Lakes Doctor Starts Column

BOONTON — Dr. Robert B. Zufall of Mountain Lakes starts his medical column "Doctor's Notebook" in today's paper.

An attending urologist at Dover General Hospital, Dr. Zufall gained his premedical education at Princeton and then went on to receive his medical degree from Harvard. He was an intern at Bellevue Hospital in New York City in the late 1940s and later had residency there in surgery and urology.

He was an instructor in surgery at Cornell for more than a decade and is a member of the American Medical Association and the Morris County Medical Society as well as the American Board of Urology.

Married, Dr. Zufall has five children. A resident of Mountain Lakes since 1956, he maintains offices in Dover.

Dr. Zufall's column starts in today's Times-Bulletin, on page two, and will be carried as a regular feature in the Sunday Times-Bulletin, starting this coming sunday.

Dr. Robert B. Zufall

Jan '77

h community agencies

Dr. Robert B. Zufall

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Medical Director

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Area MD Initiates Column

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"Doctor's Notebook" will be featured regularly in the Friday Lifestyle Section.

TIONAL

A Doctor's Notebook

2-13-72

Get a Check - Up . . . On Your Doctor

By Robert Zufall, M.D.

I am often touched, and even a bit amazed, by the faith and confidence many people will have in a physician. The other day I had to explain to a fellow, whom I didn't know very well, that he had a cancer and was going to have to have a pretty serious operation to remove it. His response was, "Okay, doc, whatever you think has to be done, go ahead and do it."

Nothing about, "Can't you treat it with medicine?" or "Maybe I should go to the city," or "Are you sure you know what you're doing?"

It's gratifying, of course, but a little frightening.

Recently the wife of a patient was explaining that they had no medical insurance. I assured her that we could work out something on the payments. "No, no, doctor," she exclaimed, "just send us your bill, whatever it is, and we'll take care of it."

Again, nice; but it worries me.

The point I'm coming to is that maybe people should feel a bit more free to check up on their doctors. Physicians bemoan, somewhat in jest, the good old days when you could keep people waiting all afternoon with nothing but an old Saturday Evening Post, charge them a bushel of potatoes, a month's salary, or whatever you liked, and give them their orders without a word of explanation; but I think perhaps the trend away from that sort of thing hasn't gone far enough.

If you have a lump in your groin that popped out when you lifted the garbage can and you go to the most respected surgeon in town, and you both know you need your hernia fixed, okay. But if you see some guy for an upset stomach and he says you need your gall bladder out, you might be smart to ask a few questions.

"What's a gall bladder?"

"Roughly what will this cost?"

"If I don't have it done right away, will anything bad happen?"

"Would you mind if I talk to my brother-in-law about it? He's a veterinarian."

Ask a friend or two. Ask your family doctor. Ask your neighbor, the nurse. Look in the library for the Directory of Medical Specialists or the A.M.A. Directory. You'll get some idea of the doctor's training. You've got to trust your doctor; but you can trust him (or her) better if you know a little more about him.

Dr. Zufall, a local physician, will welcome questions from readers. Address your queries, unsigned if you wish, to The Citizen.

2/13/72

—A Doctor's Notebook

Fertility

By Robert Zufall, M.D

The primitive tribes in ancient, ancient Greece, 1,000 years or so before Homer, were largely matriarchal. This did not seem to make them any less aggressive than male dominated societies. And, indeed, they only began to give some importance to the male when, after a couple of thousand years, they began to suspect that he had a role in the reproduction of the species.

In our enlightened age, the men have had to bear their share of responsibility for parenthood, or the lack thereof; and in many barren marriages it's a real problem to try to figure out where, and with whom, the trouble lies.

Generally the wife first seeks help, and is checked out by her gynecologist with pelvic exam, pap smear, and, often, daily temperatures to see whether she is ovulating. At this point the husband usually gets a physical exam and a semen analysis. If the answer still isn't forthcoming, wife may get her Fallopian tubes blown out with 002 or X-ray contrast fluid to see whether they are blocked. Blood and urine tests for pituitary and sex hormone studies can be done.

About half the time people with infertility problems do end up having children; but this is small consolation to the other half, who don't. Often everything will appear normal, and you just don't know what the trouble is. Antibody reactions of some sort are suspected, but seldom proved.

Surgery is sometimes successful in opening blocked tubes or repairing bad ovaries; and shots or various pills may be helpful. Artificial insemination with husband's semen, possibly saved and frozen, or with semen from an anonymous donor, is occasionally done. In the latter situation, there may be legal problems about the legitimacy of the child.

If a couple goes seven or eight years and nothing happens, adoption is usually advised. Even racially mixed adoption often results in great happiness both for the adoptive parents and for the child who would otherwise have been unwanted.

In these days of population explosion, when the last thing the world as a whole needs is more children, we tend to forget the plight of the couple who may desperately want a child and be unable to have one; but they still deserve the best we can give them.

5/7/72

A Doctor's Notebook

Relax

By Robert Zufall, M.D.

How many times have you been in a physician's or dentist's office, about to submit to some exotic Oriental torture, pale, sweating, ready to faint from terror, and this clown says, "Relax!"

"Relax? You've got to be kidding! No way!"

I used to think it couldn't be done; but there have been a couple of articles in Scientific American that appear to prove that it can. At least in rats.

The first group of experiments to be reported showed that, contrary to what everyone has always assumed, you can learn to do things like slow your heart beat or the activity of your stomach or intestines. Voluntarily. This was done by a system of rewards. When the heart slowed enough, a nude picture flashed on the screen. After a while it actually worked. At least in male students.

The other study was of the "transcendental meditation" taught by Maharishi Mahesh Yogi (you remember him; he was the one the Beatles liked). The meditator sits and thinks of something like a particular sound, not concentrating on it, just experiencing it. And something does indeed happen. The body's oxygen consumption decreases. The sympathetic nervous system slows down, sweating decreases, breathing slows, the brain waves change.

All this may have great significance in helping us to get our neuroses under control, and even to survive the all pervading up-tightness of our modern lives. Hans Selye, several years ago, showed that rats can be made to sicken and die by subjecting them to stress, like rolling them around in a wire basket. Their adrenals gave out (those poor rats are always getting a hard time; but at least the S.P.C.A. doesn't complain, and rats are useful because they're so much like us.

Psychosomatic illness, headaches, palpitations, upset stomachs may turn out to be learned responses to stress, with their own rewards. If you throw up, you get to stay home from school, right?

Maybe they can be unlearned, by some sort of conditioning treatments, or meditation. People with irregular heartbeats have been taught to improve their cardiac function. Maybe ulcers and high blood pressure can be helped.

When we were primitive, that outpouring of adrenalin in threatening situations helped us to fight or get away; but too much sustained tension just makes us sick. Maybe transcendental meditation will take its place along with the cocktail hour and the Sunday service in helping to keep us on an even keel.

Dr. Zufall, a local physician, welcomes questions and column suggestions from readers. Address them, unsigned if you wish, to The Citizen, 25 Bloomfield Avenue, Denville, N.J. 07834.

4-16-72

THE CITIZEN OF MORRIS COUNTY

A Doctor's Notebook

Packing on the pounds

By Robert Zufall, M.D.

Ever since the loyal subjects of the Aga Khan stopped determining his salary by putting him on one side of the scales and balancing him with gold and jewels, obesity has been more of a curse than a blessing. Even in his case, he probably would have enjoyed his money a little longer if he hadn't gotten so much.

Everyone who's ever tried to lose weight knows that it's tough. And every so often somebody ccomes up with a non-diet diet like a drinking man's diet or a protein diet or a calories-don't-count diet. Don't let 'em kid you. Calories count. Essentially, they're all that counts. Some count more than others, apparently. There's some work showing that some kinds of calories are better utilized than others; but that's pretty much academic.

Why is it some people can't gain and others can't lose? It doesn't usually seem to be the glands. Thyroid, pituitary, adrenal, etc. seem to be the same. Compulsive eating can cause obesity. Heredity. Kids look like their parents.

Researchers have found that during early childhood the number of fat cells in a person's body can be increased by forced feeding; and that once you have these cells they stay with you, ever ready to pack away a few more triglycerides. So if your child has a tendency to chunkiness, go easy on his groceries and you'll be doing him a favor for life.

Studies show that an extra 10 or 20 pounds won't hurt you; but when you get over that, your tendency to high blood pressure and diabetes goes up, it's harder for you to get through operations, and your life expectancy is less. Besides which, you have to carry all that stuff around.

The type of diet probably doesn't matter much, as long as it's reasonably balanced. But you really do have to count every little calorie that goes into your face. Carry a pocketbook notebook, and when you get to 1,000 or 2,000 or whatever you've decided, that's it. Personally, I'm happier eating small amounts of what I like, rather than lots of carrots and celery; but that's up to you.

Amphetamines curb your appetite a bit; but our county medical society has advised against putting people on "speed."

It's unfortunately a lifetime proposition, and, for some people, dieting is so miserable and difficult that maybe it isn't worth it. That's something a person ought to be allowed to decide for himself. But if I were you, I'd keep trying.

3/5/72

A Doctor's Notebook

Flirting with danger . . .

By Robert Zufall, M.D

There is a failing common to most of us, called, I think, something like conceptual dichotomy. It consists of being able to hold mutually contradictory opinions at the same time.

This usually occurs when we know something is bad for us, but we do it anyway. All dedicated skiers, as I am, have get to be guilty of it.

"I can break my leg skiing."

"I do not want to break my leg."

"I will go skiing."

First you must minimize, in your mind, the chance of getting hurt. "I ski in control. I ski cautiously."

Then you minimize the injury. "It's only a couple of months in a cast. It'll heal."

And you maximize the fun. "Won't we have a great time, yodeling at each other and rolling around in the snow and leaping from mogul to mogul like young gazelles."

I'm afraid the truth of the matter is that we enjoy a little danger. Fun is often something exciting is often something dangerous. I don't honestly think you have to worry much about killing yourself, if you pay a little attention to what you're doing. It's probably safer in that respect than driving a car. But you'll likely sprain your ankle, and you might well break your leg.

If you're a beginner, by all means start off with lessons at some place that puts you on rented short skis. They're much safer, as well as much easier to learn on. When you get your own release bindings, learn how to adjust them to your weight and ability.

Cubcos or Millers or Spademans are good, because they release your foot in all directions. And do check the adjustment often. Safety straps of course. A runaway ski is a real javelin.

Learn how to get on and off the lifts. This can be the worst part of the whole operation. I still remember one of my children not quite getting on the chair, and ending up hanging by her coattails about 15 feet in the air. When she dropped off into the soft snow without injury, the people waiting in line cheered.

Don't wear a long scarf, It can catch in the lift and strangle you. Honest.

Don't ski alone in closed or unmarked areas. You could drop off a cliff.

Ski is control. That means don't get going so fast that you can't turn or stop before hitting something. Especially me, if I happen to be potting down the trail in front of you. At least holler, "On your left!" (or right, as the case may be.).

In a fall, don't stick your poles out in front of you, where you can land on them. It's only permissible to stab someone with a ski pole if he's squeezing ahead of you in line.

In the Rockies or the Alps, you may run into avalanches. Be awfully careful of "avalanche danger" signs; and if somethings looks as if it could slide, for God's sake, get out from under it.

We saw one in Switzerland, rumbling down the mountain, uprooting trees, knocking down buldings. We were half a mile from it, and for a minute there was so much snow and twigs and debris in the air that I couldn't see my son, who was 15 feet away. That was too much fun and excitement.

3-19-72

A Doctor's Notebook

Booze

By Robert Zufall, M.D

You've probably heard by now that the most abused drug in the U.S.A. is not some exotic Turkish flower smuggled in via some French connection, but good old C2H50H, ethyl alchol, solace alike of the weary commuter and the lonely housewife.

This was the burden of a special report to Congress. Nine million alcohol abusers in the U.S., which works out to about 10,000 in Morris County. They characterize the heavy drinker as drinking most every day, with five or more drinks on occasion, or five or more drinks once a week. In case you wondered if you were.

When I was at Bellevue, we used to see the real winos, the Bowery bums who sit on the sidewalk with a bottle of sneaky pete to numb their misery, and come to the hospital with leg ulcers or maggots orpneumonia orDT's or they fell off the curb in front of a car. With the DT's they're kind of nervous and shaky and all of a sudden they start hollering and climbing out of bed. Never a pink elephant did I hear of.

These people are only a small part of the problem, of course. Anybody whose drinking is trouble for himself or others is an alcoholic. Losing time from work, damaging your liver, beating up your wife, driving while drunk are trouble.

What makes some people alcoholics? Why can't they control their drinking? Maybe some metabolic deficiency. Psychological factors like latent guilt or hostility, maybe. Maybe a hard time facing reality. Nobody seems to have the answer.

What to do? Prohibition didn't work, thank goodness. At least half the population, including myself, find alcohol, in modest doses, a useful and pleasant drug.

Most doctors don't like to treat alcoholics. It's discouraging to get them all dried out and then have them come in plastered two weeks later. Antabuse is a drug which might be used more.

