# Woods to be missionary pilot

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By TOUMONAVA MULLINS Battalion Staff This summer while most people playing tennis, camping and ng the tourist spots, Dr. Calvin oods will spend his vacation servas a missionary pilot in the troued nation of Zaire. Woods, 47, is professor of civil

neering at Texas A&M Univer-He said his home base, anga, Zaire, is a shantytown of 00.000 people. Peering over his silver-rimmed

ing glasses, he sketched a map "Kananga is located 450 miles stucco house.

"Kananga is located 450 infres outheast of Kinshasa, the capital, ad is approximately 300 miles orth of the war zone," Woods said. "The house has a water heater, shower, stove—and running water, which most houses don't have," he "In the surrounding river valley rea 50 to 60 miles wide and 200 niles long, are scattered clinics, chools, hospitals and missionaries. Sometimes, one or two couples roads and the only way to get airplane plies or to leave in an emergency

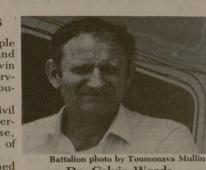
misters, Tuel, food, medical "The minimum requirement is pplies, gasoline, oil—everything ev get," Woods said. "They do eat a lot of mannioc— like tapioca—and I love tapioca!" he added. ionaries on three- to five-year plained

nments, he said. "But this was an emergency," he plained. "The pilot there now is aving for another assignment and s replacement won't arrive until

"I had inquired a year ago about wit-term assignments so they ked me if I would go. I thought it ould be interesting and kind of

Neither Woods' wife, Jeannette, or their sons, Bruce and Douglas, sill accompany him to Zaire. There is no salary for the job,

ith a hearty laugh.



## Dr. Calvin Woods

the Kananga airport in a furnished

shower, stove-and running water, said. "But you have to carry the water to the house by truck and pump it into a tank on the roof to have the running water.'

live in a remote area. There are transporting supplies to the Woods will fly a Cessna 185 six-

place conventional gear aircraft,

His sponsor, the Presbyterian hurch in the U.S., usually sends

And they need someone who can fly in and out of short, rough fields. Some runways are 1,100 feet—just long enough for the aircraft," he said, adding that runways are ap-proximately 5,000 feet at Easterwood Airport in College Station.

"The aircraft not only provides transportation, but also is a vital link in the communications network," Woods said. "The missionaries have their own radio network to conduct business and, to a certain extent, for their protection. With the threat of a possible war, they wouldn't want to be without aircraft."

As a professional engineer, Dr. Woods will also help design and build a hydroelectric plant to supply Woods will live three miles from electricity for a hospital. He said he will also design the foundation and

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structure for a public health center and assist with plans for public water supplies.

What about the language barrier? "French is the spoken language, and normally, this is taught during the training for missionaries who stay three to five years," Woods explained.

"I've had no French, but I bought a verb wheel, French book and dictionary and am studying," he said. "Fortunately, the international language for aviation for flight controllers and pilots is English." Woods said he has been told that

in Kananga the pace is slow. 'And there's a good, friendly relationship between missionaries and those who live there," he said. 'However, the town has quite a bit

of crime They also claim I should lose ave the running water." He said he will also have a van for ransporting supplies to the weight and I'm counting on it," said the tall 200-pounder. "Every three or four months they get food by rail from South Africa. I imagine I'll get some American food supplemented with African food.

"I plan to keep a good diary while there, and maybe write an article when I return," Woods said enthusiastically. "It should be an interesting experience. I will be look-

ing and observing." He leaned back in his chair thoughtfully and crossed his hands over his stomach, his tiny glasses resting on the end of his nose.

'It's a unique opportunity to see an entire operation from top to bottom—a new culture l've never seen before. I'm sure I'll learn a lot and I'll be a member of a team con-tributing," he said earnestly.

Woods said he will also do a series of photographs for recruiting pur-poses for the Presbyterian Church in the U.S.

