I Was a Teen-Age Lab Rat
by Bill Millard

It was a hot one, that long-ago summer of ‘56. Newly graduated from Freeport (Illinois) High School, I was enjoying what I considered to be a well-earned break before starting on whatever would turn out to be the rest of my life.

One sunny afternoon I was painting endless expanses of my parents’ front/side porch floor when a car pulled to the curb. A stranger disembarked, walked to the edge of the wet paint and inquired after one William Millard. Confident that I wasn’t wanted by the authorities, I acknowledged knowing such a person. The man asked if indeed I had taken chemistry in school and had worked some part-time years in a photo lab, and I again confessed he had the right kid. Then he told me he was from (as I recall) the local labor department, and that the W.T. Rawleigh Company was hunting a laboratory assistant. Would I like a job?

So began my short and varied, if modestly-paid career as a teen-age lab rat.

My first exposure to the routines of factory-work came as I entered a small foyer leading from Liberty Avenue and queued up to punch the time clock. There commenced the first of much good-natured ragging I would receive from the “old” guys of the factory floor. They would became my good friends, and in retrospect, it’s obvious each thought he had taken me to raise. But the teasing never stopped. At the time I wasn’t aware this would be great basic training for my future (Air Force) Basic Training.

Clock punched and the inner door unlocked, I passed into the atmosphere–literally–that indelibly marked that place in the mind of anyone who entered there. The smells. The spice of the Spice Department; the antiseptic and cocoa butter of Salve; the perfumes and waxes of Cosmetics; the astringency of Liniment; the, well, vanilla of the vanilla chopper and percolator; a wide array of strong odors that varied from floor to floor and department to department. Many of these were pleasant, or at least tolerable; a few were putrid; none was mild. After long exposure you’d stop noticing them as much, but they’d follow you home on your clothing. People on the street immediately knew where you worked!

Our world seemed fairly large at the time, but the workforce was small. The old north building rose eight stories, looking quite distinctive (as pictured on the product labels) before someone in later years concealed it behind featureless green sheet metal.

The newer south and west additions were six floors tall, arrayed on either side of Liberty Avenue and connected by a bridge. There were also a new office building and an old power plant, but I spent little time in either of those.

In the factory buildings you could walk literally miles through rooms of large tanks, drums or bales without seeing a soul. The crews congregated around whatever manufacturing process or bottling line that happened to be operating at the moment,

and I would be peripherally involved with much of what they did. But more about that later.

The laboratory ran along the north wall on the fourth floor of the old building, beyond tanks containing vanilla extract and cream shampoo. Ranged adjacently south along the west wall were the dietitian's kitchen, the nurse’s clinic and the offices of the Vice-President of Production and the Chief of Manufacturing. On reflection, that and our staffing put the laboratory exactly at the juncture of management and labor, but either that divide was ill-defined in those days (there was no union) or I was too unsophisticated to recognize it.

Everyone seemed to get along pretty well, and our location tapped us very nicely into all the plant gossip. (Came a new laboratory in a different part of the plant, and presumably that evaporated.)

Everything in the lab was “twenties modern,” full of dark woods and plate glass partitions. The working counters were topped with hexagonal white terrazzo, the same as public restroom floors of the period. The old plant was equally “advanced”: Overhead gang shafts still powered part of the machinery via flat, flapping belts.

And my duties? Well, mainly anything the chemists didn’t want to do, except cleaning the glassware: that fell to the dietitian.

Basically, the lab’s work was divided between development and testing tasks, and manufacturing support.

Rawleigh’s always based their reputation less on product originality than on quality and durability, and in their early days they had the patent-infringement lawsuits to prove it. After “reverse engineering” the products of others, they would upgrade the ingredients and test them extensively to ensure they would hold up under the often-adverse storage conditions imposed by the dealers.

A product had to be able to withstand everything from arctic cold to desert heat; dry to dripping wet, without solidifying, separating or breaking out of its packaging. Thus dozens or hundreds of test batches had to be subjected to extremes of heat and cold and, as possible, storage time.

Whatever was routine and repetitive about such efforts was usually my job.

A good example was Pleasant Relief, an antacid freely cribbed from Pepto-Bismol. Our formulation had a tendency to jell, to set up in the bottle after exposure to heat or cold. We threw away lots of solid, pink bottles before we found the right combination of ingredients.

My role in manufacturing was connected to both ends of the process; measuring critical ingredients for the recipes and quality-testing the end products. The U.S. Government is

famously fussy about grain alcohol: You mustn't "lose" any along the way. Thus I had to measure alcohol dosages by the weight ounce into each batch of any alcoholic product, wheel the barrels out of the "proof storage" locker, put them on the scales, and pump them out. On the other end of the process I had to distill dozens of samples of, say, vanilla, and certify by specific gravity that they contained the advertised amount of alcohol.

Similarly, for each of dozens of batches of "Alka-Seltzer"-type salts I had to measure out samples and add water to certify they would produce the requisite amount of carbon dioxide gas, then distill additional samples to ensure they didn't contain too much water that could cause the jars to explode.

When salves were cooking I had to precisely weigh dozens of doses of antiseptic powder into small paper sacks, one per batch. For colored products, read the same for dye crystals–which would fly all over me and the lab, regardless how carefully I handled them under the ventilator hood.

Cream shampoo likes to become thin the first few days after it's made, so I had to climb up onto the shampoo tanks, pull samples and test their thickness in a device called a viscosimeter–at precisely the correct temperature. To thicken the batches I had to mix brine in five-gallon pails, climb the tanks again and pour it in.

One of my first development-type projects was to mix dozens of different perfumes with moth crystals, then compact them into cakes in a manually-operated hydraulic press. These were toilet deodorizers, of course, and I don't know if I ever produced the correct aroma, but I certainly turned out lots of wrong ones. I'm reminded of that job whenever I enter a public men's room!