Alcoholics Anonymous does, I suspect, a better job than anyone. The social pressure of all those cuddies who've all been through it, and who want you to make it too, has got to be hard to resist.

3-26-72

—A Doctor's Notebook—

Vitamins

By Robert Zufall, M.D

Around the beginning of this century a Polish scientist named Casimir Funk achieved fame and glory by inventing the word "vitamine" for some stuff he was working on. "Vita" meaning "life", and "amine" for the type of chemical it was. A fellow named Hopkins had discovered something he called, "accessory food factors;" but with a name like that they never would have sold.

Nowadays, at least in this country, a clear cut vitamin deficiency is hard to find, even among the very poor or the very food faddish; and it's hard to imagine 2-3 of the Japanese Navy coming down with beri-beri from eating nothing but polished rice, or the British Navy all getting scurvy before they found out about lime juice.

Let me bore you with a thumbnail sketch of the vitamin alphabet:

A., from carrots (carotene) and cod liver oil (ugh!), and many vegetables. Necessary for infant development, prevents night blindness and scaly skin.

There are several vitamins in the B complex:

B1 (Thiamin), from meat and whole grain cereals. Prevents beri-beri, which is Singhalese for "I cannot." It affects the nerves, causing paralysis, spasticity, and neuralgic pains.

Riboflavin (B2) is in milk, fish, vegetables. It affects growth and eyes, and deficiency causes cheilosis, or cracks at the angles of the mouth.

Niacin (nicotinic acid) is in meat, grains, and vegetables, and prevents pellagra. This is something that affects the skin and nerves, causing peeling skin and convulsions, and is also called "Italian leprosy".

B6, pyridoxine, is necessary for rats' growth and skin, and also, apparently, for people.

B12 (cyancobalamin) prevents or cures pernicious anemia. Before it was discovered, these people had to eat vast quanties of liver, so this at least is progress.

Folic acid is good for other anemias. Pantothenic acid, choline, inositol, biotin, and para amino benzoic acid round out the B's.

C is in fruits and prevents scurvy, which s weakness and bleeding. Dr. Pauling thinks that it may be good for colds.

D, the sunshine vitamin, is activated by ultraviolet light. If you don't have it you get rickets, which is bow legs. Overdosage can cause trouble from too much calcium formation.

Lack of E causes sterility in rats.

K is needed for blood clotting.

Nutritionists recommend vitamins for children, nursing mothers, and mothers to be. For the rest of us tired, run down and worn out humans who eat average American diets, they don't. But a big business has been built on the, "It couldn't hurt, and maybe it'll help," philosophy.

5/18/72

—A Doctor's Notebook

Diabetes

By Robert Zufall, M.D

On Saturday, May 20, there will be a program at Morristown Memorial Hospital to teach diabetics how to care for their disease. It will be from 10 a.m. to 2 p.m., in Room 594; and if you're a diabetic, I'd recommend that you go. You have to register in advance by sending in a check for $5 to M.M.H. Diabetic Teaching Program.

"Diabetes" is mostly diabetes mellitus, which means lots of sugary urine. (There's also diabetes insipidus, which we'll ignore.) It was first diagnosed when somebody noticed that ants were attracted to the urine: and doctors in the old days used their own sense of taste to confirm the finding. That showed dedication.

Banting and Best discovered insulin 50 years ago; and since then diabetics have generally been able to lead pretty normal lives. In the last few years, several pill-type medicines have been developed to treat adult-onset diabetes. (Insulin, unfortunately, has to be injected.) Controversy rages about these pills. Some feel that they may harm rather than help.

Despite insulin, diabetics still have a lot of problems. It's something you have to learn to live and cope with. For one thing, you have to learn to give yourself insulin, how, where, when, and how much. You have to have a good knowledge of the foods you can eat, how much, when, and what you can substitute. You have to check your urine for sugar, usually with little paper tapes that turn color.

You have to recognize the symptoms of ketosis, which goes with too much sugar, or insulin shock from too much insulin. You have to be very careful of your feet. Blisters, ingrown toenails, or cuts can get infected and lead to gangrene and loss of a leg. Trim your toenails carefully. Wash your feet every day. Never go barefoot.

It's a lot of stuff to learn; and many diabetics don't know all they should to take care of themselves. Teaching programs like the one mentioned above should help to supplement your doctor's individual instruction.

—A Doctor's Notebook

6-4-72

Acupuncture

By Robert Zufall, M.D

One of the results of President Nixon's visit to China has been a spate of articles about acupuncture (literally, sticking with needles). It seems to be used in China for everything from anesthesia to deafness. Several very distinguished American physicians have seen it done; and the general reaction is, "We can't explain it, but it works."

What it is, is sticking a variety of long thin needles into a variety of spots on the body, which have been mapped on elaborate charts to correspond to the place to be treated. There's one for the stomach located behind the knee, and one for the large intestine on the right shoulder.

The trouble is that there has been no good explanation for all of this. There's no connection anyone has been able to demonstrate that would make a needle in your wrist put you to sleep. Several fanciful explanations of nerve stimulation in one place interfering with nerves from another place have been proposed. Like if you got hit on the head you might not notice somebody stepping on your toe, or picking your pocket, at the same time.

There appear to be two possibilities. It's either some strange neurological phenomenon that's eluded everybody, or it's just good old psychology. Hypnosis, faith healing, the placebo effect. (A placebo is a sugar pill or a shot of sterile water. It doesn't do anything; but it makes a lot of people feel better.)

It's certainly quite possible to hypnotize someone into feeling no pain when he's being cut open, expecially if he thinks Chairman Mao wants it that way. But they say they've done it to dogs, who never heard of the chairman. Who knows? Maybe you can hypnotize dogs.

It's not very new. They're supposed to have done it with stone needles in 2700 B.C.; but it didn't really get going until 300 B.C., with metal needles. It's all tied up with the tchi, or universal principle, which embodies yin, or femaleness, and yang, or maleness. Diseases are caused by weakness (hsu) or superfluity (shih), and you put the needle in different directions for each.

There's also moxibustion, in which burning sticks are put on different parts of the body; but that doesn't seem to be real big at the moment.

A Doctor's Notebook

Cardiac resuscitation - I

By Robert Zufall, M.D.

The American College of Physicians wants more people to learn what to do for a heart attack. Since many victims die before they can get to a doctor or a hospital, their only chance may well be you, the relative, the neighbor, the guy on the street. It's not all that complicated. Here's how:

First, how do you recognize what's happening? A heart attack is a block in a coronary artery that supplies the heart muscle with blood. This upsets the electrical activity of the heart, and it may either stop suddenly (cardiac arrest) or go into what they call ventricular fibrillation, where, instead of pumping blood, it just jiggles.

The result is that no blood gets to the brain, or anywhere else. The brain can survive without blood for 3 or 4 minutes; but after that it's all over. This business can happen partially, or gradually, or even temporarily, with, hopefully, recovery.

The person may be any age, sex, or build; but it's typically a middle aged man, overweight, with a pack of cigarettes in his pocket. He may have had heart trouble in the past, or may have had some chest pain; but he may turn gray and keel over with no warning at all.

That's the sign. Sudden obvious collapse. Somebody gasps and drops to the ground, or grabs his chest and falls back in the chair.

You cry, "Charlie, what's the matter?" but he doesn't seem to be able to answer.

You've got 4 minutes.

You lay him flat on his back on the floor or ground (not a bed), you pull off his necktie and open his shirt all the way so there's nothing around his neck, and pull up his undershirt so you can see his chest.

You watch his chest to see if he's breathing. You put your hand near his left nipple, to see if his heart's beating. If in doubt, assume that he isn't, and it isn't.

Next thing you've got to do is open his airway. I've seen people who should know better do this wrong. The idea is that, with his head in a normal position, his tongue falls back and blocks his windpipe.

What you do is kneel beside his head, put one hand under his neck, the other on his forehead, lift up his neck and stretch his head back as far as you can.

It's not a bad idea to stick your finger down his throat, if you think he might have choked on something.

I'll leave you there until next week.

A Doctor's Notebook

Cardiac resuscitation - II

8-6-72

By Robert Zufall, M.D.

Last week I left you with a fellow who had just collapsed on the floor. You had laid him on his back, opened his shirt, felt for a heart beat, looked for breathing, lifted his neck, pulled back his head; and since then you've been waiting anxiously for the next installment.

Okay, the next thing you do is mouth to mouth respiration. Still holding his head as far back as it will go, you pinch his nose shut with the hand you have on his forehead. Open his mouth, if necessary.

Then you take a deep breath, hope he doesn't have tuberculosis or didn't have garlic for lunch, put your mouth over his to form an airtight seal, and blow just as if you were blowing up a balloon. You should be able to see his chest rise. Remove your mouth, and let him exhale. Repeat. Blow hard. Each blow-exhale cycle should take five seconds, or 12 per minute.

The other thing is cardiac massage, which is simply pushing on the chest. It's nice to have a helper, so one of you can breathe and the other squeeze the chest; but if you're alone, you have to do both.

After two breathings, you kneel beside his chest and put the heel of your hand on the lower part of his breast bone. That's right in the middle, between his nipples. Put your other hand on the first and press down sharply, hard enough to push the chest in an inch or two, then release. Repeat once a second, or 60 per minute.

If you're alone, you do two breaths, then 15 chest compressions, then two breaths, and so on. If you have a helper, one does five chest compressions and waits while the other does one breath.

Every so often, you try to feel for a heartbeat, or see if he's breathing; but unless he's definitely going on his own, don't quit.

When do you quit? In about 30 minutes, if nothing has happened. Check his pupils. If they're widely dilated, you can give up.

Other things like adrenalin and electric shock can wait, and should only be given by a trained person. Of course, you try to get an ambulance. Call the operator and let her work on it. You shouldn't interrupt your labors for more than a minute.

Courses in this stuff are given for doctors, nurses, and rescuers; but these courses should be more widely available.

The question of getting into legal trouble is raised; but even if somebody is nasty enough to sue you for breaking a rib while saving his life, I can't imagine that you'd be convicted.

The Citizen
OF MORRIS COUNTY

Winner of the National Newspaper Association's first place award for General Excellence, Portland, Ore., 1972

25 Bloomfield Avenue, Denville - 627-0400 - 334 - 4000

Published every Thursday and Sunday by The Citizen of Morris County, Inc. Mail subscription **$8.00** a year in Morris County, **$10.00** a year for out-of-county. Home delivery **30 cents** a week. Second class postage paid at Denville, N.J. Post Office 07834.

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A Doctor's Notebook

Test tube babies

By Robert Zufall, M.D.

"Genetic engineering" is the term that has been applied to efforts to study, and perhaps influence, reproduction, conception, and development of the embryo to fetus to baby. The specter is raised of some mad scientist turning out babies like Volkswagens, to his own specifications.

What is the present state of the art? There is artificial insemination, which has been going on a long time, more in animals than in humans, where the sperm of the husband or of a "donor" is placed in the uterus, hopefully to unite with an egg. Not many women have this done; but for some it may be the only road to motherhood.

Then there is fertilization "in vitro", or "in glass", as opposed to "in vivo" or in the living body. Egg and sperm are put in a bottle, where they join and start to develop. This has been done with human sperm and eggs.

At an early stage, the embryo implants itself in the lining of the uterus, and forms a placenta, by means of which it can draw oxygen and nourishment from its mother. Nobody has figured out how to do this "in vitro", so the next step has to be putting this embryo into somebody's uterus. This has succeeded in animals; but it has not been tried in humans.

There is also cloning, where the nucleus of an egg is replaced by the nucleus of a cell from somebody else. The resulting offspring is identical to the somebody else (in this case, a frog).

Cells from one embryo can be grafted on to another embryo, producing a chimera, a combination of two beasts.

In all this there is obvious potential for good. Allowing a woman to have the baby she could not otherwise have. Preventing, or even curing birth defects. Possible reproduction of great intelligence or other desirable characteristics.

There's also a potential for evil. Dr. Paul Ramsey, professor of religion at Princeton, is opposed to all of this on the ground that it's experimentation on a human being, albeit a future one, without his consent. But no baby has ever been born with his own consent. And the method of reproduction currently in vogue is all too often done without any concern whatever for the welfare, let alone the consent, of the reproducee.

Hottest item around...

By Robert Zufall, M.D.

"Prostaglandin" is a word hardly anyone had heard until quite recently; but now it's one of the hottest things on the pharmaceutical horizon, mainly because it appears to be a safe and efficient means of producing an abortion.

Prostaglandins (there are several, and they come in letters, as in E, F, A, and B, and numbers, as PGE 1, and Greek letters, as in PGF 2 alpha) have been around since 1935 when Olf von Euler, in Sweden, coined the name for something he found in the prostate gland of sheep. Now, it turns out, the stuff is found all over the body.

What these things do is cause smooth muscle (that's muscle not under voluntary control, as in uterus, heart, blood vessels, lungs, intestine) to relax or contract. Strong contractions are produced in the pregnant uterus, resulting in abortion.

