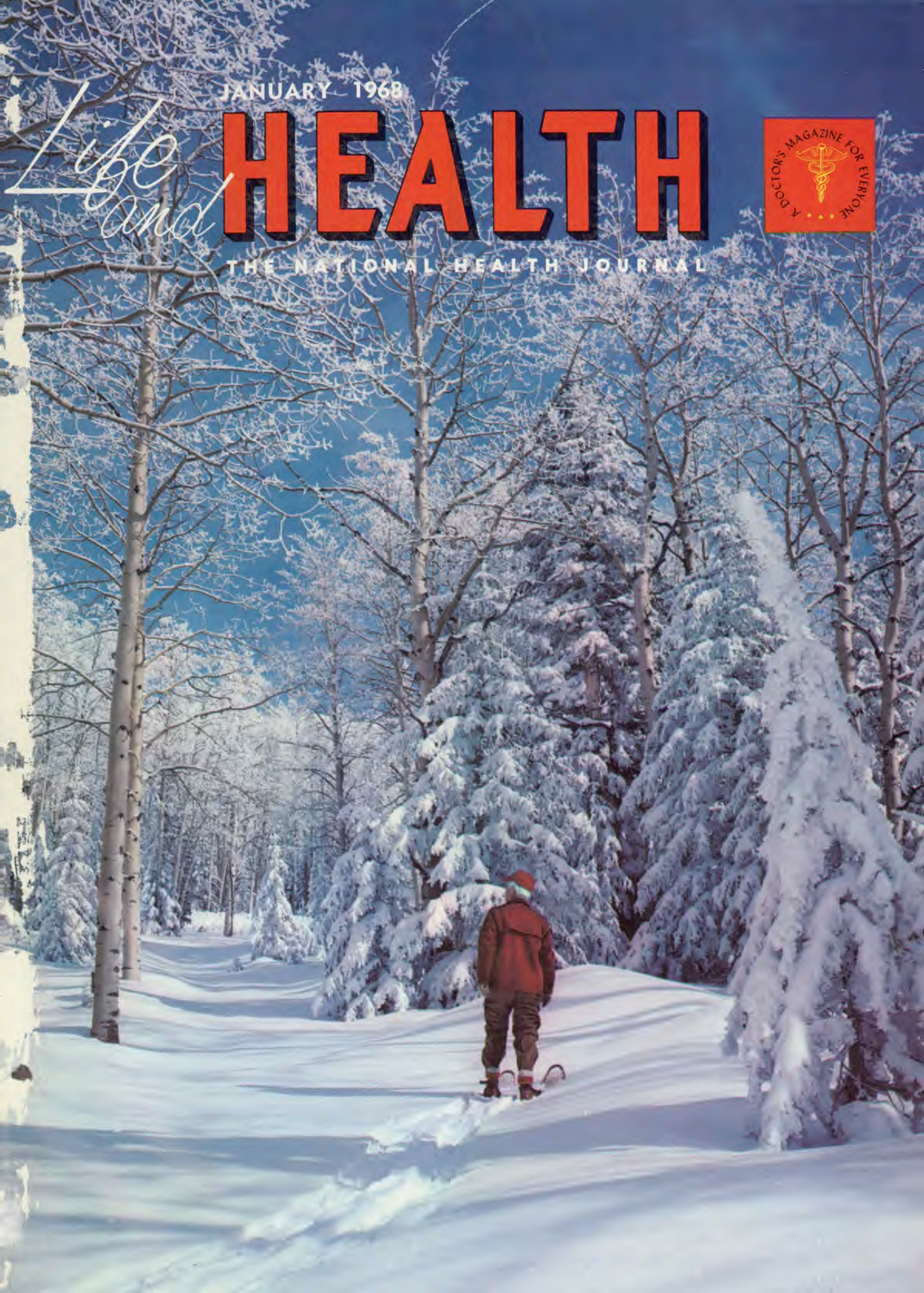


JANUARY 1968

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THE NATIONAL HEALTH JOURNAL

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HYDROTHERAPY HELPFUL

DEAR EDITOR:

Your articles on hydrotherapy are informative and helpful. I save every LIFE AND HEALTH that contains such instruction and refer to it when the need arises.

JENNY HEINE

Washington, D.C.

OUR JANUARY COVER



Color Transparency by Esther Henderson
From Louise Price Bell

Ever try to put yourself into a picture? Doing so is one means of really enjoying the picture you are viewing.

Imagine you are the person snowshoeing through the sparkling white forest shown on our cover this month. While the crisp air keeps you on the move, the soft shuffle of snowshoes is accented by the calmness of the landscape. Most of the birds have flown to a warmer climate, and many of the animals have sought a cozy hibernation hideout. The life-giving sap from the trees has retreated to its underground root system, leaving the leafless branches to wear a mantle of soft white snow. In the world of white stillness you are alone with your thoughts.

Like turning the pages of a great book you observe the changes of the seasons, from awakening spring through summer and autumn to sleeping winter. You cannot escape the conclusion that a Great Mind has something to do with the turn of the seasons and controls it.

In the book of nature the Creator is trying to reveal to you the mystery of birth, growth, maturity, decadence in life, the sleep of death, and then the glorious springtime awakening. Winter and death are not forever. There is to be a resurrection to eternal spring. ▲

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DEAR EDITOR:

I am a two-year subscriber to your wonderful magazine LIFE AND HEALTH.

J. T. ARNOLD

New Smyrna Beach, Florida

SHARES

DEAR EDITOR:

I think the LIFE AND HEALTH a wonderful paper, and I am having it sent to several of my friends.

MRS. HAZEL PHILIPS TREIBLE
Loma Linda, California

A BLESSING

DEAR EDITOR:

The LIFE AND HEALTH magazine is most helpful and a blessing wherever it is read. I wish every family could receive it.

MRS. DRIGGS SAMARZA
Minneapolis, Minnesota

DIETITIAN AND RECIPES

DEAR EDITOR:

I have been a subscriber to LIFE AND HEALTH for many years and enjoy all of it very much—especially the Dietitian Says and the recipes.

MRS. R. V. HASSELL
Wrangell, Alaska

ACCOLADE

DEAR EDITOR:

Am writing in regard to your article "Life's Little Moments" in the July issue of LIFE AND HEALTH.

When I first read your article this summer I meant to write and tell you how very impressed I was with it. What a wonderful article—so true and so much of spiritual value as well as physical well-being and appropriate utilization of leisure time.

My highest accolade, Dr. Fox.

MARIE D. MADIGAN
Washington, D.C.

MOTHER OF FIVE

DEAR EDITOR:

I am a Catholic who is given your magazine by my Lutheran neighbor. Her sister . . . subscribes for her, and she in turn passes the magazine on to me, and I in turn pass it on to another neighbor.

I worked several years as a trained nurse aid, and I appreciate your articles—they help keep me up on things in the field of health and medicine while I take time out to raise a family of five little ones.

MRS. ROYAL R. BOCK ▲
Osage, Wyoming

March of Medicine



ICE-SAFETY TIPS

How can sportsmen and spectators work together to make winter a season of sports enjoyment instead of accident tragedy?

The answer lies in heeding time-tested safety rules and learning a few simple rescue techniques. The American Red Cross, long active in the accident-prevention field, urges sportsmen to observe rules:

1. Stay away from new ice. Although smooth, it often is thin and not uniform in depth. It tends to be weaker toward the center.
2. Do not skate on ice less than four inches thick, and do not ice fish or ice sail on ice less than several feet thick.
3. Remember that ice weakens during warm spells and as the spring thaw approaches. Stay off the ice at these times.
4. Check with park and recreation authorities if you have a question about the advisability of using the ice.
5. Skate in supervised areas, preferably on small ponds or lakes where the water is not deep.
6. Do not venture onto the ice alone. A companion may be a lifesaver should an accident occur. On the other hand, unless the ice is very thick, avoid congregating in large groups.
7. Build a fire on nearby banks, never on the ice.
8. Warn other sportsmen when you encounter or hear about dangerous ice conditions.
9. If you cut a hole in the ice for fishing, be sure it is properly fenced when not in use.
10. Make yourself take the time to put up a rescue device on the banks of recreation areas. A pole or any other reaching

device or a post or tree equipped with a strong rope may save life.

11. When attempting an ice rescue, lie flat on the ice and throw the victim a rope or any other reaching device that he can grasp as you pull him to safety. By lying flat, you distribute your weight over the ice and lessen the danger of another break.

12. If there are other people present, form a human chain by lying on the ice, with each member of the team grasping the skates or ankles of the person in front of him. The lead person in the chain should crawl on his stomach while he grasps the victim's wrists as the whole line wriggles back to safety.

13. If you are alone and fall through the ice, extend both arms out along the surface of the ice and kick vigorously. This action will gradually propel your body onto solid ice, where you can roll to safety.



TOOTH-DECAY STARTERS

Prolonged bottle feeding with sugary substances is often the cause of widespread tooth decay in small children, a Columbia University dental scientist said. Dr. Solomon N. Rosenstein said that the two feeding habits which seem to produce great amounts of decay in early childhood are prolonged use of the feeding bottle at bedtime and almost constant nibbling of carbohydrate foods.

In an article in the March, 1967, issue of *Dental Abstracts*, a publication of the American Dental Association, Dr. Rosenstein said that a child often may receive

bedtime bottles containing sweetened milk, orange juice or syrup, and water when he is in his crib. When he falls asleep with the bottle still in his mouth, his teeth are exposed for prolonged periods to the carbohydrates in the bottle contents. Fermentable carbohydrates are one of the major factors in tooth decay.

Dr. Rosenstein found that prolonged bedtime bottle feeding exposed all teeth in the mouth except the lower front teeth, to attacks of decay. The lower front teeth are covered by the tongue as it is extended to hold the nipple, and these teeth are protected somewhat from the carbohydrates.

He found that the teeth most affected by decay are the upper incisors and the first molars. Incisors have the most decay because they are the teeth most frequently exposed to decay-causing influences for the longest time.

Dr. Rosenstein added that many of the older children in the group who had widespread decay had an early history of prolonged use of bedtime bottles, and when they became older and were weaned they became almost continual eaters of carbohydrate snack foods. His study involved 140 boys and girls a year and a half to seven years old, all of whom had great amounts of decay.

In another study in the magazine *Dental Abstracts*, almost identical reasons were found for severe decay in British children. One hundred children aged one to five years who had prolonged bottle feeding or frequent sweet snacks averaged eleven decayed, extracted, or filled teeth.

A comparable group of children who did not have snacks or long periods of bottle feeding averaged only two decayed, extracted, or filled teeth.

In this study it was found that the milk used for the prolonged bottle feedings was often sweetened with honey, fruit, or syrup.

Dr. Rosenstein's article originally appeared in the November, 1966, issue of the *New York Dental Journal*. The British study was carried in the October, 1966, issue of *Nutrition Review*. ▲

COMING NEXT MONTH

RESPIRATORY ILLS

By J. D. HENRIKSEN, M.D.

Asthma, bronchitis, emphysema, are three difficult diseases, but modern rehabilitation can ease the patients.

DIABETES

By O. S. PARRETT, M.D.

There are many diabetics in America, and modern doctors know what to do to relieve the symptoms of all their patients.

CROUP

By M. STRICKLAND, M.D.

All parents should learn how to help with croup. This evil dealer can be overcome, but if it is not, it can be a killer.

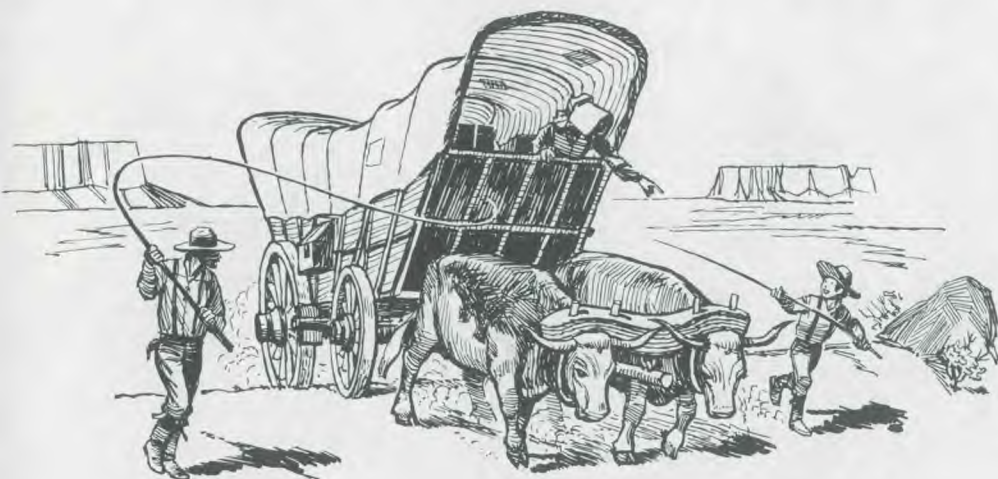
REGULAR FEATURES

HOME NURSING

FAMILY PHYSICIAN

MOTHER'S COUNSELOR

For MUSHY MUSCLES



THE concern of the late President John F. Kennedy about the softness of America's youth might well be extended to the mushy muscles of many adults. Automation and our push-button, jet-age, automobile, sit-down, lie-down society make for leisure and luxury, but they do nothing to tighten stomach muscles, strengthen biceps, or stretch legs. In fact, the muscles of shoulders, chest, and back of men in America have wasted to the point where fashion stylists have the natural drape shoulder for men's suits. This style gives the droop-shoulder slender look but hardly the muscle-man look of a pioneer hunter or the rocklike muscles of a farmer pitching hay.

But, you say, the city dweller today cannot get the outdoor exposure of an explorer or a tiller of the earth. True, but body stamina requires much the same exercise if it is to retain its resiliency and resistance to disease.

The fact that we live a hothouse existence and do not use the large muscles of our body in our daily work does not mean that we can neglect them. If we do not use our muscles, they weaken. Inactivity causes blood vessels to grow small, and hardening of arteries and consequent poor circulation of blood to legs and brain often stem from lack of outdoor exercise.

