

# WORLDS of SCIENCE FICTION

FEBRUARY 1957

All Stories New and Complete

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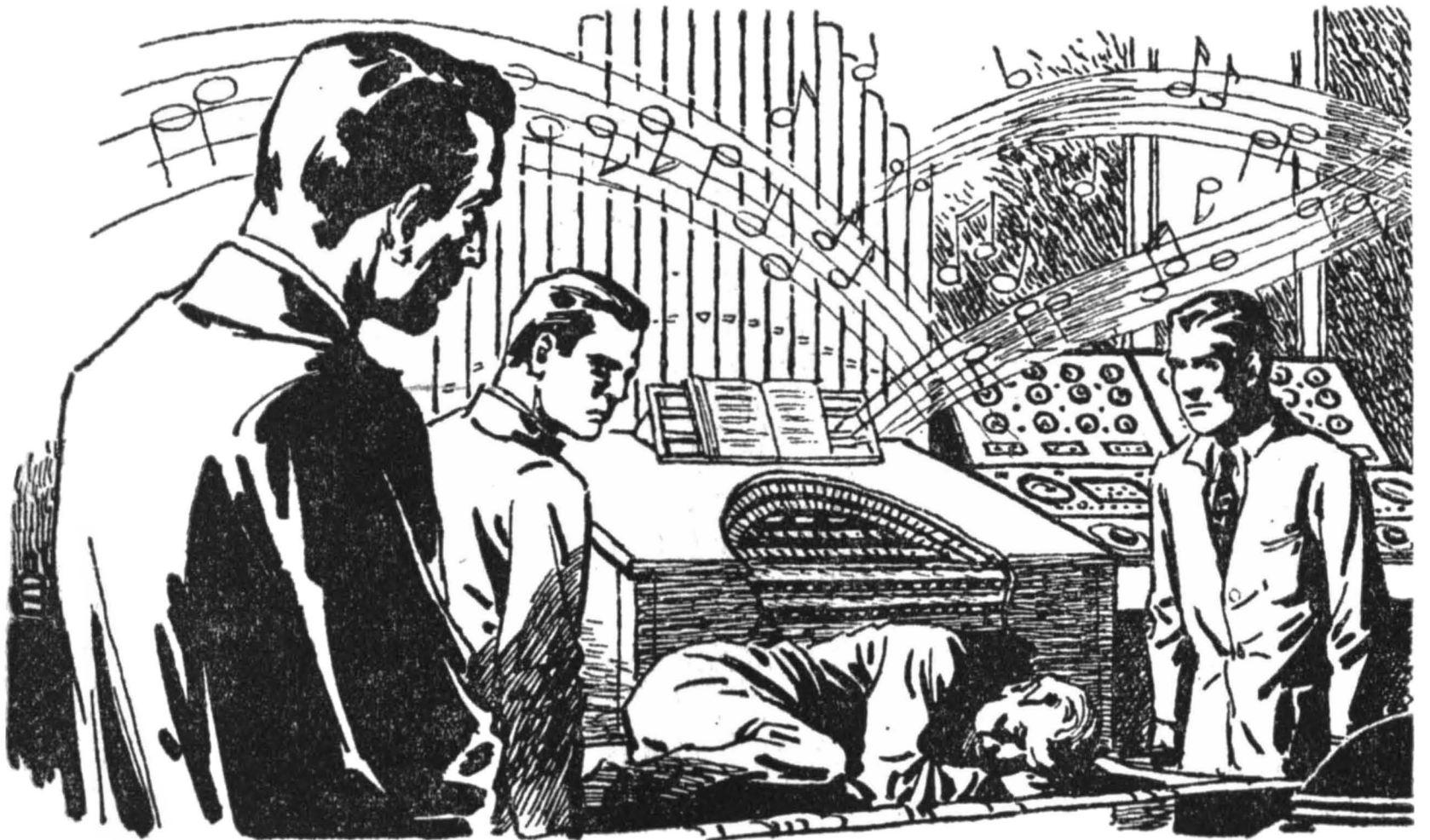
The Titan Flagpole Painter by Mel Hunter

