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# Introduction

Spring Carnival at Carnegie-Mellon is like spring weekend at many campuses. There is, however, one aspect of Carnival that makes CMU unique. This is the Sweepstakes, or, as it is more commonly called, the buggy races.

A buggy usually resembles a superstreamlined soap-box racer. It may well represent an investment of a thousand dollars or more to the organization that built it but, as any buggy builder, pusher, or enthusiast knows, the investment in a buggy is actually far greater than that. Work on a buggy usually starts about two weeks after the previous race. It continues throughout the academic year right up to the race. In those last few hectic weeks before the race, buggy building can become a full time job.

An organization may have the fastest buggy on campus and still not win the race unless the other half of the buggy team, the pushers, do their work also. A good push team will practice at least five nights a week beginning some time in February. By race day a pusher is ready both mentally and physically. He knows his hill and is determined that no one is going to beat him on it.

The buggy course is made up of five push zones, called hills, and one free roll zone. At the sound of a starting gun, the first pusher propels the buggy up hill one. As a rule, the buggy that gets up the hill one first will go into free roll first. If the buggy doesn't go into free roll first, it may have to pass another buggy, a maneuver that is both dangerous and time consuming. For this reason the hill one pusher is often the best man on the push team.

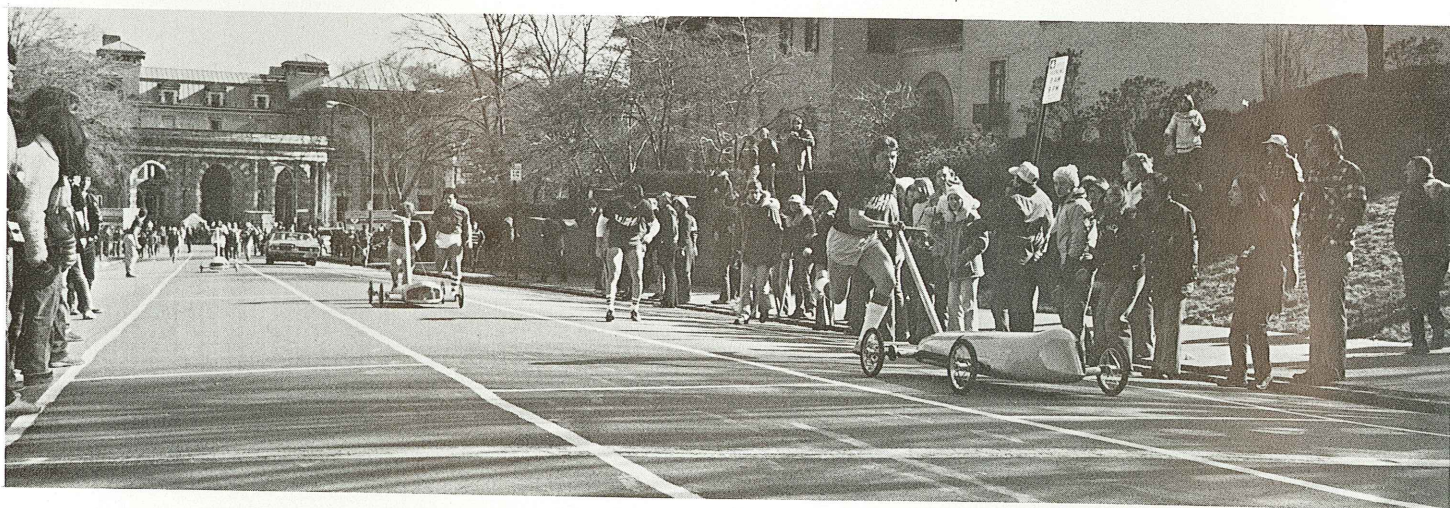
At the top of hill one, the hill two pusher takes over. This man must push the buggy over the top of the hill and give the buggy the final critical shove into free roll. The pusher supplies the initial velocity for the buggy as it goes into free roll, so a lot depends on how strong he is.

The buggy is now in free roll where the race is solely dependent on the skill of the driver. Despite the constant bouncing of the buggy, the driver must guide his buggy down the free roll course and around the hairpin turn at the bottom. If he must pass another buggy, the driver must carefully judge his speed to avoid cutting back in too soon and thus causing an accident.

