

Living on Liver

By Hannah Lees

ILLUSTRATED BY GEORGE DE ZAYAS

That sounds like cruel punishment—especially if you don't like liver. But it's how a person with pernicious anemia can live. And he can do it without tasting liver. We've come far since Dr. Minot revoked the sentence of death for the disease. Here are the facts

THERE is a tale that crops up in medical circles from time to time about a prominent Boston lawyer who died of impatience. It's not as funny a story as it sounds either, for, according to the tellers, it actually happened some thirteen years ago. The records never said this lawyer died of impatience, of course. What they said was pernicious anemia, and that was logical enough. People did die of pernicious anemia then; in fact, once they had it they were absolutely certain to die before very long. And this lawyer had it all right; fewer red cells in his blood every time you looked at it, sore tongue, lemon-yellow skin, no hydrochloric acid in his stomach. But it was impatience, all the same, that killed the man.

He knew this pernicious anemia he had was a death warrant, but he could take it a lot better, he told his doctors, than all the long, slow, useless treatment that might keep him alive a few years longer. The only thing was that he had a book he wanted to finish writing before the end. So he went to a noted blood specialist and put it up to him. Couldn't he keep him alive, somehow, just long enough for that?

The specialist did the best he knew how for him. He began giving him transfusions of healthy blood to bolster up those failing blood cells. And he kept on giving them, one a week almost, for a whole year. They couldn't save the lawyer's life or cure his anemia, both he and the doctor knew that, but they could keep him going for a while. And they did, and he worked like mad to finish the book.

When the last proof was corrected and in the hands of the printer he turned to his doctor with a smile and a shrug and said, "Thanks, old man, that'll be enough." And nothing could persuade him to take even one more transfusion. What was the use? he asked. If they hadn't already found a cure, with the best doctors all over the country working on it, they weren't going to find one in his time. It was a losing battle.

But he was wrong, tragically wrong, for right there in his time someone was finding a cure, or at least a way of bringing pernicious anemia patients back to health and keeping them there. An unbelievable way it was, but still a way.

The lawyer died as he was bound to,

and six weeks after his death the medical world was sitting around goggle-eyed at the news that George Minot, a Back Bay Boston medical man, was bringing his pernicious anemia patients back to health and keeping them there with, of all impossible things, liver, just plain liver. If our literary lawyer had only taken a little longer over his book, just six transfusions longer. . . .

You don't hear so much about pernicious anemia today. It isn't a tragedy any more. It isn't even serious as serious diseases go, thanks to George Minot and William Murphy who was working with him. And it's hard to remember that only a baker's dozen of years ago it was one of the few absolutely certain death warrants. You might recover from cancer if it was caught in time. You could even lead a useful life with diabetes; Banting had taken that out of the death-warrant class three years earlier when he discovered insulin. But once you had pernicious anemia, once the red cells in your blood began to fade away by the million with no traceable cause, well, you could count your years ahead on less than the fingers of one hand.

A Cure—but How?

But then Minot and Murphy began telling their pernicious anemia patients to eat liver. Not for any terribly good reason. They hadn't much hope that it would work. But a few years before, a man named Whipple working with dogs had found that liver was valuable in anemia following acute hemorrhage, and had done some theorizing that gave Minot and Murphy a sort of hunch that maybe liver . . . Nobody was more surprised than they when those patients got better, and what's more, stayed better. Nobody was more surprised than they when a few years later they got a Nobel prize, a Nobel prize for liver. Why, they hadn't even known when they published news of their absurdly simple treatment what made it work.

But they went right ahead to find out, they and a young fellow named Castle, Castle using his own stomach as a guinea pig. And so today we know why, or think we do, and the facts behind that simple little liver cure are so complicated that it's no wonder it had to be worked out backward.

In the first place—and they knew this long before Minot's time—all the red

cells in our blood, the cells that carry oxygen (and oxygen is vital because it's oxygen that sets fire to the food we eat so that it can burn up into energy) are manufactured by the stuff inside our bones called marrow.

