

Cadets Make Final Appearance Of Season In Miami Tonight

Aggies In Weakened Condition For Game; WTAW to Carry Play-by-Play

Coach Homer Norton's Texas Aggie gridgers will make their final appearance of the season Friday night when they take on the Miami University footballers in the Orange Bowl Stadium at Miami. The Cadets left College Station Monday, and were to have arrived at the site of the game Wednesday.

This game will be broadcast over the Texas Quality Network and radio station WTAW beginning at 7:00 p. m., the play by play account being made possible by the Humble Oil and Refining Company. Kern Tips and Charlie Jordan will handle the game on the airways.

Miami has gone through a disastrous season thus far, failing to win a game. Their latest defeat was a 48-2 loss to the University of Tulsa.

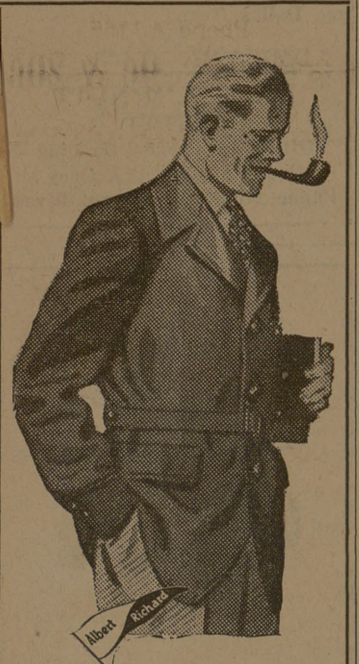
A. & M. will enter the game in the weakest condition they have been in all season. Besides losing several men to the basketball squad, Bobby Goff has been called by the Army, and Paul Yates and Jimmie Parmer are bothered by injuries. Yates suffered an ankle injury in the Texas game while Parmer is bothered by a cut lip.

Despite the fact that Miami has not won a game this year, a near capacity crowd is expected to fill the stadium for this inter-sectional tilt.

The probable starting lineup for the Aggies will be Cotton Howell, left end; Monton Shefts, left tackle; Bullet Gray, left guard; Bob Gary, center; Damon Tassos, right guard; Monte Moncrief, right tackle; Norton Higgins, right end; Jimmy Cashion, quarterback; Gene Spires, left half; Bob Butchofsky, right half; and Stubby Matthews, full-back.

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Superior Speed Developed In New Propellerless Craft

Superior speed and other vitally important advances in performance characteristics have been achieved in exacting tests at Army Air Forces installations by propellerless fighter planes powered by the new type jet engine of revolutionary design developed and produced by General Electric Company.

Basic aerial advances established by G-E Turbo Jet propelled planes include:

1. **Greater Speed:** The G-E Jet propels planes at tremendous speed. Even at this relatively early stage of its development, it is regarded as certain that the turbo jet engine will propel planes faster than any conventional reciprocating gasoline engine.

2. **Maneuverability:** Powered by G-E Jets, fighter planes designed and manufactured in the United States have demonstrated maneuverability to a high degree at super speeds.

3. **Vibration Zero:** Jet propulsion generates negligible vibration in a plane, regardless of the power and speed produced. This eliminates one factor which causes pilot fatigue.

4. **Quick Take-Off:** The G-E Jet does not need to be warmed up. Thirty seconds after it starts operating, the G-E Jet will generate enough power to propel a plane swiftly along a runway.

5. **High Altitude:** The G-E Jet functions powerfully and smoothly at extremely high altitudes. Due to less air drag on the plane, the G-E Jet uses much less fuel at high altitude than it does going at the same speed at low altitude.

6. **Propellerless:** The Jet propelled plane has no propeller. This opens greater speed realms to the jet propelled plane, because the propeller is first affected by compressibility and its resulting very large drag at high speeds. The propellerless planes also can be built so that they will rest lower to the ground than can those with propellers. This makes repair work on a plane easier, and reduces the weight on the landing gear.

7. **Easy Control:** Any competent pilot can fly a jet propelled plane. No new flight problems are presented to the pilot by the G-E Jet. Actually, control of the G-E Jet is easier and more simple than that of the reciprocating motor.

