

Blind chance seems to play a very important part in the shaping of destinies, and even in the realm of science it has certainly been responsible for many unexpected discoveries. Let George Whitley introduce you to a simple enough experiment into the Fourth Dimension. All you need is blind chance and . . .

THE RIGHT INGREDIENTS

By GEORGE WHITLEY

It is when things get mixed up that they become dangerous.

Take saltpetre, for instance, and charcoal, and sulphur. Of the three, it is only the first named that requires any special care in its handling, and that only because it is a strong supporter of combustion. Mix them in the right proportions, however—and the result is gunpowder.

There must, I imagine, have been a strong element of chance involved in its first manufacture. There was some alchemist, perhaps, who was seeking the Philosopher's Stone or the Elixir of Life, and this combination of three common chemicals was one of the many that he tried. He didn't get what he was looking for but he got something just as powerful, or even more powerful; a force that changed the social structure of the world and, it may well be, gave rise to the explosive doctrine that all men are equal.

Given the right ingredients and the right people to mix them, anything can happen—especially when blind chance ensures, as it so often does, that the most unlikely ingredients are brought together at the right time. There is the story of the chemist who was boiling a mixture of sulphuric and nitric acid on the kitchen stove and who, when the flask shattered, used a cotton apron belonging to his wife to swab up the mess. The apron he hung before the stove to dry—and the explosion of his accidental discovery, later known as guncotton, wrecked the kitchen. But should one make any distinction between the people and the ingredients? Should one not say that the people are themselves ingredients and that it is blind chance that does the mixing?

Willesden was, without doubt, one of the essential factors in the strange formula. He had the right sort of mind, inasmuch as it was like a library the shelves of which have been stocked without regard to author, subject or title. In it the Ley and Bonestell Conquest of Space stood side by side with Fraser's *The Golden Bough*, and The Books of Charles Fort jostled Hoyle's *Frontiers of Astronomy*. It was the mind of a science fiction writer with a taste for pure fantasy, a teller of technicians' bedtime stories who, at times, was quite capable of signing on a werewolf among the crew of one of his interstellar ships, who could imagine and write of the chilly, frustrated ghost of a dead electronic brain.

His was the sort of mind that collects oddities with a magpie avidity. He did not hoard them. Other men have their card tricks or their stocks of anecdotes to suit all occasions and companies; Willesden would try—at times with success—to supply entertainment from his own stock of freaks of creation.

His hobby was cooking. This was just as well, as he did not earn enough by

writing to keep both Felice, his wife, and himself. She could leave the flat in the morning to go to work, secure in the knowledge that in her absence the housework would be done, the shopping accomplished and the evening meal prepared. In some ways, however, this was for her a frustrating arrangement. She, too, liked cooking. She insisted that whenever there were guests for dinner she should prepare the meal, and for several evenings before the occasion would study the cookery books which had a shelf to themselves in the bookcase.

Peter Willesden's cookery was unconventional, but not ambitious. As long as there was garlic to be had he did not worry much, if at all, about more subtle flavourings. Felice, on the other hand, would blend poppy seed and nutmeg, clove and parsley, cream and lemon juice, having been brought up in the French tradition that the sauce is all important. She would devote to the main course of a meal the loving care that the average Anglo-Saxon housewife gives to the manufacture of one of those cakes that, after slices have been nibbled and the fished-for compliments given, moulder and crumble for weeks in the cake tin before being thrown out to the indiscriminating birds.

"Don't forget," said Felice Willesden as she prepared to make her morning rush to work, "John and Sarah are coming round tonight."

"I'll not forget. Furniture polished, glasses polished, ash trays polished . . . I've made a list. Any more shopping, darling?"

"Just the mushrooms. Oh, there's one thing you might look out for. The dish that I'm doing really requires dried mushrooms as well—just for the extra flavour. If you do see any while you're doing your shopping this morning . . ."

"I'll make a round of the delicatessens," promised Willesden.

Later that morning he did so. He enjoyed, as he always did, shopping in such establishments. The sight of a gnarled, alien sausage, a cartwheel of some exotic cheese, was as aesthetically satisfying to him as would have been the prospect of the Mona Lisa to one of those people—and there must be far fewer of them than the world admits—who find genuine pleasure in the contemplation of the portrait of that ugly, rather than special, unintelligent looking female.

