

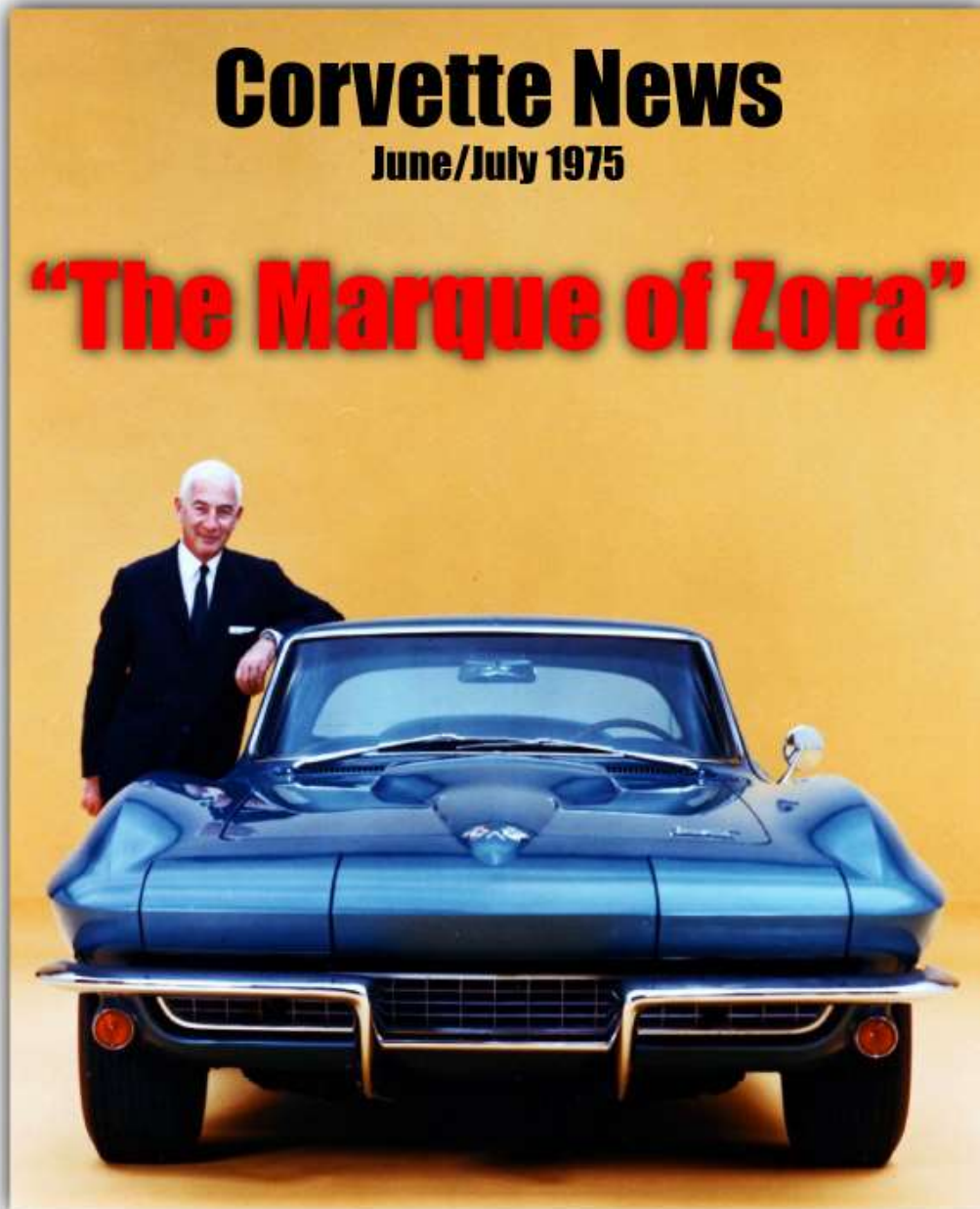
The Duntov Files

Pt. 3

Corvette News

June/July 1975

“The Marque of Zora”



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A few months ago at one of our Highlands Corvette Club monthly Corvette car shows a fellow came up to the sign in table where I was working and he had a box with several dozen issues of Corvette Quarterly from the 1970s. The June/July 1975 issue had what might have been one of Duntov's last interviews before retiring as Corvette Chief Engineer. The article starts out, "As we entered his office at Chevrolet Engineering, Zora greeting us warmly..."

