

Music for Millionaires

by FRITZ A. KUTTNER

"PANEYKO, Paneyko . . . wait a minute," I mumbled. I had known this name, but when and where? Albert J. Franck, infallible oracle on anything connected with the history of sound reproduction, smiled patiently. He would not spoil my guessing game. "I've got it," I burst out, in a sudden flash of recollection: "Paneyko. Economist. Writer on sociology, political sciences, and the like. When I was a student in Berlin, we had to read his books.—He used to give guest lectures at Berlin State Academy, too."

"Not bad," said Albert, "quite close indeed. But that was the father, Basil. I am speaking about Mirko Paneyko, the son. Incidentally, Paneyko senior died recently in Venezuela. The son lives in Fairfield County, Connecticut, and is a wizard in electronic engineering. I think you should go and see him. He might be able to show you some things in sound reproduction that would amaze you. He was building big custom sound installations—quite extraordi-

nary ones—as far back as 1930, an era when the term high fidelity had barely been coined."

THE PREMISES of the M (irko) P (aneyko) Engineering Company are in Easton township, two miles north of the Merritt Parkway, in hilly country and real rustic solitude. Today, if you wish to call, you may get in advance a printed map with arrows guiding you to the site. It wasn't always this way. During the war, when the Paneyko plant did secret defense work in radar and other communications instruments, government security agencies advised that armed guards should protect the factory. Paneyko disagreed, arguing that this would merely attract attention to the plant. So the F.B.I. sent an investigator to make a firsthand report. One morning the officer from Washington got off the train at Bridgeport, having found the factory listed under a Bridgeport telephone exchange. He asked there for directions. No one seemed to know where the MP Company was. He next proceeded to Fairfield, that being the company's mailing address. Again, he found no one who ever had heard of the place. At 5:30 p.m. he stumbled onto the grounds, completely exhausted from a full day's search. When Paneyko came out to greet him, the officer groaned: "Dr. Livingstone, I presume!" This settled the question of armed guards.

Hearing about Paneyko's family background and formative years, one cannot help wondering what circumstances actually make a successful and inventive engineer. His father was a scholarly and prominent citizen of the Ukrainian city of Lvov, where he published a newspaper and taught at the University. After World War I, he became Secretary of State of the Ukrainian Republic, and represented that still independent nation at Versailles and Geneva, leaving young Mirko at school in Lvov.

Shortly afterward, violence broke out in the Ukraine between the communists and various nationalist factions. By 1919 Lvov was a battleground. Mirko, then aged ten,

Mirko Paneyko and custom amplifier. This one is for a school.



decided one day he had had enough, and set out to join his father. With the help of an American journalist he escaped in a Panzerzug, or armored combat train. The last stretch to safety was across a railroad bridge, with shells bursting around the lone locomotive in whose engineer's cabin Mirko rode, the Panzerzug having been left behind at the river's bank. He arrived in Vienna unharmed, and went on to Switzerland, where he entered a boarding school.

He continued his education in schools all over Europe for the next seven years, a process which seemed to suit him very well, for at sixteen he took a baccalaureate in philosophy and at seventeen another one in science.

During these years, too, the basis of his future interests and career began to form. When he was twelve, he started building crystal radio receivers, which he sold at cost to school classmates. The next year, De Forest's new "audion" tubes became available in France, and Mirko made his first audio amplifier. Three years later he designed and built a loudspeaker.

In the fall of 1926 he came to the United States—with fifty dollars in his pocket—and registered at Massachusetts Institute of Technology as a student of electrical engineering. To pay his way through school, he washed dishes in the students' cafeteria and set himself up as a translator, working in any of five languages: German, French, Polish, Russian, Ukrainian. His major translation achievement of that period, he recalls, was transcribing from the Polish original, for the Submarine Signal Corporation, the secret specifications of the underwater defenses of Danzig Harbor. In 1929 he took his B.S. He stayed on for a year in graduate work, then quit M.I.T. to establish himself in business.

In his senior year at Cambridge he had built—for his own enjoyment—his first good phonograph. It had (and remember that electrical recording was only two years old then) separate bass and treble controls, operated remotely from the listener's chairside, and separate bass and treble speakers! It sounded so good, by comparison with anything then available on the market, that he at once made up his

mind to become a manufacturer of custom phonographs.

Going into business—a manufacturing business, anyway—on a shoestring is a fantastic proposition, an economic absurdity. Paneyko's workshop was in a loft atop a Chinese laundry in Cambridge. It was unheated, a fact which Mirko bore stoically but which he could not explain to his roommate, a handsome tomcat. He solved the problem in the engineer's way—a cat cushion stuffed with heat-emitting calcium chloride. The next winter saw the installation of a pot stove, but Mirko's meals still consisted, often enough, of two boiled potatoes in the cafeteria, moistened with olive oil, cruets of which were on the dining tables.