At first he feared that his mission would be unsuccessful. There were packets of mushroom soup. There were tins of mushrooms. It was not until he tried the fourth delicatessen—the last one in the local shopping centre—that he found what Felice wanted. He looked curiously at the scraps of dark brown matter in the cellophane package; they could have been any dehydrated vegetable debris. He noted that the dried mushrooms were imported from Mexico. He paid for them, put them in his shopping bag, and all the way home played with a plot idea, the international character of the delicatessen, the flavour of alien, faraway places that no other shop can ever capture. Suppose, for example, that one found a jar of Altairian swamp spiders pickled in liquid methane . . . Would one be surprised? Would one be really surprised? Just one taste of swamp spider, and your brain is wide open to the hypnotic influence of the Altairian Super-Mind . . .The

Super-Mind knows that the real intelligentsia of Earth does its food shopping in delicatessens and so . . .

Willesden got home, found that he had forgotten to purchase the fresh mushrooms and, calling down maledictions on the Altairian Super-Mind, walked bad-temperedly back to the shops.

At five thirty Felice hurried in.

"Pour me a gin," she ordered. Then, "I'll have it in the kitchen. They're coming at six thirty and I want to be changed and have dinner in the oven before then . . ."

Willesden carried the drinks through into the kitchen. He sipped his, watched Felice as she buttered the skillet, browned the fillets of veal. He sniffed appreciatively. He watched her transfer the fillets to the pyrex casserole.

"Sherry," she demanded. He passed her the sherry. "Tomato sauce." He took the sherry bottle from her and gave her the sauce in exchange. "Salt." He gave her the salt. "Poppy seed."

"Rather complicated, isn't it?" he ventured.

"It'll be worth it," she replied. "But it's the sauce that's the most work. Did you get those dried mushrooms, by the way?"

"Yes. All the way from sunny Mexico."

"Does it matter where they're from? Are there any instructions with them?"

Willesden studied the card inside the transparent packet.

"Soak in hot water for thirty minutes," he read aloud.

"Then take out a couple of pieces and do just that. Let me know when the time is up."

Swiftly she peeled the fresh mushrooms, threw them into a saucepan. She added chopped spring onion, chopped parsley.

"Cloves," she snapped. "Nutmeg. Thyme."

"You remind me of the three witches," remarked Willesden.

"Which three witches? Pass me a lemon, will you?"

"In Macbeth. Old Bill must have had a prevision of your cookery . . . How does it go?"

"Old Bill who? Where's the cream?"

"Here. Bill Shakespeare, of course. Me and Bill—honest wordsmiths both. But it was the recipe that I was trying to remember . . .

Fillet of a fenny snake,

In the caldron boil and bake;
Eye of the newt, and toe of the frog,
Wool of bat, and tongue of dog . . .

"You'd have to be careful not to burn the bat's wool, although I'd imagine that it'd be apt to get between the teeth if you didn't crisp it . . ."

"You," she said, "are disgusting."

"Not me. Bill. Wait till he gets really warmed up."

Finger of birth-strangled babe,
Ditch-delivered by a drab . . .

"The way these dried mushrooms smell they wouldn't have been out of place in that caldron . . ."

"They should have a strong smell," she told him. "I'm going to change now. You can wash the frying pan, and you can give the mushrooms an occasional stir so they don't burn. When the half hour is up throw in the dried ones."

"Double, double, toil and trouble," quoted Willesden. "Fire, burn; and, caldron, bubble!"

The dinner was a success. Like the Willesden's, John Denholm loved good food, and Sarah, although a small eater, enjoyed what she did eat. When the meal was over Felice cleared the table and brought in coffee. With the second cup, Peter Willesden served brandy. As he sipped his from the inhaler, Willesden thought, I should have had only one glass of gin before dinner, or only one glass of claret with dinner . . . Even so, the amount I've had to drink wasn't enough to hurt a fly . . . Damn it all, I shouldn't have trouble focussing my eyes after the little I've had ... He looked at the others. Felice usually noticed at once if he showed signs of having had too much to drink, but she was chatting animatedly with Sarah.

Sarah was telling Felice of a mutual friend who had become a convert to Spiritualism. "And she believes it," she said.

"And why shouldn't she?" asked John Denholm.

"But it's so . . . How shall I put it? There's so much trickery. What do you think, Peter?"

"There's something there," said Willesden cautiously. "But I've yet to be convinced that it comes from outside."

"But it must," asserted Sarah.

"Not necessarily. You've all heard about Rhine, of course, and the experiments at Duke University. Telepathy, telekinesis, precognition and all the rest of it . . ."

