

## PROFESSOR TK

### Candy Blue Cobra

“This is as good as it gets,” thinks TK, “Cruising down Highway 101 in a Candy Blue Cobra.” Plus, the guy TK is cruising with is an engineering wizard who is giving him all sorts of new information--and TK can't get enough information! “Life is good,” thinks TK.

He's going to be staying at Jim's place and they will go to Lancaster in the morning. For the rest of the week, Jim has several things planned, including going to the Engineering Institute where TK can meet some of the engineers, scientists, and professors that he's talked to by computer over the last few years - but has never been able to meet in person.

Then after the weekend, they will head north to the farm in Jim's new motorhome - one of the treats he bought with his profit-sharing. Jim and his wife are going to stay a few weeks so Jim can put his full energy into the Rocket project.

### Ben

It's a crisp and clear morning as they leave early for Lancaster. TK is really getting into this cruising around in a sports car thing, and thinks, “Hmmm, maybe hand controls.” In a year he will be old enough to get his learner's permit. They arrive at Ben Carter's place at about noon. It's a beautiful house with a large deck looking out across the High Desert.

Just as they drive up, a very exotic looking jet fighter flies over, low, and then shoots straight up. At that moment, Ben Carter, or Dr. Carter, as he is known in engineering circles, comes out to greet them. He's tanned and seems very healthy for a guy who is supposed to be so old that he can't remember his own name. TK is still looking up at the wild looking plane. Dr. Carter, (he asks TK to just call him Ben), says, “The guys do that when they fly by just to say ‘Hi’.”

“Wow!” says TK.

Jim and Ben haven't seen each other for years, and have a lot to catch up on. While they visit, TK sips on orange juice and watches some very strange and fast aircraft flying, much of the time very low, over the desert.

Ben built his house here because this is where they test, and he had a large part of designing many of these planes. When the conversation turns to the H<sup>2</sup>O-S system TK joins in.

They talk until late in the day. TK is amazed by how much Ben and Jim can remember about a project they worked on 50 years ago. They in turn are astounded by TK. Of course, Jim has been astounded by TK for a while now.

They stay for dinner, which is super.

It's Spanish, hot and spicy, served with lemonade. Ben's wife is definitely a very good cook. It's not often that TK ventures away from those (very safe) Swiss cheeseburgers.

“Don't tell Celeste, or she'll be trying to get me to eat all sorts of stuff,” he tells Jim, who just laughs.

Mrs. Carter, who asks TK to “just call her Lupé”, also has made a special dessert which is lemon-flavored and is both hot and spicy and cold and icy at the same time. “Weird!” thinks TK. She spotted him right off as a kid with a sweet tooth! TK is in heaven, and for the moment has forgotten all about Swiss cheeseburgers with Miracle Whip. After dinner, TK asks, “Do you need a grandkid?”

“Consider it official,” says Lupé. They all laugh.

Lupé is a renowned artist and paints desert scenes, many of which are hanging in the house. A

few even have low flying abstractly drawn birds that, strangely enough, look a lot like experimental aircraft. Later they say their good-byes. Jim folds up the collapsible wheelchair, and puts it in the trunk of the Cobra. They head back across the dark desert.

### **The Engineering Institute**

The next morning they have an early breakfast and are on their way, driving down the freeway on their way to the California Engineering Institute (CEI).

TK doesn't know quite what to expect. Even though he's been conversing with teachers and students and taking classes from several universities, including this one, he has never been to one. Until now, it's all been by computer. The one time he tried to enroll in a community college they just laughed at him, so he went back to his computer. They didn't have any real interesting looking classes at the C.C. anyway. He was eleven at the time.

Ben Carter is going to be giving a lecture here today, and also is going to introduce TK around, so TK should get a good look at this college thing. They enter the main lecture hall and TK is amazed by how many people are here. There must be at least five hundred. Ben must be popular.