One phonograph at a time—that was the production schedule. His memory still harbors the agony of drilling steel shafts with a hand drill, ten minutes each, and of boring holes in steel chassis. It was during these years that Paneyko started his weekly open-house evenings of recorded music. The scene was grotesque enough: the laundry loft, candlelit and warmed by the glowing pot stove. But the unprecedented realism of the sound was irresistible, and it attracted audiences as distinguished as any one could have wished. Many of the old proper Bostonians attended regularly; the Governor came, as did Arthur Fiedler, the pianist Sanroma, Harold Jefferson-Coolidge, and Richard Norman Fay, organizer of the Chicago Symphony Orchestra. There they were, the ladies in the splendor of their evening gowns seated on the few available folding chairs, the men in tails or dinner jackets squatting on the floor. In the intermission cookies and wine were served, an extravagance of continental hospitality which may have necessitated Mirko's daytime austerity-diet. One of the regular visitors, Robert H. S. Phillips, now a music librarian with the New York Public Library, became so fascinated that he threw in his lot with Paneyko and joined him in the loft for two years, as unpaid assistant. Mr. Phillips recalls with a smile that the two of them shared almost everything equally, especially what-

The audio wizard of Fairfield County doesn't believe in horn loudspeakers unless they can be big. In foreground, the author.

PHOTOS BY PAUL RADER



ever cash came their way. Most of Phillips' "investment capital" in the Paneyko enterprise went for coal during the winter; what was left went into an emergency fund for cigarettes.

In the summer of 1933 the whole outfit moved to New York City (without the pot stove). Paneyko took a duplex in the East Thirties; it served both as factory and residence. Phillips came along and was part of the ménage for a year and a half, after which he left, somewhat sadly, for the comparatively uneventful life of a Fordham law student.

However, the New York setup soon became again a two-man operation. This time it was August C. Spector (author of the recent best seller, *The Exurbanites*) who took on the manifold duties of underpaid assistant, expert potato cook, handy man, and full-time sound addict. Spector stayed three years, but life in the Paneyko household lost some of its Bohemian character in this period, because Mirko married. The lady of his choice was Leonore Lane, a level-headed Smith College graduate from New Hampshire, and although it would be too much to say that she domesticated him, she certainly introduced some regularity into his eldritch regimen.

The evening concerts, however, continued, in the lower half of the duplex, which was large enough to serve as a combined music and business showroom. The guest book of that period shows an impressive number of names important in music—Roy Harris, Harrison Kerr, Edgar Varèse, Douglas Moore among the American composers; of the conductors, Leopold Stokowski, Alfred M. Greenfield, Arthur Mendel. Paneyko cannot recall whether he made any real money then, but he does remember that they had lots of fun.

In 1934 also Mirko bought the Connecticut place. He had two reasons. He wanted to explore the outdoor aspects of music listening. And he had come to the conclusion that the incessant noise of big city life blunts the sensitivity of human hearing. In 1939 he wearied of commuting and closed down in New York; the little Easton plant had meanwhile developed into an orderly manufacturing activity.

What was it he built and sold? Primarily high-cost phonographic installations guided by one principle only:

Boss at work: pipe-smoking Paneyko likes to use his hands.



no financial and construction compromises. A \$600 system (in 1933, mind you!) was the cheapest catalogue item; the average Paneyko system cost nearer to \$3,000. But he delivered at least thirty installations for upward of \$6,000 apiece. The most expensive job he ever undertook was ordered for the home of a Pennsylvania businessman, whom it cost \$12,000. It took Paneyko a full year to accept this order and another year to complete it, while three fat correspondence files accumulated on the project (I saw them). Installations such as this—the man's music room was 100 feet square and 60 feet high—gave Paneyko the reputation of being a sound architect for multimillionaires, which now he wishes he could lose. He wants it known that he also makes very fine instruments for medium-sized incomes; in fact he needs the business from average income customers. The days are gone when one could make a living from millionaires alone.

The first Paneyko commercial sound system—designed in 1930 and used in his loft concerts—had four separate controls: bass, midrange, treble, and volume, and they were remotely operated, from the listener's chair. It used eight separate speakers: two exponential high-frequency horns, two 4-inch high-frequency cones, two 10-inch middle-frequency cones, and two 12-inch low-frequency cone speakers, all mounted in one large baffle 8 x 8 feet square. The amplifier, in six stages, weighed 800 pounds.

This being the case, there is no reason to disbelieve Paneyko when he claims there is not much performance difference between his 1930 installation and a first-rate 1957 hi-fi system. He stresses the fact that there has been no *revolutionary* invention in sound reproduction for three decades. Nearly all present principles of construction and circuitry were known in 1930. Achievements since then have been mainly in the fields of subtle refinement and in mass production techniques.