This marrow of ours has to keep working all the time, because the average life of a red blood cell is only about two or three months, then it has to be replaced with new ones. When the marrow doesn't work hard enough or when the red cells are eaten up or lost for any reason faster than they can be turned

out by the marrow, that's when you have anemia.

Anemia isn't just one disease, though, not by any means. There are a couple of dozen different varieties, but they fall into two pretty definite groups. There are the anemias you get when your marrow is manufacturing plenty of fine, healthy cells but some trouble in the rest of the body is making away with them. This may be from some injury or from an illness such as tuberculosis or advanced gastric ulcer, which causes decided bleeding. Or it may be from some germ getting into the blood and attacking the red cells and killing them faster than they can be made, or it may be from a chemical, such as lead, getting into the blood. In these kinds of anemia the thing to do is to get rid of whatever is causing the loss and try to keep up the patient's strength by transfusions or other methods until you can do that.

Trouble in the Factory

Then there are the kinds of anemia that come from something wrong at the factory. The commonest kind, the kind that people take iron for, is one of these. In this anemia the marrow usually manufactures just about as many red cells as ever but they aren't red enough. If you've ever had a blood count, and most people have at one time or another, and if you managed to get a look at the report, you know they always say, among other things, red cells so many, hemoglobin so much. The hemoglobin, you see, besides being what makes your red cells red, is the part of your cells that carries the oxygen around, so it doesn't matter how many red cells you have if they don't add up to enough hemoglobin to do a proper oxygen-carrying job. And the reason you take iron is that there is iron in the hemoglobin.

Without iron the marrow can't make hemoglobin any more than a car factory can make cars. So if your red cells



People were dying for want of what many Englishmen have for breakfast



The pernicious anemia type is usually past forty with prematurely gray hair



WEARING shoes with shabby, run-down, lopsided heels can spoil a man's smart appearance just as surely as having only one side of his face shaved!

And besides, uneven heels are mighty uncomfortable to walk on — especially if they're the hard kind that make a hammer blow of every step.

If you want to protect your good appearance and your walking comfort both at the same time — just have any good shoe repairman put Wingfoot Heels on your shoes.

These handsome, economical Good-year heels are made of specially compounded rubber—so *tough* they wear down *evenly*. And so *resilient* that they literally *soak up* the jars and shocks of walking on hard surfaces.

Give Wingfoot Heels a trial. See how they "dress up" your shoes — and boost your comfort.

THE GREATEST NAME IN RUBBER
GOOD YEAR

Wingfoot, Tawps —
T.M.'s The Goodyear
Tire & Rubber Com-
pany



WOMEN! Do you want heels or lifts that wear at least *twice* as long as ordinary leather ones? Then ask your shoe repairman for TAWPS, made by Goodyear — the new, trim, non-fraying, cushioned-leather lifts for high-heeled shoes!

are short on hemoglobin it usually means there is a shortage of iron at the factory. You haven't been eating enough spinach or navy beans or mushrooms, which incidentally contain a lot more iron than any amount of beef-steak, or, if you have, your system hasn't been absorbing it properly. So you have to get to work and acquire the iron artificially, taking it either in pills or by injection.

Now pernicious anemia, the kind that used to be fatal before Minot and Murphy had their inspiration, has this much in common with iron-deficiency anemia. It comes from something wrong at the factory.

But it's an entirely different kind of something wrong. In pernicious anemia the cells that the marrow turns out have plenty of hemoglobin, sometimes even more than normal, because the marrow is trying to get as much hemoglobin into the blood as possible, but very, very few cells are being manufactured. When pathologists study the bone marrow of a person with pernicious anemia—and they do sometimes, actually snipping out a piece of breastbone that you'd never miss, because this may be the only way of being sure the anemia is pernicious anemia—they find hundreds and hundreds of immature red blood cells but almost no properly developed ones. Something is keeping them from growing up, and that, in a very round-about way, is where the liver we've been talking about comes in.

