



**A MAN AND HIS LEGEND:** The little-known story of a past dotted with tractor, locomotive and aircraft design unfolds for you here. A remarkable man and the influence he has had on performance cars everywhere; Chevrolet's "scientist"... **ZORA ARKUS-DUNTOV**

**By Jim McFarland** ■ In 1955, Chevrolet lifted the face of its product line. The Mexican Road Race had freshly dissolved; Lincoln-Mercury factory support was heavy in the performance field of Grand National stockers; and although Chevy had introduced its 265 V8 in late 1954, a performance image of unbelievable impact stood on the threshold of automotive history. In '55, it exploded. The story since that time is fact, regardless of your automotive alliances. Chevrolet Corvettes, Power Pack packages and factory-designed fuel-injection were integral and immediate facets of the new program. And Duntov camshafts. In the then-current drive-in vernacular, "I don't care what you've got in yours; I've got a Duntov in mine." A pleasingly accented, Belgian-born, Europe-educated engineering wizard, Zora Arkus-Duntov, the man who'd designed OHV heads for FoMoCo flatheads fifteen years prior to 1955, had been slipped into the corporate structure of Chevrolet Division of GM... and you probably know the rest. But on the chance you may have missed a point or two along the way, we'll let Zora fill you in. We'll prompt him only a little, just to keep the pump primed.

"How old are you now, Zora?"

"Over fifty."

"When were you born?"

"Over fifty."

"Oh. Well, that sorta removes you from the era of 'Twiggy,' doesn't it?"

"Not in the least. In fact..."

"Maybe we should get into the subject of Duntov and the automobile. Was it an early beginning for you, and was your educational background based on your interest in this field?"

"Fundamentally, yes. I was always interested in everything which moved. Motorized propulsion in any form. Even rail cars (trains). And then somewhere along the line I became interested in the motorcycle. Actually, I figure that I am so interested in internal combustion engines that I would acquire the knowledge anyway. So I study electro-mechanics."

"Where was your formal engineering training and study?"

"In Germany... but I soon learned that my time must be devoted to my interests so I changed the faculty to mechanical engineering. And then, while I was still a student, I acquired some reputation for being a good tuner. This was on motorcycles, even though my first car was a race car. That was a German race car, and I got into it because of very heavy objection from my parents about the motorcycle racing."

"Your career was already beginning, was it not?"

"Yes, and I think perhaps the first really significant point was that in the frame of my studies I had to make some engine designs. As a design study, I selected one normally-aspirated engine and one supercharged engine, planning to employ a manifold pressure of about 2 atmospheres."

"That was a bit high for that date, wasn't it?"

"Well, I was told it couldn't be done. A famous auto maker had been working with about 7 psi ( $\frac{1}{2}$  atmosphere) and every-

one said that's about all an engine can take. So I went on a crusade because I felt this was a non-destructive process, and current practices didn't jibe with my thoughts."

"Did it work?"

"Of course. The engine works with temperature and pressure; it doesn't know the ratio. So this got published, and I did some design for accessory superchargers, and that took like wildfire and made me something more than just a tuner with golden hands."

At this point, he was still a 23-year-old college student. Academic freedom (in Germany) permitted his engagement in related outside activities... in which he participated. He became involved in some positive displacement blower design and continued his studies in this field.

"At least I was being established as something." Then came his occupation as a tractor designer. "It was the tractor designed to replace the horse. And though my contribution was small, this led to my design of diesel locomotive. This was in France, and they began to feel that there may be war. German engines had been used, and I was in charge of a program to establish a new diesel engine."

The program was a success and preceded a new involvement with motorcycles which led to his work as a machine tool designer, all the while being attached to a Todd MG racing team.

"A decision was taken to design a 1.5-litre engine. That I have a picture of. Notice the twin overhead cams, and maybe you recognize carburetors (Strombergs). It was with twin positive displacement superchargers and did pretty well. Notice my hair was black."

He continued development. Race cars were built and driven, he busied himself with consultant work and contracts with companies well established in racing, and a second significant event took place.

"I had been driving Ford. And I notice I can run downhill about 110 miles an hour. I computed the rpm and discovered this is a fast-running engine, and if it only would have proper thermodynamically efficient cylinder head, the engine must have potential. My big-engine race car was redlined at 4900, and this Ford goes 6000 and was not throwing rods. I made mental note that sometime I should do something about this engine." (The Ardun head idea began to take shape.) "I had this 60 cubic inch engine turning 7000 rpm and more often than not breaking up. This was at the 100-hp level, supercharged and on alcohol. But they generally would fail, so I thought that's not the way to make engines if they fail all the time. So I think I should get a larger displacement, less stress and happily go racing."

