**Pâté de foie gras**

Isaac Asimov

I couldn’t tell you my real name if I wanted to, and, under the circumstances, I don’t want to.

I’m not much of a writer myself, so I’m having Isaac Asimov write this up for me. I’ve picked him for several reasons. First, he’s a biochemist, so he understands what I tell him; some of it, anyway. Secondly, he can write; or at least he has published considerable fiction, which may not, of course, be the same thing.

I was not the first person to have the honor of meeting The Goose. That belongs to a Texas cotton farmer named Ian Angus MacGregor, who owned it before it became government property.

By summer of 1955 he had sent an even dozen of letters to the Department of Agriculture requesting information on the hatching of goose eggs. The department sent him all the booklets on hand that were anywhere near the subject, but his letters simply got more impassioned and freer in their references to his ’friend,” the local congressman.

My connection with this is that I am in the employ of the Department of Agriculture. Since I was attending a convention at San Antonio in July of 1955, my boss asked me to stop off at MacGregor’s place and see what I could do to help him. We’re servants of the public and besides we had finally received a letter from MacGregor’s congressman.

On July 17,1955, I met The Goose.

I met MacGregor first. He was in his fifties, a tall man with a lined face full of suspicion. I went over all the information he had been given, then asked politely if I might see his geese.

He said, “Its not geese, mister; it’s one goose.”

I said, “May I see the one goose?”

“Rather not.”

“Well, then, I can’t help you any further. If it’s only one goose, then there’s just something wrong with it. Why worry about one goose? Eat it.”

I got up and reached for my hat.

He said, “Wait!” and I stood there while his lips tightened and his eyes wrinkled and he had a quiet fight with himself. “Come with me.”

I went out with him to a pen near the house, surrounded by barbed wire, and a locked gate to it, and holding one goose—The Goose.

That’s The Goose,” he said. The way he said it, I could hear the capitals.

I stared at it. It looked like any other goose, fat, self-satisfied, and short-tempered.

MacGregor said, “And here’s one of its eggs. It’s been in the incubator. Nothing happens.” He produced it from a capacious overall pocket. There was a queer strain about his manner of holding it.

I frowned. There was something wrong with the egg. It was smaller and more spherical than normal.

MacGregor said, Take it.”

I reached out and took it. Or tried to. I gave it the amount of heft an egg like that ought to deserve and it just sat where it was. I had to try harder and then up it came.

Now I knew what was queer about the way MacGregor held it. It weighed nearly two pounds.

I stared at it as it lay there, pressing down the palm of my hand, and MacGregor grinned sourly. “Drop it,” he said.

I just looked at him, so he took it out of my hand and dropped it himself.

It hit soggy. It didn’t smash. There was no spray of white and yolk. It just lay where it fell with the bottom caved in.

I picked it up again. The white eggshell had shattered where the egg had struck. Pieces of it had naked away and what shone through was a dull yellow in color. My hands trembled. It was all I could do to make my fingers work, but I got some of the rest of the shell flaked away, and stared at the yellow.

I didn’t have to run any analyses. My heart told me.

I was face to face with The Goose!

The Goose That Laid The Golden Eggs! My first problem was to get MacGregor to give up that golden egg. I was almost hysterical about it.

I said, “I’ll give you a receipt. I’ll guarantee you payment. I’ll do anything in reason.”

“I don’t want the government butting in,” he said stubbornly.

But I was twice as stubborn and in the end I signed a receipt and he dogged me out to my car and stood in the road as I drove away, following me with his eyes.

The head of my section at the Department of Agriculture is Louis P. Bronstein. He and I are on good terms and I felt I could explain things without being placed under immediate observation. Even so, I took no chances. I had the egg with me and when I got to the tricky part, I just laid it on the desk between us.

I said, “It’s a yellow metal and it could be brass only it isn’t because it’s inert to concentrated nitric acid.”

Bronstein said, “It’s some sort of hoax. It must be.”