There were other smelly projects, some more agreeable than toilet cakes. Because the batches were so small, it fell to me to actually produce cream sachet, which was a wonderfully aromatic combination of lanolin, oils, lavender and water.

Vanilla was always fragrant as well as interesting. The rare and expensive brown beans were first chopped to coffee-sized bits on a locally-made machine powered from one of those overhead shafts. This gadget consisted of an old-fashioned round butcher-block with a curbing around the edge. It was made to rotate slowly as a twin-bladed trip knife came chopping down about once a second.

After two or three days of "thud-thud-thud," which could be heard and felt a couple of floors distant, the grind was deemed fine enough for the percolator. This was a glass-lined steel tank about two stories high. The top swung aside, allowing a coffee-maker type basket full of our chopped beans to be lowered into the tank with an overhead crane.

I was then asked to pump in the requisite quantity of grain alcohol to go with a proportional amount of distilled water. The top was sealed down and the water-alcohol

mixture pumped through the beans for a couple of days. The resulting “true Bourbon” vanilla was never sold in pure form, but augmented with synthetic vanilla and marketed in various strengths. However, some of us were allowed to liberate the occasional sample bottle after I had removed part of its contents for alcohol testing.

I love vanilla, but the concentrated aroma can become monotonous. After days it more or less sticks in the throat. My coat hung just outside the lab door, next to the vanilla tanks, and would of course become suffused with the essence. Later, wearing it ice skating, I’d get comments on how good I smelled! At least the girls noticed *that* about me!

The most pungent part of my portfolio involved the fly room. We were required by the U.S. Department of Agriculture to verify the effectiveness of our insecticides against a Government standard. This was done in a cubic chamber about six feet on a side, into which we would free a cage of flies and spray in a quantity of the material under test. After a time we would ventilate the chamber, count the “knock-downs” and put in dishes of sugar water in cotton. Then after additional time we would count the flies that had “returned from the dead” and gone to the sugar. Our preparations always beat the Government’s stuff by miles.

To support this, we (actually, I) maintained a colony of laboratory flies. The fly room was kept at 80^{O}F, flies’ most active temperature. As I recall, that produced a life cycle of eight or nine days, egg through wiggler to ragged-wing oldster. Freshly hatched flies would do what flies do, and egg clumps would soon appear on their food, Petri dishes of cotton, soaked in a 50-50 milk/water mixture.

This was my signal to mix a dough of rolled oats, dried alfalfa, sugar, yeast and water and place it in battery jars, depositing a dab of the tiny eggs on top of each batch. In a couple of days this mixture would mature into something as ripe as horse apples and alive with what we’ll politely call “fly larvae.” Soon the top of the stuff was frosted with tiny brown cocoons, ready to be scraped into shallow pans and placed in cages to hatch out into new flies. And so it went.

You can believe it was a smelly business, a kind of blend of cheese factory and riding stable. I spent much time in the fly room washing dishes, pans and cages, and knocking down strays. Yes (remember, I was 18), I became very adept at snapping flies in mid-air with lab towels. Soon all the towels had frayed corners.

In a later year I would learn that they had lost the fly colony. It wasn’t that the little buggers missed me, just that the newer insecticides had become so strong and persistent that all our winged Guinea pigs died off.

A far more palatable part of my duties came when I got to do a bit of Guinea-pigging myself. From time to time a bottle of flavoring, usually vanilla, would be returned on a customer complaint. Our talented dietitian would use it to make up a batch of pudding to see if it was really bad. The tasting usually fell to me, since I was the one who liked

vanilla pudding. By the way, the flavoring under test was never found to be bad. Even richer were the times she tested new recipes for the annual recipe book. Let's just say she pampered the kid!

My Rawleigh's career proved short, succumbing to my desire to raise my right hand, repair radar sets and see the world courtesy of my Uncle Sam. From fly boy to fly-boy, I suppose you could say. The Air Force phase of my life, with one brief interruption at Micro Switch, lasted 33 years. I would pay the Rawleigh plant but one brief visit in its remaining days, but I would find my experience there valuable in a number of later endeavors.

Actually, it was plain even to me that the business was in the process of dying. The days of the horse-drawn salesman supplying vanilla, salve and liniment to isolated farmers were long gone. With the automobile, farmers could just run to town for whatever they needed. The plant's production methods were grossly inefficient, and when I naively suggested that perhaps we should start packaging our fine products for other national brands, I was cautioned *never* to talk that way. By the time the suits thought of it themselves it was way too late, at least for the original Rawleigh's, the one Freeport knew.

Bill Millard, Sacramento, California, November 2001

Off-Color Addenda

The job wasn't without humor, and some of the rowdiest was provided by Bob, our Vice-President for Production. As I've told you, the lab, the dietitian's kitchen, the nurse's office and the production offices were all in a row. Sometimes the dietitian and the nurse occasionally found time on their hands, and would while it away in the nurse's office catching up on the latest gossip. This placed them between the office door and the toilet stall in the corner. One day in the middle of a particularly good old natter, Bob silently walked past them, looking straight ahead, carrying a liter beaker of water. He walked into the stall, bolted the door and started pouring the water slowly into the toilet. And pouring, and pouring, and pouring–for about five minutes. After the first couple of minutes the talking stopped; after the beaker was empty Bob emerged to find that the ladies had found other things to do, elsewhere. Never a word was spoken.

Once or twice, at first, the humor was at my expense. On my third or fourth day one of the chemists asked me to carry a beaker over to the nurse and borrow a little sodium benzoate. When I did, she laughed, told me how sodium benzoate is commonly used, and instructed me to carry the beaker back to the (male) chemist and ask if he needed a douche!