Many of our youth are delicate hot-house flowers when it comes to exercise. Many physical education coaches are alarmed over the poor showing of today's grade-school and high-school students on simple exercise testing. Because of their low endurance some of our students cannot chin themselves even five times, cannot do more than ten sit-ups.

Such low physical standards may stem from our pampering of our chil-

dren. A nice big yellow bus comes to the child's street corner and whisks him to school. Crowded streets and automobile traffic make bicycle riding and walking to school hazardous. At school, calisthenics are given only sparingly for each student's participation. Baseball, football, basketball, and other spectator sports, in which about 10 per cent or less of the student body can take an active part, are stressed. The rest of the students sit and watch. They exercise only their vocal cords in cheering for the winning team.

Unfortunately, modern youth are marching in the footsteps of modern man. Youth are taught early to use the fine, skilled small muscles of fingers, eyes, and tongue. No longer are the big muscles of the back and shoulders used for the daily work in civilization.



ALAN CLIBURN

Physical exercise is necessary for good health.

When we discard the pickax, shovel, hoe, and pitchfork and take up the pen, pencil, typewriter, and telephone, we find our large muscles—trapezius, latissimus dorsi, pectorals, and arm and leg muscles—crying out for use. This neglect causes the aches and pains of muscle tension, headache, backache, and stiff joints. Fibrocystic nodules may develop, especially in the back muscles, owing to inactivity or lack of proper exercise.

What can a young person or an adult do to tone up mushy muscles? Use them daily in active exercise. Where can you find the time? You are so busy and rushed now you cannot take time for a workout in a gymnasium, to go swimming, or to walk to work.

Daily physical exercise is not a luxury, it is a necessity for good health. Take care of your body, and it will take care of you.

Many years ago a sick Senator, Harry S Truman, from Missouri, went to the office of Dr. George Calver, physician to Congress.

"You've got to begin walking, Harry," Dr. Calver said. "If people took only 5 per cent of their time to preserve good health they would not have to spend 100 per cent of their time in the hospital trying to recover lost health," he added.

Senator Truman took his advice. He arose early in the morning and began walking. While he was President, he and his Secret Service men walked along the Potomac River or around

the White House early each morning. Through the years he has been a familiar sight early in the morning spryly stepping along the streets. He has walked to a rugged 83 years.

Other Presidents have followed the formula of exercising their legs by walking. Former President Herbert Hoover walked the streets of New York near his home in the Waldorf-Astoria Towers. Former President Dwight D. Eisenhower plays golf each day during the winter season at the Eldorado Country Club in Palm Desert, where he loves to bask in the sunshine and hit the little white ball with his friend Freeman Gosden (Amos of "Amos 'n' Andy" fame).



ALAN D. REID

Keep alert by playing a ball game with your son.

President Lyndon B. Johnson is being encouraged by his White House physician, Vice-Admiral George G. Burkley, to take daily exercise. He enjoys a daily swim in the White House pool, bedroom calisthenics, and walks about the White House grounds.

Limber legs last longer. Every active person has a pair of legs, and walking for exercise is available without cost. If time is your problem, you can always walk to work by parking the car a few blocks away. You can climb stairs instead of taking the elevator. In the evening, instead of sitting down to television immediately after supper, take a stroll. You will enjoy the programs you watch later because you will be alert.

If you are Spartan, the early-morning hours are tops. Between 6:00 and 7:00 A.M. you will meet few pedestrians and little traffic. Even the grimy city looks better in the early morning. Look

up and look out as you walk. Step along, as former President Truman advised, at 120 steps a minute.

For a quick warm-up in the morning the Royal Canadian Air Force exercise routine is excellent. It is graduated to your age. These exercises are straddle hops, sit-ups, push-ups, back-tightening routines, and running. They can do much to flatten your stomach and keep you trim.

To feel alert, you must look alert and be alert. For mental keenness in your work, nothing excels a brisk walk in the fresh air, a group of exercises, a swim, a workout in a gymnasium, a hike in the mountains, a run along the beach, a game of golf, a set of tennis, a game of badminton, a canoe ride, a session of skiing, a game of catch with your son, or an evening walk with your wife. The possibilities for exercise are endless. Such a routine takes only a little self-discipline and sincere interest in your health.

The way to exercise at home is the television way. Jack LaLanne, a good friend of ours, is on some 80 television stations across the nation. Each morning you can tune him in and exercise to his peppy 1-2-3-4 and organ background music. His trimnastics are doing a great job in bringing America's mushy muscles back into good tone. Although he is seen primarily by housewives, his exercise program, "Glamour Stretchers," and gymnasium equipment are equally valuable to the man of the house.

Exercise can help you to better health. If you are soft and flabby, you should begin to exercise on a graduated program until you are back in shape. If there is any question about how much exercise you should take, consult your physician.

Daily exercise is advocated to help prevent heart attack and keep leg muscles in good shape. Many heart specialists prescribe daily walks for their patients who have had heart attacks. Exercise encourages new collateral blood vessels to grow into the heart muscle, and after a heart attack it helps prevent further decrease of circulation. If you have heart disease, consult your physician about exercise. The chances are he will be enthusiastic about it.

Yours for exercise,

J. Edwitt Fox, M.D.



PROFILES of Our Contributors



H. O. Swartout, M.D., Dr. P.H. ("Constipation," page 15), is a retired physician living in Thousand Oaks, California.

He was born near Carson City, Michigan; attended public elementary and high schools in Michigan; Adelphian Academy in Holly, Michigan; Andrews University in Berrien Springs, Michigan; Michigan State University, East Lansing, Michigan; Loma Linda University, Loma Linda, California; and Yale University, New Haven, Connecticut.

Dr. Swartout spent twenty-five years in health-department work, and he retired from the position of health officer of San Luis Obispo County, California, in 1960. He wrote books and articles on health subjects for more than twenty years. He has been married for nearly fifty-eight years.

Dr. Swartout has a son who is a pathologist in a large hospital near Chicago. He has a daughter who is married to a physician in South Pasadena, California. There are ten grandchildren and four great-grandchildren.

His hobbies have been building construction, landscape gardening, and photography.



J. Edwin Reed, M.D. ("Trichinosis—Disease From Pork," page 14), is health commissioner for the Hamilton County, Ohio, Board of Health.

Dr. Reed was born in Cincinnati, Ohio, and attended grade and high school there. While attending high school he began working in a drugstore, and after high school he entered the Cincinnati College of Pharmacy. As a registered pharmacist he worked for some time in retail pharmacy, but he returned to complete his college premedical work.

(To page 30)

Spells of weakness and heart palpitation do not always mean heart trouble.
Too much oxygen from improper breathing can cause such symptoms.

TROUBLE BREATHING?

R HAROLD SHRYOCK, M.D., D.N.B.

*Professor of Anatomy
Loma Linda University, Loma Linda, California*

DOCTOR JONES, come quickly. I think my husband is having a heart attack." Mrs. Tandler was telephoning from her sister's home, where the Tandler relatives were gathered for Thanksgiving dinner.

While Mr. Tandler was eating, he put down his fork, pushed himself back from the table, and began to sigh and breathe in a peculiar, rapid manner. He appeared pale and anxious.

Everyone thought of heart attack, and Mrs. Tandler telephoned Dr. Jones while the other family members helped her husband to the sofa. The thought of heart attack was in Mr. Tandler's mind too. While he struggled for breath he held his hand over his chest and muttered, "My heart!"

Then an even more frightening thing happened. The muscles all over Mr. Tandler's body began to twitch. Gradually his arms and legs drew up tight, and by the time the doctor arrived his knees were almost under his chin.

"What is the trouble, Dr. Jones?" Mrs. Tandler asked anxiously as he made a hurried examination.

"It is too early to say yet, but I don't believe it is a heart attack. To be safe, we will call an ambulance and take him to the hospital, where I can make a more careful examination. By the way, has he ever had attacks like this before?"

"Yes, he has had several," Mrs. Tandler admitted. "The last one I remember was about three months ago when he was watching television one evening."

"What kind of program was he watching?" Dr. Jones inquired.

"Oh, I think it was a boxing match."

"But you surely weren't boxing here at the Thanksgiving table."

"No, but I thought he was tense and uneasy," Mrs. Tandler responded.

At the hospital Dr. Jones ordered an electrocardiogram (a record of heart action) and examined the trac-

ing himself as soon as it was available.

"I still think this is not a heart attack," he told Mrs. Tandler.

"What is it then, Dr. Jones? I thought my husband was going to die. He complained of pain in his chest."

"I want to keep him in the hospital overnight to see how he is in the morning. We may need to make some more examinations, but I hope soon to make a diagnosis."

The next morning when Dr. Jones called at the hospital, Mr. Tandler was much better. He had had a good rest, and he said he felt like going home.

"Before I sign you out, I want to talk to you and perhaps make some other tests," Dr. Jones said. "I understand that you have had previous attacks like this one. Tell me about them."

"Well, I have had three or four of these attacks, and they have occurred when something made me nervous."

"Like what?" the doctor encouraged.

"I had the first attack when a friend of mine died of a heart attack. We had been good friends and had worked in the same office. He smoked a lot and lived a fast life. He didn't take care of his health. He was just the kind of person to have a heart attack. When the attack came, he died right there in the office while I was bending over him."

"That night the thought of it hit my nerves. I began to feel dizzy, and the skin around my mouth began to tingle. I felt a lump come into my throat. My chest began to get tight, and I felt a pain in my heart just as



WHITE LABORATORIES

I did yesterday. For about a half hour I could hardly get my breath. I have had three or four attacks since then, but they always came on when I was alarmed or nervous about something. Do you think it is my heart, Dr. Jones?"

"Before I answer that question I want you to do something for me. I want you to breathe deeply and quickly for about two minutes. Don't stop breathing even if you feel lightheaded."

"All right, Dr. Jones," Mr. Tandler responded. "Here goes."

After Mr. Tandler had been breathing deeply and rapidly for almost a minute he began to move his lips as if the skin around his mouth was tingling.

"Keep on breathing like that," the doctor said.



Symptoms of hyperventilation can frighten one into calling for help.

Then Mr. Tandler put his hand to his heart and acted much as he had the day before, and his face took on the same anxious expression. Then his muscles began to twitch and his legs drew up just as they had the previous day.

At this point Dr. Jones placed an open paper bag over the patient's head and pressed it tightly around his neck as he breathed into the sack. As if by magic, the symptoms began to disappear. Within three minutes Mr. Tandler was feeling all right again, except that he was weary from the ordeal.

Dr. Jones explained: "You see, we have produced another attack just by having you breathe too actively. This test confirms my opinion that you do not have anything basically wrong with your heart. Your symptoms are the result of breathing too fast—hyperventilation, we call it."

"But, Doctor, I didn't try to breathe that way yesterday.

The symptoms I had came out of a clear sky."

"I know you didn't try to do it, but there was something that made you alarmed, uneasy, or anxious. It is normal for a person when frightened to breathe more energetically, as if he were getting ready to run, fight, or do something about whatever alarmed him. That is nature's response to fright.

"But you didn't use up the extra oxygen you were breathing, and by breathing rapidly you gave off a lot of carbon dioxide, which normally is exhaled slowly. This quick loss of carbon dioxide made your blood more alkaline, and that effect caused your symptoms. Because you were already frightened, your imagination provided some of the symptoms, and thus you became more frightened because of your symptoms, and the symptoms continued because you were frightened."

"Kind of a vicious cycle, eh, Doctor?"

"Yes, you might call it that."

"Is hyperventilation a common disease?"

"Well, it isn't a disease in the true sense of the word. It is simply a group of symptoms that sometimes occur in nervous people who have become ill at ease. I would not say it is common, but doctors see enough cases so that they are on the lookout for it. The doctor's problem is to determine whether the symptoms are a result of serious organic disease or merely the result of anxiety. I should like to know what caused you to be anxious and fearful yesterday before you had the attack."

"I might as well admit that my wife and I haven't been getting along too well lately. It isn't anything serious, I hope, but we have had differences. There we were at her sister's house with all the relatives. I know that some of them had heard of the differences Sally and I were having. I felt out of place and angry at the same time. In fact, I thought Sally was probably laughing up her sleeve because she had me where she wanted me for once. I tried to act unconcerned, but then my brother-in-law made a sly remark, and the next thing I knew I was on the sofa all drawn up like a monkey."

"Now you see that your real trouble is with your personal problems and your emotions. I can't tell you and your wife how to settle your differences, but at least I can tell you that you are not suffering from heart trouble."

"But how did you get me out of the attack this morning, Doctor? I'd like to know how to do it, so that if I ever have another attack I can cure it myself."

"That's exactly what I wanted you to understand," Dr. Jones replied. "Whenever you get to feeling so nervous that you think another attack is coming on, take a paper sack as I did a few minutes ago and hold it tightly around your neck and breathe into it for a few minutes."

"It sounds foolish, but it worked."

"What it does is hold the carbon dioxide that you otherwise would be breathing out into the atmosphere. By breathing it over and over again as you breathe in and out in the paper sack, it is not lost from your body too fast, and therefore the symptoms are prevented."

As Dr. Jones was leaving

(To page 25)

CAMPERS' PESTS

By CATHERINE GEARING, R.N.

Director of Nurses, Feather River Sanitarium and Hospital, Paradise, California



WHETHER YOU ARE out in the wilderness, in a modern camp, or in a primitive camp, the problem of pests is ever present. Mosquitoes, flies, ants, ticks, and chiggers are the most common offenders. The location of your camp is vital as the first consideration in pest control, especially if mosquitoes are about. It is best not to camp too close to a lake or a creek or in a dense forest. The farther you can get from nonrunning water the better.

Make your camp in a high meadow on an open ridge or near a small clear spring, if possible. Choose a high point in the open where the wind will carry the mosquitoes away. If you are camping in a tent, not out in the wilderness, a tent with screened door and windows is a must if you are to enjoy camping where mosquitoes are present.