“A hoax that uses real gold ? Remember, when I first saw this thing, it was covered completely with authentic unbroken eggshell. It’s been easy to check a piece of the egg shell. Calcium carbonate.”

Project Goose was started. That was July 20, 1955.

I was the responsible investigator to begin with and remained in titular charge throughout., though matters quickly got beyond me.

We began with the one egg. Its average radius was 35 millimeters (major axis, 72 millimeters; minor axis, 68 millimeters). The gold shell was 2.45 millimeters in thickness. Studying other eggs later on, we found this value to be rather high. The average thickness turned out to be 2.1 millimeters.

Inside was egg. It looked like egg and it smelled like egg.

Aliquots were analyzed and the organic constituents were reasonably normal. The white was 9.7 per cent albumin. The yolk had the normal complement of vitellin, cholesterol, phospholipid, and carotenoid. We lacked enough material to test for trace constituents, but later on with more eggs at our disposal we did and nothing unusual showed up as far as contents of vitamins, coenzymes, nucleotides, sulfhydryl groups, et cetera, et cetera were concerned.

One important gross abnormality that showed was the egg’s behavior on heating. A small portion of the yolk, heated, “hard-boiled’ almost at once. We fed a portion of the hard-boiled egg to a mouse. It survived.

I nibbled at another bit of it. Too small a quantity to taste, really, but it made me sick. Purely psychosomatic, I’m sure.

Boris W. Finley, of the Department of Biochemistry of Temple University—a department consultant—supervised these tests.

He said, referring to the hard-boiling, The ease with which the egg proteins are heat-denatured indicates a partial denaturation to begin with and, considering the nature of the shell, the obvious guilt would lie at the door of heavy-metal contamination.”

So a portion of the yolk was analyzed for inorganic constituents, and it was found to be high in chloraurate ion, which is a singly charged ion containing an atom of gold and four of chlorine, the symbol for which is AuCl4-. (The ’Au’ symbol for gold comes from the fact that the Latin word for gold is ’aurum.’) When I say the chloraurate ion content was high, I mean it was 3.2 parts per thousand, or 0.32 per cent. That’s high enough to form insoluble complexes of ’gold protein’ which would coagulate easily.

Finley said, “It’s obvious this egg cannot hatch. Nor can any other such egg. It is heavy-metal poisoned. Gold may be more glamorous than lead but it is just as poisonous to proteins.”

I agreed gloomily. “At least it’s safe from decay, too.”

“Quite right. No self-respecting bug would live in this chlorauriferous soup.”

The final spectrographic analysis of the gold of the shell came in. Virtually pure. The only detectable impurity was iron which amounted to 0-25 per cent of the whole. The iron content of the egg yolk had been twice normal, also. At the moment, however, the matter of the iron was neglected.

One week after Project Goose was begun, an expedition was sent into Texas. Five biochemists went—the accent was still on biochemistry, you see—along with three truckloads of equipment, and a squadron of army personnel. I went along too, of course.

As soon as we arrived, we cut MacGregor’s farm off from the world.

That was a lucky thing, you know—the security measures we took right from the start. The reasoning was wrong, at first, but the results were good.

The Department wanted Project Goose kept quiet at the start simply because there was always the thought that this might still be an elaborate hoax and we couldn’t risk the bad publicity if it were. And if it weren’t a hoax, we couldn’t risk the newspaper hounding that would definitely result over any goose-and-golden-egg story.

It was only well after the start of Project Goose, well after our arrival at MacGregor’s farm, that the real implications of the matter became clear.

Naturally MacGregor didn’t like the men and equipment settling down all about him. He didn’t like being told The Goose was government property. He didn’t like having his eggs impounded.

He didn’t like it but he agreed to it—if you can call it agreeing when negotiations are being carried on while a machine gun is being assembled in a man’s barnyard and ten men, with bayonets fixed, are marching past while the arguing is going on.

He was compensated, of course. What’s money to the government?