What followed is an insightful, warm, eight-page interview with the Godfather of Corvettes.

Enjoy and feel free to share with your Corvette friends.

K. Scott Teeters
February 2, 2021

THE MARQUE OF



As we entered his office at Chevrolet Engineering, Zora greeted us warmly. Gingerly we picked our way through a sea of cardboard cartons. Some were already filled. Others were waiting to receive the contents of desk drawers and file cabinets. Strange to think that the memories of a career could be stored away so neatly in a dozen boxes or so.

It was the end of an era. In a matter of a few short weeks, Zora Arkus-Duntov, Chief Engineer for Corvette, would retire. If it was painful for us to see him take his leave, it must have been doubly painful for him to go.

Since he joined Chevrolet En-

gineering in 1952, Zora's accomplishments have been written about in almost every major automotive publication, both in the United States and abroad.

His main interest has always been vehicle design, and his ideas over the years have had a tremendous impact on the design and production of the Corvette SS, the SR2, the Stingray, and the Cerv I and Cerv II — four-wheel-drive race cars.

But Zora is a man of far-reaching engineering talents and has always had an intense interest in engine design as well. Long before his affiliation with Chevrolet, he and his brother Yura built the famous Ardun

overhead valve conversions for the Ford V-8. Shortly after joining Chevrolet, Zora was made Chief of High Performance Design — a position he held for four years. Here, he was also instrumental in the development of Corvette fuel-injection. And, of course, he is the designer of the famous Duntov camshaft.

Zora has also collected ten patents along the way, including patents on a fuel induction system, a cold enrichment device and a vehicle power unit and drive train.

Actually, there is as much of the Duntov "touch" to be found under the skin of the Corvette as there is in its sleek, aerodynamic styling. From



the time of his arrival at Chevrolet Engineering, Zora was continually probing, refining, changing and modifying the Corvette to make it the car he thought it ought to be. And, always the pragmatist, he was the first to take a prototype out on the test track to prove, first hand, that his theories worked.

Automotive writer, Karl Ludvigsen, describes a typical Duntov test-run in his book, *Corvette, America's Star-Spangled Sports Car*: "Guards, engineers and drivers looked at one another with knowing smiles. That high, harsh howl was unmistakable. It echoed from the concrete of the high-banked track at Milford, re-

sounded from the open exhausts of a new Corvette under test. They'd heard it before; they knew it meant that Zora Arkus-Duntov was on the five-mile circular track, his right foot pressed to the floorboard of a new model, extending it to its absolute limits."

And when it comes to getting the most out of a machine, Duntov is the man to do it. Over the years he has participated in major racing events in both the United States and Europe, coming out a class winner at LeMans in 1954 and 1955. He also set a Pike's Peak stock car record with a pre-production Chevrolet, as well as the existing production sports car flying mile record with a 1956 Corvette at Daytona Beach. And it appears retirement is not about to stop him. He told *CN* he plans to challenge the speed-record (set by A. J. Foyt at Talladega) in the Cerv II before the car is placed on loan to the Briggs Cunningham Automotive Museum.

His accomplishments in automotive design and racing are widely known. But what *CN* wanted to find out was what made this man tick. What went into the making of that inventive, unorthodox mind and that unflagging zest that Duntov brings to every job he undertakes. In short, we wanted to dig into his past.

"Well, to begin with," Zora told us,

"I was born on Christmas Day in 1909." A pretty auspicious beginning, we thought. But, surprisingly enough, the man who was to make his mark in the world of engineering showed little academic promise as a boy.

During his early school days in Russia, Zora never took his studies seriously and was the bane of his father's existence — often disappearing for three or four days at a time to go fishing.