How's Your Intrinsic Factor?

It seems there is a mysterious substance secreted by our stomachs that doctors call the intrinsic factor because they don't know anything more definite about it than that. And this substance reacts with another substance in our foods that doctors, again for want of a more definite name, call the extrinsic factor. The extrinsic factor seems to be commonest in beef, which is probably where the idea of giving beefsteak for anemia came from. Well, these two factors, intrinsic and extrinsic, react somehow to form still another substance—remember, I said roundabout—which our bone marrow has to have if it is to form red cells. And this substance—here it comes at last—is stored chiefly in the liver. So what people with pernicious anemia lack is not bone marrow, nor iron nor even liver, but this intrinsic factor.

Doctors know this because no amount of beef will help pernicious anemia a bit, by itself, but give the beef along with some fresh gastric juice from a healthy person who has plenty of intrinsic factor and just watch the red cells pick up. Only, of course, it's easier to give those people the finished product of the intrinsic and extrinsic factor and, since it's in the liver all stored ready and waiting, the thing to do is give them liver. Is it any wonder that most of this was stumbled on almost by accident?

In the past twelve years scientists have got things down to such a fine point that people with pernicious anemia don't even have to eat liver any more if they're sick of it; they don't even have a chance to get sick of it. For that liver has been refined and refined till there is nothing left but the necessary principle, the product of that intrinsic and extrinsic factor. So today, instead of dying as they would have thirteen years ago, instead even of eating liver till they hate the sight of it, all people with pernicious anemia have to do is take a few shots, every day, usually till their red-cell count gets up to normal, but then only every week or two, and go on about their business. And still people persist in talking about the good old days.

Now you'd think that since pernicious anemia is a blood disease the only place your doctor would look to diagnose it would be in your blood. But you're wrong. If he knows his stuff he'll look at your face and figure and tongue and inside your stomach, and inquire about your hands and feet as well. All that your blood can tell him, you see, is how many red cells you have and what they look like. And just as a rash on your face may be measles or prickly heat or chicken pox or poison ivy, just the same way your blood may say pernicious anemia when what you really have is cancer of the stomach. So a really thorough doctor will usually take an X-ray of the stomach to rule out cancer before he toys seriously with the thought of pernicious anemia, and meanwhile he'll give the once-over to your face and figure and hands and feet and stomach and tongue. We'll get to the reason for that later.

In the first place there seems to be a pernicious anemia type for some mysterious reason. People who develop it are apt to be over forty, with rather broad faces, wide-set blue eyes, pre-

maturely gray hair and deep chests. They're more than apt, because of the scarcity of red cells, to have a characteristic pallor with just a faint lemon tinge to it.

Then too, pernicious anemia, again for some mysterious reason, is rare in Negroes, rare in the tropics, rare in people under thirty and almost unheard of in children.

