THE ROCKET MAN

Cape Canaveral doesn't have a monopoly on rocket activity by any stretch of the imagination—and L. E. Lewis, Jr., '51 ed, aims to keep it that way.

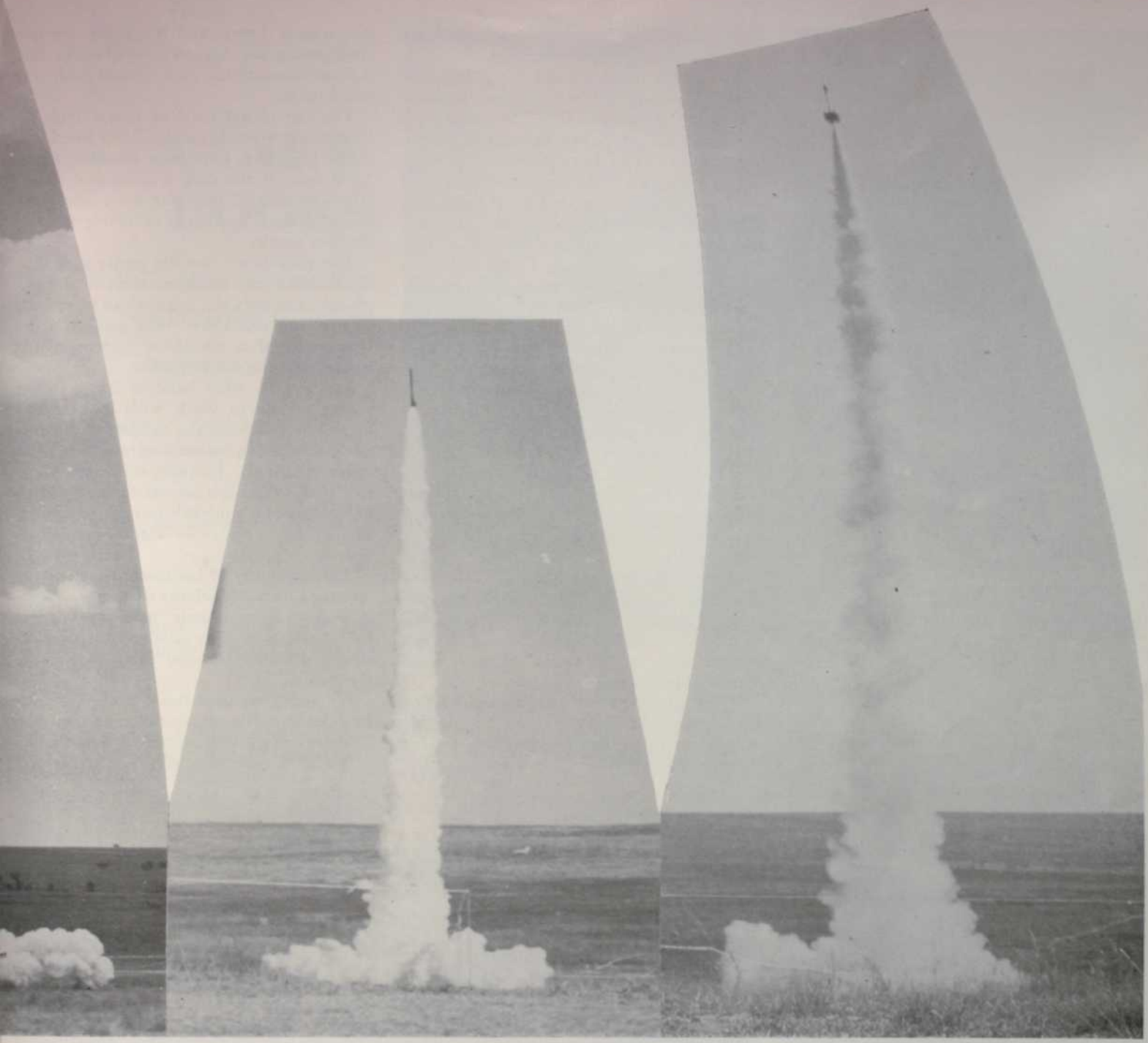
Lewis, an educational TV physics teacher (via Channel 13 from Oklahoma City), is the author of a new book, *Rocket Science for Amateurs,* published in December by O. U.'s Sooner Science Publications. Written as a text for the new O. U. correspondence course in rocketry, the book deals with the laws of design, construction and launching of experimental rockets, fuels, safety precautions and rocket club organization.