But by the time he was 13, it was obvious where Zora's main talents lay. He had already developed an intense interest in motorcycles and saved enough money to purchase an engine. His father felt there were better ways for him to use his money and made him return it, but his fascination with cycles never waned.

ZORA'S "SNOWMOBILE"

And it was about this time that Zora's inventive talent began to emerge. At 14, he conceived the idea of building a motor-driven ice sled.

A Russian Air Force officers' school was located not too far from the one Zora attended. He paid the officials a visit and convinced them they should give him two engines and two fuselages to develop his idea.

Zora readily confessed to *CN* that he really had no notion of how to

build the sled, but he produced a few sketches, and an instructor from the officers' school was assigned to help him with his project! Every day the officer met with young Zora and helped him with the drawings. Both of the engines were American made, Hall-Scott liquid-cooled 6-cylinders with 110-hp ratings. The sleds were two-seaters with a pusher-type propeller.

Zora, however, never got the chance to find out if the motor-sleds worked. He started the project in early winter but didn't finish it until early May when there wasn't any snow. So he turned them into water sleds — which he never got to test, because by the time *they* were completed, you guessed it, the river was covered with ice again.

Anyone who has worked with Zora knows that when he decides to do something, there's no stopping him. And this dogged determination is a trait he's had right from the beginning.

For example, when Zora wanted to enter the university in Leningrad, he was only 15. But the minimum age for acceptance to a university in Russia was 16. Doing a little fast thinking and some faster talking, he convinced the admission officials that he was actually almost a year older than his birthdate would indicate.



How did he manage this? Zora told us that, although his parents were Russian, he was born in Belgium, a country using the Gregorian calendar, which differed from the Russian calendar by some 15 days. Anyway, he was able to create enough confusion in the minds of the officials to get himself admitted and begin what at first turned out to be a hit-or-miss academic career.

EDUCATION ON THE SKIDS

It wasn't easy to go to college in Russia. The entrance exams were stiff and only one out of every 100 were accepted. But Zora made it, as he said, "by hook or crook." Unfortunately, he paid little attention to his studies, preferring to devote most of his time to cross-country skiing, which was very popular in Russia at that time.

It wasn't long before he found himself faced with automatic expulsion. He immediately applied for reinstatement on the ruse that he had an abscess on his hand and couldn't hold a pencil. "Obviously," Zora told *CN*, "it was from keeping a death-grip on my ski poles."

Zora recalled his college days with amusement. He occupied a large apartment, paid for by the government, which overlooked the river. In-city transportation was provided

by a tram or streetcar system, but when you reached the end of the line, you used foot-power. And Zora did a lot of hiking, because food was in short supply, and he visited his friends from other schools once a week to collect their daily bread ration for his family.

"I was always broke," he said, "although my father was an electrical engineer at the time and well-to-do by Russian standards. But I continually gave money to an uncle who was a compulsive gambler to cover his bad debts. So my clothes were threadbare, and I had to reinforce the soles of my shoes with cardboard."

When Zora's family moved from Russia to Berlin, he decided to join them and enroll at the university there. One of the entrance requirements of German universities was one year of work experience — six months of which had to be continuous, full-time employment in any chosen field of endeavor. It was during this same period that Zora's interest in motorcycles was rekindled, and he started frequenting cycle tracks.

"At one of the races," recalled Zora, "I was approached by a man who asked me if I would like to work for him and train as a driver. I couldn't

pass up the chance and took him up on his offer immediately. Concurrently, I fulfilled my work requirement by being employed in the machine shop of A.E.E. — the German counterpart of General Electric."

His interest in motorcycle racing took a backseat, however, when a friend showed him a car — a Bob-car with a 1500-cc engine, small brake drum and a hand crank. Zora promptly traded a motorcycle even for the car.

A "FREEWHEELING" RACE CAR

"The car was in terrible shape," he said. "When I cranked it up, it sounded like a herd of stampeding bulls. But it was a race car and my first."

About this time, Zora decided to switch learning institutions and make plans to go to Darmstadt — a college well-known for its courses in electrical and materials engineering. That race car, he hoped, would get him to Darmstadt, some 600 kilometers away.