IF is published bi-monthly by Quinn Publishing Company, Inc. Volume 7, No. 2. Copyright 1956 by Quinn Publishing Co., Inc. Office of publication, 8 Lord Street, Buffalo, New York. Entered as Second Class Matter at Post Office, Buffalo, New York. Subscription \$3.50 for 12 issues in U.S. and Possessions; Canada \$4 for 12 issues; elsewhere \$4.50. Allow four weeks for change of address. All stories appearing in this magazine are fiction; any similarity to actual persons is coincidental. Not responsible for unsolicited artwork or manuscripts. 35c a copy. Printed in U.S.A.

**EDITORIAL AND BUSINESS OFFICES, KINGSTON, NEW YORK**

*Next (April) issue on sale February 12th*

# ULTIMATE MELODY



*Illustrated by Paul Orban*

*You know how a tune can dominate the mind.*

*Imagine the effect of the perfect melody!*

**BY ARTHUR C. CLARKE**

“CHARLIE,” Harry Purvis began, quietly enough. “That darn tune you’re whistling is driving me mad. I’ve heard it every time I’ve switched on the radio for the last week.”

There was a sniff from John Christopher.

“You ought to stay tuned to the Third Programme. Then you’d be safe.”

“Some of us,” retorted Harry, “don’t care for an exclusive diet of Elizabethan madrigals. But don’t let’s quarrel about *that*, for heaven’s sake. Has it ever occurred to you that there’s something rather—fundamental—about hit tunes?”

“What do you mean?”

“Well, they come along out of nowhere, and then for weeks everybody’s humming them, just as Charlie did then. The good ones grab hold of you so thoroughly that you just can’t get them out of your head—they go round and round for days. And then, suddenly, they’ve vanished again.”

“I know what you mean,” said Art Vincent. “There are some melodies that you can take or leave, but others that stick like treacle, whether you want them or not.”

“Precisely. I got saddled that way for a whole week with the big theme from the finale of Sibelius Two—even went to

sleep with it running round inside my head. Then there’s that “Third Man” piece—da di da di *daa*, di da, di *daa* . . . look what *that* did to everybody.”

Harry had to pause for a moment until his audience had stopped zithering. When the last “Plonk!” had died away he continued:

“Precisely! You all felt the same way. Now what *is* there about these tunes that has this effect? Some of them are great music—others just banal, but they’ve obviously got *something* in common.”

“Go on,” said Charlie. “We’re waiting.”

“I don’t know what the answer is,” replied Harry.



“And what’s more, I don’t want to. For I know a man who found out.”

Automatically, someone handed him a beer, so that the tenor of his tale would not be disturbed. It always annoyed a lot of people when he had to stop in mid-flight for a refill.

“I don’t know why it is,” said Harry Purvis, “that most scientists are interested in music, but it’s an undeniable fact. I’ve known several large labs that had their own amateur symphony orchestras—some of them quite good, too. As far as the mathematicians are concerned, one can think of obvious reasons for this fondness: music, particularly classical music, has a form which is almost mathematical. And then, of course, there’s the underlying theory—harmonic relations, wave analysis, frequency distribution, and so on. It’s a fascinating study in itself, and one that appeals strongly to the scientific mind. Moreover, it doesn’t—as some people might think—preclude a purely aesthetic appreciation of music for its own sake.

“However, I must confess that Gilbert Lister’s interest in music was purely cerebral. He was, primarily, a physiologist, specializing in the study of the brain. So when I said that his interest was cerebral, I meant it quite literally. *Alexander’s Ragtime Band* and the *Choral Symphony* were all the same to him. He wasn’t concerned with the sounds themselves, but only what happened when they got past the ears and started doing things to the brain.