If you are camping with a tent, a veteran camper has made the suggestion that you have a full net sewed to the junction of the front and the walls of your tent, in such a way that it would fall in a loose drape long enough for at least a foot of it to lie along the floor cloth. All you do is lift the net, walk in or out, and let it drop after you. When the net is not needed, use the tapes to hold it up out of the way. Sleeping bags should have mosquito bars, with the bottom edge of the net tucked under the bag. Thin flexible poles can be driven into the ground on both sides of the sleeping bag to form an arc. This frame-

work can be covered with a large piece of cheesecloth, with the material draped on the ground at least a foot all around.

While we are still thinking of modern-day camping I might mention that mosquito nets that droop from the broad brim of the hat down over the face and head may be purchased in some sporting goods stores. They may either tuck in at the neck or (preferably) extend over the shoulders and tie under the arms. This gear is not necessary around most camps, but it might come in handy on a pack trip in an isolated area in which you are forced to camp at least overnight, or for exploring, or even for traveling through mosquito-infested territory. It might be necessary to wear leather gloves.

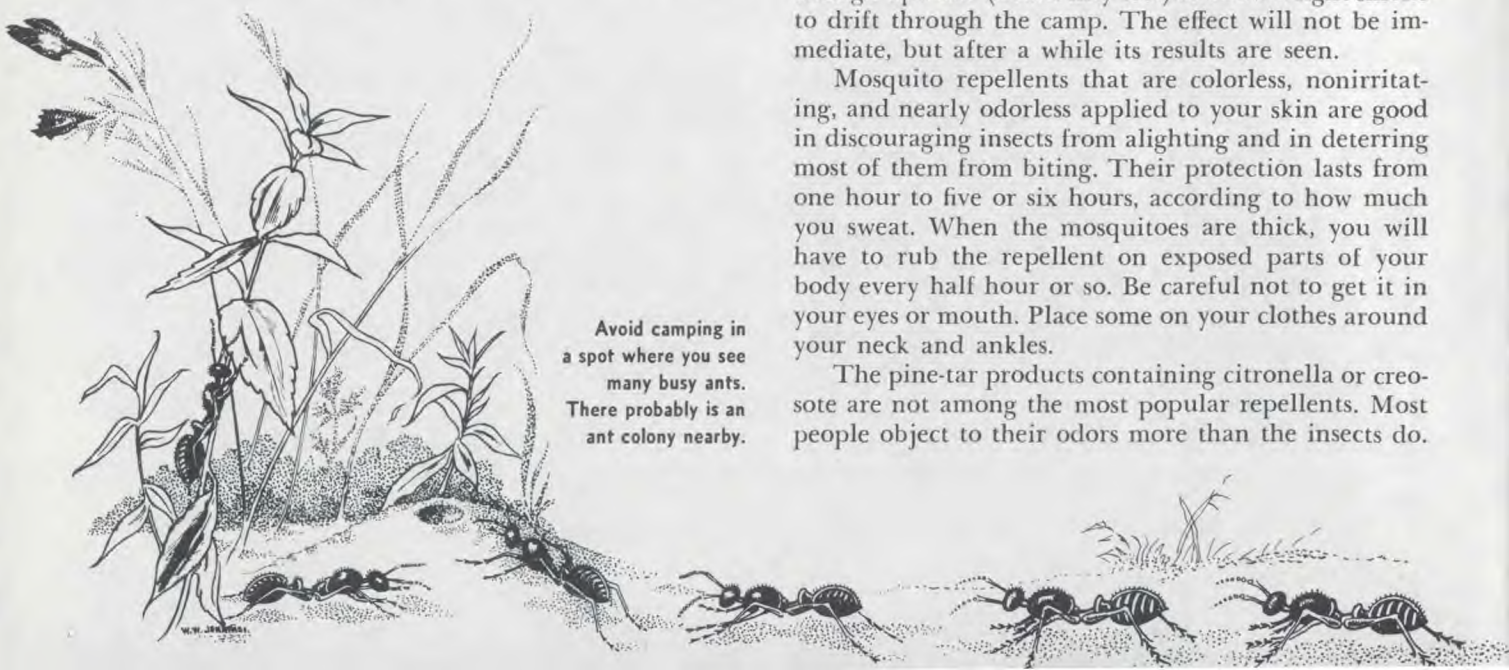
Smudge pots burning damp or green wood or pine needles and humus from the forest floor are quite effective in controlling mosquitoes. Use any receptacle you may find. Some people have used a No. 10 tin can. Fill the vessel with duff (the partly decayed vegetable matter on the forest floor), light the top, and let it break into a good flame. Then smother the flame and let the duff smolder. This smoke is effective against the blade fly and moderately effective against the mosquito.

If no can is available and you have no other receptacle, dig a little hole and make your smudge in it, or simply make your smudge on the ground. The advantage of a receptacle is that it can be moved around. Do not put the can too close to camp, but set it far enough upwind (about fifty feet) to allow a light smoke to drift through the camp. The effect will not be immediate, but after a while its results are seen.

Mosquito repellents that are colorless, nonirritating, and nearly odorless applied to your skin are good in discouraging insects from alighting and in deterring most of them from biting. Their protection lasts from one hour to five or six hours, according to how much you sweat. When the mosquitoes are thick, you will have to rub the repellent on exposed parts of your body every half hour or so. Be careful not to get it in your eyes or mouth. Place some on your clothes around your neck and ankles.

The pine-tar products containing citronella or creosote are not among the most popular repellents. Most people object to their odors more than the insects do.

Avoid camping in a spot where you see many busy ants. There probably is an ant colony nearby.



Sprays are good. DDT does not kill the insect at once—it only makes him sluggish and dormant. Some sprays incorporate other chemicals with DDT that kill the insect on the spot. You should spray several times during the day. During the season when mosquitoes are thick, keep the spray dispenser by your browse bed (see description in my article entitled "Shelters" in August, 1967, *LIFE AND HEALTH*), cot, or sleeping bag. This plan will enable you to deal with these annoying visitors with scarcely an interruption in your snoozing. Sprays should be kept away from your skin, food, animals, or an open flame. You should not inhale the fumes over any length of time.

Wood Ticks. Tick bites can be serious, and in some cases have been fatal—when they result in a serious case of Rocky Mountain spotted fever. They do not generally dig their heads in and begin to suck blood until several hours after getting onto the body. You can detect them by daily afternoon inspection. They can be removed by sliding a sharp knife between them and your skin. If they have taken a firm hold, just touching them with the heat from a lighted match or an ember will cause them to back out. Touching them



HARRY BAERG, ARTIST

Chicory, with its pretty blue flower, grows along American roadsides. Its roots make a coffee substitute and its leaves make table greens.



U.S. DEPARTMENT OF AGRICULTURE, BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Ticks are one of the common insect pests. Here we show the female (upper) and the male (lower) wood tick.

with kerosene, gasoline, or alcohol (even shaving lotion), will encourage them to back out. Do not be severe enough to kill them where they are.

Attempts to pull or unscrew them reversely from their holds are not so good, because parts of the head may be left behind, which may lead to infection. Ticks should never be crushed during removal. When you get them off, toss them into the fire. Apply antiseptic solution to the area of the bite if any is available, and cover with a sterile pad and bandage. If you are out in the wilderness, cover with anything you have that is clean.

Black Flies and Houseflies. Black flies can be as

annoying as mosquitoes. They are smaller than houseflies, and they bite chiefly around the head.

Houseflies are carriers of many disease germs, including typhoid. They alight on garbage or other refuse, or on excreta, human or animal, then light on your food. This is a revolting thought, but true nonetheless.

In camp, all food and utensils including dishes and silverware should be protected from flies. Your latrine should be covered at all times with a toilet seat cover or a board. Garbage and cans should either be deposited in a covered receptacle, burned, or buried. Never throw dishwater on the ground. Pour it into a hole in the ground quite a distance from camp, and burn it out frequently. Flyspray is effective, but be careful not to get it near dishes or food. These simple yet important precautions will result in a clean camp.

Chiggers. The little pests called chiggers are so small they can scarcely be seen with the naked eye. Their bite is bright red, about the size of a pinhead. Their bites are not so painful as they are bothersome, because of itching. Do not scratch the bite, for scratching will lead to infection. Calamine lotion affords some relief, and there are other good lotions on the market.

Powdered dry sulphur dusted in the clothing sometimes helps to prevent chiggers from biting. It was suggested by one experienced camper that rubbing the neck, ankles, and waistline with kerosene helps. Chiggers bore in where they have something to push against, such as a snug belt. One camper even used brushless shaving cream with success, rubbing it on exposed skin areas. When you are out in the wilderness and nothing mentioned

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**Stress can be the cause
of stuttering and nail-biting.**

I TRY not to yell all the time, but Reggie's stuttering drives me crazy," exclaimed a woman who had taken her little boy to a doctor for advice.

Dr. Lane looked at the woman's small son then glanced at me, his office nurse. His expressive eyes asked, "How can any mother be so cruel?"

I dropped to my knees beside the low stool on which Reggie was solemnly sitting.

"See these pretty pictures?" I whispered. "Can you tell me what they are?"

His face brightened quickly. Without hesitation he named the familiar objects, eagerly turning the pages of the book, which was one that children love. Not once did he stutter.

Dr. Lane leaning over his desk took notes as the child's nervous mother talked excitedly. "Yes," she said, "Reggie spoke quite distinctly when not yet two years old. We immediately began to teach him nursery rhymes. We were terrifically pleased at the amazement our friends showed when he without hesitation recited a long poem for them."

"Do I understand that was when he was only two?"

"Well, no, not exactly. He was three when he got so that he could say them. Then he started stuttering. Can't you see, Dr. Lane, how embarrassed he makes us feel?"

The doctor nodded as he wrote steadily.

Stuttering or stammering (the words have identical meaning and are used interchangeably) seldom starts after the age of six. It most often begins between the ages of two and four.

Why does it develop? It may follow a debilitating illness or a hearing impairment. It may be due to lack of language culture in the home. Sometimes parents never learn how to speak correctly. A child hearing words used and pronounced one way at home but quite differently in the homes of playmates may become uncertain, confused, and hesitant. Born to foreign parents who speak only their native language, children may stutter in striving to say things the way they hear them outside the home.

When a mixture of local and foreign phrases are used by parents, the child trying to express feelings and thoughts so that they will be understood may stutter.

There are also cases where someone at home never waits to let the child complete a sentence, but finishes it for him. Literally taking the words out of his mouth, such an older person can cause a child to stutter badly.

Another not infrequent cause of stammering is jealousy. Jealousy causes severe nervous tension. It results from fear of losing love.

It is difficult to make a slightly older child under-

Stuttering and Nail-biting

By BEULAH FRANCE, R.N.



EASTERN PHOTO SERVICE

Daily doses of genuine affection can prevent stuttering in children.

stand that love must be shared with new brothers and sisters. It is difficult for some parents to be patient with such evidence of jealousy as stuttering and nail-biting. No child needs loving attention more than when jealousy makes him unhappy.

Not all parents give enough time and attention to children who begin stuttering. Or, if they give attention, it may not be of the right kind. To protest or act disgusted or discouraged is nothing less than cruel. To say, "Stop stuttering, think before you speak, try again—this time more slowly," is worse than useless.

It is well to reduce the stutterer's need to talk; to talk pleasantly and happily with him; to read aloud, enunciating very clearly; to teach him songs to sing. Listening attentively is important. When the stuttering child tries to say something, the person addressed should smile encouragingly and lend an attentive ear.

The stutterer needs approval—not for speaking correctly (that is best accepted without comment) but praise for other efforts, regardless of what is accomplished. It is the attempt to achieve that counts more than the achievement. A stutterer needs to develop self-confidence.

Do not set unattainable goals. Overlook minor mistakes. Encouragement is important. The child who feels secure, who knows he is wanted, that he belongs, seldom stutters for any great length of time.

Telling how to prevent progressive stuttering, a child psychiatrist said, "Most boys and girls are as plastic as potter's clay. When they play with potter's clay, the warmth of their fingers and hands keeps it pliable and easy to mold. It yields to the one working with it.

"When parents provide pleasure for their children, surrounding them with warm love, the children become pliable also. They can be molded much more easily than when they are neglected or ignored. Daily doses of genuine affection given frequently provide the best possible preventive program against progressive stuttering.

"Potter's clay, left unattended and unwanted, becomes hard and set—very difficult to handle. That is true of untended, unwanted, unloved little children. Frustrated by fruitless longing for affection, boys and girls may develop types of nervous instability that will last a lifetime."

If stuttering persists for several months and grows worse, what steps should be taken? Steps that take the parents to the office of a child psychiatrist. But the child should not go on the first trip. The discussion of his background and condition must be carried on when he is not present. The doctor will guide the parents in treatment for the child and will advise them.

In certain cities there are speech-problem clinics. The treatments may be tedious, long, and costly. Their effectiveness is hastened and enhanced when parents give unmeasured and immeasurable love at home.

Some stutterers are girls, more are boys. Among nail-biters the reverse is true. As a rule, stuttering starts before a child is four. This age generally has been passed before biting of nails becomes a worrisome problem.

The fingernail chewers far outnumber those indulging in other nervous

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By HARRY M. TIPPETT, M.A., Litt.D.

Euphoria Versus FAITH



EWING GALLOWAY

THE Greeks had a word for a general sense of well-being. They called it *euphoria*. Modern psychiatry has appropriated the word as a clinical term, and applies it to a deceptive sense of well-being. Thus, euphoric experiences often are induced by LSD, heroin, and other "escape" drugs.

Like a number of words brought into the American language for technical purposes, *euphoria* has been popularized as an idiom in a transferred sense to any exultant feeling or exhilaration over good fortune or happy turn of events. The younger generation seeks euphoria in synthetic ways. Some get it in psychedelic parties, some in heaving a brick through a store window, some in university campus revolts.

But fulfillment does not come through sniffing glue, winning a horse race, or pawing over pennies until one finds a treasured mintage. These satisfactions are ephemeral and the rewards fugitive. The ride on cloud nine is short-lived.