The Goose didn’t like a few things, either—like having blood samples taken. We didn’t dare anesthetize it for fear of doing anything to alter its metabolism, and it took two men to hold it each time. Ever try to hold an angry goose ?

The Goose was put under a twenty-four-hour guard with the threat of summary court-martial to any man who let anything happen to it. If any of those soldiers read this article, they may get a sudden glimmer of what was going on. If so, they will probably have the sense to keep shut about it. At least, if they know what’s good for them, they will.

The blood of The Goose was put through every test conceivable.

It carried 2 parts per hundred thousand (0-002 per cent) of chloraurate ion. Blood taken from the hepatic vein was richer than the rest, almost 4 parts per hundred thousand.

Finley grunted. “The liver,” he said.

We took x rays. On the x-ray negative, the liver was a cloudy mass of light gray, lighter than the viscera in its neighborhood, because it stopped more of the x rays, because it contained more gold. The blood vessels showed up lighter than the liver proper and the ovaries were pure white. No x rays got through the ovaries at all.

It made sense, and in an early report Finley stated it as bluntly as possible. Paraphrasing the report, it went, in part:

The chloraurate ion is secreted by the liver into the blood stream. The ovaries act as a trap for the ion, which is there reduced to metallic gold and deposited as a shell about the developing egg. Relatively high concentrations of unreduced chloraurate ion penetrate the contents of the developing egg.

“There is little doubt that The Goose finds this process useful as a means of getting rid of the gold atoms which, if allowed to accumulate, would undoubtedly poison it. Excretion by eggshell may be novel in the animal kingdom, even unique, but there is no denying that it is keeping The Goose alive.

“Unfortunately, however, the ovary is being locally poisoned to such an extent that few eggs are laid, probably not more than will suffice to get rid of the accumulating gold, and those few eggs are definitely unhatchable.”

That was all he said in writing, but to the rest of us, he said. That leaves one peculiarly embarrassing question.”

I knew what it was. We all did.

Where was the gold coming from ?

No answer to that for a while, except for some negative evidence. There was no perceptible gold in The Goose’s feed, nor were there any gold-bearing pebbles about that it might have swallowed. There was no trace of gold anywhere in the soil of the area and a search of the house and grounds revealed nothing. There were no gold coins, gold jewelry, gold plate, gold watches, or gold anything. No one on the farm even had as much as gold fillings in his teeth.

There was Mrs. MacGregor’s wedding ring, of course, but she had only had one in her life and she was wearing it.

So where was the gold coming from ?

The beginnings of the answer came on August 16, 1955.

Albert Nevis, of Purdue, was forcing gastric tubes into The Goose—another procedure to which the bird objected strenuously—with the idea of testing the contents of its alimentary canal. It was one of our routine searches for exogenous gold.

Gold was found, but only in traces, and there was every reason to suppose those traces had accompanied the digestive secretions and were, therefore, endogenous—from within, that is—in origin.

However, something else showed up, or the lack of it, anyway.

I was there when Nevis came into Finley’s office in the temporary building we had put up overnight—almost—near the goosepen.

Nevis said. The Goose is low in bile pigment. Duodenal contents show about none.”

Finley frowned and said, “Liver function is probably knocked loop-the-loop because of its gold concentration. It probably isn’t secreting bile at all.”

“It is secreting bile,” said Nevis. “Bile acids are present in normal quantity. Near normal, anyway. It’s just the bile pigments that are missing. I did a fecal analysis and that was confirmed. No bile pigments.”

Let me explain something at this point. Bile acids are Steroids secreted by the liver into the bile and via that are poured into the upper end of the small intestine. These bile acids are detergentlike molecules which help to emulsify the fat in our diet—or The Goose’s—and distribute them in the form of tiny bubbles through the watery intestinal contents. This distribution, or homogenization, if you’d rather, makes it easier for the fat to be digested.