Zora's father accompanied him, and they had to travel light — one suitcase strapped to one side of the car, a second suitcase strapped to the other. And, like good Russians, they carried their teapot, anchored securely at the rear.

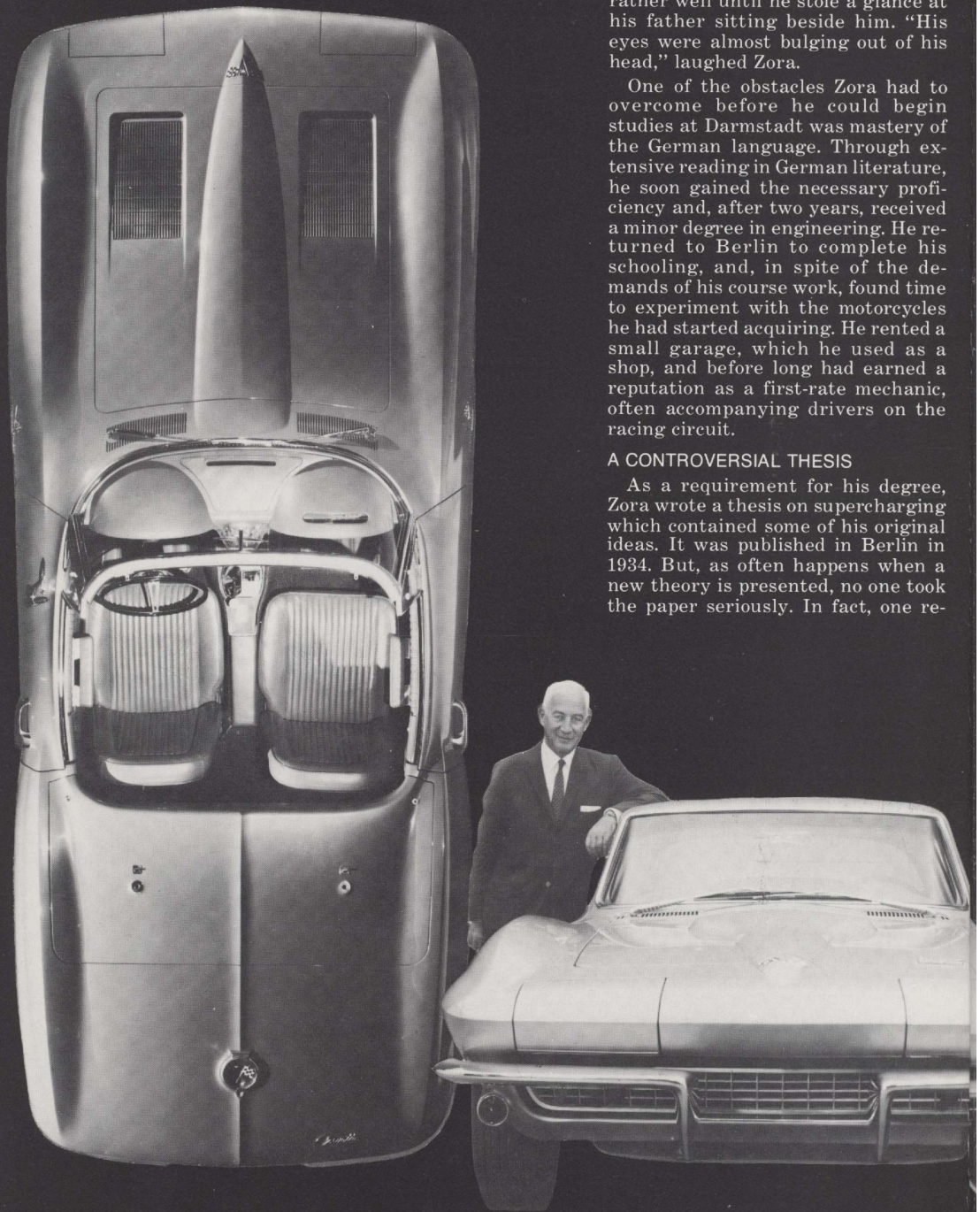


But once they were in mountainous terrain, Zora discovered that the car had no brakes. With incredible speed, he navigated every turn and twist in the road. He thought he was doing rather well until he stole a glance at his father sitting beside him. "His eyes were almost bulging out of his head," laughed Zora.