"And what," asked Sarah, "is telekinesis?"

"The ability to move things by the power of the mind. It accounts for levitation and table rapping and all the so-called poltergeist phenomena. As a matter of fact, we can perform a simple little experiment right now. For all we know to the contrary, one of us may possess telekinetic powers . . ."

While the others watched he set up his simple apparatus. There was a matchbox standing on its end, a long pin thrust upwards through the short side of the tray. There was a little square of paper cut from a spoiled sheet of manuscript, folded into the shape of a tiny tent and neatly trimmed with a pair of scissors. The little tent was placed on the point of the pin, where it pivoted freely.

"Now," said Willesden, "concentrate. See if any of us can make the thing turn."

They concentrated. Once again Willesden had trouble in focussing his eyes. It seemed to him that the others were in like condition. He felt a little relieved. He never enjoyed the occasional post mortem after a social evening arising out of his alleged inability to hold his liquor.

"Telekinesis," said Denholm at last, "seems to be conspicuous by its absence. A pity, after all the trouble you went to to make that little tent . . . Talking of making things out of paper—did you ever show Felice or Sarah the paper band?"

"The paper band?" asked Willesden. "Oh, yes. The Mobius Strip . . ."

"The Mobius Strip?" asked Felice. "And what's that when it's at home?"

"A topological curiosity," Willesden told her. He got up, went to his work table, and picked up a sheet of paper. "This," he said, "is essentially a two dimensional object, with two surfaces. A Mobius Strip is a two dimensional object with only one surface."

"But that's impossible," said Sarah.

"Is it?"

He picked up his scissors, went through to the kitchen. He cut a long strip from an old newspaper. He brought the two ends together, but rotated one through a half turn before he joined them with adhesive tape. He brought the finished article back to the living room.

"This," he announced, "is it."

"It's just a paper ring," declared Felice.

"It is not. Now watch carefully. I'm going to take the scissors and cut down the middle of the strip. When I've cut all the way round, what shall I have?"

"Two paper rings," said his wife.

"Are you sure?"

Willesden snipped away busily. He found that he was having to concentrate hard, too hard, on what should have been a simple task. The scissors seemed almost alive, seemed determined to slip from his grasp. He thought of dowsers, and the way in which their wands of hazel or willow or twisted wire were supposed to move of their own volition. He wondered if he possessed the talent for divining and if there was flowing water, or oil, or uranium under the foundations of the block of flats.

"There!" he said triumphantly, holding aloft the single paper band.

"It must be a trick," said Felice stubbornly.

"It is not a trick—although it has been used by conjurors. Now—what happens if I cut round again?"

"The same as last time," said Sarah.

"You should be taking bets," suggested Denholm.

"I should be—but I'm too gentlemanly to take the ladies' money."

Damn these scissors, he thought. It's almost as though there were a dirty great magnetic field somewhere . . . And I can hardly see the things, although everything else is clear enough . . .

"Are you sure it's going to be one ring?" he asked.

"Of course," asserted Felice and Sarah, whilst Denholm chuckled.

Willesden made the last cut, held up the two rings, the large one and the small one interlocked.

"There must be a catch in it," insisted Felice. "How does it happen?"

"Look at it this way," said Willesden. "Even though you knew nothing about science fiction before you met me, you've been exposed to most of the basic ideas since then. You've read stories in which Space has been warped. Three dimensional space is warped through a fourth dimension, and what happens next is whatever whoever happens to be writing the story wants to happen. What I've been doing is warping two dimensional space through a third dimension. It's that half turn that does it . . . Now, just suppose that you're a Flatlander . . ."

"A Flatlander . . ."

"Yes. A two dimensional being inhabiting a two dimensional universe. We'll suppose that it's a finite universe, as ours is supposed to be finite. In other words, it's a band of paper, curved—not warped—through the third dimension with its two ends joined. Just imagine a flat cow, a left profile cow, walking around her little universe. When she gets back to where she started from, she's still a cow in left profile."

"Of course," scoffed Felice. "What else could she be?"

"I haven't finished yet. I'll warp the two dimensional universe. I'll make a Mobius Strip of it. Now, just imagine that cow walking round it. When she

gets back to where she started from, she'll be upside down."

The others frowned, trying to visualise the flat cow in her flat world.

"Yes," said Denholm, "I can see that . . ."

After a long pause the two women agreed.