8. **Fewer Gadgets:** Fewer gadgets and control dials are necessary on the instrument panel of a jet propelled plane than on that of a conventional fighter aircraft. Only one throttle does all of the power control work on a jet powered plane.

9. **Weight Relief:** The G-E Jet engine is far lighter than reciprocating gasoline engines of comparative power. This enables the jet propelled plane to carry more fuel, or bomb and ammunition loads than other types of fighter aircraft of the same power.

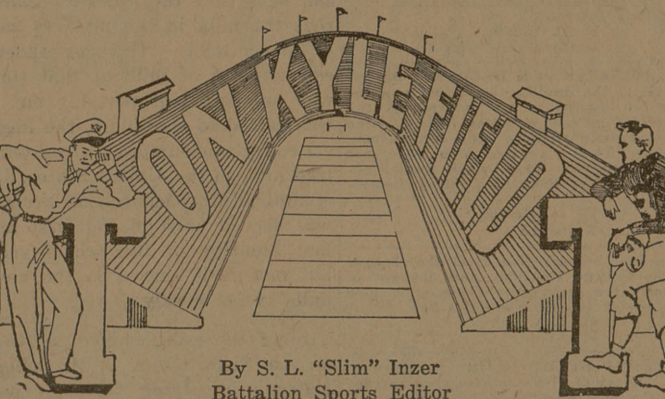
10. **Maintenance:** Simplicity of design and operation make the G-E Jet incredibly easy to keep in maximum operating condition. There are no intricate and complicated elements in the G-E Jet. It is far easier to break down, repair and install again in a plane than any reciprocating aerial motor. For this reason, it is an accepted point that fewer maintenance personnel will be needed.

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BATTALION Sports



By S. L. "Slim" Inzer
Battalion Sports Editor

Anything Happens in Southwest . . .

The 1944 Southwest Conference football race is history now, but it will go down in the books as one of the craziest scrambles in the history of the loop.

Everything that could happen in football happened in the Southwest this year. After the dust had cleared, a team considered as one of the weakest in the conference was the winner while the team considered as the most powerful was tied for the cellar. Coach Dutch Meyer's T. C. U. Frogs, despite the fact they were doped to lose every Saturday, went up until the final game without being defeated, and then lost to thrice beaten S. M. U. The Frogs won three conference games, A. & M., Texas, and Rice, by the combined total of 10 points. They tied Arkansas and lost to the Mustangs, 9-6, thus giving them seven more points than their opponents in conference play. And all of this resulted after seven of the Frog regulars had been transferred by the Navy in mid-season.

Sloppy play in the early part Aggies Due to Win . . .

After a week's rest, I have again decided to try my luck at predicting games. Also, I think I have a pretty good chance to get one right here, for I can't see the Aggies losing to the weak Miami

to service squadrons of G-E Jet planes than now are assigned to similar units flying fighters by reciprocating motors.

11. **Fuel:** Almost any kind of liquid fuel will work in a G-E Jet. In fact, Captain Ezra Kotcher, Fighter Branch, Engineering Division, Material Command, says that anything that burns from "kerosene to Napoleon brandy" can be used. Hiocane gas definitely is not a mandatory fuel for high speed in the jet propelled plane. The jet, however, now consumes more fuel by weight in the propulsion of a plane for a given distance than does the reciprocating motor.

HOW G-E JET FUNCTIONS

The basic principle of jet propulsion is swathed in age. It is the same as one of Isaac Newton's laws of motion—that to every action there is an equal reaction.

The actual operation of the G-E Jet is this simple:

1. Air is picked up by a compressor at the nose of the engine.
2. From the compressor it passes to a chamber, where fuel and air burn, increasing the velocity of the air and gases.
3. The hot air and gases then sweep through a turbine, spinning it at a tremendous tempo. This turbine, in turn, furnishes the power for the compressor. The turbine and the compressor unit are connected by a shaft and they rotate in unison.
4. After swirling through the turbine, the hot air and gases funnel at pressure through a nozzle, or jet, in rear of the engine. The

of the season cost the Aggies the championship. They were far ahead of the field in team statistics, but fumbles cost them their first two conference games.

