"How about the electrocleaner? While you're at it, check the tank ... is everything insulated the way it's supposed to be? No salts growing over the insulation? (Salts will conduct current, you know.) Do the anodes and/or the tank wall gas when there's no work in the tank? If they do, you've got a short ... bipolar, perhaps, but nonetheless stealing current from the work.

"Now check the rinse after, the same as you did the previous rinse.

"Got the idea? Keep going down the line, observing. And while you're observing, check the equipment, too! Anode and cathode bars clean? Rectifiers working properly?

"Do you see anything wrong? If you're pretty suspicious about any solution, is it convenient to dump and make new? If it is, do it. If it isn't, can you try it in another tank on the side? Or in an old steel drum alongside the tank? Or in another similar line?

## Call for Help

You say you've done all this and it didn't help; you've changed all the solutions and it didn't help. Now, this is the time to holler for help. You've probably already called your suppliers [or consultants, and the] super-sleuths are on the way. Console yourself that you are part of the unfortunate one percent left after subtracting the 95 and four percent mentioned previously. The super-sleuths are going to be asking some questions when they arrive, so you might as well get ready.

"Write out carefully all your rejection statistics and observations on the occurrence and development of the problem; everything you've done and what effect it had. If you can put this into easily readable chart form it will help to clarify your own thinking and to get the information quickly and accurately to your super-sleuth.

"While you have nothing else to do, start checking on the possibility of change in the incoming parts. Anybody change a cutting oil or stamping lubricant lately? (Nobody ever does that, do they?) Or buy them from a different supplier? (Supposedly identical lubricants aren't always.) Buy steel from a different supplier? Or store it unusually long?

"We once chased a nasty problem of adhesion of cadmium to a highly ground steel surface for four days; [(Again, keep in mind the time when this was written.)] finally found particles of greenish material embedded in surface. Walked the machining line until we found a green grinding wheel, and there was the answer. The operator (on piecework, of course) discovered he could take the preliminary grind and the final grind with the same wheel instead of changing wheels, by turning off the coolant during the last few passes of the final grind. He was beating the rate and making good bonuses, but raising havoc with the plating operation. When we turned the coolant back on ... presto! ... no more trouble with plating the parts. We had the trouble parts reground (with the coolant on) and problem was over.

## What To Do When Help Arrives

"Well, thank goodness, your help is here. Gather up all you sheets of paper, take the super-sleuth into your office, give him a cup of coffee and hand him the papers. But you're not finished yet ... be prepared for the third degree ... he may cross-examine you about what you've done, as a lawyer would take off on a hostile witness ... but don't get up-tight, he's just trying to make sure of the facts. As a matter of fact, remember the questions he bears down on; they may help you the next time. If five minutes after he arrives he casually points to something and says, "This is the problem." ... and it is ... don't feel stupid. Remember, he sees thousands of times as many problems as you do; he's supposed to be good. Besides, you did all the spade work ... he couldn't have solved it that quickly without you!" Pass