Bile pigments, the substances that were missing in The Goose, are something entirely different. The liver makes them out of hemoglobin, the red oxygen-carrying protein of the blood. Worn-out hemoglobin is broken up in the liver, the heme part being split away. The heme is made up of a squarish molecule—called a porphyrin—with an iron atom in the center. The liver takes the iron out and stores it for future use, then breaks the squarish molecule that is left. This broken porphyrin is bile pigment. It is colored brownish or greenish—depending on further chemical changes--and is secreted into the bile.

The bile pigments are of no use to the body. They are poured into the bile as waste products. They pass through the intestines and come out with the feces. In fact, the bile pigments are responsible for the color of the feces.

Finley’s eyes began to glitter.

Nevis said, “It looks as though porphyrin catabolism isn’t following the proper course in the liver Doesn’t it to you?”

It surely did. To me too.

There was tremendous excitement after that. This was the first metabolic abnormality, not directly involving gold, that had been found in The Goose!

We took a liver biopsy (which means we punched a cylindrical sliver out of The Goose reaching down into the liver). It hurt The Goose but didn’t harm it. We took more blood samples, too.

This time we isolated hemoglobin from the blood and small quantities of the cytochromes from our liver samples. (The cytochromes are oxidizing enzymes that also contain heme.) We separated out the heme and in acid solution some of it precipitated in the form of a brilliant orange substance. By August 22, 1955, we had 5 micrograms of the compound.

The orange compound was similar to heme, but it was not heme. The iron in heme can be in the form of a double charged ferrous ion (Fe++) or a triply charged ferric ion (Fe+++), in which latter case, the compound is called he-matin. (Ferrous and ferric, by the way, come from the Latin word for iron, which is ’ferrum.’) The orange compound we had separated from heme had the porphyrin portion of the molecule all right, but the metal in the center was gold, to be specific, a triply charged auric ion (Au+++). We called this compound ’aureme,” which is simply short for ’auric heme.”

Aureme was the first naturally occurring gold-containing organic compound ever discovered. Ordinarily it would rate headline news in the world of biochemistry. But now it was nothing; nothing at all in comparison to the further horizons its mere existence opened up.

The liver, it seemed, was not breaking up the heme to bile pigment. Instead it was converting it to aureme; it was replacing iron with gold. The aureme, in equilibrium with chloraurate ion, entered the blood stream and was carried to the ovaries, where the gold was separated out and the porphyrin portion of the molecule disposed of by some as yet unidentified mechanism.

Further analyses showed that 29 per cent of the gold in the blood of The Goose was carried in the plasma in the form of chloraurate ion. The remaining 71 per cent was carried in the red blood corpuscles in the form of ’auremo-globin.” An attempt was made to feed The Goose traces of radioactive gold so that we could pick up radioactivity in plasma and corpuscles and see how readily the auremo-globin molecules were handled in the ovaries. It seemed to us the auremoglobin should be much more slowly disposed of than the dissolved chloraurate ion in the plasma.

The experiment failed, however, since we detected no radioactivity. We put it down to inexperience since none of us were isotopes men, which was too bad since the failure was highly significant, really, and by not realizing it we lost several weeks.

The auremoglobin was, of course, useless as far as carrying oxygen was concerned, but it only made up about 0.1 per cent of the total hemoglobin of the red blood cells so there was no interference with the respiration of The Goose.

This still left us with the question of where the gold came from and it was Nevis who first made the crucial suggestion.

“Maybe,” he said at a meeting of the group held on the evening of August 25, 1955, The Goose doesn’t replace the iron with gold. Maybe it changes the iron to gold.”

Before I met Nevis personally that summer, I had known him through his publications—his field is bile chemistry and liver function—and had always considered him a cautious, clear-thinking person. Almost overcautious. One wouldn’t consider him capable for a minute of making any such completely ridiculous statement.

It just shows the desperation and demoralization involved in Project Goose.

The desperation was the fact that there was nowhere, literally nowhere, that the gold could come from. The Goose was excreting gold at the rate of 38-9 grams a day and had been doing it over a period of months. That gold had to come from somewhere and, failing that—absolutely failing that— it had to be made from something.