“In an audience as well edu-

cated as this:” said Harry, with an emphasis that made it sound positively insulting, “there will be no one who’s unaware of the fact that much of the brain’s activity is electrical. There are, in fact, steady pulsing rhythms going on all the time, and they can be detected and analysed by modern instruments. This was Gilbert Lister’s territory. He could stick electrodes on your scalp and his amplifiers would draw your brain waves on yards of tape. Then he could examine them and tell you all sorts of interesting things about yourself. Ultimately, he claimed, it would be possible to identify anyone from their encephalogram—to use the correct term—more positively than by fingerprints. A man might get a surgeon to change his skin, but if we ever got to the stage when surgery could change your brain—well, you’d have turned into somebody else, anyway, so the system still wouldn’t have failed.

“It was while he was studying the alpha, beta and other rhythms in the brain that Gilbert got interested in music. He was sure that there must be some connection between musical and mental rhythms. He’d play music at various tempos to his subjects and see what effect it had on their normal brain frequencies. As you might expect, it had a lot, and the discoveries he made led Gilbert on into more philosophical fields.

“I only had one good talk with him about his theories. It was not that he was at all secretive—I’ve never met a scientist who was, come to think of it—but he didn’t like to

talk about his work until he knew where it was leading. However, what he told me was enough to prove that he'd opened up a very interesting line, and thereafter I made rather a point of cultivating him. My firm supplied some of his equipment, but I wasn't averse to picking up a little profit on the side. It occurred to me that if Gilbert's ideas worked out, he'd need a business manager before you could whistle the opening bar of the Fifth Symphony . . .

"For what Gilbert was trying to do was to lay a scientific foundation for the theory of hit-tunes. Of course, he didn't think of it that way: he regarded it as a pure research project, and didn't look any further ahead than a paper in the *Proceedings of the Physical Society*. But I spotted its financial implications at once. They were quite breath-taking.

"Gilbert was sure that a great melody, or a hit tune, made its impression on the mind because in some way it fitted in with the fundamental electrical rhythms going on in the brain. One analogy he used was "It's like a Yale key going into a lock—the two patterns have got to fit before anything happens."

"He tackled the problem from two angles. In the first place, he took hundreds of the really famous tunes in classical and popular music and analysed their structure—their morphology, as he put it. This was done automatically, in a big harmonic analyser that sorted out all the frequencies. Of course, there was a lot more to it than this, but

I'm sure you've got the basic idea.

"At the same time, he tried to see how the resulting patterns of waves agreed with the natural electrical vibrations of the brain. Because it was Gilbert's theory—and this is where we get into rather deep philosophical waters—that all existing tunes were merely crude approximations to one fundamental melody. Musicians had been groping for it down the centuries, but they didn't know what they were doing, because they were ignorant of the relation between music and mind. Now that this had been unravelled, it should be possible to discover the Ultimate Melody."

"Huh!" said John Christopher. "It's only a rehash of Plato's theory of ideals. You know—all the objects of our material world are merely crude copies of the ideal chair or table or what-have-you. So your friend was after the ideal melody. And did he find it?"

"I'll tell you," continued Harry imperturbably. "It took Gilbert about a year to complete his analysis, and then he started on the synthesis. To put it crudely, he built a machine that would automatically construct patterns of sound according to the laws that he'd uncovered. He had banks of oscillators and mixers—in fact, he modified an ordinary electronic organ for this part of the apparatus—which were controlled by his composing machine. In the rather childish way that scientists like to name their offspring, Gilbert had called this device Ludwig.

"Maybe it helps to understand how Ludwig operated if you think

of him as a kind of kaleidoscope, working with sound rather than light. But he was a kaleidoscope set to obey certain laws, and those laws—so Gilbert believed—were based on the fundamental structure of the human mind. If he could get the adjustments correct, Ludwig would be bound, sooner or later, to arrive at the Ultimate Melody as he searched through all the possible patterns of music.

“I had one opportunity of hearing Ludwig at work, and it was uncanny. The equipment was the usual nondescript mess of electronics which one meets in any lab: it might have been a mock-up of a new computer, a radar gun-sight, a traffic control system, or a ham radio. It was very hard to believe that, if it worked, it would put every composer in the world out of business. Or would it? Perhaps not: Ludwig might be able to deliver the raw material, but surely it would still have to be orchestrated.