Some of Mirko's methods are in no way original. They achieve their superior results simply by the rejection of compromises. His best amplifiers, for example have no output transformers, because even the best of these always are apt to introduce a certain amount of distortion. Instead, he uses a greater number of amplification stages, the last stage feeding directly into the speaker system. His control instruments do not operate on the "hinged" boost or attenuation principle for bass and treble (which produces a more or less steep curve of frequency response). His control system could be called a "terracing" or "elevator" principle which raises or lowers a given sector of the frequency band as a unit. Furthermore, he does an exhaustive job of matching and integrating all components used, from cartridge to amplifier and speaker, blending their functions to produce the cleanest and truest sound to be had from the combination. This principle has been used often enough by the makers of complete phonograph systems, of course, particularly of low and medium quality, but usually with the intention of making a series of inexpensive components sound acceptable. Paneyko's motivation, however, is to get the purest sound out of expensive and uncompromised components. The basic amplifier is designed, tested, and measured on its own merits and rarely needs any alterations.

Continued on page 138

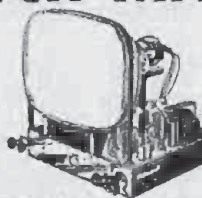
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ITALY'S OPERA

Continued from preceding page

body, which no resident opera company except the Scala could ever equal. Perhaps this is Italy's answer, or part of it; but this, too, bodes ill for the lesser opera houses. Some of those Florentines and Venetians who so conspicuously do not go to their own theaters may perhaps be getting their small annual quota of opera at home in an armchair.

The Scala, as the chief breeding ground for new operas and new singers, is a world concern; to curtail or suppress its activities would be a disaster felt far beyond the borders of Italy. But even the Scala draws upon all Italy for its new talent, and the blight which seems to be coming must affect that ceaseless recruiting and rejuvenation which keeps art alive. So, we are driven, at last, to the fundamental question: are opera and the opera public dying out in the land of their origin? We are bound to have some clue to the answer in this crucial coming season.

PANEYKO

Continued from page 57

The final listening quality of the complete system is achieved by circuit alterations in the control system and the early preamplifier stages, and these adjustments are entirely the results of protracted listening tests.

The war interrupted all manufacturing of sound equipment in Paneyko's plant, and put him to work on defense jobs, both in research and production: radar, ultrasonic, underwater equipment was developed, along with amplifiers for fire control. The indirect benefit from this government work was a consolidation of the plant's financial resources, and the development of methods for future phonograph production on a large scale. The trend, anyway, was away from the manufacture of luxurious special installations and towards serial production of high-quality systems in more moderate price ranges.

Since 1933 Paneyko has done for his own pleasure a great deal of recording off the air, all with equipment he himself built, including microphones and loudspeakers. His collection of the Toscanini broadcasts, for example, is probably unique in its quality and completeness.

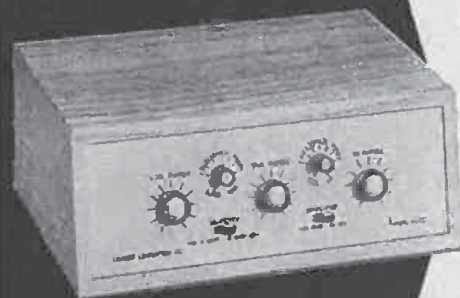
Outdoor music systems also hold a great fascination for Paneyko — witness a barn behind the factory which houses the biggest speaker horn I ever have seen: seven by ten by four feet. Through the years Mirko has given well-attended outdoor concerts by the simple device

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Over-all output is excellently clean; cut-off rates are 6 to 9 db per octave; levels change somewhat with adjustment of crossover controls; hum and noise are not audible — which is quite an accomplishment for an electronic crossover. Just proves it can be done if enough attention is paid to design and manufacture. All in all, highly commendable. If anyone doubts the value of an electronic frequency divider, this should convince them — C.f.

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of playing his records over the mammoth horn which radiates its sound onto the wide lawn in front of the speaker shed. Nearby neighbors sit on fences; others from farther away join and bring their garden chairs. The result over the years has been a solid contribution to the musical education of the residents of Fairfield County.

