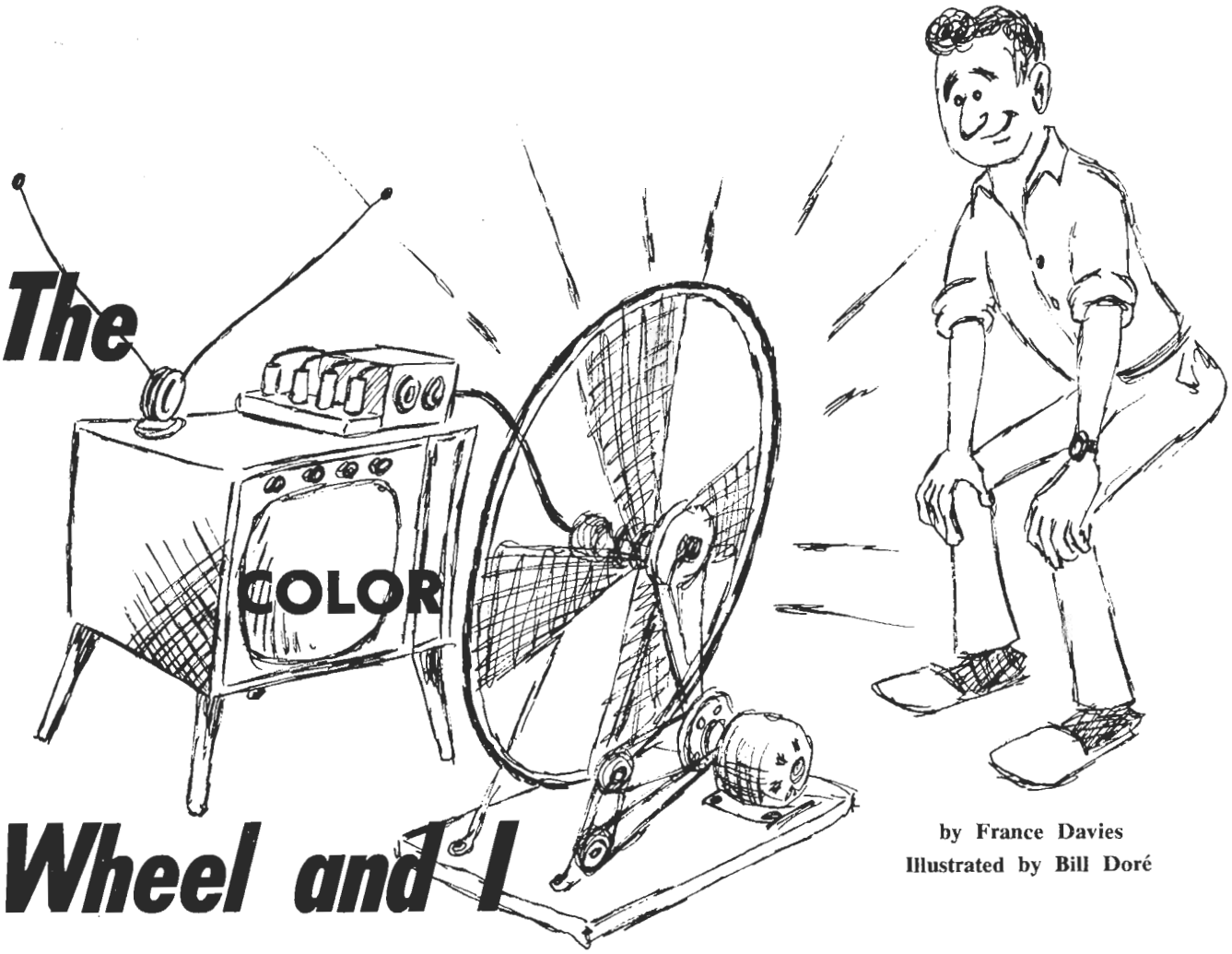
The COLOR Wheel and I



by France Davies
Illustrated by Bill Doré

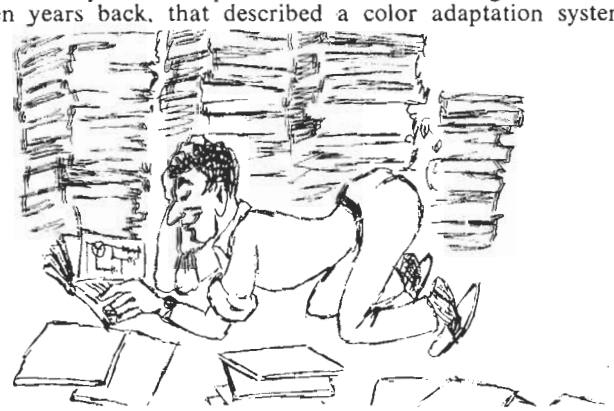
"I think I've got an idea." My husband mumbled these words at the precise moment that the boiling apple jelly reached the top of the pan.

"Oh, wonderful" I tossed back in a devoted wifely manner, concentrating on keeping the brew from spilling. My intuition failed to warn me and by the time the jelly was potted we were embarked on a new project.

As I look back, I realise I took no notice whatsoever of that glint in his eyes, of that I-know-something-you-dont-know look. I paid no more attention to the evenings he spent rummaging through radio and electronic magazines, going back ten or eleven years, than I did to his casual remarks about color while watching the Disney Hour. And, regretful that color TV was last on our list of priorities, I forgot that he is a man of Law, trained to analyse problems and find solutions. I forgot too that he is an electronics maniac.

The Idea

The plan was very neat. Considering we could not afford a color set, we would build one — as simple as that! It left me speechless and fascinated. With this logical conclusion my husband produced a technical magazine dating ten years back, that described a color adaptation system.



It adds color to black and white by means of a wheel which responds to the color information on the TV signal.

"Darling the electronics are relatively simple. It will be a cinch!" he said, pointing to the diagram while I looked aghast at a picture of the wheel. The WHEEL, shown standing proudly in front of a TV screen, was four times the size of the set. I was seized with horror at the decorative effects and panic stricken when he added:

We have just the house for it. Don't you see?" I didn't see. Patiently he explained:

"The wheel will go in the basement playroom, and we just move back the TV set and build it into the wall to make space for the wheel and that is it! All the glory of color TV and none of the gruesomeness of the adapter" I sighed with relief, and went along with the new project.

Letters went out to the companies referred to in the article for different parts and we started measuring. Measuring is an art, my husband says, and since I am the "arty" one, it is my privilege. The first attempt was shocking! Our color wheel would jut three inches through the living room floor above! My husband stared unbelievingly as if I were deliberately sabotaging his plans . . . In haste I plunged into more careful measuring, reducing the wheel to its absolute minimum: one yard wide. I became very engrossed with our project. Answers drifted in: more information and actual parts. The color filter paper was superb — just like a stained glass window — and the cost was surprisingly low: Forty dollars would, at this point it seemed, cover the whole thing.

Building Begins

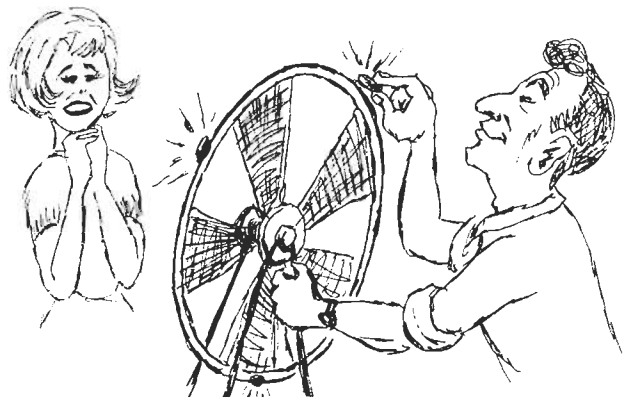
The 'Mechanical Part' was most important, my husband said. First and foremost it had to work smoothly before he would even consider tackling the electronics. Even *I* could understand that if the wheel didn't function smoothly, the electronics couldn't possibly put color where color ought to be. It's a simple principle: the wheel rotates 600 times per minute on a system of pulleys, activated by a motor. A motor? With that, I lost my portable diaper-washer! At no extra cost . . . . . .