A few months ago TK would have been quite intimidated by a crowd this size, but being with the Bikesters and dealing with the crowds at races and personal appearances has made him quite comfortable around large groups of people.

TK discovers from listening to the talk around him that this is the hardest lecture to get in to all year, and there was a long waiting list. Ben, or Dr. Carter as everyone calls him here, is very well known.

There is a spot for TK right down in front. "Good old wheelchair," thinks TK, "always gets a front row seat." Jim sits by him.

Dr. Carter's lecture will be on engine torque and its relationship to force and lateral movement in aircraft and land vehicles. In the second part of the lecture he's also going to discuss engine torque's effect on traction, which just happens to be something that TK has had a lot of experience with lately, with SuperBike - perhaps the ultimate experiment in the real use and control of torque.

### **Just Talkin'**

TK finds himself completely engrossed in the lecture. Dr. Carter's knowledge and thoughts on the effects of jet engine torque, and the lateral force it puts on aircraft, are totally involving as far as TK is concerned. The lecture turns to the effects of engine torque on land vehicles.

Dr. Carter takes a short break and asks TK if he would like to talk to the group. TK is flabbergasted! This is a group of professors, graduate students, and top engineers. "This is very scary," thinks TK. But he finds himself saying yes because it's a subject he knows about and has worked with. Ben asks him his last name so he can introduce him.

"Just TK is fine," he replies, and so TK it is. He is quite nervous at first, but as soon as he starts talking he's totally at ease. TK finds that everybody is very interested in what he has to say, and that makes this fun. He tells them about SuperBike and the tremendous rotational torque of its huge rear tire, about the rotating parts of the engine and drivetrain, which are all placed sideways, or 'Sidewinder' fashion in the bike chassis, and are all spinning in the same direction.

He expertly describes the massive torque and the torque reaction that this produces, continuing to explain the delicacy of balance the bike requires--especially when, as in the race with Bo, they have to push their limits and put all the power on the ground they possibly can -- without achieving total traction. If it ever got to the point of totally hooking up, the bike would most likely either immediately break the wheelie bars and do a super wheelstand, flipping over backwards, or become totally uncontrollable because of its very short wheelbase and the amount of horsepower, (over 3,000), it's trying to put on the ground.

As the professors, grad students and engineers sit spellbound, TK explains how the rear tire - a racing/traction slick almost 20 inches wide - must always be breaking loose a certain amount, and the tremendous gyroscopic effect this extra spinning produces.

He goes on, explaining how Terry feels the gyro effect all through his body and can feel the bike struggling against this force, trying to break free and go any way but straight. It's clear from the expressions of his audience that they're as entertained and interested in the racing details as in the hard science that makes it possible. When TK explains that the gyroscope is so strong that Terry can take his hands off the handle bars at over 250 miles per hour, and the bike just continues to pull itself straight, an excited buzz can be heard throughout the hall.

TK has them in the palm of his hand. And he's spent enough time around Terry and Nitro to wrap up with a big finish -- a finale that excites with possibilities but leaves the audience wanting more. With relish, he explains many of the other things Nitro has learned while putting this whole system together, and some of the things they've learned from the computer readouts of the bike's runs.

Of course, there's no talk about the H<sup>2</sup>O-S system, or anything to do with it. As far as anybody is concerned, SuperBike uses an AA/fuel dragster type engine running on nitro-methane fuel. The H<sup>2</sup>O-S system must remain a very closely guarded secret.

### **School Boy Monster**

After the lecture, there's a question and answer period, and most of the questions are directed at TK. Soon he's involved in deep discussion with several of the professors and a group of senior engineers. Ben Carter and Jim Truesdale just look at each other and wink. Telling TK they will be in Dr. Carter's office, they head for the door.

Once in the hall Jim says, "Do you think we've created a monster?"

Ben laughs, "No, I think we are just helping a very bright young person start to realize his potential, and where he can go in life. His future is unlimited."