Other things happen, too. Heart beat can be made stronger. Dilation of blood vessels causes lower blood pressure. Contraction of the intestine causes diarrhea. Dilation of bronchial tubes should be good for asthma. Increased blood flow through coronary arteries should be helpful in heart attacks.

And there are unrelated actions. They cut down stomach secretion, which should help ulcers. They cause the corpus luteum of the ovary to shrink, which reduces its output of progesterone, which brings on menstruation, and is another factor in terminating pregnancy. They seem to prevent excessive clotting, which should be great for people with phlebitis, strokes, and heart attacks. They may even be good for arthritis and male infertility.

They appear to cause fever and inflammation; and it turns out that they are counteracted by aspirin, which may be why aspirin brings down fever. They also have some action on the sympathetic nervous system; and they probably act by doing something to cyclic AMP, which is the stuff that Sutherland got a Nobel prize for.

So they're quite exciting, and confusing, and the drug companies are spending a lot of money on them. But don't hold your breath. It'll be a few years, everyone estimates, before they're all figured out and commercially available.

A Doctor's Notebook

The brilliant doctor . . .

By Robert Zufall, M.D.

At graduation from medical school, some drug company or somebody gave us all copies of Osler's "Aequanimitas", which is a lecture on keeping your cool. Concern for patients is a basic thing: but you mustn't go into a collapse when things go wrong. You say, "How can we do this better next time?" and you go on from there.

You've probably heard of Osler. When asked to name a great and famous healer, his is the name most people would come up with. He was physician in chief at Johns Hopkins for most of his career; but his fame rests at least as much on a textbook he wrote after considerable procrastination, and published in 1892. The story is that his lady love wouldn't marry him until he finished it. It was called "The Principles and Practice of Medicine".

This book rapidly became the standard medical textbook, and remained so for many years. He took it through seven editions, and after he died it was edited by MacCrae of Hopkins, and later by Henry Christian of Harvard, until its last edition in 1947.

It was translated into French, German, Spanish, and Chinese; and it has the added distinction of having convinced John D. Rockefeller that medicine was worth supporting and thereby resulting in the Rockefeller Institute.

I guess Osler had a pretty amazing mind. He did original research, and discovered blood platelets. He was a remarkable diagnostician, and he had the kind of memory that would make you sick. He's thought of as the archetype of the brilliant doctor, the guy who looks at the patient whose case has baffled everyone else, and says, "Oh yes, this man has such and such disease. You'll find it described by so and so in the archives of such and such."

He knew a great deal of literature, history, and the classics, so much so that he was prominent in societies that discuss these things. And he also wrote well. His book was clear and well organized. And honest. If he thought a particular disease had no good treatment, he said so, rather than advocate poultices, purges, and blood letting.

One point he emphasized was that, "The patient is the text." Book learning is no good if you can't figure out what some guy has, and what to do about it.

To say of a physician, "He's a real Osler," is still the highest praise.

Notes from Trenton

The willing are experts . . .

By Assemblywoman Ann Klein

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A Doctor's Notebook

Nerves and neuroses

By Robert Zufall, M.D.

The other day I saw an ad for a book that promised to teach you how to cure your nerves. Just follow the simple directions and Zowie! No more headaches, backaches, palpitations, weak spells, dizzy spells, tiredness and crying jags, nothing but blissful serenity.

"Wow," said I, breathlessly. "This is too good to be true. They must be lying. I won't send for it."

You wouldn't be normal if you didn't feel nervous once in a while. In fact, you probably wouldn't even survive. But this shades over into the vast burden of apparently unfounded anxiety, the being nervous when there's nothing to be nervous about.

Neurosis is when these symptoms get distressing or disabling enough that you want to do something about them.

I wish I knew what causes it. Maybe you're born with it. Maybe it's lack of security in your first few years. These people go from doctor to doctor, spending their money, and not being helped much. Usually they're put through lots of painful and risky tests and exploratory operations;; because you can never quite rule out the possibility that their symptoms may be due to some obscure physical disease, some internal cancer that you're overlooking.

I don't think you can cure it. It seems so easy to say, "Stop worrying about yourself. You're all right." It doesn't work. They aren't all right, and they know it.

I think one can help oneself some. It helps to be able to admit that you have it. If you've been to six doctors and they can't find anything wrong and they aren't helping you, say bravely, "Do you think it could be my nerves?"

Tranquillizers may be worth a try.

I think it helps to get out of yourself, to work, to find an absorbing hobby, to do something for others.

What helps more than anything, I think, is to have someone to tell your troubles to, on a regular and continuing basis. A spouse, a friend, a relative, a minister, a doctor, a shrink, or Jesus, even. This person must provide not merely superficial reassurance, but must be willing to listen seriously and to try to understand, and to give real consideration to each problem as it comes up.

W.H. Auden called our time the Age of Anxiety; and he's right.

Maybe civilization has something to do with it. Our primitive ancestors were programmed to fight or flee, to scratch or go hungry. Now the dangers that beset us are often the kind we can't do much about. Our mothers didn't love us, our spouses won't listen to us, our bosses might fire us, the Russians might annihilate us, cancer might eat us away.

What can we do but sit and fret?

12/72

— A Doctor's Notebook —

President Truman's kidneys...

By Robert Zufall, M.D.

For many days, as President Truman hung tenaciously to life, reports told of ominous doings within the presidential urinary system. His kidneys were not doing their job of flushing poisons from his blood; and the buildup of these poisons was slowly pushing him into uremic coma.

At one point a hopeful note was introduced. His BUN had dropped from 250 to 240. BUN is blood urea nitrogen, the usual indicator of how well kidneys are doing. Normally it's under 20. Sixty is bad. So thanks a lot for 240.

They gave him some amino acid solutions, probably a "renal failure fluid" that's been developed at Mass. General Hospital. The Food and Drug Administration has not yet considered it safe enough for general use.

I was interested to note that they didn't do any fancy artificial kidney stuff. This could probably have been done, and might have prolonged his life for a while. I think it was a courageous decision, to withhold treatment from an ex-president; but I think it was a wise one. Not that they asked me, but why keep him in a coma for a few days longer? I'm sure that if there had been the slightest chance of recovery, they would have used it.

The lowly kidney has a blood flow 20 times that of any other organ. Each one is about the size of your fist, and lies in the soft place between your last rib and your hip bone, about 4 inches from your spine.

It's made up of a million nephrons, each of which consists of a glomerulus and a tubule. Blood comes into the glomerulus, which is a little tuft of thin walled capillaries sitting in Bowman's capsule, a cup with a hole in the bottom that drains into the tubule. Every day about 180 quarts of water, with dissolved salts, urea, and other small molecules are filtered out through the glomeruli.

As the water moves down the tubule, about 179 quarts are reabsorbed back into the body, and various salts are either excreted or reabsorbed by the cells that line the tubules.

Eventually, these tubules all empty out, into the center of the kidney, the product with which you're all familiar.

It's a wonderful self regulating mechanism; and a person with even one normal kidney doesn't have to worry about how much water or salt he takes in. It's all taken care of for you.

4/7/73

7-15-74

A Doctor's Notebook

Don't hold your breath

By Robert Zufall, M.D.

When you take a course in scuba diving, they make you read up on lungs and air and breathing. It was rather humiliating. I didn't know how many cubic feet of air you breathe per minute. (It's about one, at rest.)

This is important to divers, because they have to carry their air with them. A standard tank holds 72 cubic feet. This should be enough for 72 minutes; but when you go down 33 feet, the pressure is 2 atmospheres, so you really only have half that much volume of air, enough for 36 minutes.

And that has to do with why you mustn't hold your breath when you're coming up. A lungful of air at 33 feet will expand to 2 lungfuls on the surface, which would be likely to bust your lung. So you keep breathing out as you come up.

They have neat reducing valves called regulators, that you breathe through. They're delicately balanced, so that just taking a breath opens the intake valve and you get air. Breathing out closes that valve, and opens the exhaust valve. With a little practice, it's just like breathing.

Trouble is, you have to breathe through your mouth. The mask covers your eyes and nose, and from time to time it gets water in it. It takes a bit of getting used to, breathing with your nose under water.

You remember about the air going down the trachea and bronchial tubes, to the alveoli, those little air sacs that are working elements of the lung.

They are lined with capillaries; and the oxygen diffuses through their walls into the red corpuscles, the carbon dioxide diffusing in the opposite direction.

In deep diving, where there is a lot of pressure, the nitrogen of the air diffuses into the blood in fairly large amounts. If you come up too fast, you lower the pressure, and the nitrogen dissolved in the blood doesn't stay dissolved.

Just as when you open a bottle of soda, the dissolved gas comes out as bubbles. These bubbles get trapped in the small blood vessels all over your body, and you have the bends.

It's interesting that the lungs are kept expanded by a negative pressure, an actual suction that exists between the lungs and the rigid rib cage. If you stick a needle into someone's chest, there'll be an inward whoosh of air, and the lung will collapse. That's a pneumothorax, or air in the chest.

— A Doctor's Notebook —

How to deliver a baby

By Robert Zufall, M.D

You can't tell. You might have to, someday. Someone near and dear to you could be screaming, "My God, it's coming! Do something!"

And there you are with the car dead, the phone dead, and not a midwife in the place. In the days of home deliveries, the husband was always supposed to make a kettle of boiling water, and tear an old bedsheet into strips. I never did figure out what this was for, except to get him out of the way.

First you have to know the symptoms. If your wife is 9 months along and has a tummy ache, don't do as I did and say, "Don't worry, honey, it's probably gas."

The gas pains usually start about every half hour and get frequenter. When they get to every 5 or 10 minutes and last a minute or more, you'd better watch out.

The patient doesn't have to go to bed. In fact, delivery may be easier as the primitive people do it, squatting in a corner. You might tactfully suggest it.

Labor can progress for 8 to 12 hours, with lots of moaning and groaning, and maybe a gush of "waters", the amniotic fluid. But there isn't much you can do. Even sedation should be used sparingly, for fear of slowing labor and sedating the baby.

Eventually, the top of the head appears, and starts to press against the vaginal opening. At this point, the obstetricians often do an episiotomy, they cut the edge of the opening; but don't cut it more than half an inch.

Don't forget that the baby is attached to the placenta by a cord, which you can tie a string around and cut at your leisure (if any). The placenta comes out in a few minutes.

Seriously, one common mistake is holding the mother's legs together, trying to delay the blessed event until you can get to the hospital. That can cause real damage. Far better to let her deliver in the taxi. Just catch the baby and hold it so it doesn't fall on the dirty floor of the taxicab.

1/73

—A Doctor's Notebook

Heart Sunday

By Robert Zufall, M.D.

February is supposed to be Heart Month, and Feb. 11 has been designated as the day to sit down and worry about your heart. What can you do to keep it ticking as long and lustily as possible?

Some people are born with heart defects, things like the blood vessels not coming off the heart in the right places, or "holes in the heart." Nowadays, these are often surgically correctable."

Some kids get rheumatic heart disease, with scarring of the valves. Most often this, too, can be successfully operated on.

Many older people get heart failure, or "pump failure". It just can't push the blood around fast enough anymore, and fluid accumulates in the lungs and ankles, and you get out of breath climbing stairs. Treatment for this is digitalis and diuretics. The digitalis, for some complicated reason, makes the heart muscle pump harder; and the diuretics help the kidneys get rid of the excess fluid.

The biggest bugaboo, as you probably know, is heart attacks. They kill more people than anything. What can we do about them?

You've heard about the coronary arteries, that nourish the heart. They come off the aorta just as it leaves the heart; and they, like other arteries, are subject to arteriosclerosis, or atherosclerosis, where hard waxy deposits build up in their lining, until they get so narrow that they just can't hack it.

These deposits start at an early age - 20 or 30 - so the best time to start preventing a heart attack is when you're young. But whatever age you are, you'd best get started.

Diet. The waxy things are full of cholesterol and other fats, so it makes sense to cut down on them. Especially solid fats. Meat fat, Butter, Egg yolk. Liquid "unsaturated" fats like corn oil are O.K. Keep your weight within 10 or 20 pounds of normal and you'll live longer.

Give up smoking.

Exercise probably helps.

Get your blood pressure, sugar, and cholesterol checked. If any one is up, you probably ought to be under treatment. Permanently. There are some pills, notably clofibrate (Atromid-S) which lower cholesterol and have lowered the incidence of heart attacks.

Pain, pressure, or squeezing in your chest. Don't fool around. Call your doctor, or get to the emergency room.

Surgical replacement of coronaries with vein grafts is very encouraging; but it's no cure - all yet.

And give the Heart Association a few bucks. The life you save could be you - know - whose.

2/73

—A Doctor's Notebook 2-25-72

Bad backs . . .

By Robert Zufall, M.D.

More people have had trouble with their backs, at one time or another, than haven't. Seldom is the diagnosis as obvious as in the case of the girl who spent the night in the cemetery. When she presented her aching back to her physician the next day, he exclaimed, "Well, of course! It says on it, 'Died in 1898'."