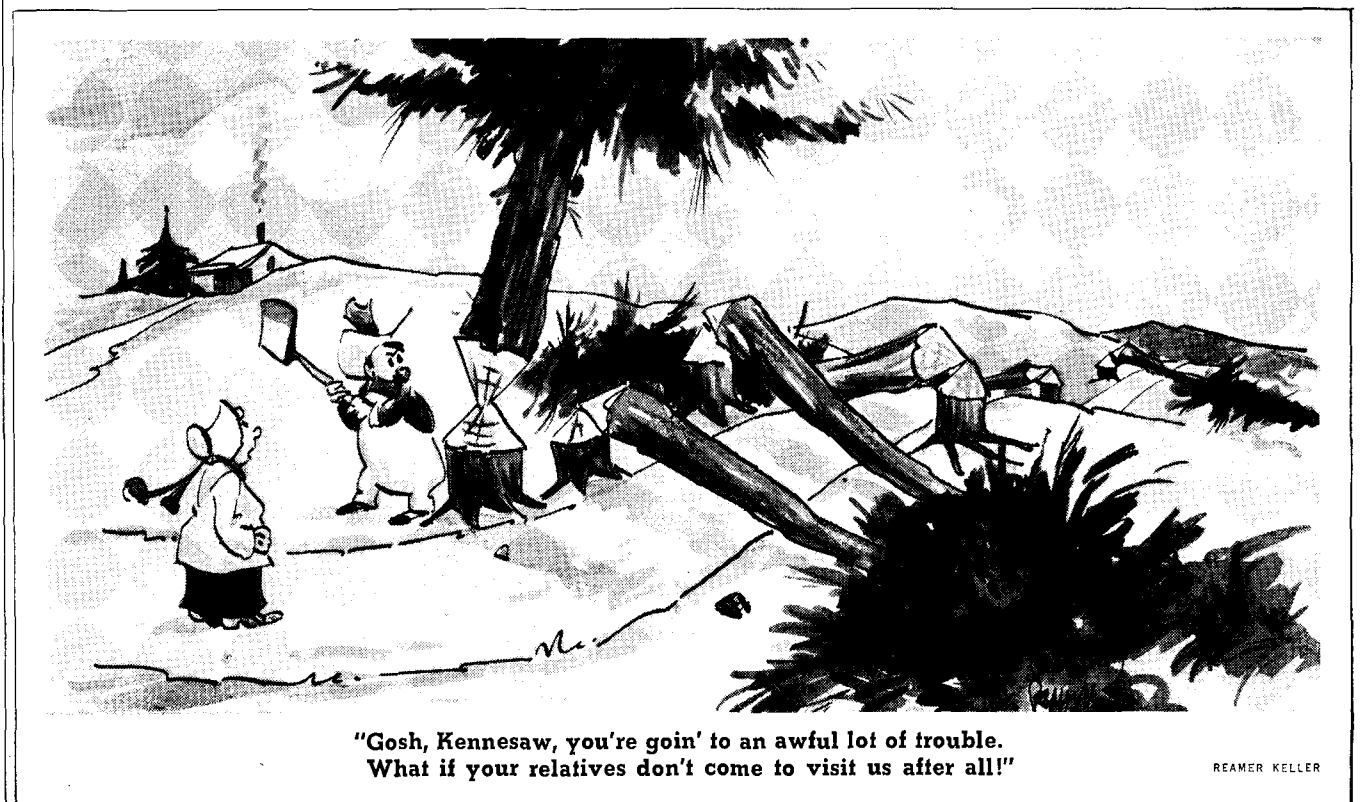
So naturally, with all those well-established facts to go on, your doctor will look you over pretty sharply.

A Careful Look at You

As for your stomach, your doctor won't even stop with an X-ray. He'll get right down to hard facts with a gastric analysis, not to find that mysterious cell-building factor—nobody so far has been able to find that—but to see if you're producing the proper amount of hydrochloric acid. It seems, and again nobody knows why—it's amazing the number of indisputable facts doctors have collected through the ages without any idea so far why they're true—that absence of the intrinsic factor and absence of hydrochloric acid in the stomach go hand in hand. But that doesn't mean you can feed patients hydrochloric acid and cure their anemia. Doctors tried that long ago, and discovered that it wouldn't work.

He'll look at your tongue because pernicious anemia makes people's tongues get red and sore, so red and sore in serious cases that they sometimes have trouble talking. And he'll inquire about your hands and feet because a shortage of red cells for a long enough time will cause degeneration of certain nerve tracts in your spinal cord and give you tingling and numbness. Then he'll add everything up together and, if the total says pernicious anemia, it's liver for you, a simple shot in the arm now and then, and you can forget it and go happily on your way.

It's almost incredible that a little liver can change all these symptoms except of course the broad faces and chests and blue eyes and who'd want to change those? It seems incredible that only a dozen years ago people were dying by the hundreds every year for want of a little something that lots of Englishmen relish for breakfast. I wonder what ailment we consider pretty serious now will be cured in another dozen years with calves' brains or pickled pigs' feet or just plain hash.