The demoralization that led us to consider the second alternative was due to the mere fact that we were face to face with the Goose That Laid The Golden Eggs; the undeniable GOOSE. With that, everything became possible. All of us were living in a fairy-tale world and all of us reacted to it by losing all sense of reality.

Finley considered the possibility seriously. “Hemoglobin,” he said, “enters the liver and a bit of auremoglobin comes out. The gold shell of the eggs has iron as its only impurity. The egg yolk is high in only two things; in gold, of course, and also, somewhat, in iron. It all makes a horrible kind of distorted sense. We’re going to need help, men.”

We did, and it meant a third stage of the investigation. The first stage had consisted of myself alone. The second was the biochemical task force. The third, the greatest, the most important of all, involved the invasion of the nuclear physicists.

On September 5, 1955, John L. Billings of the University of California arrived. He had some equipment with him and more arrived in the following weeks. More temporary structures were going up. I could see that within a year we would have a whole research institution built about The Goose.

Billings joined our conference the evening of the fifth.

Finley brought him up-to-date and said, “There are a great many serious problems involved in this iron-to-gold idea. For one thing, the total quantity of iron in The Goose can only be of the order of half a gram, yet nearly forty grams of gold a day are being manufactured.”

Billings had a clear, high-pitched voice. He said, There’s a worseproblem than that, iron is about at the the bottom of the packing fraction curve. Gold is much higher up. To convert a gram of iron to a gram of gold takes just about as much energy as is produced by the fissioning of one gram of U 235.”

Finley shrugged. “I’ll leave the problem to you.”

Billings said, “Let me think about it.”

He did more than think. One of the things done was to isolate fresh samples of heme from The Goose, ash it and send the iron oxide to Brookhaven for isotopic analysis. There was no particular reason to do that particular thing. It was just one of a number of individual investigations, but it was the one that brought results.

When the figures came back, Billings choked on them. He said, There’s no Fe56.”

“What about the other isotopes?” asked Finley at once.

“All present,” said Billings, “in the appropriate relative ratios, but no detectable Fe58.”

I’ll have to explain again: Iron, as it occurs naturally, is made up of four different isotopes. These isotopes are varieties of atoms that differ from one another in atomic weight. Iron atoms with an atomic weight of 56, or Fe56, makes up 91.6 per cent of all the atoms in iron. The other atoms have atomic weights of 54, 57, and 58.

The iron from the heme of The Goose was made up only of Fe54, Fe67, and Fe58. The implication was obvious. Fe58 was disappearing while the other isotopes weren’t and this meant a nuclear reaction was taking place. A nuclear reaction could take one isotope and leave others be. An ordinary chemical reaction any chemical reaction at all, would have to dispose of all isotopes just about equally.

“But it’s energically impossible,” said Finley.

He was only saying that in mild sarcasm with Billings’ initial remark in mind. As biochemists, we knew well enough that many reactions went on in the body which required an input of energy and that this was taken care of by coupling the energy-demanding reaction with an energy-producing reaction.

However, chemical reactions gave off or took up a few kilo-calories per mole. Nuclear reactions gave off or took up millions. To supply energy for an energy-demanding nuclear reaction required, therefore, a second, and energy-producing, nuclear reaction.

We didn’t see Billings for two days.

When he did come back, it was to say, “See here. The energy-producing reaction must produce just as much energy per nucleon involved as the energy-demanding reaction uses up. If it produces even slightly less, then the overall reaction won’t go. If it produces even slightly more, then considering the astronomical number of nucleons in-voided, the excess energy produced would vaporize The Goose in a fraction of a second.”

“So?” said Finley.

“So the number of reactions possible is very limited. I have been able to find only one plausible system. Oxygen—I8, if converted to iron-56, will produce enough energy to drive the iron-56 on to gold-197. It’s like going down one side of a roller coaster and then up the other. We’ll have to test this.”