The medical textbooks list about a hundred causes for back pain, about 97 of which are unusual. Orthopedic things like a crooked spine or a short leg or a bad hip. Gynecologic things like an enlarged or tipped uterus. Urologic things like bladder or prostate infections, or kidney stones. Abdominal things like ulcers or pancreatitis or cancer of the bowel. Generalized things like arthritis or multiple myeloma or scleroderma.

What about discs? The vertebrae sit on top of one another; and between them are the discs, fibrous pads about a quarter of an inch thick. These can rupture; and the disc is squeezed out against the nerves of the spinal cord. This usually causes not only back pain, but pain or numbness down the leg.

What about the twists and slippages of one vertebra on another that the chiropractors diagnose and treat? These are regarded very dubiously by the medical profession. About all you can say is that some people feel better after their backs are stretched and twisted and manipulated. Personally, I'd be afraid to have my neck snapped.

Most of the bad backs are probably some kind of acute or chronic sprain. Stretched or torn or scarred ligaments or tendons, with secondary spasm of the back muscles. It's hard to know just what it is; because you can't very well get inside there to find out. No doubt there's a psychosomatic element in a lot of backs; and it's hard to tell how much is sprain, how much is nervous tension, and how much is wanting to be off of work for a few days.

If you have a bad back, you avoid excessive stretches and pulls and twists. You put a foot on something when you stand, you sit up straight, you sleep preferably on your side, you watch how you step off of curbs, and you never, never bend way over to pick up something. You have a firm chair and a firm mattress. You exercise moderately. You can't strengthen ligaments by exercise; but you can probably keep them limber.

If it gets really bad, you may need traction or injections or physiotherapy. For the ordinary bad back, you can usually relieve it by lying on the floor with your feet up, using a heating pad, and taking a couple of aspirins every few hours.

— A Doctor's Notebook —

Longevity pockets

By Robert Zufall, M.D

There was a recent newspaper article on "pockets of longevity" - areas in the world where people live to be 140 years old. There's one in Ecuador; and others have been found in Tibet and elsewhere.

How do they do it? For most of us, the maximum life expectancy hasn't changed much since the Biblical 3 score and 10.

No credit is due the medical profession. Most of these areas are remote from doctors and other benefits of civilization.

Heredity is probably the biggest factor. A few isolated and inbred areas, where only the tough survive, have developed long lived strains of humans.

The ones in Ecuador consume about half the calories we do, eat only an ounce of meat a week, drink two to four cups of rum a day, and smoke 40 to 60 homemade cigarettes daily. You can draw your own conclusions from that.

Most researchers seem to feel that the cells of us sexually reproducing species have some sort of built in life span, some limit to the number of times they can divide. One-celled organisms, as well as cancer cells, don't have this limitation; so maybe we can learn something from them.

One idea is that cumulative small errors in protein synthesis (carried on by DNA and RNA), especially in the synthesis of enzymes, may be a cause of aging.

Deterioration of energy production by the mitochondria of the cell (done via ATP) may be at fault. They hung flies up by threads and made them fly until exhausted. Young flies flew a fantastic seven hours; but old ones, 19 days old, lasted under two hours.

Buildup of long chain fatty acids in the brain is associated with aging, and with vitamin C deficiency.

Hormones and sugar metabolism aren't as good as one gets older.

One hopes that these researchers will eventually happen upon the fountain of youth. Meanwhile, the best thing seems to be to get yourself some long-lived parents, don't eat much, drink lots of rum, smoke lots of homemade cigarettes, and stay away from civilization and doctors.

Personally, though, I'd advise going slow on the cigarettes, whiskey, and wild, wild women, especially when you start pushing 100.

Satchel Paige, whose baseball career lasted longer than anybody's, had a few suggestions for longevity. They included going easy on fried meats, because they angry up the blood, and on the social ramble, which, he said, ain't restful.

3/73

— A Doctor's Notebook —

Regularity

By Robert Zufall, M.D

One of the most firmly rooted ideas of modern man is that of the necessity for a daily evacuation of the large intestine. Being "regular" is the usual euphemism one sees in advertisements for products intended to assist in this process.

For many people, the idea becomes entrenched in childhood, when "going potty" every day becomes an achievement for which they are rewarded. The practice of regularly giving children laxatives has fortunately declined; but I remember, years ago, seeing lots of barns, the whole side of which bore the message, "Children cry for Charles H. Fletcher's castoria."

Since my parents preferred an evil concoction called syrup of figs, I used to wonder what treat I was missing; but now I'm just as glad I didn't find out.

Childhood constipation can become troublesome if a hard stool causes a crack, or fissure, in the anus. Then bm's are painful and avoided. Usually, fairly large doses of mineral oil will straighten things out.

After middle age, bowels again become a matter for concern. With decreasing activity and greater time on their hands, many people find the daily bm an event of increasing importance. And constipation probably does sometimes cause headaches and cramps.

A word, incidentally, about gas. The average person produces 400 to 1500 c.c. daily. It's partly swallowed air, partly due to action of intestinal bacteria. And it is affected by what you eat.

The point, of course, is that a daily elimination isn't really necessary. Many people manage every 4 or 5 days without any trouble. So if you skip a couple of days, don't worry about it.

Most people are happier with some sort of regularity, which can best be managed by setting a regular time, usually after breakfast. It's some help to drink some extra water, eat some bulk foods like fruits and vegatables, and get some exercise. Medication should be used sparingly; but an occasional laxative won't hurt you.

The things to worry about are a definite change in your bowel habits, alternating constipation and diarrhea, persistent cramps, or tarry or bloody stools.

3/13

—A Doctor's Notebook—

Prostate troubles

By Robert Zufall, M.D.

The Reader's Digest ran a series a year or two ago, where the various bodily organs spoke their piece, Walt Disney fashion. I don't think they got down to "I am Joe's Islets of Langerhans" or "This is your transmission speaking", but they did get as far as "I am Joe's Prostrate". And it is a spot you didn't used to hear much about in high school biology.

It's not "prostrate". It's pro-state, standing before. It stands rather like a collar around the opening of the urinary bladder, where it empties out into the urethra, the tube leading to the outside world. It's about the size of a walnut (with a hole through it's middle); and just beyond it is the external sphincter, the muscle that closes the urethra.

The prostrate is exclusively male; and its only function is to produce the semen, the fluid in which the sperm cells are carried. The sperm cells work their way up from the testes via the vas deferens. When they get to the prostate, they are mixed with the semen and stored in the seminal vesicles, a couple of spongy little sacs that sit right behind it.

There are basically 3 bad things that can happen to the prostate. It can get infected, in which case you have prostatitis. This can be painful and unpleasant, but it's seldom dangerous. A fair number of men develop what's called a chronic prostatitis, consisting mostly of persistent aches and pains in that general area. This can be very difficult to get rid of, and is probably at least partly psychosomatic.

The second thing, the one you usually hear about, is the benign enlargement that occurs in older men. The prostate normally continues to grow slowly throughout life. This isn't often a problem before 60; but after that a good percentage of men have some trouble with it.

What happens is that, as it gets larger, it grows into the channel and makes it more difficult for the bladder to empty itself. The bladder responds by trying harder; and you have increasingly frequent, urgent, painful, and difficult urination. This is often worse at night. Eventually, it can culminate in complete urinary obstruction. Pretty much the only cure is surgery. Often this can be done with an instrument that is passed on through the urethra; and it usually works out quite well.

The third thing is cancer. This is only rarely curable by X-ray or radical surgery; but fortunately it will usually respond to treatment with female sex hormone, commonly given as diethylstilbestrol (DES). This discovery, made some years ago by Huggins, was about the first time a cancer had been shown to be responsive to a medication.

— A Doctor's Notebook —

Tiger Balm

c-7-73

By Robert Zufall, M.D.

This is the name of a patent medicine that has been one of the most popular remedies throughout the Orient for many years. It was invented (if that's the word) by two Chinese, Aw Boon Haw and his brother Aw Boon Par, and peddled in seven languages from Rangoon to Tokyo. It's recommended by the manufacturer for bronchial irritations, chest colds, sore throats, neuritis, rheumatism, neuralgia, bruises, sprains, sore muscles, and physical exhaustion. (Incidentally, I suspect that "neuralgia", literally "pain in the nerves", is a fancy word for all sorts of pains of undetermined origin.'

The popularity of Tiger Balm enabled the Aw family to amass one of the biggest jade collections in the world, and to put up Tiger Balm Gardens in Singapore and Hong Kong. These depict, in large and brightly colored cement statues, all sorts of wonders like bears eating sea serpents and peasant families being washed away in floods.

This stuff contains menthol and eucalyptus oil and camphor and petroleum jelly and oil of wintergreen. It's like Vicks Vapo Rub or pretty much any liniment that Grandma used to rub on baby's chest when he had a cold, or that the trainer uses to rub down the aching athlete.

Liniments act by irritating the skin a little, which increases its blood flow. This is supposed to wash out the metabolic waste products and bring in food and oxygen. I don't think there's any good evidence that they really accomplish anything; but if they make someone feel better, they serve a useful purpose.

Massage often goes along with liniment. This, too, is supposed to increase the blood flow, not only to the skin but to the muscles. In addition, the muscles are stretched and "loosened". A lot of aches and pains probably are due to irritated muscles tightening up in sort of a spasm; and there's no doubt that a hot bath and a rubdown make you feel good.

We're not very big on this sort of thing in this country. "Massage parlor" doesn't even mean massage parlor. But the European spas, the Turkish baths, the Japanese baths, the Finnish saunas are all well established parts of their respective cultures; and I'm not sure we couldn't learn something from them. Indeed, there have been "European health spas" springing up even in New Jersey.

And the poor coolie, who can't afford a spa, will still have his Tiger Balm.

8-31-73

A Doctor's Notebook

Hay Fever and Other Allergies

By Robert Zufall, M.D.

People will tell you they're allergic to all kinds of things, even work. This whole business of allergic reactions is rather fundamental to the body's defenses; but the treatment of allergies is still, in many aspects, pretty empirical (that means, "Let's try it and see if it works.")

Allergy and immunity are the same thing, except that one is bad and the other is good. They're antigen-antibody reactions. An antigen is something, ordinarily a protein, that is "foreign" to a particular person, like pollen or penicillin or germs or somebody else's kidney.

When a little of this stuff gets into a person, he responds by developing antibodies in his blood plasma. (There are also tissue antibodies.) These hook on to the foreign antigen and attempt to destroy it. This is the way the body is continually fighting off bacteria and viruses. You may have seen pictures of a baby down in Texas who was born unable to make antibodies. He has to be kept in a sterile tent, because any infection could be fatal. On the other hand, he'll never get hay fever.

This antigen-antibody reaction releases histamine, which is quite irritating. This is what causes hives, the swollen itchy blotches on the skin. It's also a factor in causing asthma, where the bronchial tubes to the lungs swell up, and, as you might imagine, make it difficult to breathe. You can also get allergic reactions in the stomach, intestines, and various places.

As you might have guessed, antihistamines are standard treatment. Chlor-trimeton is one of the best known and most expensive. Ask for it by its generic name, chlorpheniramine. There are many others. Next, you try to figure out the allergen (antigen) and get rid of it. This is where all the skin tests for feathers and cat hair and ragweed come in. As you know if you've been through it, the results aren't always real clear cut.

The idea behind giving allergy shots is that, if you give little doses of the stuff you're allergic to, maybe you'll use up the antibodies so there won't be enough around at any one time to cause symptoms. A lot of allergists and their patients feel that it helps. Others are dubious.

Asthmatics get drugs to dilate, or open up, their bronchioles. These are often given in "whiffers" that let you take a breath of the stuff. Also cortisone, which suppresses inflammatory reactions. These drugs are effective; but occasional deaths have followed overdosage, so you have to be careful.

A Doctor's Notebook

Hysterectomy hysteria . . .

7-26-73

By Robert Zufall, M.D.

For those of you who don't watch the doctor shows, hysterectomy is removing the uterus, the womb. And in the days of Hippocrates the uterus was considered the seat of the emotions, so the word for uterus and for emotional outburst is the same.

It's a pretty common operation; and it's done for various reasons. Occasionally malignancy (though cancer of the cervix, the "mouth of the womb", is more often treated by radiation). Fibroid tumors are common. They are benign; but sometimes they get large enough to be painful. The uterus can get tipped backwards or forwards, or work its way downward and prolapse.

The uterus can bleed for various reasons, especially after delivery; and sometimes an emergency hysterectomy has to be done to keep a patient from bleeding to death.

Some hysterectomies are done for reasons that are less clear cut and more hysterical. Such reasons as greed or stupidity on the part of the surgeon have been proposed; but I don't think that's often the whole story. A lot of women suffer from pains in their low backs and abdomens that can be pretty baffling. They keep coming to the doctor for relief.

He (or she) does an internal exam and finds nothing. He has test after test and x-ray after x-ray done, and finds nothing. He sends her to other specialists, who find nothing. Back she comes, the pain worse than ever. Maybe she's neurotic; but maybe it is her uterus, pulling on its ligaments, or something. Only way to be sure is to take it out. Explain to the patient that it may not cure her. She says she'll try anything. Out comes a normal uterus.