“Then the sound started to come from the speaker. At first it seemed to me that I was listening to the five-finger exercises of an accurate but completely uninspired pupil. Most of the themes were quite banal: the machine would play one, then ring the changes on it bar after bar until it had exhausted all the possibilities before going on to the next. Occasionally a quite striking phrase would come up, but on the whole I was not at all impressed.

“However, Gilbert explained that this was only a trial run and that the main circuits had not yet been

set up. When they were, Ludwig would be far more selective: at the moment, he was playing everything that came along—he had no sense of discrimination. When he had acquired that, *then* the possibilities were limitless.

“That was the last time I ever saw Gilbert Lister. I had arranged to meet him at the lab about a week later, when he expected to have made substantial progress. As it happened, I was about an hour late for my appointment. And that was very lucky for me . . .

“When I got there, they had just taken Gilbert away. His lab assistant, an old man who’d been with him for years, was sitting distraught and disconsolate among the tangled wiring of Ludwig. It took me a long time to discover what had happened, and longer still to work out the explanation.

“There was no doubt of one thing. Ludwig had finally worked. The assistant had gone off to lunch while Gilbert was making the final adjustments, and when he came back an hour later the laboratory was pulsing with one long and very complex melodic phrase. Either the machine had stopped automatically at that point, or Gilbert had switched it over to REPEAT. At any rate, he had been listening, for several hundred times at least, to that same melody. When his assistant found him, he seemed to be in a trance. His eyes were open yet unseeing, his limbs rigid. Even when Ludwig was switched off, it made no difference. Gilbert was beyond help.

“What had happened? Well, I

suppose we should have thought of it, but it's so easy to be wise after the event. It's just as I said at the beginning. If a composer, working merely by rule of thumb, can produce a melody which can dominate your mind for days on end, imagine the effect of the Ultimate Melody for which Gilbert was searching! Supposing it existed—and I'm not admitting that it does—it would form an endless ring in the memory circuits of the mind. It would go round and round forever, obliterating all other thoughts. All the cloying melodies of the past would be mere ephemerae compared to it.

"They've tried shock therapy—everything. But it's no good; the pattern has been set, and it can't be broken. He's lost all consciousness of the outer world, and has to be fed intravenously. He never moves or reacts to external stimuli, but sometimes, they tell me, he twitches in a peculiar way as if he is beating time . . .

"I'm afraid there's no hope for him. Yet I'm not sure if his fate is a horrible one, or whether he should be envied. Perhaps, in a sense, he's found the ultimate reality that philosophers like Plato are always talking about. I really don't know. And sometimes I find myself wondering just what that infernal melody *was* like, and almost wishing that I'd been able to hear it perhaps once. But there'll never be a chance now, of course."

"I was waiting for this," said Charles Willis nastily. "I suppose the apparatus blew up, or something, so that as usual there's no

way of checking your story."

Harry gave him his best more-in-sorrow-than-in-anger look.

"What happened next was one of those completely maddening things for which I shall never stop blaming myself. You see, I'd been too interested in Gilbert's experiment to look after my firm's business in the way that I should. I'm afraid he'd fallen badly behind with his payments, and when the Accounts Department discovered what had happened to him they acted quickly. I was only off for a couple of days on another job, and when I got back, do you know what had happened? They'd pushed through a court order, and had seized all their property. Of course that had meant dismantling Ludwig: when I saw him next he was just a pile of useless junk. It made me weep."

"I'm sure of it," said Eric Maine. "But you've forgotten Loose End Number Two. *What about Gilbert's assistant?* He went into the lab while the gadget was going full blast. Why didn't it get him, too?"

H. Purvis, Esquire, paused to drain the last drops from his glass and to hand it across to Drew.

"Really!" he said. "Is this a cross-examination? I didn't mention the point because it was rather trivial. You see, Gilbert's assistant was a first-rate lab technician, but he'd never been able to help much with the adjustments to Ludwig. For he was one of those people who are completely tone-deaf. To him, the Ultimate Melody meant no more than a couple of cats on a garden wall." ● ● ●