REAMER KELLER

1940 DE SOTO BIGGER, MORE POWERFUL, LOWER PRICED

LARGER 122½" WHEELBASE DE SOTO...MORE ROOM...NEW BEAUTY

*Look—Ride—
then Decide!*



One-Piece, Curved Glass Rear Window—increases visibility...reduces glare.

IT'S HERE!... a bigger, lower-priced car for modern American families; the exciting, new 100 horsepower, 122½" wheelbase De Soto!

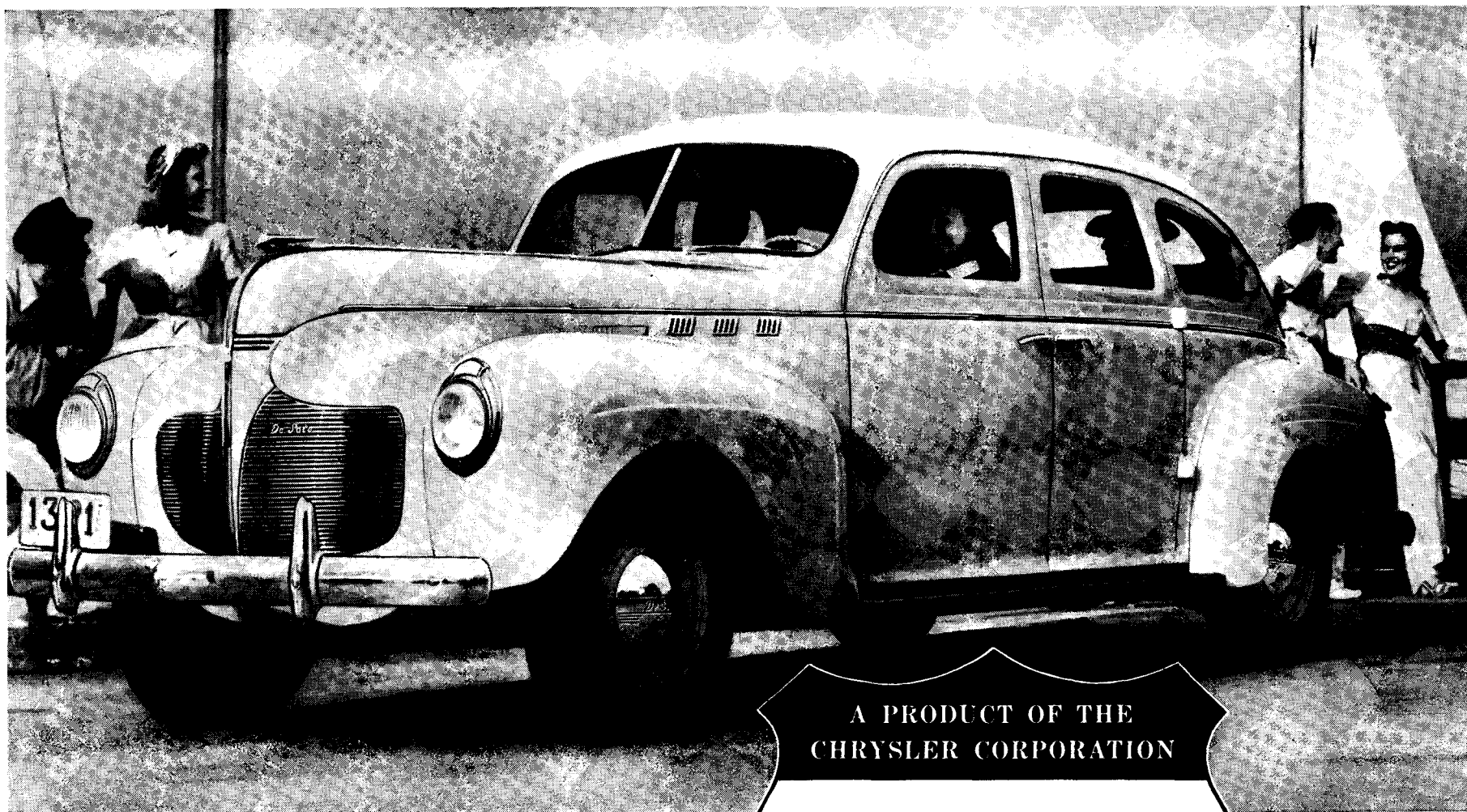
Just look at this car! The back's as beautiful as the front. Rear doors are full width at bottom. Windows are bigger; visibility's increased. Seats are inches wider. Head, leg and shoulder room is greater!