Well, it wasn't any good, anyway, except for having babies. And it might have caused trouble later. Bleeding. Cancer. And the patient may even feel better, once she gets over the operation.

Then, as you know from watching the doc shows, the hapless surgeon is exposed by the pathologist, reprimanded by the medical staff, and goes muttering off into the sunset.

In the last year or so, hysterectomy has been advocated as a means of sterilization. The argument is that it's surer than tying a woman's tubes, and that it removes a useless and potentially cancerous organ. On the down side, it's a more serious operation. It usually means a week in the hospital and a month or more convalescence.

The crucial point is the risk; and there is disagreement about this. If you take the figure of three to five deaths per 1,000 hysterectomies, it's not an acceptable thing to do. If you believe the figure of 1 death in 10,000, then it's at least safer than having a baby.

7-19-73

A Doctor's Notebook

First Aid in Pitfalls, Montana

By Robert Zufall, M.D.

Or, how to keep out of trouble while loafing.

One anticipates a holiday in some exotic clime with a mixture of eagerness and dread. Snakebite, bubonic plague, falling off a cliff: who knows what might happen?

Forewarned, as Ben Franklin said, is forearmed. What can you do to avert catastrophe in Arcadia, N.H.?

You, too, can be as prepared as any astronaut. First, a first aid book, like Red Cross or the Boy Scout Handbook. Get one and read it over and take it with you. Everyone should know first aid, anyway. This will take you through the ordinary things like lacerations, fractures, snakebite, drowning, heat exhaustion.

Then I'd try to get some information on special hazards where you're going. Get a book on the area, read it, take it along. There are travelers' guides to places like Africa and the Orient. Campground and hikers guides will tell you about water and rattlers and grizzly bears.

If you're going to do something like rock climbing or white water canoeing or wilderness camping, you'd best have some experience or a guide.

And you ought to know the nearest medical facilities and how to get to them. Dog sled? Radio the Coast Guard? Helicopter? Also how reliable they are. Like don't let some drug store in Spain give you a shot for your cold.

Your first aid kit can be simple. Band Aids, a couple of rolls of tape and some 4x4 bandages for the bigger cuts. A sun tan lotion like Pre Sun. Caladryl. Bug spray like 6-12. Seasick pills like Triptone. Antihistamine for sneezes and allergies. Aspirin. Lomotil for diarrhea. Whiskey for snake bite etc. Knife, scissors. Probably no antibiotics. (I usually take ampicillin and tetracycline; but if you need these you probably need medical advice.) If you have some special problem, like diabetes or asthma, don't forget your medicine.

Another important matter is bee stings. If you have had severe reactions, you really should get an inhaler of epinephrine and keep it handy. People have died from bee stings causing a sudden swelling and blockage of the airway.

The most important safety measure is wearing your seat belt before, during, and after your vacation.

Use some common sense. Don't lean over the rim of the Grand Canyon. Don't feed the bears at Yellowstone. Don't go sailing the Atlantic in a storm. Don't go rowing on Lake Michigan without a life preserver.

And don't bother to get your appendix out before you leave. The astronauts didn't.

A Doctor's Notebook

E-2373

Restaurant rescue . . .

By Robert Zufall, M.D.

You may not have thought of the 4 Seasons or the 12 Caesars or the 3 Sisters as a place to be a hero; but it could happen. The National Safety Council has estimated that 2,500 people die every year from choking on their dinners. That's more than die from airplane accidents, guns, lightning, and snakebite, making it the 6th largest cause of accidental death.

This is what happens. The victim is usually middle aged or older, usually wearing dentures, usually having had a few drinks, and, being involved in the conversation, doesn't pay too much attention to what he is doing. He cuts off a huge chunk of meat and tries to swallow it whole. It sticks in his throat, blocking his windpipe. He turns blue, thrashes around frantically, and chokes to death while everyone watches, because nobody knows what to do.

The tragedy is that most of these people could easily be saved.

What do you do if you see someone like this? You look at his plate to see if he's eaten something. Then you ask him if he can talk. If he can't, he's got something in his throat.

Don't slap him on the back. Don't give mouth to mouth resuscitation. Don't wait. You only have about 4 minutes. Reach down his throat with your index and middle fingers. Grab that piece of meat and pull it out. It won't be hard to feel. The average chunk is about the size of a pack of cigarettes.

Usually he's better immediately; but if he's been blue too long he might need mouth to mouth resuscitation.

There is a special pair of curved tweezers, called Choke Savers, sold by Dyna Med, Leucadia, Calif., for the chunks you can't get with your fingers, Ask for it at better restaurants. They ought to have one.

There you are. You've saved him. You wash off your fingers in his fingerbowl and modestly return to your table. Your beloved is overwhelmed. "George," she gasps, "I'm overwhelmed. I didn't think you could do it."

You smile indulgently at her. You refuse the fellow's offer of half his kingdom and his daughter's hand in marriage; but you graciously accept the free drinks and dinner on the house.

5-16-73

A Doctor's Notebook

Cut grass, not the fingers . . .

By Robert Zufall, M.D.

I don't have to tell you, do I, to be careful with your power mower? It has signs all over it that say, "Caution". If the exhaust port got clogged with grass, you wouldn't be so stupid as to reach in there and try to free it without turning off the blades, would you?

If your kid wanted to ride on your lap while you tried out your new machine, you wouldn't let him, would you? In fact, you wouldn't even let him play in the yard while you were cutting the grass, for fear the blade would pick up a stick or a nail or a piece of wire and hit him with it.

When you're cutting on a hill with a walking mower, you're extra careful that you don't slip and end up under the mower. And, if you're riding, you go very slowly and carefully along side hills, and some you don't tackle at all, because you don't want that thing to turn over on you. And you're ready to jump clear in case it does.

If someone else uses your mower, I'm sure you check him out pretty thoroughly, to make sure he's a good, safe operator.

So much for that. There was an exhibit at the AMA convention on power mowers. You probably didn't know that the energy in a spinning blade is about 2,100 foot pounds, three times that required to fire a bullet through the engine block of an automobile. Or that the blade is traveling at 232 m.p.h. Or that there are about 30 million in use, accounting for 140,000 injuries a year. That's about 1 injury per 200 mowers, just few enough to let you get careless.

Hands were most commonly injured. 9 per cent of the injuries were amputations, which gives you something to think about.

I used to feel strongly enough about rotary mowers that I wouldn't have one. I had an old reel type. But then the grass started getting ahead of me; and now I have a rotary like everyone else.

A Doctor's Notebook

10-4-73

Teeth

By Robert Zufall, M.D.

I hesitate to offer any opinions on dental matters, since I know from nothing about them. But there are a few things that my dental colleagues seem to keep harping on, so I thought I'd pass them along, slightly garbled in translation though they may be.

Flouridation hardly seems to be an issue any more. Pretty much everyone has agreed that fluoride does a lot to prevent tooth decay and, in proper doses, has no bad side effects (too much can cause mottling of the teeth). The opponents of fluoridation of water supplies seem to be reduced to arguments about home rule and invasion of privacy.

Town Calendar

TONIGHT (THURSDAY)

7:00 **Montville Township** Recreation Commission, Municipal Building
7:30 **Denville** Economic Development Committee, Main Street School

TUESDAY

8:00 **Mountain Lakes** Board of Education, Borough Hall
8:00 **Parsippany** Township Council, Municipal Building
8:00 **Rockaway Township** Planning Board, Copeland School
8:00 **Montville Township** Board of Health, Municipal Building
8:00 **Rockaway Borough** Recreation Commission, Borough Hall
8:00 **Rockaway Township** Community Action Committee, Stony Brook School
8:00 **Rockaway Township** Recreation Department, Copeland School

WEDNESDAY

7:30 **Boonton Township** Board of Health, Powerville School
8:00 **Boonton Township** Committee, Powerville School
8:00 **Montville Township** Planning Board, Municipal Building
8:00 **Mountain Lakes** Planning Board, Borough Hall

Cavities, or dental caries, are commoner than the common cold. The mouth is full of bad bacteria that cause them. In fact, the mouth has been characterized as the dirtiest orifice in the body. This is why a human bite (an occupational hazard of dentists, I should imagine) is likely to cause a nasty infection.

I read somewhere that someone is working on a chemical to keep these bugs from attacking the teeth; but 'till that lucky day I guess we'll just have to keep brushing and seeing our dentists twice a year.

There's something called tartar, or plaque, or calculus, (and I'm not sure of the distinction between them) that is the root of a good many dental ills. It's the gunk that builds up on your teeth; and it's made up of saliva, mucus, bacteria, and calcium. It starts out soft, but eventually hardens and has to be chipped off.

It works its way into the hard to clean places between the teeth, and between the gums and the teeth. It irritates the gums and eventually causes the bone holding the teeth to erode. Then your teeth fall out. Brushing doesn't get at it; but periodontal treatment plus daily dental floss, worked down between the gums and the teeth, can keep it under control.

I'm impressed at the number of young adults walking around with lots of dental hardware in their mouths. Obviously a lot of teeth are being lost. I used to know a guy who claimed he could eat apples and corn on the cob better with his false teeth than he ever could with his real ones; but I think he was an exception.

A Doctor's Notebook

Vivisection 9-6-73

By Robert Zufall, M.D.

I haven't seen much in the news of late about vivisection; and perhaps it would be better to let sleeping dogs lie (so to speak). This is something, though, that keeps raising its head every once in a while.

Folks who love their pets (and who doesn't?) try to get bills through state and national legislatures forbidding the use of animals for medical research. For several years, when New Jersey was trying to get a medical school, it was said that anti-vivisection statutes in our state were one big reason why we couldn't have one.

It's such a truism that research on animals is necessary to medical progress that I hate to even mention it. Polio vaccine had to be developed in monkeys, for instance. And for any new drug, or treatment, or test, or operation, it simply isn't possible merely to try it out in a test tube. Take penicillin. Fleming noticed that it killed bacteria growing in dishes in his lab. But then it had to be tried out on lots of different animals before anybody figured it was safe enough to try on humans.

And there are rather elaborate regulations about humane treatment of animals in labs. I don't believe that the dogs and cats and mice and rats are made to suffer unnecessarily. I've done dog surgery. If it's something where you don't expect the animal to pull through, he gets a big shot of pentothal and that's it.

Which, I may point out, is no worse than what happens to him in a dog pound many times, or to a cow in a slaughter-house. Anti-vivisectionists should at least be vegetarians.

I don't like to kill animals. I well remember how painful it was when we got rid of our dog, and again when we drowned some kittens. I'll go out of my way not to step on an ant. But I don't believe that an ant's life is as sweet to him as ours is to us. Or a dog's life, either. I just don't think that they have quite the conception of existence that we have.

So it's animal lives or human lives. Take your choice.

A Doctor's Notebook

3-7-74

Bicycle paths . . .

By Robert Zufall, M.D.

The bicycle is an endangered species. It seems as if it should be such a neat idea, riding your bike to school or to work or to the store or the railroad station. Better than a car. Cleaner, cheaper, healthier. In Europe and Asia, bikes are all over the place. Business men with attache cases, mothers with babies, farmers with crops, all pedal along the roads.

We've had a bicycle boom, too. Fourteen million bikes sold last year, more than the number of new cars. And, as you might expect, bike accidents are up. Eighteen hundred in New Jersey last year. Twenty-two fatalities.

I've had cyclists tell me that motorists almost try to run them down. Not kill them, exactly, just crowd them close to the curb, fail to slow down for them, generally treat them as people who have no business on the highways and ought to be shoved off.

On the other hand, pedestrians don't particularly enjoy having cyclists weaving and dodging around them on the sidewalks. So there you are. With the exception of Harvard Yard, there's practically no place in America where you can ride a bike.

And this seems like a rather insoluble situation. To make room for bikes, in most places, either roads or sidewalks would have to be made narrower; and it's hard to imagine that happening. In some places, there would be room for macadam paths to be put down at the taxpayer's expense, which also ain't going to be easy.

Where there isn't too much traffic, the roads are wide enough, and the speed limit 25 mph or less, the cyclist has a fighting chance.

What, then, is the guy to do who wants to save money, decrease the oil shortage and air pollution, and get a little exercise? First, he might be well advised to forget about the whole thing.

Second, he can try to protect himself. Lights, reflectors. I have reflective tape plastered all over my kid's bike. Ride with traffic. Use hand signals. Watch out for stopped cars opening their doors. Watch out for cars turning in front of you. Watch out for tight places where you may get squeezed. Don't horse around in traffic. Don't ride somebody else on your bike. No sudden turns or darting out into the roadway. Watch out, or stay home, when it's wet or icy. Don't ride no hands.

Racing bikes aren't so good, because, with your head down, you don't see all around so well. Choppers are risky, because they zig zag around.

Third, let's consider encouraging more bike riders. If there are enough bikes on the road, the cars will have to learn to live with them.

A Doctor's Notebook

Old wives' tales

11-22-73

By Robert Zufall, M.D.