There is a felicity more stable than this. It is an aspect of spiritual involvement and commitment to noble causes. It comes from a daily dependence on God arising out of confidence in His divine plan for the human race. We never call it euphoria, of course, but faith. Millions have lived happily with it, and martyrs have died for it with exultation.

It is faith that offers serenity in the midst of adversity, and ultimate redemption from our cultivated and environmental slaveries. It is the chief ingredient of hope, without which the world is headed for chaos.

People without a life commitment often seek a way out of boredom by dissonance in music, distortion in art, and the bizarre in worship. In trying to find new meaning to life, they rob it of any meaning at all. The excitement of revolt against moral order and things as they are equals no emotion such as that commended by David the psalmist: "Great peace have they which love thy law: and nothing shall offend them" (Psalm 119:165). ▲

Trichina is a small roundworm parasitic to man and animals. It is usually found in the larval state in pigs and passed on to people who eat poorly cooked pork.



H. A. ROBERTS

Trichinosis - Disease From Pork

△ J. EDWIN REED, M.D.

Health Commissioner, Hamilton County, Ohio

EVERY so often health departments receive reports from physicians telling of patients severely ill with the disease known as trichinosis. At times these reports come in epidemic proportions—a greater number of cases than should exist in the community.

Trichinosis is a parasitic disease caused by a small hairlike variety of roundworm, which passes its life cycle in the body of the hog and some other animals. Although any mammal could ingest infected pork, the omnivorous kind is far more likely to do so. The bear with access to garbage may be infected readily. In turn, so may the hunter, sportsman, or anyone who eats bear meat. However, man usually develops the disease as a result of eating insufficiently cooked pork.

A study based on autopsies shows that 25 million people at one time or another have harbored this parasite, but only a fraction of them have manifested the disease clinically, because thousands of cases go unrecognized. It is estimated that of the 25 million who revealed evidence of having harbored the parasites by virtue of cysts found in the muscles of their bodies—often in the diaphragm—sixteen thousand would have developed the disease clinically and 5 per cent would have died of trichinosis. The severity of the disease is in proportion to the number of parasites taken into the body.

Trichinosis is most common in the temperate zones

of the Northern Hemisphere, and it is quite common in the United States. The great number of deaths that occurred in Germany in the latter half of the last century was shown to be the result of eating raw sausage. The condition is rare or unknown in the tropics and the Orient.

The symptoms of trichinosis simulate other conditions—influenza, typhoid fever, food poisoning, various kinds of enteritis, and other maladies. The symptoms are varied, dependent on the number of the parasites ingested and the stage of development of the disease when the patient is seen. Abdominal pain, nausea, vomiting, and diarrhea are a few of the common symptoms. Swelling of the face, particularly the eyelids, is a dominant symptom. Later the muscles involved in chewing, moving the eyes, the larynx, the diaphragm, and the muscles of the neck and chest are affected, and in this late stage the condition might well be confused with a number of neurological diseases.

The white blood count practically always is increased, sometimes as high as twenty thousand to twenty-five thousand from the normal seven thousand to eight thousand. One type of white cell known as the eosinophil often is increased greatly. When it is, this finding indicates parasitic disease. There is a skin test that is of some value late in the disease. The testing material is a purified suspension of the larva. If early in the disease the skin tested (To page 21)



ALAN CLIBURN

If elimination is not stressed too much, most babies eventually develop normal bowel habits.

Constipation

 H. O. SWARTOUT, M.D.

THE great American disease is not the common cold. It might be if each cold lasted for months or years, but most colds clear up within two weeks, even without treatment. If you were to go into almost any drugstore and make a tally of the patent medicine on the shelves, you would likely find the remedies depending partly or wholly on their laxative nature for their effect, outnumbering those of almost any other nature. For this reason and because it often hangs on a long time, in all fairness constipation can be called the great American disease.

There are many mistaken ideas about constipation. Also there is much ignorance about it. The result may be either neglect on the one hand or too much concern on the other. It is the purpose of this discussion to make clear what neglect may lead to in some cases and lessen the worry that results from unnecessary concern in other cases.

In either case it is the excessive thought put on the subject that is a strain on the person.

Many people think there is a normal pattern of lower-bowel action for all people, from which any marked deviation means that something is wrong. As a matter of fact, healthy people differ widely in this respect. Probably in most cases daily evacuation is desirable, but for some people this frequency is greater than is necessary for health, whereas for others three or even more evacuations a day occur without anything being out of order.

To understand why so much variation can be possible, we should know what normally brings about evacuation of the lower bowel. First, there must be an indigestible or at least an undigested residue of food there. Because few foods are completely digestible, this residue usually is present. The normal action of the whole digestive tract, but especially of the long and narrow part of it, called the small intestine, consists of a succession of waves of contraction and relaxation moving slowly along it toward the large bowel, begin-

By including plenty of fresh fruit in your daily diet, you should not need to resort to laxatives.



ning as soon as food is swallowed and continuing throughout the period that it is being digested. This wave motion, called peristalsis, eventually carries any unabsorbed part of the food to the large bowel.

From there on, peristalsis tends to be slower and less regular, but it continues until a mass of material, now called feces, has collected in the lower part of the large bowel. This result tends to happen after every meal. There it is held back by a ring of muscle tissue (sphincter) and does not go any farther automatically, but it eventually stimulates the nerves in the bowel lining in the lower bowel, normally with two results: sensation of a need to empty the bowel and relaxation of the muscle ring, or sphincter, which allows the fecal mass to pass out.

In babies, this relaxation comes automatically. What we commonly call bowel training consists of forming and strengthening a habit (To page 23)

If you are out of bread when unexpected guests drop in, try baking quick bread.

WHOLE-GRAIN and graham crackers and bread sticks are among the most healthful of foods the housewife can prepare for her family. They are easy to make fresh, and they may be served hot, immediately from the oven, at every meal. It takes not more than five minutes to prepare them, and less than five minutes to bake most of them. Any time you need bread for unexpected company, make a batch of wheat crackers. Serve them with fruit sauce, and your hungry guests will be delighted. A few olives or nuts and raisins added will make a satisfactory complete meal, wholesome and nutritious.

Other breads have their place in the family menu, but you will bless the day you began using delicious crisp, crunchy breads as a basic food at your table.

Little pockets of air swell cracker dough, making blisters, which, when baked rapidly, act as leavening does, to make the bread light. Because the dough is thin and the oven hot, the crackers bake in only a few minutes. Watch them carefully. Overbaking destroys the flavor. The crackers should be crisp and dry.

If your oven has a glass window, it will be easy to keep watch. If not, you may need to peep in through a small opening. Let crackers bake undisturbed for two or three minutes before peeping in.

As soon as the crackers are blistered and have a light golden color, you may wish to shut off the heat control and let them finish baking more gently to dry out the dough and avoid overbrowning.

Wheat-Flax Crackers

Preheat the oven and cooky sheet to 500° F.

1/2 cup whole-wheat flour, finely ground

1/2 cup all-purpose white flour

1/4 teaspoon salt, scant measure

2 tablespoons fresh flaxseed

Mix well.

1/4 cup water, scant measure

2 tablespoons safflower oil or other light oil

Shake the oil and water well together to blend.

Method:

To the dry ingredients that have been well mixed add the emulsified oil and water, and stir together quickly, to avoid separation. Knead thoroughly. Sprinkle flour over the breadboard and roll the cracker dough into a thin sheet. Make the edges straight and the corners square. With a sharp knife or a cooky cutter cut the crackers into desired shapes. With a pancake turner lift them quickly onto the hot cooky sheet and place in the hot oven.

Rye O' Wheat Crackers

1/2 cup rye flour, fine whole grain

1/4 cup oat flour, fine whole grain

1/4 cup whole-wheat flour, finely ground

1 tablespoon sesame seed

1/4 teaspoon salt, less if desired

Preheat the oven and cooky sheet to 500° F. Mix ingredients.

Healthful Baking

By BESSIE CRANE ANDERSON, R.N.

1/4 cup water

2 tablespoons safflower oil

Shake together to emulsify.

Follow method suggested for Wheat-Flax Crackers.

100 Per Cent Whole-Wheat Crackers

Preheat the oven and cooky sheet to 500° F.

1 tablespoon Soyamel milk powder, or equivalent

1 cup whole-wheat flour, finely ground

1/4 teaspoon salt, scant measure

Mix well.

1/3 cup water

2 tablespoons safflower oil or other light oil

Shake together to emulsify.

Follow method suggested for Wheat-Flax Crackers.

Flaxseed White Crackers

Preheat your oven and cooky sheet to 500° F.

1 cup white flour, all-purpose, enriched

1 or 2 tablespoons flaxseed, as desired

1/4 teaspoon salt

Mix well.

1 tablespoon safflower oil or other oil

4 tablespoons water

Shake together to emulsify.

Follow method suggested for Wheat-Flax Crackers.

Safflower-Oil Cream

1/4 cup water

1 tablespoon Soyamel

Oil

Blend the water and Soyamel, or other soy-milk powder, and pour in the oil as the blender whizzes. As soon as the mixture thickens, stop the blender. In making nut and soy-milk cream or mayonnaise, a hand egg beater is not so efficient as an electric blender. The amount of oil needed to thicken the soy milk and water will vary. Usually it will take about the same amount of oil as water.

Almond-Brewers' Yeast Flake Crackers

- 1 cup white flour, all-purpose, enriched
 - $\frac{1}{4}$ teaspoon salt, scant measure
 - 1 tablespoon yellow brewers' yeast flakes
- Mix together.
- 2 tablespoons oil
 - 3 tablespoons water
 - $\frac{1}{3}$ cup almond meal

Mix (the almond meal is wet, it being the residue after pouring off the milk when making almond milk; it is grainy and of whipped-cream density).

Follow the method suggested for Wheat-Flax Crackers.



UNDERWOOD AND UNDERWOOD

Homemade crackers are easy to prepare, are delicious and wholesome.

Here are a few favorite recipes that are not all strictly whole-grain crackers or bread sticks, but are excellent quick breads and are well received by everyone.

Coconut Shortbread

- $\frac{1}{4}$ cup margarine
- $\frac{1}{4}$ cup sugar
- $1\frac{1}{2}$ cups flour
- $\frac{1}{4}$ cup shredded coconut

Cream shortening and sugar. Gradually beat in flour and coconut. Keep warm while mixing. Press out in a shallow cake pan. Bake 30 minutes in a slow oven (300° F.). Cut in finger-length strips while hot.

Coconut corn bread (recipe below) eaten fresh is mealy and light. It is made without any raising agent. The kind of shredded coconut you buy determines the quality of your corn bread. Thin shreds of unsweetened or freshly ground coconut make a good texture in coconut corn bread. Try for yourself and make your own decision for your next recipe.

Coconut Corn Bread

- $\frac{1}{4}$ cup shredded coconut
- $\frac{3}{4}$ cup fine yellow corn meal
- 2 tablespoons whole-wheat flour
- $\frac{3}{4}$ cup water
- $\frac{1}{2}$ scant teaspoon salt
- 1 tablespoon olive oil

Mix all ingredients. Let stand 20 to 30 minutes before baking (optional). Bake 45 minutes in 350° F. oven. Yield: 8 small muffins. May be baked in pan and cut in squares for serving.

Potato-Corn-Meal Sticks

- $\frac{1}{2}$ cup seasoned mashed potatoes
- $\frac{1}{2}$ cup unbleached flour
- 2 tablespoons corn meal, freshly ground if possible
- $\frac{1}{4}$ teaspoon salt
- 1 tablespoon soy cream (recipe below)

Mix all ingredients well and roll the dough between waxed papers to about one-half-inch thickness. Shape into a square, cut into one-half-inch by three-inch strips, and bake in a preheated oven (325° F.) until crisp but not brown. Yield: 12 to 14 sticks.

Soy Cream

- $\frac{1}{2}$ cup water, room temperature
- 1 rounded tablespoon Soyamel (powdered soy milk)
- Enough corn oil to thicken

Blend the Soyamel and water in the liquefier. This makes soy milk. While the blender is whizzing the milk at top speed, pour a small steady stream of oil into the blender until the milk thickens like heavy cream or ordinary mayonnaise.

Sesame Thins

- $\frac{1}{3}$ cup oatmeal
- $\frac{1}{3}$ cup fine rye flour
- $\frac{1}{3}$ cup fine whole-wheat flour
- $\frac{1}{2}$ cup wheat germ
- 1 cup unbleached white flour
- $1\frac{1}{2}$ teaspoons salt
- 1 teaspoon soy sauce, optional
- 3 level tablespoons thick soy cream
- $\frac{1}{2}$ cup cold water
- $\frac{1}{4}$ cup sesame seed

Mix dry ingredients well, and cut in the soy cream as you would for a pie crust. Mix the cold water and the soy sauce and sprinkle into the flour as you toss it lightly with your finger tips. Roll out the dough very thinly between two layers of waxed paper. You may oil the paper slightly or brush it with thin soy cream to prevent sticking. Remove one waxed paper and brush that side with a mixture of soy cream and water or soy sauce and cream. Sprinkle a generous layer of sesame seed over it. Place a cooky sheet over the sesame-seed side and pull the layer of dough inside the tin carefully in position for baking, and turn the tin right side up. Remove the sheet of waxed paper covering the side that is now on top. With a wavy-edged knife or cutter, score the dough for cracker-sized pieces and slip the cooky sheet into the preheated oven (325° F.) and bake for 15 or 20 minutes. ▲



REVIEW PHOTO

A pain in the low back radiating down
a leg may indicate sciatica.

SCIATICA

 **WILLIAM T. GIBB, M.D.**
Internist, Washington, D.C.

SCIATICA, or sciatic neuritis, is an inflammation, infection, or irritation of the sciatic nerve, which is about the diameter of the little finger. It begins at the transverse fold of the buttock, goes down the back of the thigh, well covered and protected by heavy muscles, splits into two branches behind the knee, and the branches continue down into the foot.

The sciatic nerve, the largest nerve in the body, has to do with practically the entire muscle control of the leg. If the nerve is cut or crushed, the leg is paralyzed.