“How?”

“First, suppose we check the isotopic composition of the oxygen in The Goose.”

Oxygen is made up of three stable isotopes, almost all of it O16 O18 makes up only one oxygen atom out of 250.

Another blood sample. The water content was distilled off in vacuum and some of it put through a mass spectograph. There was O18 there but only one oxygen atom out of 1300. Fully 80 per cent of the O18 we expected wasn’t there.

Billings said, That’s corroborative evidence. oxygen-18 is being used up. It is being supplied constantly in the food and water fed to The Goose, but it is still being used up. gold-197 is being produced. Iron-56 is one intermediate and since the reaction that uses up iron-56 is faster than the one that produces it, it has no chance to reach significant concentration and isotopic analysis shows its absence.”

We weren’t satisfied, so we tried again. We kept The Goose on water that had been enriched with O18 for a week. Gold production went up almost at once. At the end of a week it was producing 45.8 grams while the O18content of its body water was no higher than before.

There’s no doubt about it,” said Billings.

He snapped his pencil and stood up. That Goose is a living nuclear reactor.”

The Goosewas obviously a mutation.

A mutation suggested radiation among other things and radiation brought up the thought of nuclear tests conducted in 1952 and 1953 several hundred miles away from the site of MacGregor’s farm. (If it occurs to you that no nuclear tests have been conducted in Texas, it just shows two things; I’m not telling you everything and you don’t know everything.) I doubt that at any time in the history of the atomic era was background radiation so thoroughly analyzed and the radioactive content of the soil so rigidly sifted.

Back records were studied. It didn’t matter how top-secret they were. By this time, Project Goose had the highest priority that had ever existed.

Even weather records were checked in order to follow the behavior of the winds at the time of the nuclear tests.

Two things turned up.

One: The background radiation at the farm was a bit higher than normal. Nothing that could possibly do harm, I hasten to add. There were indications, however, that at the time of the birth of The Goose, the farm had been subjected to the drifting edge of at least two fallouts. Nothing really harmful, I again hasten to add.

Second: The Goose, alone of all geese on the farm, in fact, alone of all living creatures on the farm that could be tested, including the humans, showed no radioactivity at all. Look at it this way: everything shows traces of radioactivity; that’s what is meant by background radiation. But The Goose showed none.

Finley sent one report on December 6, 1955, which I can paraphrase as follows:

The Goose is a most extraordinary mutation, born of a high-level radioactivity environment which at once encouraged mutations in general and which made this particular mutation a beneficial one.

The Goose has enzyme systems capable of catalyzing various nuclear reactions. Whether the enzyme system consists of one enzyme or more than one is not known. Nor is anything known of the nature of the enzymes in question. Nor can any theory be yet advanced as to how an enzyme can catalyze a nuclear reaction, since these involve particular interactions with forces five orders of magnitude higher than those involved in the ordinary chemical reactions commonly catalyzed by enzymes.

The overall nuclear change is from oxygen-18 to gold-197. The oxygen-18 is plentiful in its environment, being present in significant amount in water and all organic foodstuffs. The gold-197 is excreted via the ovaries. One known intermediate is iron-56 and the fact that auremoglobin is formed in the process leads us to suspect that the enzyme or enzymes involved may have heme as a prosthetic group.

There has been considerable thought devoted to the value this overall nuclear change might have to the Goose. The oxygen-18 does it no harm and the gold-197 is troublesome to be rid of, potentially poisonous, and a cause of its sterility. Its formation might possibly be a means of avoiding greater danger. This danger——”

But just reading it in the report, friend, makes it all seem so quiet, almost pensive. Actually, I never saw a man come closer to apoplexy and survive than Billings did when he found out about our own radioactive gold experiments which I told you about earlier—the ones in which we detected no radioactivity in the goose, so that we discarded the results as meaningless.

Many times over he asked how we could possibly consider it unimportant that we had lost radioactivity.