TK catches up with them almost two hours later, bubbling with talk about the people he met and talked to and all the things he's learned. They all have modems on their computers so he can talk to them no matter where he is. Still, this face-to-face thing is better than just being able to talk to people on the computer any day. Late in the afternoon, as they head back to Jim's, TK is still talking nonstop. Jim just smiles and thinks, "A monster maybe, but a good monster."

The rest of the week, TK spends most of his time at the Institute. In fact Jim just drops him off in the morning and picks him up in the afternoon. Jim is busy getting his motorhome ready for the trip north.

The night before they leave, Ben and Lupé come for dinner. Later, as Jim, Ben, and TK sit and talk, Ben tells TK the Engineering Society would like him to present a paper at their annual meeting on some of the things they are finding out with SuperBike - excluding anything about the H<sup>2</sup>O-S system, of course. TK can't believe this! But he says he will have to ask Nitro what he thinks; "Because it's up to him".

Ben continues, "The paper and presentation will of course count towards your engineering degree."

"Degree?" questions TK.

"Certainly," answers Ben, "You don't think we are going to let you hang around the Institute without graduating?"

"I haven't even gone to high school yet," protests TK.

"You can take a few tests that will take care of that," adds Jim. "You might be more of a college type kid."

"I know one thing," says TK, "I've sure met a lot of cool people at the Institute!"

"That's the first time I've ever heard engineers being called cool," says Ben, laughing.

## **TK Philosophy**

By the way,” Jim asks, “What is your last name?”

“I don’t have one,” answers TK.

“In the first foster home I was in when I was a baby, the people were named Smith, so they named me Billy Smith. Then, I went to another foster home where they always wanted a Jamie, and their last name was Tower, so I was Jamie Tower. Then I went to another home where they decided I was still Billy Smith. By then I was talking quite well, and I decided I was TK. In fact, I guess TK was one of the first things I said.”

Jim asks, “Why TK? What does it mean?”

“I guess it must have meant kid who wants to pick his own name,” answers TK.

“I mean, what does it stand for?”

“It doesn’t stand for anything; that’s why I don’t put periods after my name. What you see is what you get, I guess. Anyway, when Celeste and I got out on our own, and she became my guardian, we had my name legally changed to TK.”

“End of philosophical discussion,” Jim thinks, laughing to himself.

The evening ends with another long discussion about the H<sup>2</sup>O-S system, and the Rocket vehicle, which Ben has a lot of very interesting thoughts and ideas about. TK promises to talk to Nitro about doing the technical paper on SuperBike. TK is very nervous about presenting a paper to the Engineering Society, it includes the top design engineers in the country. Ben doesn’t tell him he already met most of the senior members of the Society at the lecture.

## **Land Yacht**

Jim, his wife Betty, and TK are traveling north in the motorhome, which is actually a converted Greyhound bus. Jim really likes this rig and plans to put a lot of miles on it now that he’s officially retired. In fact, he’s going to get a trailer, to pull behind it so he can bring the Cobra along.

A lot of the talk between Jim and TK revolves around TK’s future. Both Jim and Ben Carter feel that TK has a lot to say, and they know that in order for his work and thoughts to be accepted and respected by the scientific and engineering community, he has to have the proper academic background. Ben and Jim are putting together a schedule that will get TK his graduate and post graduate degrees based mostly on papers. These he can submit to scientific and engineering publications, with a series of lectures he can give which should be able to be tied in with the Bikesters travel schedule.

They feel that TK will get an extraordinary education. Among other things, he will have the chance to exchange ideas with experts and teachers all over the country, while he’s actually testing many of his ideas for real at the races.

## **Farm Sweet Farm**

After a very enjoyable, leisurely trip up the coast, they pull into the farm. There’s a power and water hook up for the bus down near the beach, and TK notices Nail’s trailer parked not far away. After getting the bus parked and plugged in, Jim and TK go up to the shop, while Celeste takes Betty over to the house to meet Nerissa.

**Chapter 7**

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