At the end of the free roll is the bottom of hill three. The pusher on this hill must correctly estimate the speed of the buggy so he can time his pick-up. If he picks up the buggy too soon, he will slow the buggy down, but, if he picks up the buggy too late, he will have lost precious pushing time and the buggy will slow him down.

Hill four and hill five pushers have one thing in common; they must have fantastic endurance. The hill four pusher has a long, steep climb to look forward to. This hill requires a fast man but there is another requirement. To push the two hundred-plus pounds of driver and buggy up the hill, this pusher must be strong. Hill five is the longest hill but it is also the flattest. This hill presents a good chance to pick up vital seconds. If the fastest man wasn't used on hill one, he'll be on hill five.

The race depends on every man on the team and the time from starting gun to finish line is only two and one half minutes. Two and one half minutes that are the culmination of many months work.



Gerd Beckmann — Sweepstakes  
Mike Gibbs — Safety  
Ray Sevigny — Design  
Annette Lampe — Buggy Book



# Design

Ray Seigny

Sweepstakes races are composed of two components, man and machine. Both the human component of pushers and drivers, and the machine component produce a winning organization. Because the quality of the machine is important to the outcome of the race, evaluations of the buggy's excellence occurs in design competition to award buggies that theoretically possess attributes which would successfully contribute to the man-machine relationship of sweepstakes.

Throughout the history of sweepstakes, the development of technology and the importance of buggy design have always been emphasized. The buggies of 1920 were virtually "rolling crates." By the late 1920's the buggies resembled race cars of the time. It was in the early 1930's that Beta Theta Pi introduced a wooden frame buggy covered with airplane silk, placing the emphasis on light buggies, with minimal consideration given to aerodynamics. In 1937, the designs included three-wheeled buggies and drivers in the prone position. After the war, technology began playing a larger role. Pi Kappa Alpha's "torpedo-on-wheels," constructed of fiberglass over a steel frame, set a precedent in buggy design, and Phi Kappa Theta brought out the first unibody construction in 1949.

Today, buggy design is the composition of engineering and human interfaces to create one entity. Design of the complete entity is more than the collection of engineered elements. It is an arrangement and construction of those elements to produce a quality product of concept, functionality, and craftsmanship. The ideal of this entity is to possess qualities of least weight, least wind resistance, and least friction, to attain the ultimate goal of rolling faster. The refinement of these aspects occurs through the learning experience of developing an idea into reality. By means of calculations, experimentations, successes, and failures, it becomes a didactic tool in understanding applications of classroom skills. The results of these refinements have produced the finest buggies in the history of sweepstakes. But design is a continuous process and with the advance of new technologies, the evolution of buggy designs has no limit.



# Safety

Michael J. Gibbs

Safety is one of the most important aspects of racing buggies. Indeed the very future of Sweepstakes depends on the race remaining safe. For this reason a Safety Inspector is elected each year by the Buggy Chairmen.

As Safety Inspector it is my duty to check all buggies and bikes to insure that each complies with stringent safety criteria. Since drivers are in a very vulnerable position, it is extremely important that each buggy have ample crash and rollover protection. In addition ease of maneuverability and vision are also important.

The most critical part of safety is a buggy's brakes. Each semester every buggy and bike must pass a brake test before it can be used. This test requires the vehicle to come to a controlled stop in forty feet while travelling at a speed of 15 miles per hour.

The final dimension to safety is CONSCIENTIOUSNESS. It is the responsibility of each and every buggy chairman to conduct himself and his team in a thoughtful and prudent manner. It is important that buggy chairmen follow this code of behavior and do not take undue or unnecessary risks. Only in this way will Sweepstakes remain safe so that years from now people will have the opportunity to enjoy and compete in the race.





# Alpha Tau Omega

ATO has buggy on the mind. Preparation for this years sweepstakes began immediately after the last. Excitement will reach a peak as we explode from our starting positions on race day. Changes in design as a result of exhaustive research shall eliminate seconds from our time. ATO has been priming itself for the long climb to the top that we once solidly owned.

The traditions of ATO's perennially strong push team will be upheld this year. Led by captains John Bielich and Tom Robich our men have been breaking records every practice fi usually old 45's.

But this year our strength is not just in our push team. ATO is fielding a team of drivers full of heart and

courage. Returning veteran Mary Ann Dwyer will be assisting our newer drivers along while leading us towards the first place trophy.