Consider the spinal, or vertebral, column, which can be said to be composed of about twenty-five separate bones, held together by a strong lacework of flexible but inelastic ligaments. Between the main body of each separate bone, or vertebra, there is a tough fibrous cushion with a liquid center somewhat comparable to that of a golf ball.

On the side of the spinal column facing the back, there is a sort of conduit with a strong bony covering, which houses and protects the spinal cord. For each vertebra there are two small openings, or foramina, one on each side, through which pass the branches of the spinal cord, known as the spinal roots. The cord itself lies in a cushion of liquid that in turn is retained by a covering, or sheath. This sheath extends for a short distance out along these branches, or roots, forming a sort of cuff on each side. Inflammation of this little cuff is called radiculitis. The pain from it usually is made worse momentarily from coughing or sneezing.

In the upper part of the spinal cord the roots branch off more or less at right angles. Each of these nerves is formed from two short branches coming

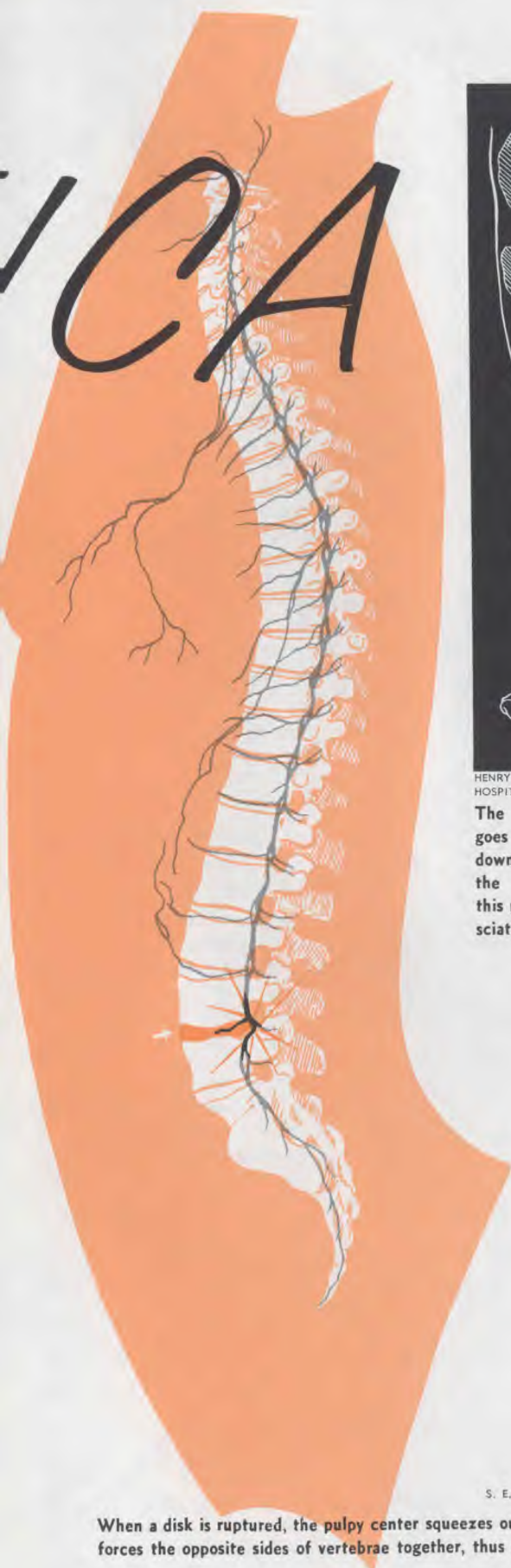
from the cord—one of which carries sensations, or feelings, from a certain part of the body to the cord and from there to the brain, and the other conveys messages or impulses that activate the muscles to contract. The junction of these two short nerves to form the single nerve takes place within the protecting bony arch.

Toward the lower part of the spinal cord these roots come off at increasingly acute angles, for the cord itself is shorter than the bony conduit. This pattern results in a longitudinal fan-shaped collection of these spinal nerves lying within the conduit, known as the *cauda equina*, or "horse's tail." Each root or branch leaves the protective covering through its own foramen, in the lumbar vertebrae and the sacrum.

The sacrum is made up of several vertebrae fused together, and it forms the bone to which are attached the two hipbones. After the branches that have made up the *cauda equina* have left their protective covering, most of them join to form the main trunk of the sciatic nerve.

The spinal cord might be likened to a complicated trunk-line cable in a telephone system. It contains thousands of tiny fibers, or "wires," that go from the brain, or main office, out to the individual subscribers. Messages can be sent out from the brain to the various parts of the body and back in the opposite direction. Each fiber has its own little end plate. The incoming messages are processed by the brain much as if it were a computer, and the answer is relayed back to the proper places for desired action. Along the way there are all sorts of substations and relay points, called ganglia.

The brain, the spinal cord, and the segmental



HENRY FORD
HOSPITAL

The sciatic nerve goes from the spine down the legs to the heels. When this nerve is pinched, sciatica is the result.

S. E. BOHLMANN, ARTIST

When a disk is ruptured, the pulpy center squeezes out on one side and forces the opposite sides of vertebrae together, thus pinching a nerve.

spinal roots in general form the central nervous system, as distinguished from the autonomic nervous system, which has to do with unconscious activity of the body. If the cord in the neck is severed, all the limbs are paralyzed, but the organs are able to function.

A nerve such as the sciatic is made up of fibers taking messages out to the parts of the body that it regulates, as well as fibers coming from those areas with messages to the brain, regarding conditions out there.

As to the symptoms that suggest sciatic neuritis, that is, pain in the low back radiating down one leg or the other, we must consider situations aside from inflammation or infection of the big nerve that begins at the horizontal fold of the buttock. Remember that the fibers and small trunks that make up the sciatic nerve come from the spinal cord and the *cauda equina* and that these two parts are snugly enclosed in a rigid bony tunnel, or conduit.

The outlet of the spinal roots is through a number of foramina, which closely fit the diameter of the nerves passing through them. Any condition that occupies a part of the space inside the tunnel of the spinal column or distorts or narrows the diameter of the foramina may well cause pressure or sensations in that area of the body supplied by it.

One fact must be kept in mind when considering diseases of the nervous system. The symptoms, or sensations, usually are felt in the part of the body to which the fibers involved are going, not at the specific place where the disease or disability is.

If a telephone cable is cut, the effect is on the telephone instruments farther out along the line. Messages to and from the area will be affected. It takes a number of complex instruments to find the spot where the cable injury took place.

Herpes zoster, or shingles, is caused by a virus infection of a specific part of one of the spinal roots close to where it leaves the spinal cord. The pain and the skin lesions are experienced out on the side of the chest wall or the abdomen, depending on which particular root is involved. There is nothing to be seen or felt at the place where the real trouble is.

The specific symptoms of sciatic neuritis—that is, the sensations experienced by the victim—are highly variable as to their character and their onset. The principal symptom is pain, which may be sudden in making its appearance, or it may come on gradually and work up to a peak.

It is not unusual for the patient to feel perfectly well when he gets out of bed in the morning, only to be suddenly crippled by agonizing pain going down the back of his leg. Bending over to tie his shoelace may be the action that started it off. It may come on slowly over the course of several days, and never be particularly painful or disabling.

Characteristically, the pain begins in one buttock and goes down the back of the leg into the foot. The pain generally is constant, but it may be accentuated by coughing, straining at stool, or bending at the waist with the knees straight. There may be a sensation of numbness or even actual loss of skin sensation on the side of the involved foot. Sometimes the nerve may be sensitive to pressure

(To page 29)

The Family Physician



We do not diagnose nor treat disease by mail, but answer only general health questions. Address: Family Physician, LIFE & HEALTH, Washington, D.C., 20012. Enclose stamped, addressed envelope.

By JOHN R. SPENCER, M.D.

Bronchiectasis

What physical changes occur in bronchiectasis, and how can the disease be treated?

In bronchiectasis some of the bronchioles (tiny thin-walled branches of the bronchial tree) become enlarged and pocketed. Infected mucus collecting in them is coughed up at intervals during the day. Very often there is disengagement of these cavities when the patient arises in the morning, so that he may cough up several ounces of sputum at one time.

The treatment of bronchiectasis is to maintain in every way possible a good hygienic state of the lungs. Inasmuch as this is difficult because of the changes that have taken place, treatment may be limited to postural drainage. Sometimes the injection of iodized oil into the bronchial passages and cavities or the use of antibiotics has been found favorable. In severe cases removal of the lobe of lung involved is necessary. Good physical therapy can give much relief.



Dry Skin

I have unusually dry skin, so much so that it burns and itches. What shall I do for relief? Is there any kind of vitamin I can take to make the skin oily?

Dryness of the skin may accompany reduced activity of the thyroid gland or deficiency of certain minerals and vitamins in the diet. In some skin diseases there is marked dryness, the cause of which is not known.

Occupational conditions may contribute to this state of the skin, such as having the hands in soapy water constantly. Occupational causes usually are easily corrected.

Take a liberal amount of vitamins A, B complex, C, and D. Have a check made of your basal metabolism to deter-

mine whether your thyroid gland is functioning normally. Even though adequate vitamins are provided, the skin may be dry and scaly if the thyroid is working much below its normal level of activity. For temporary relief use suitable skin creams containing lanolin.



Hypertension and Arteriosclerosis

Are high blood pressure (hypertension) and hardening of the arteries (arteriosclerosis) related conditions? How can I avoid getting high blood pressure?

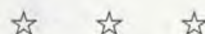
Hardening of the arteries is a condition seen much more commonly in recent years, probably because of the lengthened average of life. It often is associated with high blood pressure. Some doctors believe it contributes to rise of blood pressure, whereas others say that high blood pressure and tension contribute to changes in the walls of the arteries.

High nervous tension contributes to a rise in blood pressure. A change in the person's nervous state often is accompanied by a change in blood pressure. Continued physical strain may be injurious. Fat people are more likely to have blood-

vessel diseases than thin persons, and overweight people often have high blood pressure.

A diet without much fat, planned to nourish the person, should be chosen. A rise in blood pressure is a likely result after injury to the kidneys. Nephritis and acute infectious diseases of the kidneys may cause an increase in blood pressure. If a person has any history of these diseases, he should follow closely the advice of a physician.

Suitable periods of relaxation, play, and change from the routine of life are wise provisions in everyone's program.



Rh Blood Factor

Are Rh tests necessary for me during pregnancy? I am Rh negative, and my husband is Rh positive.

The Rh factor of the blood has become a consideration in obstetrics. It often is determined routinely on mothers by physicians. Some physicians are testing both the father's and the mother's blood.

The complications of certain combinations of the Rh factor are likely to affect the baby, although not particularly the mother. During her pregnancy her blood should be tested to determine whether any unfavorable reactions are in the making.

One healthy baby will not guarantee a second, although the mother may have a second baby without complications. Very often the second baby is a victim of complications, however. This result is not because the mother's blood type has changed but because there is a reaction of certain elements in the blood that have been built up from conditions in the previous pregnancy.

A jaundicelike complexion in a baby shortly after birth follows blood incompatibility between mother and child. Careful tests by the attending obstetrician will prepare him to meet such a crisis and often save the infant's life.



The Wind

By TOM McELWAIN

The wind
Comes up from the valley
By night, by day,
And shreds banana leaves
To satin ribbons.

Sodium Citrate

Is sodium citrate a harmful drug?

So far as we know, sodium citrate is not harmful in the amount commonly used. It is a natural constituent of the blood stream. For medical purposes it often is prescribed by a physician. It is looked upon as an alkalinizing drug. ▲



STUTTERING AND NAIL-BITING

(From page 13)

childhood habits such as nose-picking, eye-blinking, and face-twisting.

What causes nail-biting? As with stuttering, it is generally nervous tension. I bit my nails to the quick until I reached my teens. It spoiled the shape of my fingers. I urge mothers not to ignore this nervous habit.

What can be done about it? If the child is over four, establish pride in pretty nails. A small manicure set will please a child and stimulate interest in attractive nails. Keep fingers free from hangnails. Hangnails often bother children, and in removing them they use teeth in place of clippers. Rounded edges of nails are not likely to break.

Polish may be applied frequently, "just like mommy uses." Put on with interest and pleasure, it may not be bitten off.

As with stuttering, it is better to avoid attempting to correct nail-biting. Since it is due to nervous tension, why intensify that tenseness? An appeal to appearance is a more positive approach.

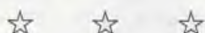
Keeping the hands clean aids health as well as beauty. So does protection of the fingernails. When their surrounding skin is torn, germs may easily enter the blood stream.

Nervousness and nervous tension show nervous instability. Adults thoughtlessly may intensify it. There's the mother who, when angry, speaks in a sharp, screechy voice, and the irritated father who shouts. Thoughtless parents often cause serious nervous instability in children.

These soon-forgotten adult attitudes are remembered by the sensitive child: scolding a child without finding out whether discipline is in order, refusing to believe what he says, concluding quickly that he has willfully disobeyed. Such attitudes build up nervous tension. They cause nervous instability. They may not mean lack of love, but the adult's words and actions make the child wonder whether he is really loved and wanted. If he thinks he is not, he suffers.

Many volumes have been written about childhood behavior. Some fathers and mothers have reared boys and girls successfully without reading books. They

have found help and guidance in one Book that is many centuries old, a Book that says to those who have raised large families at great financial sacrifice: "Lo, children are an heritage of the Lord. Happy is the man that hath his quiver full of them." "Better is a dinner of herbs where love is, than a stalled ox and hatred therewith," for "love is strong as death; jealousy is cruel as the grave." No father or mother, remembering that verse, can have the heart to scold a son or daughter who—suffering jealousy "cruel as the grave" after a new baby's birth—starts stuttering or begins nail-biting. ▲



TRICHINOSIS

(From page 14)

with this material is negative but after three weeks it becomes positive, a diagnosis of trichinosis is warranted. But the trouble with this test is that so many people—one out of eight—have been infested with trichinella at some previous time during life. The test remains positive for many years after infection has occurred, so that a positive skin test does not prove that the current illness is trichinosis.