And what will he take with him? "My maps for flying, compass, some engineering books, tooth-brush, razor and casual clothes," he said

When Zaire became an indewhen Lare became an inde-pendent nation they passed a law that no African would wear a necktie—to indicate they would roll up their sleeves and build their country," he related.

Woods said he will arrive in

# **Engineers** seeking fuel replacement

Gas turbines affect almost everyone's life everyday. They are used by the utility and petrochemical industries to drive pipelines and ships, for powering drilling plat-forms, and almost any job where a lot of power is required from a small package

But the natural gas — to power those turbines is fast becoming scarce and expensive. Engineers

Dr. M. P. Boyce, director of the laboratories, explained that "the present natural gas shortage is forcing many users of gas turbines to switch to liquid distillates. This includes conversions from gas to oil that require up to two years. The present conversion systems also de-crease the overall life of the turbine, which would further hinder industry

"To bridge these problems, we have successfully tested a new fuel that was developed by Allied Chemical," he explained. "The new fuel is a vaporized oil which is mixed with high pressure, high temperature steam and then injected into the fuel

nozzle at high temperatures. After more than 200 hours of testing on a 400 horsepower turbine (designed for highway operation), we found no adverse effects due to the vaporized fuel oil. Tests were also conducted on a large industrial gas turbine combustor to test the effect

on presently used natural gas fuel nozzles. The nozzles showed no wear after 400 hours of testing. Numerous starts were simulated so that thermal fatigue problems also could be studied. No excess wear was noted with the large number of starts on vaporized fuel oil.

"In fact," Boyce continued, "the upshot is that more power could be achieved from the same engine without causing any reduction in its working life. Tests were also conducted on a

special combustor rig to simulate large turbine operation.

"These tests were very successful in that the flame could be well con-trolled and an acceptable perform-ance factor was obtained. The amount of pollution is expected to be even further reduced, which should help meet proposed Environmental Protection Agency standards for the emission of oxides of nitrogen (NO<sub>x</sub>) for gas turbines.

Conversion time could be cut 75 percent or more with cost considerably less. This, coupled with higher output, would reduce fuel consumption for the same power output and boost the economics of turbine power. Dr. Boyce calls the project a suc-

"The results of this program indi-cate that vaporized fuel oil will be an excellent fuel for the gas turbine helping it achieve long life, low emissions, and relatively high ef-ficiencies. It will have also made the transition in the field from natural gas a reality," he concluded.

Kananga during the dry season. "It should be hot like El Paso, but

"It should be hot like El Paso, but more humid like College Station," he said, adding that Kananga lies just below the equator. Woods said he has already had shots for cholera, yellow fever, tetanus and smallpox, and has passed his flight physical. Has be any fears at all?

Has he any fears at all? "None," he said emphatically. "If they can live there, I can.

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# A&M scientists study island's environment Texas A&M University's airborne The Texas A&M study will

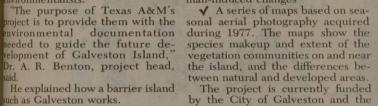
ientists of the Remote Sensing provide enter will spend this year and part next on an environmental study f Galveston Island.

urban expansion on Galveston Is-land from the mid-1800's through Local government officials must the present day and use plan which reconciles con- of construction activities on the icting pressures from developers, dune and marsh ecology, including ommercial fishermen and the nature and apparent extent of vironmentalists.

A. R. Benton, project head,

He explained how a barrier island ich as Galveston works.

"Dunes on the ocean side give a tural protection to the land from torms while on the opposite side of uch an island are marshes that provide a prime fisheries producon habitat," Dr. Benton said.



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The city is currently in an awkvard position. Commercial deelopers are anxious to build on the marsh and dune areas in the south-western half of the island. Strong comes from pposition nvironmentalists and shrimpers who view this prospect as conducive o further degredation of that vironmentally sensitive area.

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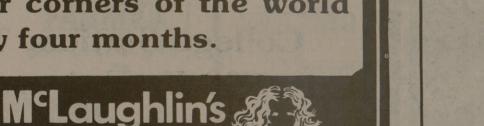
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