Every so often, some poor ding dong will confront me with some outrageous bit of nonsense, like, "Is buttermilk good for your kidneys? Some lady told me it was; and I've been drinking just quarts!"

Rather than show my ignorance of the effect of buttermilk on renal tissue, I usually try to imply a knowledge of folklore, and put down my rival practitioner at the same time, with an indulgent, "My dear, that's just an old wives' tale."

We do have a rich medicinal folklore, ranging from the just possible to the downright pernicious. It probably stems from the natural urge to do something (anything!) to relieve suffering. And it does seem to reside primarily in female senior citizens.

"Feed a cold and starve a fever." With a fever, you dehydrate rapidly, so at least an increased fluid intake is indicated.

"A fat baby is a healthy baby." Those fat cells developed in infancy will plague you the rest of your shortened life.

"Reading in a bad light will ruin your eyes." Headaches, maybe, but not ruination.

"Kerosene and sugar for colds." Believe it or not. Just a little kerosene, of course.

"If you swim after eating you'll get a stomach cramp and drown." A study showed no evidence for this.

"A stitch in time saves nine." This maybe from the mother of some hungry young surgeon.

"Spirits of nitre" for everything. Probably only moderately toxic.

"Early to bed and early to rise." That's plagued us night people for years.

Flaxseed poultices, hot potatoes, stewed onions, etc. on the aching chest or head or whatever. End up burned, like as not.

"Masturbation makes you go crazy." That's tortured millions of schoolboys. And even some medical students still believe it!

"Sulfur and molasses" for a springtime tonic. The lethal dose is probably pretty high.

"Drafts" give you everything from sinus trouble to aching back. And they can get you in the army, which is worse.

"Alcohol is bad for your kidneys." Liver, yes. Kidneys, no.

Whiskey for colds, snakebite, teething, menstrual cramps. At least you forget what it was that ailed you.

"Milk and eggs are good for you." Ha! Give you kidney stones and hardening of the arteries.

"An apple a day keeps the doctor away." Too many apple seeds can kill you.

And don't ask me about sassafras root, boneset tea, spinach, pumpkin seeds, daily bm's, or fresh air.

A Doctor's Notebook

12-20-73

Low Blood Sugar

By Robert Zufall, M.D.

I suspect that low blood sugar (or reactive functional hypoglycemia, as we say in the trade) may have replaced tired blood as one of the fashionable diseases. Lots of people will tell you they have it, and that they've been put on a low carbohydrate diet. •That sounds ridiculous, treating low sugar with a low sugar diet; but that's how it is.

What happens is that after a high carbohydrate meal, the sugar is absorbed into the blood, and the blood sugar goes up. The body, aided by its natural production of insulin, then puts this sugar to work in the tissues. In some people, this mechanism seems to work too well, and the blood sugar may fall to less than half the normal levels.

So you prevent this big drop by not giving so much sugar in the first place. They usually recommend 75 to 100 grams of carbohydrate a day, divided into 5 or 6 feedings.

How do you know whether you have it? Well, the symptoms are partly due to release of adrenalin, in an attempt by the body to get the sugar up again. This makes you nervous, pale, jittery, sweaty, nauseated. And if the sugar stays down low enough long enough the brain doesn't get its nourishment, and you get confused, or even unconscious.

This all comes on an hour or two after eating; and the symptoms should be promptly relieved by getting the sugar back to normal with some coke or orange juice.

How frequent is all this? Really, not very. Probably most of the patients diagnosed as having hypoglycemia are simply nervous. Lots of people get headaches and jittery spells. If these attacks seem to come on after meals they're liable to be called low blood sugar, and treated by reducing their carbohydrates, which, for most of us, couldn't hurt.

If you want to find out for sure, you have to do an oral glucose tolerance test, giving a specified amount of glucose and checking the blood sugar at half hourly to hourly intervals for three or four hours. This, as you can see, is a bit of a nuisance, but if a person is having definitely suspicious symptoms, it should be done.

This test will also tell whether you have diabetes, or one of the rarer diseases that cause low blood sugar. Diabetes, of course, causes high blood sugar, but it can bounce from too high to too low.

People who have had stomach surgery may have a problem. The food dumps more quickly into the small intestine, where it's absorbed too fast, the sugar goes up too fast, and then down too fast. People can get tumors of the islet cells of the pancreas, where the insulin is produced. This is really rare, and usually requires surgery. Sometimes alcoholics or persons with liver failure may have low sugar.

Anyhow, the next time someone tells you they have low sugar, you can ask them, "How's your glucose tolerance test?"

A Doctor's Notebook

5-2-74

On Violence . . .

By Robert Zufall, M.D.

Man's inhumanity to man has always ranked pretty high as a public health problem. It sure would be nice if we could walk the sidewalks of New York at night, or if we didn't have to send our boys off to war every few years. If everyone's against war and murder, why do they keep happening?

There's lots of debate on whether humans are innately, instinctively aggressive (see Lorenz' book, **On Aggression**) or whether we're really peaceful and only provoked to violence by some outrageous threat. Maybe it comes down to asking, "What provokes aggressive behavior?" and, "How can we minimize these provocations?"

There's got to be some sort of instinct to survive as an individual. And as a family. Fighting to protect oneself or one's family is considered right and natural. You'd be a coward if you didn't.

And I think we have some sort of group or herd instinct, some satisfaction from helping others, some affection for one's friends, some loyalty to one's community. Surely, we get lots of exhortation to love our neighbors and give to the poor and fight for dear old South Side High and die for our country. But I think that, beneath all the brainwashing, we do want to stick with our buddies, and to protect our communities.

So anyone who represents a threat to us or ours is an enemy, and should be at least neutralized. One big trouble is that we get wildly carried away as to who is our enemy. The psychotic murderer may see a President as his enemy. The black man may see all white men as enemies. Our country decided that the North Vietnamese represented a threat to us. The person struggling in the ghetto really does have enemies.

How about the "climate of violence"? It does seem as if our TV networks shouldn't give our young the impression that the greatest thing in life is the destruction of enemies.

Or gun control. Impossible as it may be to regulate the millions of hand guns loose in the country, I'm in favor of it. It's ridiculous that anyone can buy a Saturday night special.

And nationally. We used to think of ourselves as sweet lovable people who fought only in self defense or to free ourselves from tyranny. Now, despite our military being euphemistically named the Department of Defense, we aren't so sure. When the commies call us imperialist warmongers, what can we say?

A Doctor's Notebook

2-1414

The Right to Life

By Robert Zufall, M.D.

The picketing of a local hospital by opponents of abortion has resurrected an issue that I'd like to add my two cents worth to. The issue, as stated, is a moral one. The right to life of a developing embryo, a fetus, an unborn child. The "right to life" people feel that the embryo, from the moment of conception, is a person, a full-fledged human being. Abortion is therefore nurder.

The opposing view, upheld by the Supreme Court, is that the fetus does not become a regular member of the human race, with all the rights and privileges pertaining thereto, until it is actually born, and physically separated from its mother.

During the period from conception to birth, in this view, the fetus is an organism in the process of becoming a person. It is, literally, an appendage of its mother, growing in her body, a part of her. At least for the first 6 or 7 months, it is not an individual capable of independent existence. It is a part of the mother's body, to do with as she sees fit.

Count the millions of sperm, the thousands of eggs and of opportunities for conception, all of which could have produced any one of a trillion different people, but just happened to produce each one of us, and you realize that the chances against any one of us being here at all are trillions to one. Can any of us really be said to have had the right to life? And in affluent America, no less?

A point can be made that the right to life involves more than just being conceived. A baby cannot survive unless there is someone willing and able to love it and care for it. If the mother is not going to do it, those who would force her to have the baby must assume responsibility for guaranteeing that child a loving home.

With increasing population and decreasing resources, the day may soon come when families will have to be limited, and even wanted fetuses will have to be denied the right to life.

Those who are opposed to the "right to life" movement are in the position of saying that the unborn fetus does not necessarily have a right to live. While it's still a part of its mother's body, she has the right to decide what will become of it. This is the issue: the rights, if any, of the fetus, versus the mother's right to decide whether she wants to have a baby. Is the fetus already a person, or is it an organism that, if left alone, would become a person? You pays your nickel and you takes your choice; but it does seem a bit intemperate for those on one side of the fence to call those on the other side "murders."

A Doctor's Notebook

5-17-74

Proteins - You Need 'Em

By Robert Zufall, M.D.

Health Maintenance Organizations are the new stars in the East. Instead of curing people when they get sick, let's not let them get sick in the first place. Fine, and important; but how do you keep healthy?

A lot of the wisdom of preventive medicine boils down to hoary old platitudes that you'd had up to the ears by the time you were 6. Eat a balanced diet. Get enough sleep. Wear your galoshes. Wash your hands. Get your shots. Stay away from people with contagious diseases. Get your annual checkup. Wear your seat belt. Watch for lumps, bleeding and chest pains. Don't kiss the parrakeet. Don't smoke pot. Don't be crapulous.

Nutrition is a subject that we all have a smattering of; but even most homemakers don't know as much about it as they really should. Fortunately, people like other animals, seem to have some sort of instinctive knack for eating what they need. Even the teenager who lives on coke and hamburgers will manage to sneak a milk shake or a glass of orange juice.

It seems to be only in situations of deprivation where real mal-nutrition developes, and where a knowledge of nutrition becomes vital. I'm sure that there is a lot of malnutrition and even starvation in our country, despite food stamps and everything else. And I suspect that a lot of it is simply because mothers don't know enough to use their food money, or food stamps wisely, to give their children what they have to have to be healthy.

The basic necessities are pretty simple. You need calories, proteins, minerals, vitamins, and water.

Calories you get from fats and carbohydrates. Kids need 1,000 to 3000 a day; and anyone can find a calorie counter.

Proteins, which are what I started out to discuss, you get from meat, eggs, beans, milk, cereals, nuts. Children need 40 to 70 grams a day. Most cereals are about 10 per cent protein, meats 15-20 per cent. So a quarter pounder hamburger is about 16 per cent of ¼ pound, or .04 lb., or 20 grams of protein. A child would need 2 to 4 a day.

This is the expensive item, the one where the poor but smart housewife should be able to make the biggest savings. Beans and chicken are 20 per cent protein, peanuts 26 per cent and soybeans a hefty 34 per cent. If you like soybeans.

Mineral are mainly calcium and iron. Kids need a gram of calcium, or close to a quart of milk a day. Vitamins and iron you get in a varied diet, or in a pill.

To make things even simpler, the U.S. Dept. of Agriculture suggests at least 2 daily servings of each of 4 groups: milk, meats, bread-cereals, and vegetable-fruit. Like a Chinese restaurant, 2 from group A, etc.

A Doctor's Notebook

10-3-74

Motorcycles

By Robert Zufall, M.D.

What can I say? I used to have a motorcycle, of which I was passionately fond. The fellow who owned it before I did used to park it under my window; and when I heard him driving in or out, going "vroom, vroom, sputter, cough," I used to run to the window and watch. Finally, for a mere $50 it became mine.

The frame was sprung, so it shimmied at 50 mph, which is not a good thing for a bike to do. The generator didn't generate, and things kept loosening up on the carburetor. But it was a wonderful feeling to twist the handgrips and have this thing take off down the road with me triumphantly in the saddle.

I used to ride it in the rain and snow; and a few times it skidded out from under me. That was a little worrisome; but it could be managed. Then one day I was going down a hill to an intersection with my bride-to-be on the buddy seat. The light turned red, and I tromped down on the brake pedal. Nothing. Just on down the hill into the cross traffic.

"Okay, stupid," I thought, "now you've done it."

There were dodging and weaving and squealing of brakes and startled onlookers; but by some miracle we made it. Next day I put an ad in the paper; and a few days later I sold the bike to another starry eyed idiot like myself.

No matter how good and careful a rider you are, it can happen. I remember a guy, father of 5, who was riding at night and hit a pothole. It threw him over the handlebars on his head. He lived for a couple of days.

That was before helmets, which do help to keep your brains from getting scrambled. They don't do much, though, for broken necks, and going around in a nice wheelchair for the rest of your life. Even Evel tells his first aid crew to be careful of his neck.

The death rate for bikes is 3 or 4 times that for cars. 17 per 100 million miles of travel, versus 4.5 for cars. If I had nothing to live for, I think I'd like to get a nice big Harley Davidson and go barreling off into the sunset. But as things are, I'd rather stick around for a few more years.

A Doctor's Notebook

8-15-74

Stress and strain . . .

By Robert Zufall, M.D.

In engineering parlance, stress is a force applied to something like a girder, and strain is the bending or twisting that results. Stress on human beings is, similarly, a force strong enough to cause some reaction. Tensions and anxieties on the job, arguments at home, illness, money worries, bereavement, travel.

Hans Selye is the big name in the study of stress and the body's reaction to it. He used the terms "alarm reaction" and "general adaptation syndrome" to describe what happens when a person or an animal is stressed.