Texas was minus the powerhouse they have had for the past few years, but they were good enough to finish in the runner-up spot.

Rice started off in fine fashion but flopped miserably in the latter stages of the race. S. M. U. did just the opposite, losing five straight games by top-heavy scores and then finishing in good form.

The Frogs were lucky this year, and I think they will admit it. They have been tabbed the "Cinderella Champions," and this name fits them well.

This year's attendance showed an increase over that of the previous year. This may be partly due to the fact that fans had no idea of what was going to happen when they went to a game. If this was the reason for the increase, then the fans were pleased for everything did happen.

team. Even after the long trip and the excitement of Miami, the Cadets should win this one by as many points as they desire.

So A. & M. over Miami Friday night.

velocity of this air and the gas gives the reactive thrust which drives the plane forward.

5. The gas and hot air pass out of the jet in a steady stream. The thrust power of this stream of hot air and gas actually is controlled by the fuel throttle.

6. When properly regulated, no flame, glow or stream of smoke emerges from the jet nozzle.

7. Noise made by the G-E Jet is a rumbling roar.

8. The G-E Jet is started by electricity from batteries in the plane or an outside source. This electricity starts a small motor mounted in front of the compressor. The motor spins the compressor, which forces air into the combustion chamber, etc. The mixture of air and fuel is ignited, and burned. Expanding gases reach a velocity high enough to turn the turbine faster than the starting motor turns it and so the starting motor automatically cuts off and the turbine continues the job of running the compressor.

Although the exact maximum speed of fighters propelled by G-E Jets cannot now be revealed for military reasons, their dependability and safety achievements under the stress of maximum maneuverability tests at super speeds is of a very high order.

It boils down to: G-E Jet engines continue to produce power in flying aircraft as long as fuel and air are available. Their structure is so simple, and the materials in them durable, that no serious trouble from engine breakdown in operation has yet been experienced.

Experiments probing toward the development of controllable motive power through jet apparatus date well back into history. The principle of jet propulsion was understood by some of the scientists and inventors of much earlier times, but their efforts to put it into operation failed. This was due primarily because they didn't know how to build the turbo jet engine and, even more important, they did not have the necessary alloys to work with. As a matter of fact, efforts to create jet motive power for airplanes isn't even relatively new when the over-all short span of aerial flight is considered.

The successful development of a turbo-thermal jet propulsion engine, capable of withstanding the

Three Aggies Asked To Play for West In East-West Game

Monte Moncrief, Cotton Howell, and Mann Scott have been invited to play for the West in the annual East-West charity football game in San Francisco, Jan. 1.

Moncrief was a unanimous choice for all-Southwest Conference tackle and Howell was listed as an end on many selections.

Scott was listed on some of the conference backfields.

All three of the players are with the Aggie football team in Miami for the last game of the season with the University of Miami. None of the boys

have indicated whether or not they will accept the invitation.

Moncrief is a junior with two seasons of eligibility remaining; Howell and Scott are freshmen with three left. There has been no statement

from Coach Homer Norton regarding the invitation.

extreme heat generated in the turbine and combustion chambers at tremendously cold temperatures at high altitudes, however, is new. In G-E Jets, the compressor has functioned with air as cold as 76 degrees below zero, while in the same engine and very close to it the turbine would be working in a blazing heat.

It was in making this operation possible that General Electric Company has filled the bill and harnessed the old idea of jet propulsion into a smoothly functioning form of tremendous power.

One of the fundamental and far reaching advances in the jet propulsion field, which led into the development of the G-E Turbo Jet, was achieved by Air Commodore Frank Whittle, of the British Royal Air Force, who began a concentrated study of the problem while a cadet at Cranwell, RAF college. He began construction of a jet engine in 1933 and it operated successfully in a test in 1937. It was not until May of 1941, however, that it propelled a plane in the air.

Colonel D. J. Keirn, in command of Power Plant Branch, AAF Technical Service Command, at Wright Field, began study of the new type of aerial motive power generator in England. Colonel Keirn brought one of the Whittle designed engines to the United States on October 4, 1941.