The time Lewis has spent last year as sponsor of the citywide Oklahoma City Rocket Research Club has given him plenty of experiences in the rocket experiment area.

He was teaching chemistry and mathematics at Southeast High School when students first came to him with plans to build their own rockets. He was admittedly dubious at first, but he found their enthusiasm contagious and was soon working long hours to get the young scientists ready for an actual test.

Within two weeks of the organization of his first rocket club, 15 rockets were ready to fire, and the idea was snowballing. The newspapers gave the project the glamor treatment and other schools rushed to get in on the excitement.

O. U. was no exception. A short course was hurriedly designed for Lewis during



U. S. Army Photos

the summer—a short course for teachers whose students want to learn how to build rockets. To no one's amazement in those faddist days of '48, highschool students as well as their teachers signed up for the course.

In the midst of all the sensationalism, however, Lewis was faced with the problem of finding a launching area—and the problem of sneaking in some sort of learning process for those to whom rocketry is not just a passing fancy tube.

The Army at Fort Sill provided Lewis with the answer to both. The military was as concerned as Lewis about the dangers in haphazard firings, and was happy to provision his pioneering with site and safety experts. The environment of a missile center plus the opportunity of comparing the rocket's flight to student notes on how the rocket should have acted interested Lewis' students in physics to a degree which no physics teacher ever dared hope for.

Apparently it fascinated the supervisors also. Lewis and two Army captains assigned to the project became so engrossed in the rocket clubs that they contributed a summer of evenings and weekends to training the beginners in firing procedures.

Lewis took a half-dozen of his more enthusiastic charges on a dry run at the Fort Sill range before the Army finally gave them the go-ahead for the actual firings. Seventy high school students and 16 rock-

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Rocketry plays a glamorous role in Lewis' TV physics class. Classen Highschooler Douglas Sokolosky lectures on rocket parts while Lewis brings in physics principles.

ets made the first live trip, and schools from Tulsa to Duncan sent observers.

The Army made certain the group was adequately supplied with radar, medical and safety assistance. One day's firing involves 50 to 60 Army personnel (for a launching of 15 or 16 rockets).

Of the 50 rockets club members have tested to date, only two failed to make the grade, and both were trial models of a junior high school group. A determined fanatic on safety precautions, Lewis is justifiably proud of the club's no-accident record.

The rockets cost about eight dollars each to build. In the case of Lewis' group, having a machinist in the club kept costs down. Lewis' rocket builders must budget for a long, hollow steel tube, usually two and one-half inches in diameter, which contains the fuel; a nose cone; a nozzle; and fins at the base of the tube, which stabilize the rocket's flight. The nozzle—the tail section for the escape of the jet blast—is the most expensive to fashion. The nose cone, unnecessary except for streamlining, is of soft wood.

Fuel for the rockets is zinc and sulphur dust ignited electrically at about 450 degrees Fahrenheit. Four feet of fuel will burn in one-half second, which is just enough time for the rocket to zoom from standstill to 500 miles an hour.

The force that this thrust would exert on life within the rocket would be roughly equivalent to an item experiencing sudden pressure 25 to 60 times its own weight. For this reason, Lewis and his group are not anticipating any dogs in their sputniks, but they are considering experiments with certain insects.

The last rocket fired by Lewis' club set an amateur altitude record, 7,660 feet. Most of the beginners have been reaching about 2,000 feet. If the club is successful in obtaining a special steel for more advanced models, Lewis has hopes of hitting the 15,000-foot mark.

The rockets are literally pretty well shot by the time they complete their earthward plunge, and only the nozzles can be reused. The young rocketeers' next project is development of a parachute system which would save the entire rocket.

Lewis is a firm believer in allowing young people to work with rockets and fuels. He recognizes the dangers, but points out that driving an automobile is actually more hazardous. Properly supervised rocketry is this teacher's answer to the problem of holding the student's interest and eventually turning out more scientists and engineers.

The ingenuity of his students constantly amazes Lewis. He admits that he was skeptical about some of their "new" devices, but he is finding out that now and then a rocketeer's discovery is new even to the professionals.

It's small wonder Buck Rogers' flights into the fantastic are not fantastic anymore. Today even the kids next door—assisted by L. E. Lewis—are shooting for the moon.

Examples of Fort Sill's strict rocket safety measures can be seen in the photograph on the right in which one of Lewis' students mixes rocket fuel by strings attached to the mixing container (on the ground behind the sandbags). Two Southeast Highschool boys complete loading their rocket with fuel in the photo above.