Research and development will be an important key for 1978 success. Directed by Lou Gatti the research team has been working night and day, analyzing racing problems and giving us the answers that will put us on top.

Guiding our push team, drivers, and the research team is the buggy committee. Organization, the most important factor is tying our effort together. With chairman Mike DeBrosse tying the loose knots together, the pit crew, drivers, and pushers will have ATO's colors flying across the finish line in record time.





# Beta Theta Pi

The adrenalin is flowing in the Beta House. The desire to zero in on a victory is so intense that we will field 3 teams this year. All but one of last years pushers are returning with valuable years of experience. A new crop of speedsters is also being harnessed.

We have the pushers but will our buggies roll? The design time of 2:18.1 posted by Echo speaks for itself. 825 also showed great promise by keeping pace with the legendary Hornet of Sigma Nu until their collision in last years final heat. Fortunately our buggy sustained only minor damage and will race once again. Yes, last years problems were only a minor drawback and have proven to be a valuable learning experience.

Despite any problems that occur along the way, the path to victory is growing shorter. After all, the task of Sisyphus was only a myth!



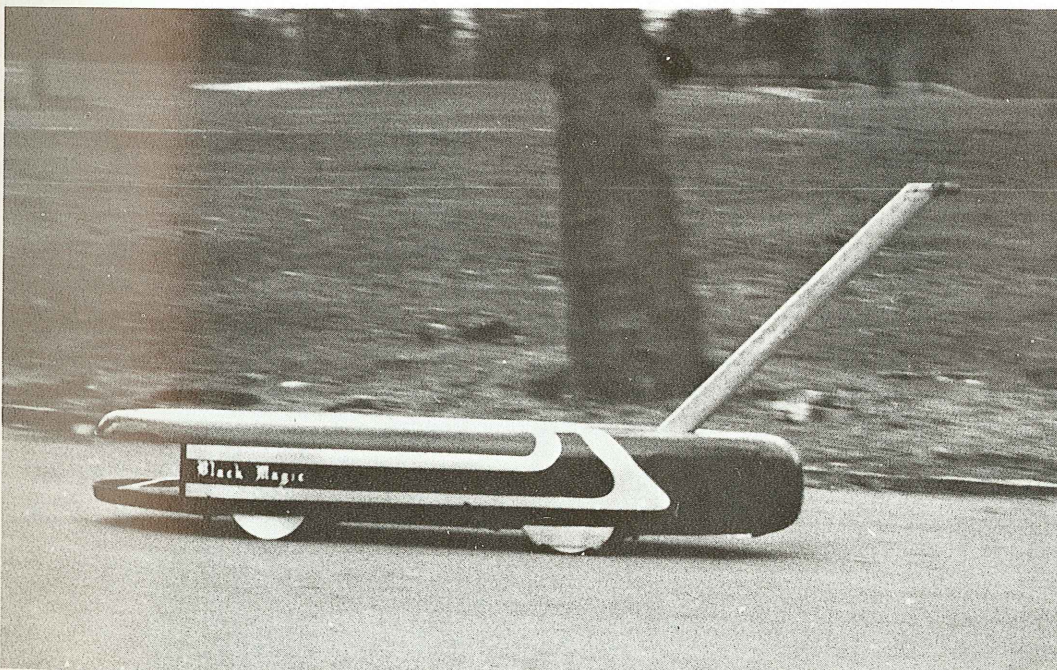


# CIA

In the spring of 1970, a small group of freshmen watched their first buggy races. Inspired by the concept of sweepstakes, they founded the Carnegie-Mellon Involvement Association, an independent campus organization devoted to the designing, building and racing of buggies.

Their design philosophy differed from that of the other entrants. New and different ideas have been tried and tested in an effort to find an optimum buggy design. Design also included efforts to minimize buggy weight in order to reduce pushing effort while still maintaining good freeroll performance. The first test of their design features in 1971, pulled them within 1.5 seconds of the finals, a spectacular performance for a new independent organization.

Again this year, CIA has changed hands. With last year's addition to the CIA buggy fleet the new CIA has high hopes for this year. Working to strengthen last year's weak push team, we are looking forward to an outstanding performance this year. Due to the new buggy's exceptional first year performance we are putting the main emphasis on a fast and exceptional push team. With the many returning veterans and the highly enthusiastic newcomers this year's push team is more powerful than ever. Coupled with the new driver, the young and strong team will be around for many years to come.