There is as yet no specific treatment for trichinosis. The best thing is to avoid eating pork. Cathartics, worm-destroying medicine, antiseptics, arsenicals, cortisone, and a good portion of the entire gamut of therapy have all been used, with no striking results that would point to a specific treatment. Some time ago a new drug, Thiabendazole, was investigated for the treatment of this disease. A University of Texas worker believed that this drug offered hope, but he knew that more study was needed. Cornell University workers investigating this drug were less enthusiastic, and they pointed out side effects that might contraindicate its use. Any proposed drug requires the usual meticulous testing for safety.

As with any other disease, prevention is the ideal. The control and preventive measures in this disease are few but important.

The parasite of trichinosis can be found in other varieties of meat—in beef, for instance, if the beef has been put through a grinder in which pork has been ground and the grinder not thoroughly cleaned after the pork grinding. Other implements could contaminate other kinds of meat. We learned of the case of a religious Orthodox Jewish woman who contracted the disease in this manner. She was reluctant to believe that she could be exposed to trichinosis, because she adhered strictly to her religious tenets, one of which is avoidance of pork.

The meat packer cannot be held re-

sponsible for trichinous pork, because gross inspection does not reveal the condition. Even microscopic examination is of dubious value because of the technical difficulties involved, and because the cost of the procedure is prohibitive.

Fortunately, trichinosis is not communicable from man to man. ▲



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The Mother's Counselor



By BELLE WOOD COMSTOCK, M.D.

Stuttering

My ten-year-old son has stuttered since little brother came along seven years ago. He developed recently a nervous blinking of the eyes, with red inflamed eyeballs. The doctors here tell me that this reaction is caused by his nerves, and suggest a change in the home atmosphere. His home life seems quite normal. Can his nerves be strengthened through correct diet and vitamins?

Stuttering is almost always a nervous habit, made worse by the attention paid to it. If when children begin to stutter it is not noticed, in most cases they will overcome it themselves. But the extreme efforts made to correct the habit cause them to be so self-conscious that they cannot be relaxed and natural in their speaking.

So you would do well to forget your son's stuttering. Pay no attention to it. Do not let him think that you consider him nervous. Just treat him as a normal boy, showing him a lot of affection and having comradeship with him.

Such a child is likely to feel inferior, so do everything that you can do to build up his self-respect. Commend him often, and avoid criticism.

It would be well for your son to have some vitamin-B complex with every meal, and he should be on a good nutritional program. Otherwise, be happy with him and forget his stuttering.



Ignore Thumb-sucking

My children all suck their thumbs, and nothing I can do helps. What do you advise?

When thumb-sucking becomes a problem and issue in the home, it is better to ignore it and let the children suck their thumbs. Any plan that is a failure makes a problem worse.

I believe in your case the best thing is to stop worrying about it and be a happy

companion to your children, and the chances are they will finally forget to suck their thumbs. You might make a joke of it once in a while by sucking your own thumb for their amusement. But do not let them see that you are upset about their habit.



Tantrums

I am concerned about my sixteen-month-old daughter. When she is angry she holds her breath until she faints. I have left her alone when she begins, but that does not stop her. It is just a temper tantrum, but still it scares me. What do you think?

It is important that you do not let this trick upset you. If your baby sees that she can frighten you in this way, she will be more persistent in it.

Act unconcerned. Leave the room, put her in a room by herself until she gets over it, or stay where you are and go ahead with your work without paying



Mother's Evening Prayer

By MARGIT STROM HEPPENSTALL

Lord, I have seen Thy smile
Of benediction in the blushing skies
Over the cool green evening holding me
Within its secret place of peace,
After the hours of work and play,
With children's needs outstretched to me all day.

Love, laughter, rest—in all of these
Thou hast been close to me,
Sharing a corner of Thy paradise
For just a little while.

any attention. The only thing to worry about is that she may get the idea she can upset you. This cool, indifferent attitude probably is the best treatment.

Another way, which would do no harm and probably settle the matter more quickly, would be to turn her across your knee and spank her bare skin severely enough that she would soon forget about her temper. If once or perhaps twice you did this immediately and quickly without saying anything, it would be all that is necessary. Certainly decisive treatment is better for her than an easygoing manner of letting her get the habit of a temper tantrum or hysterics whenever she does not have her own way.

Temper is taken care of easily if it is dealt with smartly and at once. If there is always loving and cuddling after such an emphatic experience, the little girl's nervous system can learn the lesson of self-control.



Family Difficulty

My two teen-age boys have not spoken to each other for the past three years. They used to fight a lot, and one day when I caught them at it I told them if they could not get along they simply were not to speak to each other. What can I do now?

I am sympathetic with you in your trying situation, but I believe you can only make matters worse by paying attention to it and trying to correct it. The only thing to do is ignore the issue. You are sorry, and they know it, but the only thing you can do is be kind and courteous.

Let the atmosphere in your home be peaceful. Take special care that you and your husband are helpful and courteous to each other. Never act impatient or disturbed. Do not try to reason or argue in any way. With the right attitude on your part, the problem will be solved in time. Let your hearts be filled with love and sympathy. ▲

CONSTIPATION

(From page 15)

of consciously controlling the sphincter action. The ability to control it varies greatly in different people, some getting to the stage where they would not have a bowel movement for several days if they chose not to, and others not being able to hold back the fecal mass more than a few minutes after the sensation of the need for evacuation is felt.

An evacuation within an hour or less after each meal might be natural, but in cases where the food residue is small and nonirritating it might normally take more than a day for the collection in the lower bowel of a fecal mass large enough to stimulate the nerves there to act.

In the latter case, the person concerned should study the situation, with a physician's aid, if necessary, to see whether some undesirable or abnormal influence is at work to delay the evacuation. It is quite common for young people to put off going to the toilet when the sensation of a need to do so comes on, often because of the social circumstances or their wish to do something else at the time. Habitual suppression of the sensation results in its coming on less and less frequently. Many cases of constipation are owing solely to overuse of the power to control bowel evacuation. The damage it does to health can be overrated. Absorption of "poisons" from the fecal mass in the intestines is rarely a serious matter.

There are two approaches to the problem of constipation:

1. Through diet. An ideal diet should contain food with a considerable percentage of indigestible, though not too irritating, material, to ensure adequate bulk in the fecal mass. "Smooth bulk" is the idea. This result can be attained by including an abundance of fruits and vegetables in the diet. If too irritating a bulk results, skins, fibers, and seeds should be discarded.

2. Through establishing suitable bowel habits. Doing so usually can be accomplished by going to the toilet at the same time each day and spending a few relaxed minutes to empty the lower bowel, regardless of whether there is a sensation of needing to do so. Generally, the best time to do this is a half hour to an hour after breakfast. There usually has been time for the evening meal to add its residue to the fecal mass and the peristalsis begun by eating breakfast to spread downward to the large bowel. Usually within a few days or weeks it is no longer difficult to evacuate the bowel at the desired time, and the sensation of a desire to do so occurs regularly about this time.

Another way of encouraging normal bowel action is by suitable exercise. Forming part of the rear wall of the

abdominal cavity is a pair of muscles that by contracting help swing the thighs forward. In walking or any other exercise in which the thighs move alternately forward and backward, these muscles alternately contract and relax. The large bowel lies close in front of them, and their action applies massage to the bowel, tending to stimulate its function. If the exercise is taken with the body upright, gravity helps move the fecal mass down.

There are cases of constipation that do not respond to these natural treatment measures. It may be that poor eating and bowel habits have persisted so long there is no simple or easy cure. Or there may be a serious cause for the condition. Tumors in the bowel wall or pressing on it may hinder passage of the fecal mass. Adhesions in the abdominal cavity—most often caused by healed inflammation or surgery there—may do the same thing. A hernia may become partially strangulated, and produce a similar result. However, if the strangulation is complete, symptoms soon will become severe enough to drive the sufferer to a doctor.

In any case where there is a question as to the cause of constipation, especially if the stools are streaked by or mixed with a little blood, the person should consult a physician without delay. The symptoms may mean nothing worse than hemorrhoids or a rectal polyp—or they may mean cancer. Any of these conditions may call for surgery, which carries a good chance of cure (even in cancer, if done early).

Contrary to what many people think, purgatives or irritating enemas are not only unsuitable treatment for constipation but may cause or at least perpetuate it. By removing more of the bowel contents rather forcibly than would be evacuated at the time of a normal bowel movement, they lengthen the time it takes for a fecal mass of normal size to collect in the lower bowel. By doing their work through increased irritation, they lessen the ability of the bowel lining to respond to a normal stimulus. Both the cathartic habit and the enema habit are worse than most of the cases of constipation they are mistakenly expected to correct.

If you are constipated or think you are, first make sure there is no condition present that may call for surgery. If none is, then study your habits to see what may need correction, and use natural methods to aid in restoring normal bowel action—healthful diet, copious drinking of water, daily outdoor exercise, relaxation, and immediate attention to nature's urge. You may very well have success, but if you should fall a little short, it would still be better than trying to force the issue and mistakenly making a bad matter worse. ▲

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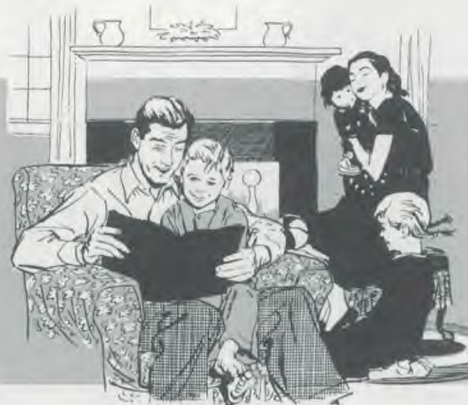


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The Family Fireside

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By HAROLD SHRYOCK, M.D.

Professor of Anatomy
Loma Linda University School of Medicine

BEHAVIOR DIFFICULTIES

IT IS natural for a parent to feel concerned when his child develops troublesome behavior. With this concern come the questions: Whose fault is it? Are we parents responsible for it? What did we do wrong?

In a sense, the parents are responsible even for the unusual forms of child behavior, because the child's conduct depends on heredity and environment. It was the parents who passed on to the child the hereditary factors that gave him his start in life and that control the general pattern of his body structure and personality. We admit that hereditary factors, even though passed on to the child by his parents, were not of their choosing. In harmony with the laws of nature, they simply transmitted traits they had received from their ancestors.

Parents are directly responsible for the influence of their child's surroundings. Environmental factors come under their control day by day. In large part, they are of the parents' choosing.

The factors in a child's surroundings have a great deal to do with whether he responds favorably or unfavorably to handicaps he may have inherited. Of the various elements in the environment, it is the parents' attitude and manner of dealing with their child that determine whether his behavior will be acceptable or will pose problems to the family and the community.

Breath-holding

Our middle child is five years old. She is always getting into mischief and doing things I have told her not to do. When I spank her she holds her breath so long that she gets blue and finally passes out. How can I keep her from doing so?

In a young child, breath-holding while crying is a common manifestation of anger. It usually begins before eighteen months of age. A child who is so inclined uses breath holding as a protest when he

cannot have his own way, when he hurts himself, or when he wants attention. The spells may occur more than once a day, or they may be as infrequent as once a month. In a severe case the child loses consciousness temporarily on account of the lack of oxygen, and he may even



NEW YEAR'S EVE

By LOUISE C. KLEUSER

How solemn is the thought
The old year's in the past.
A new year presses in,
New days from first to last.
New aims and plans to reach,
As days and weeks demand.
Dear Master, give me grace
And vision to expand.

Don't let this new year be
A copy of the old,
But let each hour reveal
A little firmer hold
On Thee and on Thy work.
And let Thy cause mean more
To me each added day—
O let me higher soar.

I thank Thee for the old,
But let the new year read
More hours in service spent
For fellow men in need.
Thus will this new year hold
A treasure chest in store,
And be a merchant ship
Bringing its best ashore.

have convulsions. Once he becomes unconscious, the muscles that are preventing intake of air relax, and breathing and other functions return quickly to normal.

As the child becomes older, he cries less and the breath-holding spells tend to taper off. Usually they have ceased by age four, but in some cases they persist as long as age six.

I suggest that you change to some form of punishment other than spanking. Thus you will avoid the severe crying that sets the stage for the breath-holding spell. You speak of your child being mischievous. This in itself is not bad. It may simply indicate that she is curious and active.

Try providing a simple playroom or playhouse for your little girl, where she can do as she pleases with her dolls and toys. Arrange for her to have more time with playmates. With these changes in her life she will have things to do that are more interesting to her than getting into the kind of mischief that prompts you to punish her.

Tantrums

Our three grandchildren and their mother, who is divorced, live at our house. The oldest child, Anne, who is four, has temper tantrums two or three times a week. When she becomes upset, she throws herself on the floor, screams, kicks, and bumps her head. Anne's mother has a temper. What is the best way to handle tantrums?

It is probably more important for you to discover the real cause for Anne's tantrums and then remove it than to concentrate on how to handle the tantrums once they occur.

The home situation you describe does not make it easy for Anne to be calm or feel secure. You say that her mother has a temper. It is easy for Anne to follow her mother's example.

Anne's father is not at home, and this

fact is upsetting to her, even at the age of four. She is living in a household dominated by adults older than her mother, and this situation leaves Anne confused as to whose instructions she should follow—her mother's or her grandmother's.

Some of the circumstances of home life that tend to make Anne irritable cannot be changed suddenly, but here are a few suggestions that may be of help:

1. Take Anne to the doctor for a general health examination. If her health is below normal, she has a low supply of energy, and that makes her irritable and thus susceptible to having tantrums.

2. In so far as reasonable, remove the circumstances that cause Anne to become upset. Make sure that you and her mother agree on the regulations Anne should follow. Make them few and simple. Allow Anne some preferences of her own.

3. Arrange for Anne to have interesting things to do so that she does not become restless.

4. Have Anne lie down in a quiet place for about an hour early in the afternoon every day. If she takes a nap, fine. If not, let her simply rest quietly.