This was approximately pre-WW II. He then served with the French Air Force. Later, a visa to the United States brought him here as a diesel engine consultant for the analysis of torsional vibrations. "I live like life of Riley. A hundred dollars a day, two or three days a week; I could think more. It was terrific."

*(Continued on page 38)*



*Eat your hearts out, Chevy lovers. This is a first. These are four never-before-photographed big-block exploratory Chevy engines: a 16-plug OHV V8, a bolt-on aluminum headed hemi, and two SOHC hemis on experimental blocks. Wouldn't have believed it, would you? The middle-man (in more ways than one), Zora Arkus-Duntov, sits amid this random smattering of his handiwork. From little Chevys grow... On the opposite page, a young Zora (in 1938) stands beside his twin OHC four-banger (twin positive-displacement blowers and a pair of Stromberg carbs). At left, pic catches helmeted Duntov in prototype '68 'Vette. Ready smile and sunglasses are an integral element of this likeable engineer.*





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Soon, the big Arduin design was picked up in England and the small one in Germany. Later (in Finland), Arduin heads were used for truck applications. "But truck drivers had no tach, and as long as the engines would pull, they would drive it. So they lost engines, and down-time is serious problem with trucks. But time marches on and bigger things come along...like Chevrolet."

"What horsepower did you finally attain with the Arduin heads?"

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"Do you own a set of the heads today?"

"No, I don't have any. Sometimes I think maybe I should have some or some sprint cars, but I don't."

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This was the fall of 1952. He was encouraged to go to Detroit, even though he personally felt Detroit would not be interested. A note to Ed Cole, outlining some of his ideas and a mild interest in employment, "as I recall was met with a reply something like, 'If you're ever in Detroit, we'd like to talk to you.'"

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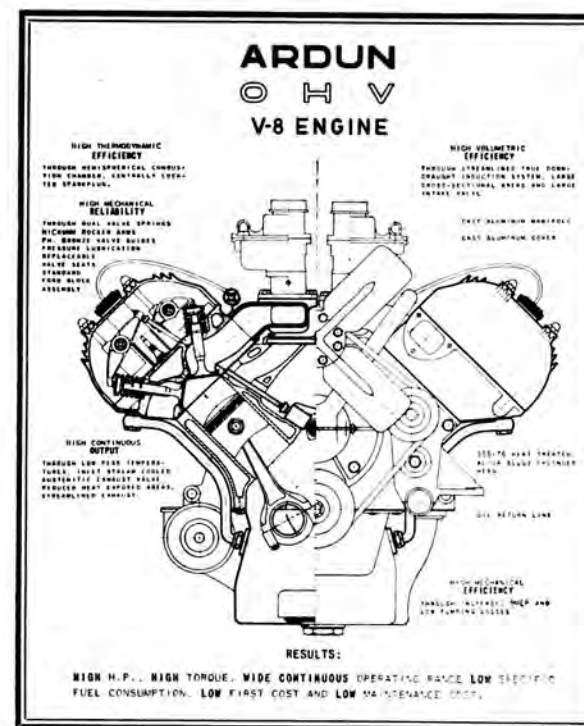
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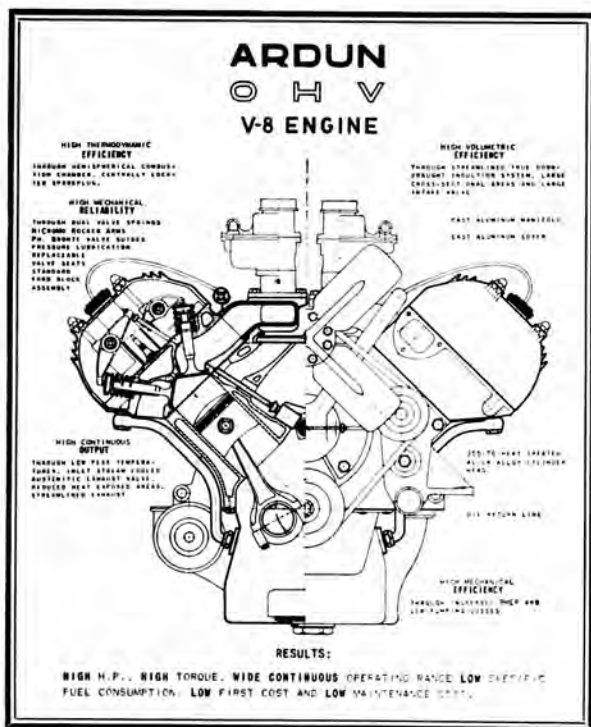
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