The pulleys were another question. We now own the most complete set of pulleys available anywhere. (useful some day, of course!) I supposed that's what my husband meant by "a few odd parts." In the pursuit of mechanical precision our finances suffered an even greater blow — we had to have a lathe. It is a beautiful machine, versatile, accurate, indispensable. How we ever lived without it I can't imagine! I am sure it will come in handy for the rest of our lives. But it didn't exactly figure in our original budget . . .

Things were shaping up. The little motor was installed on a plate flat on the work bench. The contraption seemed to operate. Now we could make the wheel. Again I was entrusted with measuring and cutting the cardboard dummy, my husband hovering around, questioning every line and every curve. Excitedly he placed it on the pulley and with a grand gesture switched the power on. Nothing happened. Absolutely nothing. In one glance I lost any hope I might have possessed! We had to admit it: the motor was just too small . . .

It was a let-down. Gloomily my husband stared vacantly around the basement. His eyes finally rested on the furnace for a long time. Then he looked up and said rationally "the oil bill was very high last year." It didn't take very long for the new furnace to be installed. Of course I'm glad. The dangers . . old furnaces . . and we salvaged two motors. At no extra cost!

The next step was to adjust the magnetic pick-up. It's a little gadget with a magnet placed in front of the wheel — two bits of iron on the wheel close the magnetic field. This is what was going to put color where color ought to be. Simple my husband said. Incredible as it may seem our warehouse of loose parts picked up for next to nothing over the years failed to reveal an electromagnet. Our son became an unwilling contributor as the only available one was in the headphone of his crystal set.



The Wheel

Instructions were only precise on two points about the wheel: lightness and transparency. We chose the sandwich type of the lightest clear plastic. A few hours of painstaking measuring, cutting and glueing left us exhausted and enthralled. The green, the blue, the red fanned out gracefully in a vivid splash of color. But when we awoke in the morning: ridges . . welts . . the glue had done it apparently!

Wheel No. 2 cost sixteen dollars (about) and was thick rigid plastic, of staggering weight! I am at loss to explain what happened — as soon as it was decorated with the colored paper it seemed to object violently. Wobbling at top speed, it tried to propel itself out of the basement, creating chaos on the bench and punching out one of its colors.

Wheel No. 3 followed without delay. Two sheets of plastic (some eighteen dollars and more cents) but no glue. The ticklish task of balancing was solved by placing ugly lead weights in strategic positions as any good garage would to balance a new tire. And it worked. The wheel was colorless at high speed, just as the instruction said it would be.

The electronics now got under way. "No new parts" my husband was quick to point out with a beaming smile which made me forget his original estimate of under $40.

The last of the wiring was made in record time. On test we were treated to our first colored confetti! Glorious . . sparkling colors . . bright . . shimmering . . the screen was covered with them. Bursting with excitement we called our son.

"Where is the picture?" he asked. It was like the story about the Emperor's clothes. *continued on p. 26*

CANADIAN INVENTOR SHOWS COLOR TV CONVERTER

PROGRAMMES IN FULL COLOR FROM YOUR BLACK & WHITE RECEIVER?

As the adjoining story relates, there have been many attempts to design converters that give satisfactory color pictures on black and white television sets. For the most part they have been mechanical but there is now an electrostatic device that works — at least in prototype form. It was invented by Fred Topping of Topping Electronics Limited in Scarborough, Ontario and was demonstrated recently at the Manufacturing Opportunities Show in Toronto.

The converter consists of a rectangular frame, slightly larger than the black and white viewing area, containing a thin screen which produces the color effect. Four wires are used to carry video, sync and color signals from the black and white receiver to the converter. A separate power supply is housed beneath the frame which supplies the voltages required by the converter. Three controls operate color brightness, color balance and line and appear to work in much the same way as similar controls on a regular color TV set.