5. Try reading interesting stories to Anne for at least a half hour a day.

6. When Anne does become upset, treat her kindly but firmly. Try not to notice the tantrum. Do not argue with her about the problem that causes her to be upset. Do not give in on the matter that bothers her, for this easing of discipline will only tempt her to have a tantrum the next time her wishes are denied. Attract her attention to something pleasant.

Tongue-sucking

My little boy, aged three, sucks his tongue. He was weaned from the bottle at fifteen months, but he was given a pacifier for another three months. Soon after we took it away from him he began to turn the tip of his tongue backward and make sucking motions. This habit has continued for almost two years, and I am afraid it will affect the shape of his mouth.

Tongue-sucking is considered by most authorities to be a substitute for thumb-sucking. It occurs in children who are under pressure to do the things their parents require, in those who are unhappy, and in those who are tired because of lack of enough rest.

Make sure your child has ample play activities, that he gets sufficient rest, and that he receives companionship and love from both his parents.

Nightmares

When our little girl was three, her next-older brother met a tragic death.

Now at age five she has nightmares two or three times a month. She is nervous and high strung. Do you suppose that this problem is the result of her brother's death? What do you advise us to do?

Pediatricians believe that nightmares in children are the result of emotional strain and they occur most frequently in those who are tense and anxious.

I agree with you that your daughter's problem probably dates back to her brother's death. I suggest that you do everything possible to give her reassurance and abundant affection. Be particularly careful to avoid harsh punishment or any attitude that she can interpret as meaning indifference to her needs.

I trust that your own program does not require you to have employment outside the home. Under the circumstances, it would be unfortunate for your little girl to be left in the care of a baby-sitter. I suggest that when the time comes for her to begin school she not be pushed in her studies. Take time to read interesting stories to her—nonexciting stories of a reassuring nature. I advise that she not watch television serials. ▲



TROUBLE BREATHING?

(From page 9)

the hospital that morning, Mrs. Tandler stopped him in the hallway. She had come in response to her husband's telephone message that he was ready to leave the hospital.

"Tell me, Dr. Jones," Mrs. Tandler requested, "does my husband have heart trouble or does he not?"

"So far as the present examination is concerned, I do not find any trouble with his heart, Mrs. Tandler.

"It takes a careful examination, Mrs. Tandler, to tell just what causes symptoms like those your husband had yesterday. In some cases they are caused by organic disease in some part of the body. In others they are the result of emotional conflict and nervous tension. In still others they are the result of a combination of nervousness and organic disease. A person who is suffering from serious organic disease could actually get so tense and anxious over his symptoms that the anxiety sets off the kind of attack your husband had yesterday. In his case, I do not find any organic disease."

"Then what causes him to have these attacks?"

"Mr. Tandler and I have a little secret on that," Dr. Jones said with a smile. "At any rate, if you find him saving the paper sacks that you get from the grocery store, don't think that he has lost his mind." ▲

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The Golden Age

This page is dedicated to all our Golden Age readers who are still young at heart. It is designed to improve and encourage active hobbies, good diet, and outdoor exercise.



By O. S. PARRETT, M.D.

NIBBLER OR MEAL EATER?-2

ON MY desk before me is a photograph of a Glendale, California, citizen named Jay W. (Daddy) Johnston, a centenarian, as he climbs a ladder while carrying a 100-pound roll of roofing paper on his shoulder. He fought with Theodore Roosevelt in the Spanish-American War. He stands six feet two inches, straight as a pine, and he works at carpentry in Los Angeles besides adding three rooms to his own home when not busy outside.

He eats his first meal at eleven o'clock in the morning and a little fruit before bedtime. He was one of twenty-seven children, has outlived two wives, and fathered sixteen children, fifteen of whom are still living. He says, "People should give their stomachs a rest. I'm good for twenty-five years yet unless I start eating breakfast." He learned about the value of an abstemious diet from the Iroquois Indians, whom he knew as a lad.

It is impossible to draw entire conclusions from the results of feeding rats with their complex diet and methods of feeding when applied to people. Would human nibblers who have diabetes improve by changing from eating regular meals to eating between meals whenever they chose? I can cite one patient of mine, a middle-aged man, whom I discovered had diabetes. I took away all sugar and placed him on a restricted diabetic diet. Three years later he was in my office and made this remark: "You know, Doctor, I have not had a cold in three years or ever since you made me stop sugar." He also said, "I find that if I eat between meals the same foods and same amounts that otherwise I would eat at mealtime, the amount and frequency of sugar in the urine are increased."

This result I distinctly remember, for in my practice I always insisted on regular meals and nothing between meals for my patients. Patients who changed from snacking between-meal eaters invariably told me they felt much better.

Many years ago while I was still a medical student at Loma Linda Univer-

sity an experiment was conducted in the X-ray laboratory to determine the effect of eating between meals. Three nurses were selected and given regular meals with a little barium to determine the emptying time of the stomach. The next day these same nurses were fed between meals on various snack foods, and the emptying time of the meal was so delayed that one nurse had food from the original meal after thirteen hours in her stomach, which should have emptied in four hours or less. She said she did not feel well at the time.

The stomach is a muscular glandular organ that works actively with peristalsis and secretes hydrochloric acid and pepsin. After digestion the muscles need some rest, as Old Daddy Johnston figured it out, and the glands are depleted like a battery that needs recharging. This need is explained by the well-known writer on diet, Mrs. Ellen G. White, whose books I found to be so sound scientifically that

they formed a background for my practice, and the results were most satisfactory. Quoting from her book *Counsels on Diet and Foods* (Review and Herald Publishing Association, Washington, D.C. 20012), which the eminent biologist Dr. Clive McCay, formerly of Cornell University, pronounced scientific, we read:

"It [the stomach] must not be kept in continual operation."—Page 173. "After the regular meal is eaten, the stomach should be allowed to rest for five hours. Not a particle of food should be introduced into the stomach till the next meal. In this interval the stomach will perform its work, and will then be in a condition to receive more food."—Page 179.

What may we conclude as to the matter of nibbling or meal eating? The sixteen years I spent in hospitals and sanitariums specializing in diet plus thirty-six years in private practice, during which time I observed and stressed the importance of diet, brought me to certain conclusions. I carefully noted the reported diets of people who had reached a remarkably old age. Topping the list were the light eaters and those who consumed little or no meat, which has a life-shortening effect.

I am sure that one-hundred-year-old Daddy Johnston, with his hunch from the Iroquois tribe of two meals a day and one of them fruit, can thank the Indians for his remarkable activity and youth to an age when few of us remain alive. We might do well to take a page out of his book and try the two-meal plan. A fruit evening meal is wonderful where possible, for elderly people especially.

My father had his evening meal of meat and coffee, but my mother ate very little supper. She outlived him by twenty-seven years. He died of hardening of the arteries. One of my sons, an internist, checked her before she died, and remarked, "Grandma, you have the heart and blood vessels of youth at a hundred



THE RIVERBOAT

By PAULINE MAKIN

I sit
And I gaze
Out at the riverboat
That is drifting on the water,
And I wish that I, too,
Were sailing
Back home,

and two." She ate little meat in early life and none her last fifty years.

I believe that constantly eating food throughout the day—nibbling—will soon show up in children or adults as deranged digestion and a sour disposition. I would hate to experiment with such a habit, because long ago I adopted the two-meal plan, with a little fruit at night. The fruit supper was hardly a third meal, but I feel sure that eating still somewhat less could lengthen my days further, although at seventy-eight I never have the flu or even a cold.

As soon as I finish this article and get it in the mail I shall don my work boots, take out my tractor, and cultivate my acre garden with its corn, beans, and about everything found in Burpee's seed catalog, run my hand tractor through the strawberries, go through the forty-five rosebushes blazing with color, spend a few minutes with my 250 orchids in the greenhouse, and try to get a little practice on the organ. I may not hit the Spanish lesson today nor look into my beehives.

I have one problem. Mrs. Parrett makes me take off my work boots before she will let me come to dinner at 2:30 P.M., and there seems to be little I can do about it. The boots, having leather laces, are hard to take off, but after growing the new potatoes and peas fresh from our garden (yesterday's menu) and the tender beets and their tops for greens (today's menu) I cannot bring myself to hold out on her and miss my dinner.

As to the laboratory rats and their nibbling, nothing was reported about what they ate. It was simply how they ate. It would be interesting to see what would happen were the meal-eating rats to be fed a normal but restricted rat diet, with control rats allowed to nibble as they chose. Sixty years ago the late L. H. Newburgh of Ann Arbor, Michigan, found that 25 per cent of meat in a rat's diet ruined its kidneys in a year and a half.

Eating between meals adds to the incidence of dental decay, because it adds to the problem of keeping the teeth clean. Here is a statement by Ralph R. Steinman, D.D.S., associate professor of oral medicine at Loma Linda University School of Dentistry, Loma Linda, California:

"The children who have cavities ate snacks between meals more frequently than those without cavities. . . . If people would stop eating between meals, eat less sugar, and replace refined cereals with whole grain, they would wreck the economic status of the dental profession."

I shall observe any further research on the feeding of rats with much interest, but I shall not plan to start nibbling. If you are fat, stop nibbling and watch the weight go down. Then you will look better and feel better. ▲

Household Health

Science Helps the Housewife

By MARY CASTOR KNIGHT

SCIENCE has reached into the home and given the housewife help in more ways than she can estimate. Most of her daily tasks have been lightened by the improvements chemists, electronics experts, mechanical engineers, and other scientists have made in her equipment for operating the home.



Household appliances have been so improved that it is a joy to work about the home. Doing the family washing is so light a task that the homemaker is able to do many extra jobs on Monday. She does the ironing by machine, or she has so many garments and linens that do not need much if any ironing that she no longer need do a mountain of ironing every week.

Improved vacuum cleaners take the place of the broom and the carpet sweeper. Their attachments even do the dusting, bare floors, deep cleaning of upholstered furniture, cleaning of carvings, and dusting of heating outlets.

Efficient and easily operated machines scrub the floor, apply wax, and polish to a high shine and a hard finish.

Thus some of the most difficult tasks in the household regimen have been reduced.

What the chemists have done to improve household cleansers pleases the woman washing off the finger marks from the woodwork, cleaning the kitchen stove, polishing the windows, shining the silver, and removing spattered grease from the kitchen walls. These jobs are done easily nowadays with the modern cleaners.

Teflon-coated pots and pans, stainless steel utensils, tiled walls, and nonporous kitchen and bathroom fixtures are a joy to clean. Where dishwashing used to be quite a job, these new utensils make it easy, not to mention an electric dishwasher to wash the dishes in a sanitary way with scalding suds and hot rinsing.

The mother with children need never fear that she will not get her daily exercise, even with modern housekeeping aids, for youngsters have many needs that call for the kind and loving hands that only a mother can offer. But with skill and planning, the mother of today can make use of many helps that make her work less arduous.

As we are given a big hand with the difficult work of the home, let us take more time than ever before to make the atmosphere of home bright and happy, filled with love and helpfulness. We need to give our children understanding of God, guidance in building character, and direction in using their hands in the many ways demanded by life today.

We must prepare them to meet life with courage when they become adults and responsibilities come to them. If they are prepared for the duties that will face them, they will be adjusted and happy as they come to the time when they will be establishing homes of their own. Mold them in the right way while the clay is soft, and they will not have a difficult time later to fulfill their destiny in this world of doing their own work properly and helping others in every way they can. ▲

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The Dietitian Says



Send questions on food to: The Dietitian, LIFE & HEALTH, Washington, D.C., 20012. Enclose stamped, addressed envelope for your reply.

By RUTH LITTLE, Ph.D.

FAVORITE CASSEROLES

Chic-Ketts and Gravy

(10 servings)

- 1 cup raw potato, diced
- 1/2 cup onion, chopped
- 1 quart potato water
- 1 tablespoon McKay's Chicken-Style Seasoning
- 1/2 teaspoon salt
- 1/4 teaspoon sage
- 2 eggs
- 1/4 cup margarine
- 1/2 cup flour
- 1 can (1 pound, 14 ounces) Chic-Ketts or gluten steaks, cubed
- 3 tablespoons oil
- 2 cups cooked noodles (optional)
- 1 cup egg gravy

Cook potatoes and onions in water until tender, then push them through a sieve. Add the chicken seasoning, salt, and sage. Scramble the eggs in margarine, stirring constantly until broken up and light brown. Add 1/4 cup flour and stir. Add potato water and cook, stirring constantly, until smooth and thick. Add enough water to make 1 quart. Roll Chic-Ketts in remaining flour and brown in oil. Combine with noodles, pour into oiled casserole, and cover with egg gravy. Bake at 375° F. for 30 minutes.

Eastern Casserole

(8 servings)

- 1 cup cottage cheese
- 2 cups cooked rice
- 1 13-ounce can light cubed Soyameat
- 1/4 cup ripe olives, sliced
- 1/4 cup slivered almonds
- 1 8-ounce can tomato sauce
- 1/4 teaspoon garlic salt
- Buttered bread crumbs

Combine all ingredients, pour into 1 1/2-quart casserole, sprinkle with buttered bread crumbs. Bake at 350° F. for 35 to 45 minutes.

Browned Tofu (Soy Cheese)

(6 servings)

- 1- to 1 1/2-pound block tofu
- 1 1/4 cups onions, chopped
- 1/2 cup fresh or 1 4-ounce can mushrooms
- 3 eggs
- 1/2 teaspoon salt
- 1/2 teaspoon Ac'cent
- 1/4 cup oil or margarine

- 3 cups brown gravy (may use Gravy Quik)

- 1/4 cup soy sauce
- 2 tablespoons water cress or parsley, chopped
- 2 green onions, cut diagonally

Steam or simmer tofu for 20 minutes, drain, cut into 1-inch cubes, and brown in oven on a baking sheet at 400° F. Sauté onions and mushrooms in 3 tablespoons oil, but do not brown. Beat eggs, add Ac'cent and salt, and scramble in remaining oil. Prepare gravy, adding soy sauce. Put to one side 2 tablespoons scrambled egg, water cress, and green onions. Combine other ingredients. Pour into oiled casserole and bake for 40 minutes at 350° F. Sprinkle with remaining egg, water cress, and green onions, and serve.