One of the obstacles Zora had to overcome before he could begin studies at Darmstadt was mastery of the German language. Through extensive reading in German literature, he soon gained the necessary proficiency and, after two years, received a minor degree in engineering. He returned to Berlin to complete his schooling, and, in spite of the demands of his course work, found time to experiment with the motorcycles he had started acquiring. He rented a small garage, which he used as a shop, and before long had earned a reputation as a first-rate mechanic, often accompanying drivers on the racing circuit.

A CONTROVERSIAL THESIS

As a requirement for his degree, Zora wrote a thesis on supercharging which contained some of his original ideas. It was published in Berlin in 1934. But, as often happens when a new theory is presented, no one took the paper seriously. In fact, one re-



searcher, also working on supercharging, claimed he had derived entirely different data from his experimentation.

The reaction to the paper, however, didn't upset Zora.

"Shortly after publication," he told us, "I received a letter from a manufacturer who thought my theories were correct. He asked me to design two compressors — and those same compressors soon became standard and were used on sport cars everywhere."

Another of his early jobs was chief of design for Mondiale in Belgium. Mondiale was producing motorcycles at the time and employed around 300 people — until the manager of the company committed an "unpardonable sin," Zora related the story.

"The manager asked dealers to subscribe for so many cycles, taking a small down payment on each one to provide the company with working capital. Once he had the money, however, he failed to make good on delivery. Although charges were never brought against him, the company was finished as a manufacturer of motorcycles."

Mondiale, however, had originally produced lathes and decided to re-establish in machine tool production. In need of a new lathe, they asked

Zora to design one. Machine tool equipment was not Zora's specialty. Nevertheless, he set to work and came up with a new design — and Mondiale was back in business. Now, he was not only in charge of design but of production as well.

FROM LATHES TO DIESELS

An offer from a locomotive firm in Paris turned Zora's attention from designing lathes to diesel engines. The firm was using German-made engines at the time. But the year was 1936 and the scent of war was in the air. The firm, Locomotive Marchalk, decided it would be wise to produce its own engines. Marchalk banded together with still another locomotive firm and a tractor company, which were also using German engines, and made Zora head of design.

Demanding as this new job was, he still found time to work on race cars, and even began to do some driving on his own.

"Race car driving was extremely popular in those days," Zora told CN. "But it was common practice for public figures to drive under assumed names."

In fact, one of the men he raced for was a well-known Parisian banker, Alexander Orly, who often took the wheel of a car himself.

ZORA COURTS A BALLERINA

But where was his charming wife Elfie? How did she fit into the picture?