# Delta Tau Delta

Springtime and buggy fever. It's like nuts and bolts, steak and potatoes, baseball and hot dogs. Never one without the other. It spreads quickly throughout the Delt house; eventually everyone catches it. The fever is running high this year and it could mean a very strong showing in this year's sweepstakes.

Most of last year's push team are back and this year's freshmen look promising. A steady diet of pushups, hills and push practice will make sure the pushers will be in top shape on race day. An improvement over last year's time (2:30.8) is insured.

The Delta Queen, which took second place in design last year, will receive minor improvements. The Queen will receive another high-quality paint job and its usual fast free-roll will be guaranteed.

We finished last year 2.7 seconds from a trophy. There is no doubt that we will provide a competitive team this year and we can definitely improve last year's time. This year will mark the beginning of a Delt reign of sweepstakes and a continuation of a Delt reign in Design.





# Delta Upsilon

Delta Upsilon enters the 1978 Sweepstakes with the unveiling of its royal court. Two new buggies, the D.U. Duke and the D.U. Duchess are the heart and soul of our effort this year. Designed by Buggy Chairman Bob Peterson and committee, these buggies combine many unique design features including four-wheel independent suspension, four-wheel braking, and four-wheel steering.

The push team, under the direction of Frank Smoot, is the best that Delta Upsilon has had in years. Lightweight driver Bob Peterson and freshman hopefuls Ray Hershey and Ken Grossman are competing for the top drivers spot.

This is the beginning of a new era in Buggy for Delta Upsilon; the pushers, the drivers, and the technology are all of the highest caliber this year.

For something special this year, watch the D.U. Duke, the D.U. Duchess, and the D.U. Phoenix.





# Fringe

FRINGE, a child of the 60's, will demonstrate its maturation into the 70's as the premier independent racing organization. Utilizing what is commonly held to be the 4 essential ingredients to Sweepstakes racing and victory, Fringe will turn in another spectacular performance for the record books.

With a veteran driver, our race-proven "A" buggy, *The Flying Buttress*, and a surprising push team, put together as only an independent can, Fringe will demonstrate that it has finally come of age and can match the times and talents with any of the perennially stiff competition.

Leroy, our "B" buggy has a freshman at the controls, but what she lacks in experience, she more than makes up for in exuberance and a history of "buggy blood" in her family.

Both teams should be impressive and the long hours of dedication, sacrifice, enthusiasm and sleepless nights should pay off for us on Race Day '78 in both teams, technically and physically.

All in all, Sweepstakes '78 promises to be exciting, challenging and better than ever, and Fringe intends to be an integral part of it, with a strong showing for the hotly contested top spots both in design and speed fi to back up our good looks!

Watch for us this year, we may have a surprise or two!