According to the inventor the device is electrostatically operated. In the demonstration model two vertical "wipers" could be seen moving across the picture area behind the screen. However Mr. Topping said that these wipers would not be visible in a production model.

Reception at the CNE grounds in Toronto was poor and the black and white picture displayed considerable snow which the converter cleaned-up. Mr. Topping said that in the laboratory, under ideal signal conditions, flesh tones were good and there was no tendency to blue or green fringing around the subjects' faces. He also said that no color tint was visible when viewing black and white through the converter.

Mr. Topping expects that the 21/23 inch model would retail for about $130.

(C.H.)

TV TECHNICIANS

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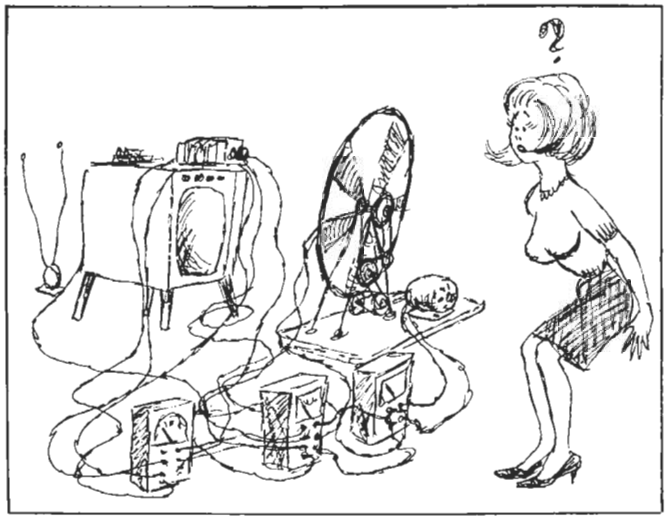

Wheel *(cont'd from p. 26)*

"Minor Adjustments"

At that point my husband discovered that two thousand pounds of highly professional equipment (a tribute to the serious audiophile) were insufficient for the job on hand. Adjustment could only be made with the aid of a new test meter (over $60 in kit form). A maze of wires flowed from the set to the wheel, to the electronics box, to numerous instruments. There were calls for assistance to measure voltages and demands to know "what is it doing now?" while my husband, probe in hand, would change a perfectly good black and white picture to Pop Art in color.

We then went through "Synchronisation" which was an exercise to keep the whip off the screen — a sort of cat-o-nine-tails that crosses the screen in slow motion, dragging a new set of colors behind it. Our first attempt to watch football was rather puzzling as the teams changed the color of their uniforms between plays and sometimes during plays . . . most confusing . . . like watching three games at the same time.

"Minor adjustments" my husband said after this hectic afternoon. Six new tubes, a couple of controls, a coil winder (a mere eight dollars, and useful forever) and a power transformer ("can't take chances with live wires for only $20") were needed. But the real snag was the VTVM blowing up ($50). Can't live without it. The two new soldering guns were, I am told, routine expense.

One cold winter evening, we saw our first complete program. Our hearts beat with enthusiasm as real people with natural skin tone moved gracefully across the screen in living color as clear and sharp as those of a Kodachrome film. Of course my husband was still holding hands with the set. Now months later, the set, with remote controls, functions beautifully. We can and do watch a program instead of viewing color although my husband often feels compelled to switch channels without regard to the action just for the sake of comparing or correcting. Not being overly fond of TV, I am reluctant to admit the added qualities of color. There is certainly a presence, a liveliness, and it seems so natural, so real. I bow to the advances of science and the tenacity of my husband.

He points out the low maintenance cost of this system (with the repair man in the house!) and muses over the reasons why the color wheel has been abandoned in mass production. It seems obvious to me.

"But darling," he said "it does not **need** to be a large wheel. The same principle applies to two sheets of glass with colored lines, criss-crossing each other. The mechanics are different. That's all".

"Why didn't you build that?" I asked, astounded.

"BUT I WILL. Do you think I'm going to spend the rest of my life watching TV in the basement? Now in the den . . . ."

Here we go again!