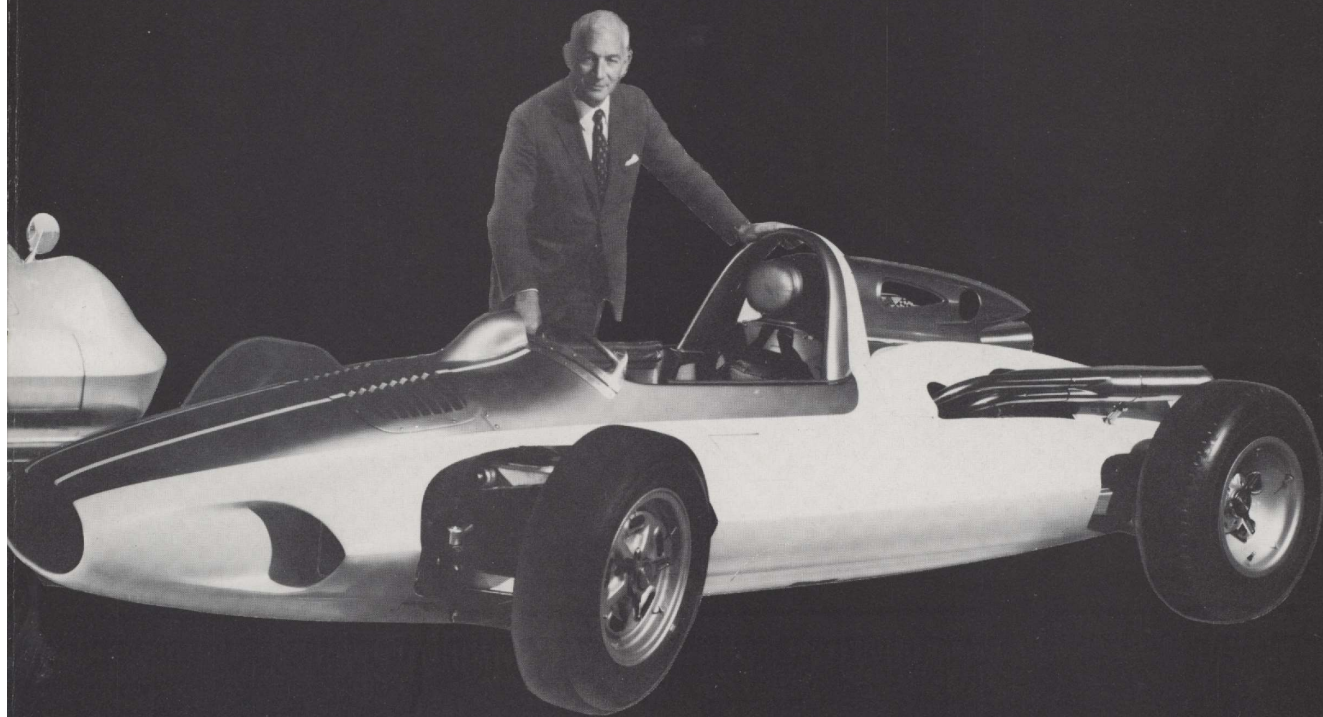
Zora smiled and said: "She was always in and out of the picture. We first met when I was going to school in Berlin. Elfie was only 14 years old at the time and studying ballet and acrobatic dancing. She joined Vera Zorina's dance troupe and they became great friends. Elfie traveled extensively with the troupe and I would catch up with her from time to time in Germany, Belgium or France. The relationship was rather uncertain for a number of years.

"My mother, however, was very mid-Victorian. She told me to propose to Elfie or forget the whole thing. We were married in February of '39 just before the war broke out. But, by marrying me, she renounced her German citizenship and became stateless."

WAR IN EUROPE

When France declared war on Germany in September of 1939, Zora's younger brother, Yura, enlisted and Zora decided to join up too. He could see no reason why his brother should fight for him, he told CN.

Because he was a Russian, he had





privileged status with the French Army. So he joined the French Air Force and was assigned as rear gunner on a three-man bomber.

We asked Zora what kind of rank his training qualified him for. "Private, second class!" he replied.

When Vichy France signed an armistice with the Germans the following summer, Zora's company was demobilized on the Mediterranean coast. Since Zora and Elfie had made some narrow escapes after the Germans occupied France, they decided to use Zora's mustering-out pay for a much needed vacation. Zora recalled: "My mustering-out pay was barely enough to cover vacation expenses, so we were forced to sell Elfie's MG to cover the cost."

Their vacation was all too brief. Zora received an urgent telegram telling him that there was an American visa waiting for him in Marseille.

"It seems," said Zora, "that during the early days of the war, some council or labor union had compiled a list of 5,000 people who they felt would be better off in the United States out of reach of the Nazis. The list included politicians, whose lives had been threatened, scientists, engineers, professional people. I was on that list."

Zora had only one problem . . . how to get to Marseille. Most of France was under occupation and it wasn't the best place for a Russian citizen to be. Never had he been in greater need of the old Duntov ingenuity. With the help of a friend, he mapped out a devious route that would get him to Marseille over relatively untraveled roads.