There's a new Floating Ride... the

rear axle is moved back 7½"... passengers cradled between axles. Warning Signals on instruments tell when gas, or oil pressure is low... water temperature too high. The Safety Signal Speedometer indicates driving speed.

Prove De Soto's new, greater value! This year, *Look—Ride—then Decide.* DE SOTO DIVISION OF CHRYSLER CORPORATION, Detroit, Michigan.

MAJOR BOWES, THURS., C.B.S., 9-10 P.M., E.S.T.



A PRODUCT OF THE
CHRYSLER CORPORATION

DE SOTO

NEW 1940 FEATURES

Advanced Styling—100 Horsepower Engine—122½" Wheelbase—Perfect Handy-Shift—New Floating Ride—All Passengers Cradled Between Axles—Sealed Beam Headlights—50 to 65% Greater Road Light—Bigger Windows—Increased Visibility—Rear Doors Full Width at Bottom—Wider Seats—Warning Signals on All Dash Gauges—New Ventilation—Doors Insulated Against Dust, Drafts—One-Piece Curved Glass Rear Window.

NEW LOW PRICES

Before you buy any car, get the great news about new lower prices from your nearest De Soto dealer.

The Great American Family Car

A Sandhog's Life

By Wendall Brenner

The physical requirements are so onerous that there are only about 1,500 sandhogs in the United States. They're men who work in a hot, damp, and often punishing environment. It's appalling how they survive on it.

Working on the Queensboro Express under the East River to connect Manhattan and Queens. This river is a mess of problems because of the soft spots. It's the author's first experience.

I WAS coming home in the subway and I felt pretty good. It was payday and \$140 was lying in my pocket. It had been a tough week working mostly under 35 pounds of pressure per square inch. We were building the East Side Tunnel and that was a nasty job all right. The East River is a very mean river. You can depend upon the Hudson River and the North River, its son. They know how to behave but that East River is a cranky, cantankerous son of a gun, full of tricky eddies and soft spots.

I was standing there hanging onto a strap feeling all right and hoping that my mother would have chicken goulash for dinner. Suddenly there was a scream from a woman sitting near me. She was looking at me with horror. Then others looked at me with the same expression on their faces. I was kind of nervous and I put my hand to my forehead. When I took my hand away it was covered with blood. I was bleeding from the forehead. I looked at the palms of my hands. Blood was oozing slowly from them. I wiped the blood away and shrugged my shoulders. Hell, this had happened to me a dozen times, as it has happened to every sandhog.

When you are working in the tunnel under pressure, strange things happen to your body—things that even the doctors can't explain. Somehow air bubbles get under your skin. Sometimes they force the blood right out through the skin. That's what had happened to me. When I got home I hopped into a hot bath, stayed there half an hour with the water almost boiling and then I was all right. Things like that are part of our job. That's why we're paid better than coal miners or truck drivers or even bridgeworkers. Another reason why we're paid well is that there are only 1,500 of us in the United States and some one is always building a tunnel. There is work enough for twice our number, but there aren't many who can take the air, as we say. I've seen big, strong men faint dead away after being in the air lock for one minute. The air lock is the chamber we go into just before we go into the tunnel. (Continued on page 93)