It was at that stage of the operation that the knowledge, ability and experience, of General Electric engineers and scientists were tapped to develop and further advance this new and revolutionary ap-

paratus for motive power generation.

General Electric engineers were called on exclusively in this instance by General Henry H. Arnold, Commanding General of the AAF, primarily because:

1. General Electric engineers had invented, perfected and developed the turbosupercharger, which makes possible stratosphere aerial operations. The turbosupercharger feeds compressed air to the engine cylinders.

2. Many of the basic operational principles of the jet propulsion engine are identical with those of the turbosupercharger, and in taking this step the AAF capitalized immediately on the knowledge and experience of the General Electric scientists and engineers.

3. General Electric engineers and scientists also were at the forefront of turbine design, construction and operation.

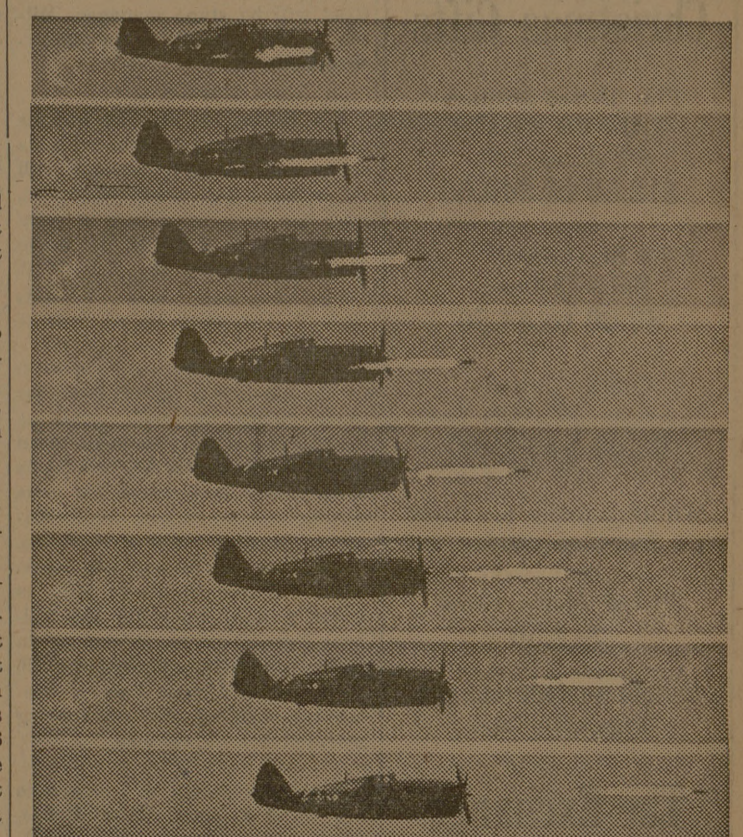
4. Turbines and turbosuper-

chargers developed and produced by General Electric had the alloys necessary for the operation of the jet propulsion engines. This was basic in solving practical problems involved in the jet engine.

5. General Electric engineers and scientists also had studied jet propulsion principles and some of them were conducting experiments along that line when General Arnold requested them to develop the Whittle designed engine, which now is being manufactured in England.

The thick seal of secrecy about the G-E Turbo-Jet development was not lifted even fractionally until January of 1944, when the fact was announced. At this super swift motive power weapon was in the hands of the AAF. The extent of the uses of the G-E Jets by the United States armed forces still cannot be told in detail for military reasons.

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NEW CAMERA "SHOOT'S" FLYING PROJECTILES

WHEN Army ballistics experts needed to photograph speeding rockets, scientists at Bell Telephone Laboratories built the special "ribbon-frame" camera. Their experience came from making high speed cameras to study tiny movements in telephone equipment parts.

The new camera gets its name from the narrow slot that exposes a ribbon of film at a speed of one ten-thousandth of a second. These "stills," taken on ordinary film, show a fast flying P-47 firing its underwing rocket.

This is an example of the many ways Bell System research is helping to provide better weapons, better equipment for war and peacetime telephone service.

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