The pituitary gland starts churning out hormones that stimulate the other endocrine glands, the thyroid to produce thyroxin, the adrenal to produce adrenalin and cortisone, and so forth. There are a lot of complicated and bizarre reactions that either give the organism the energy to cope, or give him ulcers or migraine or high blood pressure or aching back, or can even kill him.

Seyle has done a lot of remarkable experiments over the last 40 years, subjecting animals to different kinds of stress. He found that tumbling rats around in wire cages could cause them to die, apparently because the stress and excitement and frustration were just more than they could stand. He was able to induce calcification in different tissues ("calciphylaxis") by subjecting them to various stresses. It still hasn't been worked out how all this applies to humans; but he has shown that stress can do a lot of strange and wonderful things.

Now he's written a book for the layman, called "Stress Without Distress", in which he expounds his philosophy of stress and how to deal with it. Everyone has an optimal level of stress, of excitement and tension at which he functions best. And we function in cycles of recurring needs for food, water, sex, rest, and excitement.

First, you have to try to make your environment (your job, your home, your recreation, your friends) as congenial as possible. If you hate the city, move to the country. If possible.

Then you have to find work that is at least reasonably suited to your abilities and interests, reasonably enjoyable and satisfying. That, too, may not be so easy. He also points out that sitting around doing nothing isn't so much fun, either.

Aging, he says, is the sum of your stresses. Successful activity isn't so aging. It's the frustrations, the failures, the unsuccessful struggles and the boredom that age you before your time. Find something you like to do, and do it. Maybe his moral is, "Enjoy yourself, it's later than you think."

A Doctor's Notebook

11-21-74

I Am Joe's Spleen . . .

By Robert Zufall, M.D.

I used to be considered the site of the violent emotions, back in the days when "to vent one's spleen" was to take a blast at somebody. Now I'm practically the forgotten organ. In fact, I'm ashamed to say that Joe can get along perfectly well without me. And if he gets rid of me, it won't even help his rotten temper.

You don't hear much about spleens, like you do about hearts and breasts and such. About the only way I'm likely to get in the news is if somebody is in a football game or an auto accident and he gets a good rap in the belly. Then his spleen may rupture, and start to bleed, as the surgeons say, "briskly." This requires an emergency operation. Since trying to sew up a crack in the spleen is about like sewing up a broken mud pie, what's done is simply to tie off the artery and vein to the spleen and take it out. If it came to that, I suppose I'd be willing to make the sacrifice.

The other big thing that happens to us spleens is something called hemolytic jaundice, or spherocytic anemia. This is a birth defect in which the red blood cells are destroyed at an excessive rate in, I'm sorry to admit, the spleen. It's the red cells' fault. They form little spheres and bust up easily. The patient's spleen may get positively enormous. The cure? You guessed it. Out with the poor old spleen.

Occasionally I get involved in cancers, like lymphomas and Hodgkin's. And a couple of exotic things called Banti's syndrome and Gaucher's disease.

You may ask, "What good are you?", even, "Where are you?", or, quite possibly, "How would I recognize you?"

Well, if you happen to be inside Joe's belly sometime, go over to his right side and work your way up alongside his stomach, behind his large intestine. Where the large intestine turns down (in a bend which I modestly point out is referred to as the splenic flexure), there you'll find me. If you reach the diaphragm you've gone too far. I'm the mushy purple fellow about 4" across, shaped, I'm afraid, like a fat mushroom.

I have some useful functions; but everything I do is also done by somebody else. I make the white blood cells called lymphocytes and monos. I destroy red blood cells. I make antibodies. I'm part of what's called the reticulo-endothelial system. This consists of cells lining the blood vessels, or sinusoids in the bone marrow, the liver, the thymus, the lymph nodes, and me. These cells do something called phagocytosis, which is picking up stuff like germs out of the blood, and getting rid of it.

I'm also a reservoir for blood; but, as they say at Tock's Island, who needs reservoirs?

SOCIETY - CLUB NEWS
ENTERTAINMENT

3-6-75

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A Doctor's Notebook

Nursing Homes

By Robert Zufall, M.D.

Daily we read about troubles in the nursing homes. Mr. Bergman and others are questioned. Investigations are made. Previous investigations are investigated. Every honest, conscientious, dedicated and devoted nursing home operator (and I truly believe that most are) must wince to see what his colleagues are up to.

How did things get to be so bad? Well, we're really concerned with two problems. First is the poor care a lot of people get. Second is how the nursing home operators cheat the government; and I don't feel qualified to discuss that aspect of it.

Why poor care? It's just cheaper and easier to hire less help and not check up on them, to use some old dump of a haunted house and not spend a nickel on it, to skimp on the food and the linen and the medications. I don't think these people are deliberate sadists. They just want to make more money for less work, like everybody else.

And it's part of the larger issue of care for the elderly in general. Bess Myerson, New York's Consumer Affairs Commissioner made a telling point, that we all must share the blame if our aged and infirm are maltreated. Some of those patients must have had relatives or friends. Could they have been doing more than they did to visit, to help with feeding and turning and washing, to complain about poor conditions, to try to find another nursing home if their parents were in a bad one?

That might not be easy. The cost of keeping someone in a nursing home can be a real burden; and I'm sure people shop around for cheap ones. Do they also shop around for good ones?

One thing that bothers me in all this is "scare" reporting. You see pictures of some old guy slumped over in his wheelchair (to which he is tied, to keep him from slumping right out on the floor), drooling down his chin and staring vacantly into space. That guy may be getting the best nursing care in the world and still look like that. Two minutes ago the nurse might have propped him up, given him a drink, wiped his face and checked to make sure he was comfortable. Sometimes you just can't do any better.

So, if you have someone in a nursing home, don't forget about him or her. Go visit on a regular basis. Ask the nurse if there's anything you can do to help out. You may discover that they're doing about all that can be done. If they're not, let's see what you can do about it.

A Doctor's Notebook

Fits 5-22-75

By Robert Zufall, M.D.

A "fit" is a convulsion, an epilepsi during which someone loses consciousness and has involuntary movements. These have been known since Hippocrates recognized epilepsy as a disease of the brain; but they're rare enough that many of us have never seen one. It's a rather fearsome thing to see somebody suddenly collapse and start twitching and jerking.

Most often this is epilepsy; but epilepsy comes in more than one form. The convulsion is a "grand mal" (big sickness) seizure. Characteristically there is a regular sequence of events. First is the tonic stage. The person loses consciousness and falls down, his muscles tense and rigid. He doesn't breathe, and he turns blue. This lasts a minute or so, and then follows the clonic stage, where he twitches and thrashes about, may bite his tongue, froth at the mouth, or wet himself. This lasts a couple of minutes, and then he lapses into a coma for a few minutes to a few hours. He wakes up with a headache, but with no memory of the fit.

The other main kind is "petit mal", or little sickness. It is usually just a period of a few seconds when the person who has it is unaware of what's going on. He sort of sits and stares for a moment, and then snaps out of it, again with no recollection of the incident.

There are also focal epilepsi, a lesser and more localized fit, psychomotor epilepsy, with a funny motion or sensation, and status epilepticus, in which the seizures just don't stop. This last can even be fatal unless the patient is promptly sedated or anesthetized.

The cause of most epilepsy isn't known, though there's some evidence that it's hereditary. You can also get convulsions from brain injuries or tumors, or fevers, or lack of oxygen. Neurologists do various tests like electroencephalographs (EEG's), pneumoencephalographs (PEG's), skull X rays, spinal taps, and brain scans to try to determine the cause. Epilepsy shows a characteristic pattern of spikes on the EEC. That's the brain wave test, where wires are placed all over the head and attached to a recording machine that picks up electrical impulses from the brain.

A person with epilepsy has a tough row to hoe. He's just as intelligent and sensible as anybody else; but he goes through life never knowing when he's going to have a fit. Fortunately he can usually be managed very well with dilantin or other drugs, though he'll have to take his medicine for years, if not for life.

Those close to him, in his family or at work, must be understanding and helpful. If he has a fit, they must try to keep him from hurting himself. Someone with epilepsy can and should lead a normal life, with a few exceptions. One of these is driving a car; and it's the painful duty of the doctor who makes the diagnosis to notify the Department of Motor Vehicles.

A Doctor's Notebook

11-30-75

Plea for Statistics

By Robert Zufall, M.D.

This may be the only impassioned plea for statistics you'll ever see; but statistics really are the backbone of medical science. When the biochemist or the surgeon or the organic gardener comes up with something that he thinks might be a new cure for cancer or ingrown toenails, he eventually gets around to trying it on somebody and answering the question on the bottom line. "Is it any good?"

There just "ain't" no way you can answer that question without some statistical analysis. What the statistics do, hopefully, is tell you whether the fact that your patient got better or didn't when you gave him your medicine was probably due to your medicine or likely could have been pure chance. The answer is never absolute. Depending on the number of cases and the amount of difference in the results between those who got the medicine and those who didn't, you can say that your results are, or are not, statistically significant.

One case means nothing. You had a patient with cancer and you have him your pickled pigs' feet and he got better. It doesn't mean you cured him. It does mean you ought to try it on a few more people with cancer. If they get better, you have to keep track of them for a few years. Did they all get a relapse and die? Then you have to have "controls," cases matched as closely as possible to the ones you treated, but who didn't get your wonder drug.

For controls, it's ideal to use your own patients, because then you can be more sure that they really match. But often doctors compare their series against other series reported in the medical literature.

Another problem is bias. This new wonder drug is going to save the world, and incidentally make you famous; and it's a big temptation to, even unconsciously, fudge a little. You don't give it to your worst cases. You shrug off the complications. So, to be really honest, they sometimes use "double blind" techniques. The pills are coded so that neither the patient nor the doctor giving them knows whether it's the good stuff or a sugar pill.

A further difficulty is that the doctor may be personally convinced that his medicine is curing cancer, so it would be wrong to withhold it from anybody, so he doesn't. And he doesn't keep very good records or do adequate three or five year follow-ups. He tells the world he has the greatest thing since night baseball; and he may have; but nobody will know for sure until someone else repeats or verifies his work.

This is what happens, I think, with Krebiozen or Laetrile or a thousand other unproven cancer cures. Word gets around about Dr. X's remedy, and a lot of well meaning but statistically naive people get on the bandwagon and berate the Food and Drug Administration and the American Cancer Society for not approving it, and some rate somewhere is making a lot of money selling it to the poor patient who's willing to try anything, and it's, as Shakespeare said, a bad scene.

A Doctor's Notebook

5-21-75

Medical Meetings

By Robert Zufall, M.D.

I would like to talk anybody I can into a career in medical research. If the human race is ever going to improve itself it's got to be through the efforts of people in the medical, scientific, social, and psychological fields who devote their lives to finding out how things work, and how they can be made to work better.

The physician is only as good as the tools he has to work with. And it's the people working in the medical schools and the drug companies who are going to find new tools, new medicines, new cures. Not to belabor the point; but it's the plant researchers who are going to figure out how to feed the world, and maybe the people who study behavior will someday be able to tell us how to get along together.

I think anyone who's at all interested in research should do it, and I think even the most unlikely projects should be funded; but each individual project may not be all that much fun, or even that productive. You don't make a startling discovery every day. In fact, all the researchers put together don't seem to change the world a great deal from one year to the next. Drug companies are constantly making new chemicals; and it becomes a rather routine process to check them out against bacteria or cancer cells. Then you have to test them in hundreds of mice, and check the mouse's blood count, and autopsy him.

Or the fellow working in a medical school gets an idea that maybe the amount of zinc in the diet has something to do with heart failure, because he read an article where somebody had produced heart failure in mice by feeding them cadmium. So he talks to the chief of his department, who gets him a research grant from the National Institute of Health, and he spends a year feeding mice zinc and weighing their hearts and seeing how fast they can run. He discovers that zinc has the same effect as cadmium, only less. He writes it up, and presents it at the annual meeting or the American Heart Association.

It's a valuable study, and may someday contribute to the treatment of heart failure. But the cardiologist who has droned down to Miami Beach on a 747 to spend 4 days in the Fontainebleau listening to such papers may grumble to his colleague, "Why don't they try it on some people before they bother us with it? I don't treat mice."

Later, at the bar, he'll learn how they treat heart trouble in San Francisco. "Listen. What do you guys do about somebody that's refractory to . . ."

It's often slow and plodding; but it's the only progress there is. And I'm American enough to believe in progress

A Doctor's Notebook

5-15-75

Body Building

By Robert Zufall, M.D.

Charles Atlas, "the world's most perfectly developed man", died not long ago at, I must say, a ripe old age. For years he festooned the pages of the male oriented magazines with his "dynamic tension" ads and his claims of how he built himself up from a 97 pound weakling. His little cartoon strip of the skinny guy on the beach who has sand kicked into his eyes by the bully, takes Charles' course, and returns to flatten the bully with a well placed blow must be some kind of classic.

In our society, there's not much use for muscles. Ever since the steam hammer replaced John Henry, machines have done the heavy lifting. And you can't punch a bully anymore without getting arrested. But there's still admiration for masculine strength and beauty, albeit mostly among men. Ladies seem to regard the whole thing as dumb.