"Upon my safe arrival in Marseille," said Zora, "I decided a bordello would be the wisest place to hide. The owners are usually on good terms with the police, and no one bothers you. I selected one and made up a story for the proprietor. I was from Paris, my beautiful wife owned a mink coat — and many more white lies. It worked and he let me stay, but

I didn't have the ration card necessary to purchase food. I soon found out that pidgeon, which wasn't on the ration list, was not such a bad dish. I got a little sick of it, but it kept me alive."

The story of how Zora finally secured papers to get himself and his family — Elfie, Yura and his parents — out of Europe would fill an entire issue of *CN*. Suffice it to say that French bureaucracy met its match in Duntov.

They arrived in New York in December, 1940 aboard the SS Niassa. "Although it was the Niassa's maiden voyage across the Atlantic, I'm sure it was once used elsewhere as a slave ship," commented Zora.

STARTING FROM SCRATCH

Zora and Elfie set up housekeeping in a one-room apartment on Riverside Drive in New York City. Room and board amounted to \$21 a week. Although it doesn't seem like much now, it was a tidy sum in those days, and at times it was difficult to make ends meet. But once again, the Duntov enterprise came to the fore.

Zora recalled, "I had been in New York about three weeks when I ran into an old friend, Julius Hoffman. He, in turn, introduced me to a friend of his who was in the process of negotiating with the aircraft engine industry — Curtiss Wright and Pratt Whitney, to name two firms — for the use of a French patent issued to a Monsieur Salomon for an improved polyharmonic damper for torsional vibration. However, all communication with France had been cut off, and no one could understand the mechanics of the damper.

"I had nothing to lose," continued Zora, "so I said I would work out the necessary calculations, and he agreed to give me a crack at them. A few weeks later I produced the calculations and a rough drawing of the damper. As it turned out, the damper I had designed was workable for in-line rather than radial engines. But I made some minor changes and came

up with the proper design. Thus, I became a consulting engineer on damping torsional vibrations and had among my clients such companies as Hamilton Machinery Corporation of Hamilton, Ohio; Worthington Pump & Machinery Corporation in Buffalo, New York; Fairbanks-Morse and American Locomotive. All of these firms, at the time, were producing diesels for mine sweepers and submarines. My pay was \$100 a day and \$2,000 per calculation. In the '40s, that was good money."

We then asked Zora to tell us exactly how he established his first manufacturing firm.

"I calculated that an investment of \$15,000 would enable me to set up a shop producing dies and punches for 30 and 50 mm. ammunition. I also thought it would be an ideal venture for my brother and a cousin, who had been living in the States for some time, and me.

"I approached a buyer for U.S. Rubber, prime contractor at the Des Moines Ordnance Plant," he continued. "I selected the particular parts I thought I could manufacture and offered to produce them for five dollars a piece. I purchased five machines, including a hand-operated screw machine and a turret lathe, and hired five people. I made my bid. U.S. Rubber gave me a trial, and I produced the part and got the contract."

That company was Ardun Mechanical Corporation. Organized in 1942, the business prospered and the staff of five grew to over three hundred people. From bullet dies, the firm switched to aircraft manufacturing in 1943. In 1947, Zora and his brother Yura developed the now-famous Ardun heads, putting them on the market in 1949.

But one point still bothered us. Zora had explained how in 1940 he had had to travel through several countries as a means of getting to the United States. Had he ever obtained a bona fide passport?

Zora broke into a grin. "Somewhere along the line, I had picked up a Chinese passport because I was told it would be easy to get passage to Spain if I had one.

"But, once in the United States, I had trouble establishing my identity. You see, I had destroyed all my papers stating that I was a Russian citizen after I was demobilized from the French Air Force — just in case I was captured.

"So I didn't really have a passport. It was more like an affidavit, issued by me, telling my date of birth, where I was born, and so on. I had a county clerk in New York State stamp it with some seals to make it look official. It looked so good, in fact, that many people mistook it for a diplomatic passport.