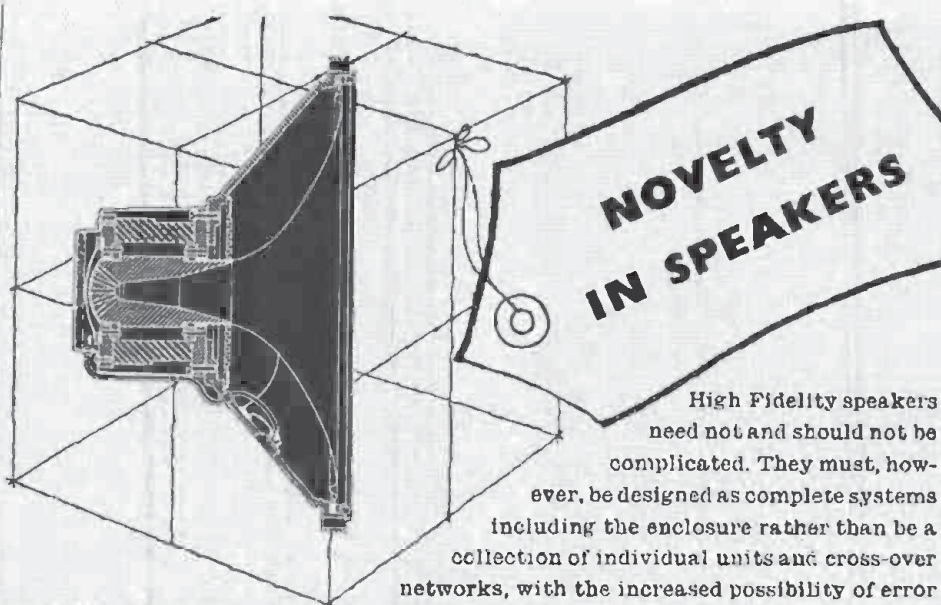
After the war Paneyko ventured into the television market, with the dream of making TV sets as good as his sound installations. This venture ended badly.

I've watched one of Paneyko's sets; never have I seen a clearer and more beautiful picture, but the TV public did not beat a path to his door—quite the contrary. It is quite possible that his main trouble was bad timing, for now there is some demand for high-quality custom TV. At any rate, he quit in 1950, after severe losses, and went back to small-scale, high-grade sound work. His plant and crew are small. Fifteen girls do all the production wiring, and there is a staff of three engineers, two technicians, and four cabinetmakers. One section assembles standard phonographs ranging from \$190 to \$1,700. Second in importance is the institutional department, where are produced specialized installations for colleges, libraries, schools, and conservatories. A small third division makes custom equipment priced from \$3,000 up.

Mirko is probably the originator of the two-unit home sound system, with speaker enclosure separate from the other equipment. He was delivering units of this kind as long ago as 1930 to wealthy Bostonian homes. The second important feature he introduced is the remote control panel; he feels it is impossible to have good music reproduction unless your controls are where you actually sit and listen. For his speaker enclosures he uses infinite baffles; bass reflex cabinets he has no use for. If there are no space limitations—i.e., if he can plan on an aperture at least three by eight feet—he will use exponential horns. But it is in big outdoor installations that he can really bring to realization his most daring and superior designs.

Paneyko never uses the term high fidelity to describe his products, partly because he thinks the phrase has been misused and discredited, partly—and perhaps paradoxically—because it still seems to frighten some music lovers. Various of his customers, he reports, open conversations roughly as follows: "Can you give me a really good phonograph? But I want none of this high-fidelity stuff!" Paneyko calmly reassures them, but privately he probably worries a little about the matter. Thus far he never has done any advertising, and is proud of the fact that his reputation and

Continued on next page



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PANEYKO

Continued from preceding page

business have been built up purely by word-of-mouth publicity and personal recommendations. But since he is now producing serial standard models, he knows that he will have to start advertising sometime soon, and it may be hard to avoid those two abjured words.

Occasionally he does some scholarly writing. The new Audio Engineer's Handbook, to be published soon by McGraw-Hill, will contain a section on Home Music Systems contributed by Paneyko. It is significant that the Handbook's editor-in-chief, C. J. LeBel (first president and present secretary of the Audio Engineering Society) could think of no better man for this topic than Paneyko, even though the organization teems with experts.

Mirko's musical background is well above the "engineering" average. As a youngster he had eight years of piano lessons and considerable opportunity to hear live chamber music at home. The Easton home, too, sees a good many musical visitors, some of them of great distinction. Fritz Reiner is a neighbor; Erich Leinsdorf and Leopold Stokowski are among the guest book entries.

Sailing used to be Paneyko's favorite recreation and hobby—a rather expensive sport, which was curtailed after his unfortunate TV venture. For the time being, tennis on the court behind the house has to do, but from what I have seen of his burgeoning business, I should guess that before long he will be afloat again on Long Island Sound—the only kind of sound, incidentally, of which he can be completely uncritical.

HI-FI PRIMER

Continued from page 54

groove is not just a spiral track, however; it also has minute side-to-side variations that represent the sound stored on it. Some idea of this may be had by holding a record or several different records between yourself and a light source and examining their surfaces; the visual surface patterns can be seen to be quite different where heavy and light orchestrations or wide variations in pitch are involved. The phonograph record is in reality a mechanically stored message. This message must be read in order to be used. When we read a book, we use our eye as a pickup or scanning device. When "reading" a phonograph record we must use a pickup that will respond to the medium being read. For this purpose, we require a needle which will go right down into the groove of the record and "feel" the variations.

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