Muscles can be trained either for strength or for endurance. For strength, the idea is to work the muscle against as much resistance as possible, usually a weight that you can lift only about 3 to 10 times. And it doesn't seem to take a great deal of time. Lifters work out about an hour every day or two.

Atlas' dynamic tension was a type of isometric exercise. You pit one muscle against another by doing something like pushing your hands together without necessarily even moving the muscles.

Endurance is another matter. You do something fairly easy, like running; but you do it as long as you can. There's some Indian tribe out West whose members play a game where they run along for days on end kicking some sort of little ball. With this, the muscles don't even get a lot bigger.

The health aspects are somewhat incidental. You can hurt yourself lifting heavy weights. I read of one fellow who was doing a bench press and the weight slipped and fell on his neck and killed him. Sprains, back and otherwise, are common. You can strengthen the muscles, but you can't strengthen the ligaments much. These, of course, are what tear in a sprain.

The number of calories you burn up is bound to help keep the fat down; and this may be the major health benefit of all this exercising.

A Doctor's Notebook

Health Care in Guatemala

By Robert Zufall, M.D.

My having spent a week in Guatemala recently doesn't exactly qualify me as an expert in the health problems of the underdeveloped nations; but I did visit a couple of clinics and hospitals, and I talked to doctors and nurses and patients.

Guatemala City is a big, modern metropolis where most of the well-to-do ruling class live, and where they have plenty of doctors and hospitals and medicines. The big United States drug houses have branches there; and many of the specialists are U.S. trained.

The rest of the country seemed to consist of villages populated largely by Indians, descendants of the Maya, where medical care exists, but is pretty rudimentary.

I visited one rural health center run by the government, a six room building with a couple of nurses and lab technicians, an intern and a medical student. Here Indians come with their underweight babies, their coughs and their diarrheas. They are examined, blood, urine and stool tests are done, and a few medicines are dispensed. If you need to go to the hospital or have an x-ray or a cardiogram, you ride the bus for 20 miles (10 dirt, 10 paved) to the city, and good luck!

Next door was a government day care center for the most severely malnourished children, the muy desnutrido. They had about a dozen spindly little youngsters.

In another town I visited a clinic and hospital run by a U.S. doctor. His hospital had about 80 patients, in six rooms, on iron cots. The relatives of the patient take care of his needs, except for medicine, so costs are only $1 a day.

He told me that he hadn't been there very long when he began to see that it didn't make much sense to treat a baby for malnutrition and send him back to a diet of frijoles and tortillas, or a worker for diarrhea and send him back to his cesspool by the well.

A mother may have eight children, four of whom die. But, if they all lived, there'd be even less food. Causes of death in Guatemala are gastroenteritis, pneumonia, flu, measles, whooping cough, anemia, dysentery, tb, bronchitis, cancer, in that order. Most of that means babies who are so underfed die of the least little thing.

So this doctor (his name's Behrhorst) has gotten involved in helping the Indians to buy land and improve their farming methods, in educating them about nutrition and sanitation and birth control.

There are about two billion of these people around the world living on the edge of starvation, whose lives could be made easier by health care, education, agricultural improvements. It does seem as if we could be doing more to help.

.TOR'S NOTEBOOK:

How to Sleep

Robert Zufall, M.D.

THAT TITLE is a lie. As a confirmed insomniac, I'll admit that I don't know the answer. But often it's the person who has the problem who has studied it, like the legendary nutty psychiatrist.

Some people have trouble getting to sleep. You go to bed at a reasonable hour after a relaxing evening watching gangsters kill each other or arguing with your wife about which bills to pay this month, and you lie there thinking about asking your boss for a raise and saying to yourself, "Here is is 12:30 and I have to get up in 6½ hours and I'm going to be a wreck tomorrow."

Others wake up in the middle of the night and watch the hands of the clock move ever so slowly around. The new digital clocks that project the time on the ceiling should be a great boon for this type of person.

Sometimes I'll get a call at 5 a.m. from or about a patient and, once I've woken up enough to know what they're trying to tell me, it takes me another hour to go back to sleep.

SLEEPING PILLS are not much of an answer, even though millions of them are sold every year. The general rule is that they all lose their effectiveness after two or three weeks of continued use, although they will help on an occasional ad hoc basis. In the hospital everyone gets a sleeping pill. I think it's a conspiracy by the night nurses to keep from being bothered. It seems that whenever I don't order one I get called about it.

The over the counter pills like Sominex don't do much except maybe make you drowsy the next day. Barbiturates like Nembutal and Seconal require gradually increasing doses. Alcohol helps, but chronic alcoholics have sleep problems. There are others, like Quaalude and Doriden and Miltown and Dalmane, which is related to Librium and Valium, and is the current favorite.

Some sleep problems are, paradoxically, due to depression, and may be helped by psychotherapy. Even learning to relax enough to go to sleep may require professional help. this is an area where psychotherapy, like behavioral modification, or meditation techniques, can be useful. There are even sleep centers where they put electrodes on your head and watch you sleep.

I like to think that the body takes what sleep it needs, if you let it alone. I don't know of anyone who ever died of insomnia.

Robert Zufall, a Mountain Lakes resident, is a physician specializing in urology. Any questions to him or suggestions for his column may be addressed to Trends, 1 Boonton Ave., Butler, N.J. 07405.

ocal Choral Concert

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Doctor's Notebook:

Urinary Infections

Robert Zufall, M.D.

THESE ARE ALSO KNOWN as UTI's but since I deplore this business of everyone's using unfamiliar initials for simple and familliar things, just to make life more difficult, I won't call them that, even though it's easier to type three letters, even with the shift key, than 17 and a space.

Urinary infections go all the way from the top of the kidney to the tip of the urethral meatus (which is where the urine leaves the body on its way to Newark Bay), but the most common ones are in and around the female bladder and urethra, and are known as cystitis and urethritis. (The "cyst" in cystitis is the bladder.)

You all have some idea of where the bladder is located, and of its general capacity, and of the caliber of the tube through which it empties. This tube, the urethra, is, in women, only about two inches (five centimeters) long, and it opens out in an area where there are pretty much normally bacteria, that you just can't get rid of, no matter how hard you try.

FAIRLY OFTEN these bacteria seem to work their way up the urethra into the bladder and set up housekeping. As a result, the bladder gets irritated and inflamed and swollen and empties itself frequently, urgently, and painfully, often with some pain in the low back or abdomen, and sometimes with bleeding.

Usually these infections are easy to clear up with sulfa drugs like Bactrim or Septra, or others like Macrodantin or Neggram, but the trouble is that in many girls and women they keep coming back. This can get pretty frustrating and aggravating, especially after you've been through the cystoscopy (where the doctor looks in your bladder) and the urine culture and the kidney x-ray (know as an IVP, for reasons too boring to explain).

There's another large group of women whose problem is even more frustrating, not to say baffling. They have all the same symptoms, but you can't find the bug. Urines and urine cultures show nothing. There are lots of theories that the germs are lodged in the wall of the urethra, or the urethra is too narrow at one point or another, or that it's due to sex or bubble baths or pizza pies or nervous tension, but I don't believe that anyone has the answer. At least most of them do eventually get better.

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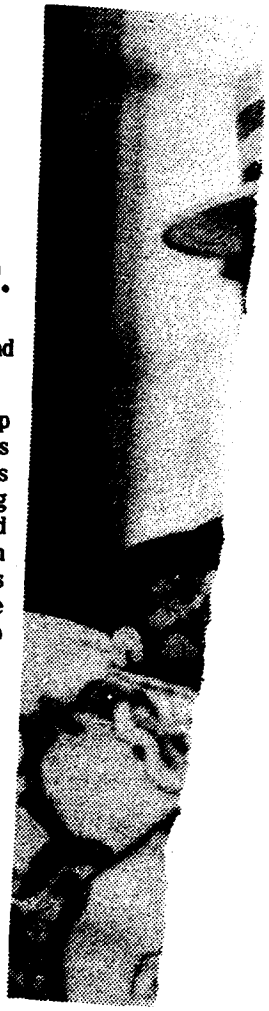

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s Notebook:

Chiropractic

Robert Zufall

HERE I GO, writing about something about which I know very little. I've never been to a chiropractor. I do know people who have, some of whom felt better, some of whom didn't. In fact, I'm not even supposed to associate professionally with them, since their method of healing is, according to the AMA, not founded on a scientific basis. MDs, however, are now allowed to accept patients from chiropractors, and to do lab work and x-rays for them.

The basic principle of chiropratic medicine as I understand it, is that disease is due to slight dislocations, or subluxations of the bones of the spine, causing them to press on the nerve roots that come out of the spinal cord. There are a few conditions that actually are caused by pressure on nerve roots, like what's loosely called sciatica, where you get pressure on the sciatic nerve that runs down the leg, with weakness, numbness, and pain in the leg. But most of the internal organs like the heart and the liver and the stomach aren't even connected to these spinal nerves.

Also, the bones of the spine are pretty well stuck together with ligaments, and it's not so easy to make them slip on each other, let alone slip on each other in such a way as to increase or decrease pressure on nerves.

SO WHAT, you say, if it works. Lots of folks are convinced that it does. They went and they felt better. How can you argue with that? There have been some studies of patients with back paints showing that tratment by chiropractors was just as effective as treatment by MDs. Which may not say much for MDs treatment. Maybe aching backs are made for quacks.

There are some plausible explanations for the relief that people get. Good old placebo effect. A certain percentage will get better with a sugar pill. Faith, confidence, and suggestibility, the good old hypnotic faith healer effect.

Massage. Anybody feels better with a back rub. Stretching and loosening of tense muscles seems to do something.

I'D LIKE TO MAKE A PITCH for science and statistics. It's often very hard to prove that something causes something else to happen, like this pill cures this disease. You have to take two groups of people, carefully matched so as to exclude all the other variables, and give one group the pill and the other not. If the difference in the two groups is great enough, and the size of the groups great enough, you can put your figures into a statistical formula that will tell you that the likelihood that whatever results you got were merely due to chance is 1 in 20, or whatever. Then somebody else has to repeat the study and get similar results. Without that kind of evidence you can't really say that viatmin E is better than powdered rhinoceros horn.

We do a lot of things that don't have very sound backing, like the way we treat backs, but I like to think we're trying to improve on what we do.

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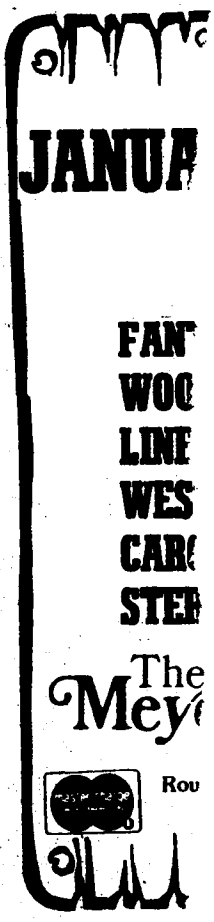

12/1978

Doctor's Notebook:

Lungs

Robert Zufall

DID YOU KNOW that lungs function in a vacuum? A vacuum between the lung and the chest wall is what keeps the lungs expanded. If you stick a knife into somebody's chest, air will rush in and the lungs will collapse. It's what's known as pneumothorax.

I've never quite understood what keeps that vacuum there. Presumably the pleura, the membrane covering the lung and the inside of the chest wall, absorbs any air that gets into it.

So air is drawn into the lungs by suction. You expand your chest and pull your diaphragm down. In expiration you let the air out by relaxing your chest and diaphragm.

COUGHING is a forced expiration. Notice that when you cough you tighten your abdominal muscles. This presses up on your diaphragm, that sheet of muscle between your abdomen and your chest, and pushes out the air. Since the diaphragm is sort of dome shaped and attached around the edges, it moves downward when it contracts and it can't help in pushing upward.

The trachea (windpipe) branches into the bronchi or the bronchial tubes. One bronchus goes to each lung, further subdividing like the branches of a tree, until they come to the working units, the alveoli, tiny sacs at the ends of the bronchi, all 300 million of them.

The alveolus is lined by a thin membrane that has air on one side and blood, in capillaries, on the other. Here is where oxygen is picked up by the hemoglobin in the red blood corpuscles and carbon dioxide is blown off.

NOWADAYS it's common to measure arterial blood gases by puncturing an artery. If there's less oxygen than CO_2, you're turning blue. That's because hemoglobin with oxygen is redder and that without is bluer. Cyanosis is the word for turning blue, and you can be obscurely insulting by suggesting that someone become cyanotic.

They also measure lung capacity with a sort of bellows called a spirometer. You take a deep breath and blow into it, and it measures the amount of air you can hold. That's your vital capacity, usually about four or five liters, or about a gallon of air. The amount you can blow out in one second is your forced expiratory volume or REV1. If you have emphysema, with scarred and obstructed bronchioles, you can't blow as fast, so your FEV1 is less.

These tests are important for someone with pneumonia or heart disease, and even for a smoker with a chronic cough who's about to have surgery. His lungs may be pretty borderline, and he could be a bad anesthetic risk.

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