Vegetable or Cheese Soufflé

(6 servings)

- 1/4 cup margarine
- 1/4 cup flour
- 1/2 teaspoon salt
- 1 cup milk
- 1 1/2 cups thick vegetable purée (or 1 cup cottage cheese and 2 tablespoons minced onion or 1 cup cooked rice and 1/2 cup cottage cheese)
- 3 eggs

Melt margarine in double boiler, blend in flour and salt, add milk. Cook, stirring constantly, until thick and smooth. Add vegetable purée or cottage cheese mixture. Separate yolks and whites of eggs. Gradually add mixture to beaten egg yolks. Beat egg whites until stiff but not dry. Carefully fold mixture into egg whites. Pour into ungreased baking dish and bake uncovered in pan of hot water at 325° F. for 1 hour and 15 minutes or until mixture does not cling to knife. Do not open oven while soufflé is baking. Serve at once plain or with parsley cream sauce. A rule: Guests may wait for a soufflé, but a soufflé should never wait for guests.

Gluten Potpie

(8 servings)

- 1 14-ounce can gluten steaks, cubed
- 1 8-ounce can mushrooms
- 1 cup onions, chopped
- 2 teaspoons Savorex
- 2 tablespoons margarine
- 3 cups cooked potatoes, cubed 1/2 inch

- 1/2 cup potato water
- 1 cup milk
- 1/4 cup flour
- 3/4 teaspoon salt
- 3/4 cup juice from gluten steaks and mushrooms
- Unbaked piecrust

Braise gluten steaks that have been cut into 1/2-inch pieces, mushrooms, onions, and Savorex in margarine. Add potatoes, potato water, and milk. Mix flour, salt, and gluten-steak juice and stir into hot mixture until thick. Pour into large oiled casserole or individual casseroles. Cover with unbaked piecrust. Slit crust. Bake at 400° F. for 35 minutes.

Mushroom-and-Soyameat Casserole

(10 servings)

- 1 cup celery, chopped
- 1/2 cup onion, chopped
- 2 tablespoons oil
- 1 can mushroom soup
- 1 4-ounce can mushrooms
- 1/4 cup milk
- 1/2 cup mayonnaise
- 1/2 teaspoon salt
- 2 cups cubed Soyameat
- 2 cups cooked rice

Sauté celery and onion in oil, combine with soup, mushrooms and their liquid, milk, mayonnaise, and salt. Fold in Soyameat and rice. Bake at 350° F. for 45 minutes.

Festive Supper Ring

(6 servings)

- 2 cans mushroom soup
- 1 cup celery, minced
- 2 cans cubed white Soyameat
- 1 recipe corn bread (or 1 package corn-bread or muffin mix)
- 1/2 teaspoon salt
- 1/2 teaspoon sage
- 1/4 cup green pepper, chopped
- 1/4 cup pimento, chopped

Heat mushroom soup, stir in celery and Soyameat, and simmer for ten minutes. To favorite corn-bread recipe or corn-muffin mix add salt, sage, green peppers, and pimento. Pour into oiled 8 1/2-inch ring mold, bake at 425° F. for 25 to 30 minutes, and invert onto serving plate. Serve hot with a bowl of creamed Soyameat in center of ring. ▲

SCIATICA

(From page 19)

somewhere along its course, usually just below the fold of the buttock.

The deep reflex known as the ankle jerk may be absent or weakened as compared with the one on the opposite side. This reflex is similar to the well-known knee jerk. Placing the patient on his back on the examining table, flexing the hip joint, and then extending the leg straight out at the knee joint puts tension, or stretch, on the sciatic nerve, and makes the pain worse.

As to causes, I know you will be confused when I say that the least common cause of sciatic-type pain is actual inflammation of this big nerve. It is even questionable whether it ever happens as the result of syphilis or of such nerve poisons as alcohol and lead. Years ago when lead poisoning was more common because of paint and other compounds that contained lead oxide, it might have been so, but not today. Neuritis as the result of the excessive use of alcohol is also rare.

It is possible to injure the sciatic nerve by a direct blow, but because of the way it is cushioned and protected by the overlying muscles of the buttocks and thighs, this also is rarely done without a great deal of obvious surface damage and much injury to nearby muscles.

Prolonged sitting in improperly designed chairs can create a chronic pressure condition and ultimate nerve injury. Automobile driving for long periods with improper seating conditions can do the same, but usually this cause brings about a transient numbness first, which prompts the person to stop, get out, and stretch his legs before the damage becomes serious. This result was more of a problem when car seats were less accurate in design and the riding qualities and suspension system of the vehicles were cruder and rougher. Long trips on rough dirt roads could cause a hammering of the front edge of the seat on the underside of the thighs, which might well catch the big nerve and pinch it against the heavy thigh bone. This injury produced pain and numbness.

As diagnostic measures become increasingly accurate, it is being realized that the herniated intervertebral disk is the main cause of serious involvement of the sciatic nerve. For a number of reasons, but usually because of a pressure, or squeezing, type of injury to the spinal column, the liquid center of the fibrous cushion between two adjacent vertebrae is dislodged and causes a bulge into the neural canal, which in turn produces abnormal pressure on the structures within.

This injury usually takes place somewhere between two of the lower four or five vertebrae, and the pressure is exerted on part of the *cauda equina*. A single

nerve or several nerves may be so affected. This condition constitutes a so-called space-occupying lesion, which in general means that the snugly fitting structures within an inelastic closed space are crowded and pressed upon.

As mentioned, all the fibers of the *cauda equina* on one side make up the sciatic nerve. The herniated disk and the slipped disk press on only one or two or perhaps all of this collection of nerves, depending on their size and location. This means that the resulting symptoms may be very selective, therefore, each case is different and must be individually evaluated.

Diagnosis is difficult. It depends on more than a quick, superficial examination. The specialist who deals only with diseases of the nervous system—the neurologist or the neurosurgeon—should be called in before final evaluation.

He will want careful X-ray studies of the vertebral column to see whether there is evidence of a narrowing of one of the intervertebral disks, or cushions, and to rule out the possibility of extensive arthritis in the region. He may also want to perform a myelogram, which involves injecting a special substance opaque to X-ray into the liquid-filled space between the spinal cord and its covering sheath. This substance gives a silhouette of the spinal cord, and it will show where the

herniated disk is bulging and causing pressure.

If the diagnosis seems to be definite after a thorough examination, an operation usually is advised to prevent further permanent damage to the involved portion of the nervous system. This surgery is a delicate procedure, for it involves removing a part of the protective bony arch, exposing the spinal cord, pulling it gently aside, and snipping off the bulging disk. It is understandably important to diagnose the exact location of this herniated disk.

This operation usually should not be done by a general surgeon, unless he happens to have had extensive experience in this line. It usually is performed by a neurosurgeon, after careful and extensive examination and considerable consultation.

Because of the complex arrangement of the muscles and their covering tissue in the buttock area and their relationship to the main nerve and the branches that make it up, acute and chronic inflammation of these structures can cause a variety of distortions, pressures, and pulling that produce the symptoms of sciatica. These conditions fall into the general classification of chronic fibrositis and myositis. They are common and are not specific in the symptoms they produce. The symptoms depend on what structures are involved.

By their size and consistency tumors in the lower part of the abdominal cavity, the pelvis, can cause pressure on the spinal roots as they leave the protecting spinal canal. The most common mass in this area is the enlarged pregnant uterus, and pains down the back of the legs are common to the expectant mother. Fibroid tumors of the uterus are nonmalignant, but they can become large enough to cause similar pressure. Many other kinds of tumors in the pelvis, whether benign or malignant, do the same thing. The spread of a prostatic cancer into the bones of the pelvis may involve the nerves as they leave the spinal canal, as will other cancers that happen to spread, or metastasize, into the same area.

There are a number of different cancers and tumors that actually involve or merely press on the fibers of the *cauda equina* within the spinal canal. They may originate in the bony covering, in the sheath, or in the nerve tissue itself. Such tumors may press on the spinal cord.

Arthritic conditions of the vertebral column that involve one or more of the impaired openings through which the spinal roots making up the *cauda equina* leave the spinal canal and reach the outside tissues, may cause an overgrowth of bone that will pinch a nerve and cause a pain that goes down the back of the leg. As a rule, this condition can be seen by properly positioned X-ray films of the



CARL MANSFIELD

ONCE IN A LIFETIME

By GRETCHEN YOUMANS

In frozen flawlessness remains that week
Of winter bliss our childhood had not known
Before, and termed by standard parlance
"freak"

In weather annals of our local zone.

On snow of floundering depth there came
apace
With growing blasts, the pelting force of
sleet,
Which, spent at dawn, left pictured crystal
lace
And endless shining glass beneath our feet.

Exuberance unrestrained, our voices high
In glee, we skimmed across the world, and
knew
With birds the freedom of a boundless sky.
Our shackles burst, we too were free—we
flew!

area. Treatment by means of a traction apparatus tends to relieve this pressure. If this means does not work, it may become necessary to operate, and chip away the offending bony overgrowth.

There are numberless possible conditions that would involve pressures, pinches, distortions, inflammations, tumors, and degenerations of the *cauda equina*, the spinal roots, or the sciatic nerve. I believe I have covered the most common.

I do not believe I can make it easy for the reader to do his own diagnosing as to what the specific cause of his sciatic-type pain is. He can have a fair idea of whether he has sacroiliac disease or sciatica by remembering that the pain of the latter goes down the back of the leg into the foot whereas the former is localized to one side or the other of the sacrum, which is the back just above the buttocks.

Speaking of sacroiliac disease, it might be well to mention that it is questionable whether this is a specific disease or disability. As the name implies, it is supposed to be an arthritic condition of the structures that connect the sacrum in the center with the two hipbones on each side.

In a sense, these two areas of connection are joints, because of their structure, but they do not permit the bones involved to move on each other. Instead, the bones of the pelvis are held in rigid proximity, and the pain that is supposed to originate within the joint or joints actually comes from the fascia (covering) and the ligaments that hold things together in this area.

The pain that results from inflammation or arthritis of either one of the two hip joints can be severe and can radiate a short way down the side of the thigh. In general, such pain is made worse by twisting or bending the joint involved or by bearing weight, as when standing. Suitable X-rays usually help make the diagnosis.

Traditionally, gout is supposed to involve the joint of the great toe, but it also can be the reason for arthritic-type pains elsewhere in the body, even in the hip joint or in the back. The only way to make the diagnosis definite is to find an above-normal uric acid content of the blood, or to see by X-ray the typical lesions in the bones of the involved area. It must be kept in mind that gout and other forms of arthritis can exist together in the same person.

There is no harm in using the word *sciatica* to describe a pain going from one buttock down the back of the leg on that side and ending up in the foot, if you do not fall into the error of describing only one cause to this condition and treating it with only one form of therapy.

Like so many other conditions in the human body, a single symptom or a set

of symptoms revealing sciatica may have many possible causes, and if sensible and thoughtful treatment is to be instituted, a decided effort should be made to find out why the pain is there.

When you are bothered by a persistent pain in your back, do not just assume that it is sciatica and that you will have to grin and bear it. See your physician, and if he wants to employ the services of a specialist, go along with him. The specialist has certain skills and instruments he can use better than the general practitioner. ▲



CAMPERS' PESTS

(From page 11)

thus far is available to you, there is nothing much you can do except keep the area as clean as possible. Cold water may help a little to relieve the itching.

Ants. A clean camp usually is free from ants. Spilled food, especially cooked food, or honey, can lids, and the like entice this little pest to become your guest. Ant powder or spray usually is all you need, along with cleanliness, to rid your camp of ants. In the wilderness, watch where you make camp in the first place, that you do not unwittingly place your cooking area in the path of ants. Watch for ant-hills. Cleanliness is your greatest factor in avoiding these little insects.

Wild Edible Plants

Chicory (*Cichorium intybus*)

The pretty blue flower of chicory grows along American roadsides everywhere.

When the chicory leaves first begin to form early in the spring, pick them for cooked greens or raw greens in salads. When the plant first comes up, there is a crown of leaves. This is the best time to use them as greens. Boil them for only a few minutes, and season as any greens.

Some people have dug up the roots and peeled away all the tough part. There is not much left to eat, but the slender white cores may be cut crosswise, according to Gibbons, and cooked and seasoned similarly to parsnips.

The main thing chicory is noted for is as a substitute for coffee. Dig the roots, scrub thoroughly, place in a slow oven, and roast thoroughly until hard and brittle. When you cut them open, they should be dark brown inside also. Grind them, and brew just as you would coffee.

A word of warning should be issued right here: Chicory is stronger than coffee, so use sparingly. You will have to experiment to find how much to use for the right flavor. You can prepare this beverage in the wilderness by roasting the roots slowly on the edge of coals, turning frequently until browned just right. ▲

PROFILES

(From page 7)



From the University of Cincinnati College of Medicine he obtained his M.D. degree. After twenty-five years in the general practice of medicine he became Hamilton County health commissioner.

During Dr. Reed's years of practice he has been Good Samaritan Hospital staff president and American Academy of General Practice local-chapter president. He is a member of his State and local medical societies and local, State, and national public-health organizations.

He is married, has two grown sons, of whom the older, Jack, is an Air Force officer. His younger son, Tom, is a recent college graduate who is embarking on a teaching career.

Dr. Reed does extensive reading and article writing and is interested in the history of medicine and pharmacology. He could be considered a sports fan, particularly of baseball and football.

When three cases of trichinosis were reported to his department (such reports come periodically to health departments across the country), he thought that public information on the subject would be timely. He regards health education as an important function of any health department. ▲



Brain Tumor Detection

Ultrasonic waves are being used successfully to detect brain tumor, says *Listen News* magazine of August 5, 1965. This new method of examining what is inside the head shows promise of telling surgeons whether the trouble-causing mass is a tumor of the brain itself or a cancerous invader from another part of the body.

Only recently have scientists learned to read with sufficient accuracy the photographs that result when the head is scanned by ultrasound, to use the method as a clinical procedure. ▲

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