"All right. So we turn the cow the right way up. What then?"

"She's the right way up," said Felice.

"Yes. But . . . Try to visualise it. She'll be facing the other way. She'll be in right profile."

"So," asked Felice, "what?"

"Can't you see the . . . the oddity of it? Can't you see what it would be like if we could do the same in our universe? Suppose, for example, that one could take off one's shoe . . ." He suited the action to the words, remembering too late that there was a hole in the toe of his left sock.

"Suppose that one could take off one's left shoe and rotate it one hundred and eighty degrees through the fourth dimension. . ."

"I told you to change your socks," said Felice.

"I'm talking about shoes, not socks." He was turning the shoe in his hands as he spoke, not looking at it. "In any case, darling, you're the official sock darning of the family."

"I'm not clairvoyant," retorted his wife. "If you give me socks to darn, I'll darn them."

"But what happens when you rotate your left shoe through half a circle?" asked Denholm.

"It's obvious. You get its mirror image. You get a right shoe."

"Must we look at your big toe?" asked Felice.

"Hindu wives worship their husbands' big toes," Willesden told her.

"I," she said icily, "am not a Hindu."

"Unfortunately," Willesden replied. He was trying to get his shoe back on. The simple task was beyond him. He thought, I must be drunk. He looked down to what he was doing and discovered that he was trying to force a right shoe on to his left foot.

It is when things get mixed up that they become dangerous.

Take a group of people, for example, who have been discussing paranormal psychology and kindred matters. See to it that prior to the discussion they have eaten a meal, one of the ingredients of which has been dried mushrooms of Mexican origin. Arrange matters so that from paranormal psychology they turn to topology in general and Mobius Strips in particular.

There are some odd mushrooms growing in Mexico. Those who eat them see visions and, in some cases, are able to foresee the future, which implies a certain tinkering with Time—and Time, after all, is a dimension.

Time is a dimension, but, no matter how glibly we talk of the Space-Time Continuum, we don't usual think of it as such. But if some drug—some derivative, say, from the hallucinogenic Mexican fungi—be taken, thereby enhancing the over-all vision of all things, Past, Present and Future, as one crystalline unity, and if the mind be led from the illusory three dimensional universe along the twisting Mobius way . . .

Given the right ingredients and the right people to mix them, anything can happen—especially when blind chance ensures, as it so often does, that the most unlikely ingredients are brought together at the right time. But should one make any distinction between the people and the ingredients? Should one not say that the people are themselves ingredients and that it is blind chance that does the mixing?

Willesden was, without doubt, one of the essential factors in the strange formula. So was Felice, with her insistence on dried mushrooms as an essential ingredient for her recipe. So was Sarah, with her talk of the friend who was a convert to Spiritualism, and so was John Denholm, whose suggestion it was that Willesden demonstrate the peculiar properties of the Mobius Strip.

It is when things get mixed up that they become dangerous— but only when all the ingredients are there. Take saltpetre, for instance, and charcoal, and sulphur. Mix them in the right proportions—and the result is gunpowder. Take saltpetre and charcoal—and the result is a fizzle; or charcoal and sulphur— and the result is a stink; or saltpetre and sulphur—and the result is a stink and a fizzle. For the Big Bang you want everything.

There must be somebody in this world who could make a Big Bang out of the potentially explosive mixture of Mobius and mushrooms. Willesden, for all his imagination and wide, but scrappy, knowledge, is not that somebody. Neither is John Denholm, for all that he is a successful businessman. Both Felice and Sarah feel—as they all felt after they had discussed the fantastic affair of the transposed shoe well into the following morning—that they have stumbled upon something of the utmost importance, both to the world and to themselves, but what?

Since the night they have eaten dried mushrooms and covered the floor with twisted circles of paper, but all to no avail. The packet that Willesden purchased at the delicatessen must have contained only one scrap of the "god food."

Meanwhile, Denholm is trying, through his connections in Mexico, to import a further supply of the hallucinogenic fungi. Willesden hopes that it will not take too long; it was his favourite pair of shoes that he was wearing that night, and as things are at present they would be of use only to a man with two right feet.

And all four of them are studying the economics of boot and shoe and glove

manufacture. It is just possible that a factory with machines for making only right—or left—shoes and gloves might be cheaper to operate than one with machines for making pairs, although Willesden feels that rotating an endless succession of articles through one hundred and eighty degrees and the Fourth Dimension would be too much like hard physical labour for his taste.

George Whitley