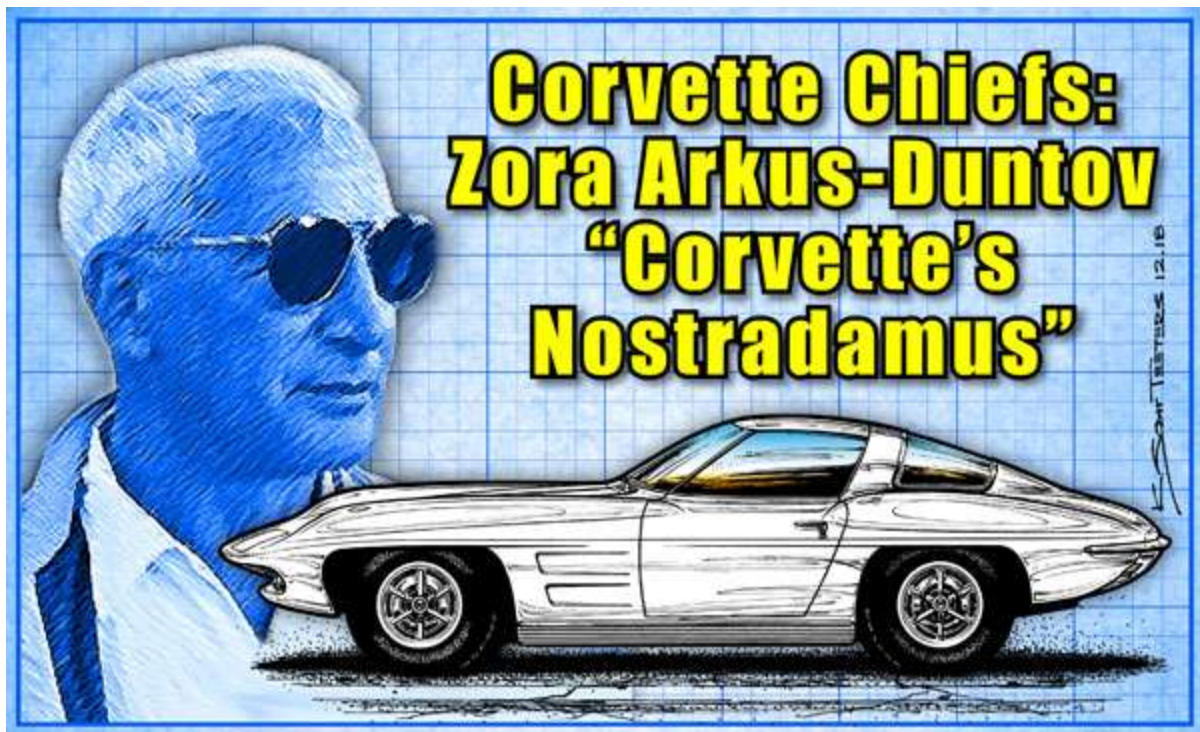
"Once, when I was visiting England, my "passport" expired, and I went to the consulate to get it renewed. I explained that I had to travel to France where things are very official. I was told that, since I had issued it myself, I should renew it myself," Zora laughed. "But, after some more explaining, they finally issued all the necessary papers, including an entry visa should I ever wish to return to England."

Zora's accomplishments in engineering and design and in racing have become part of automotive history. But we felt, after our interview, that we had come to know the man, the versatile, high-spirited innovator who has meant so much to Corvette.

He is, indeed, one of the few people of whom it can be said — He's a legend in his own time.

(Editor's Note: More than 300 of Zora's colleagues gathered the night of January 13, 1975, at the General Motors Technical Center in Warren, Michigan to pay him tribute. He was toasted, and jovially roasted by such notables as GM President, Pete Estes; GM Past-President, Ed Cole; and Bill Mitchell, Vice-President, GM Design Staff, to name just a few. It was a never-to-be-forgotten evening.)





Check out my story about Zora Arkus-Duntov's part as one of the Corvette's Founding Fathers, here... <http://www.corvettereport.com/corvette-chiefs-pt-1-of-5-zora-arkus-duntov-corvettes-nostradamus/>