“You’re like the cub reporter,” he said, “who was sent to cover a society wedding and on returning said there was no story because the groom hadn’t shown up.

“You fed The Goose radioactive gold and lost it. Not only that, you failed to detect any natural radioactivity about The Goose. Any carbon—I4. Any potassium-40. And you called it failure.”

We started feeding The Goose radioactive isotopes. Cautiously, at first, but before the end of January of 1956 we were shoveling it in.

The Goose remained nonradioactive.

“What it amounts to,” said Billings, “is that this enzyme-catalyzed nuclear process of The Goose manages to convert any unstable isotope into a stable isotope.”

“Useful.” I said.

“Useful?Its a thing of beauty. It’s the perfect defense against theatomic age. Listen, the conversion of oxygen-18 to gold-197 should liberate eight and a fraction positrons per oxygen atom. That means eight and a fraction gamma rays as soon as each positron combines with an electron. No gamma rays, either. The Goose must be able to absorb gamma rays harmlessly.”

We irradiated The Goose with gamma rays. As the level rose, The Goose developed a slight fever and we quit in panic. It was just fever, though, not radiation sickness. A day passed, the fever subsided, and The Goose was as good as new.

“Do you see what we’ve got?” demanded Billings.

“A scientific marvel,” said Finley.

“Man, don’t you see the practical applications? If we could find out the mechanism and duplicate it in the test tube, we’ve got a perfect method of radioactive ash disposal. The most important drawback preventing us from going ahead with a full-scale atomic economy is the headache of what to do with the radioactive isotopes manufactured in the process. Sift them through an enzyme preparation in-large vats and that would be it.

“Find out the mechanism, gentlemen, and you can stop worrying about fallouts. We would find a protection against radiation sickness.

“Alter the mechanism somehow and we can have Geese excreting any element needed. How about uranium-235 eggshells ?

The mechanism! The mechanism!”

We sat there, all of us, staring at The Goose.

If only the eggs would hatch. If only we could get a tribe of nuclear-reactor Geese.

“It must have happened before,” said Finley. “The legends of such Geese must have started somehow.”

“Do you want to wait?” asked Billings.

If we had a gaggle of such Geese, we could begin taking a few apart. We could study its ovaries. We could prepare tissue slices and tissue homogenates.

That might not do any good. The tissue of a liver biopsy did not react with oxygen-18 under any conditions we tried.

But then we might perfuse an intact liver. We might study intact embryos, watch for one to develop the mechanism.

But with only one Goose, we could do none of that.

We don’t dare kill The Goose That Lays The Golden Eggs.

The secret was in the liver of that fat Goose.

Liver of fat goose! Pate de foie gras! No delicacy to us!

Nevis said thoughtfully, “We need an idea. Some radical departure. Some crucial thought.”

“Saying it won’t bring it,” said Billings despondently.

And in a miserable attempt at a joke, I said, “We could advertise in the newspapers,” and that gave me an idea.

“Science fiction!” I said.

“What?” said Finley.

“Look, science-fiction magazines print gag articles. The readers consider it fun. They’re interested.” I told them about the thiotimoline articles Asimov wrote and which I had once read.

The atmosphere was cold with disapproval.

“We won’t even be breaking security regulations,” I said, “because no one will believe it.” I told them about the time in 1944 when Cleve Cartmill wrote a story describing the atom bomb one year early and the F.B.I, kept its temper.

“And science-fiction readers have ideas. Don’t underrate them. Even if they think it’s a gag article, they’ll send their notions in to the editor. And since we have no ideas of our own, since we’re up a dead-end street, what can we lose ?”

They still didn’t buy it.

So I said, “And you know ... The Goose won’t live forever.”

That did it, somehow.

We had to convince Washington; then I got in touch with John Campbell, editor of the magazine, and he got in touch with Asimov.

Now the article is done. I’ve read it, I approve, and I urge you all not to believe it. Please don’t.

Only—

Any ideas?