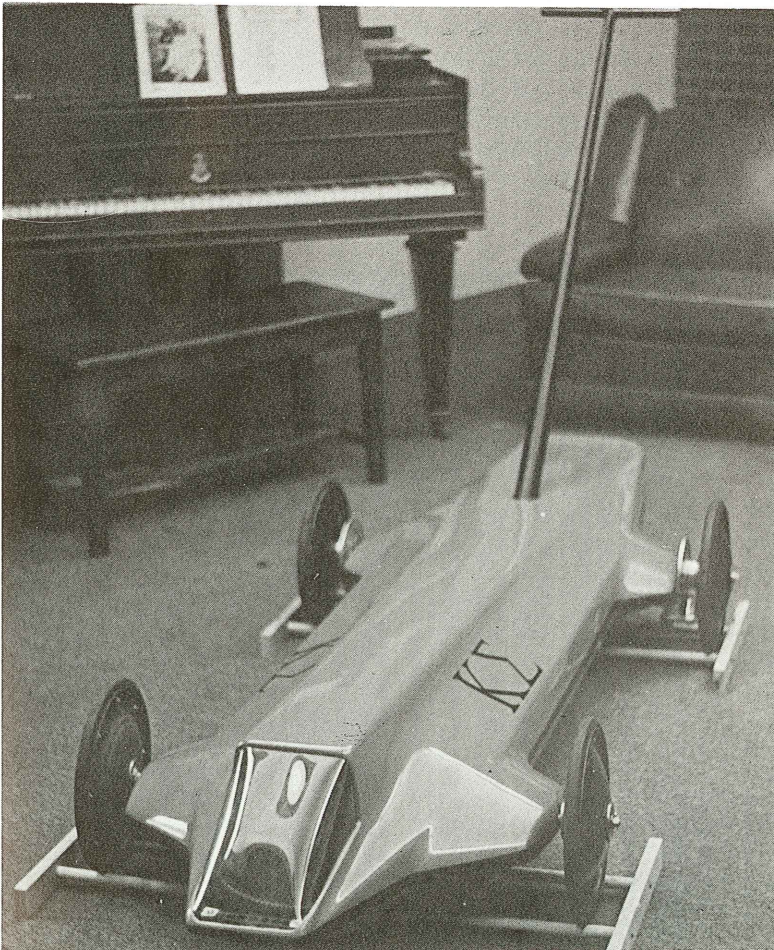




# Kappa Sigma

After last year's unsuccessful attempt of driving our buggy through a tree during the competition, Kappa Sigma's performance obviously has nowhere to go but up. This year, Kappa Sigma will race the rebuilt four-year-old Red Baron along with a new, but as yet unnamed buggy. Built entirely of materials found around the home, the new buggy will not look as good as the Red Baron, but will probably roll faster.

Competition for the driving jobs is fierce this year. A combination of experience and zeal among the many candidates promises to produce an excellent driving team. Also, push team co-captains Paul Chidester and Phil Gacka have instituted a revolutionary new type of training program designed to build an exceptionally strong push team. With these factors and the help of growing enthusiasm, buggy chairmen Jim Maloney and Roy Matway plan to bring Kappa Sigma back into competitive form.





# Phi Kappa Theta

Phi Kappa Theta takes great pride in its lineup of prize winning buggies. Each year we field a team of strong pushers and sophisticated equipment. All of our buggies have won trophies in design and have performed very well in race.

Streak, an 8 year sweepstakes veteran and our most successful buggy, returns to competition this year, along with Shadow. Both buggies feature monocoque fiberglass construction, which provides low weight and a high degree of driver protection. Also they are equipped with four-wheel independent suspension, hydraulic disk brakes, a high strength push bar and wind-cheating Kamm tails. Another buggy which might see action is Snorpus. A six year veteran, Snorpus features equipment similar to Shadow and Streak. Several technical improvements have been added to each buggy in order to make them even stronger contenders.

Our push team this year is headed by captain Ken Gerzsenyi and centers around a core of experienced upperclassmen. Returning veterans Ron Fiedler, Pete Hague and John Lewandowski, along with some promising freshmen and B-team pushers indicate a strong year with fast times.

Our drivers this year are Colin McKechnie, Tim Huggins and Randy Mooney. Buggy Chairmen Dave Moret and Denny Whalen are both enthusiastic about our chances to place very high.



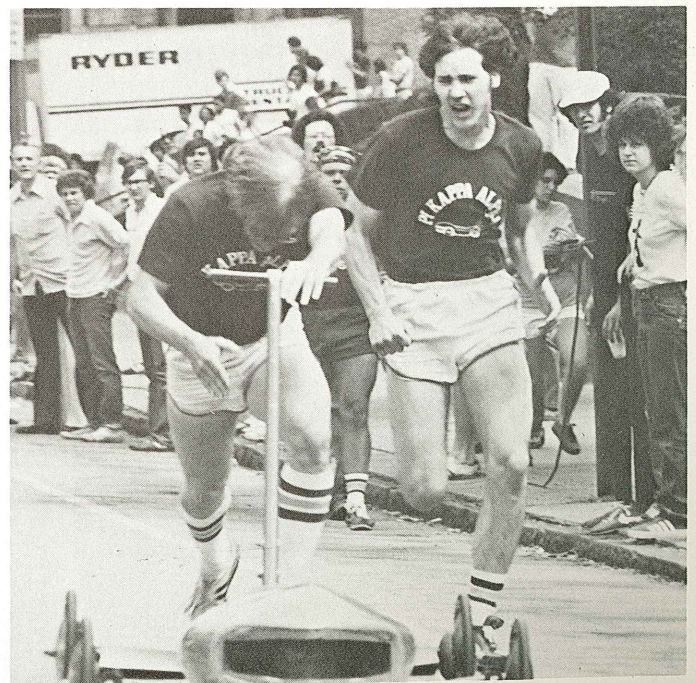
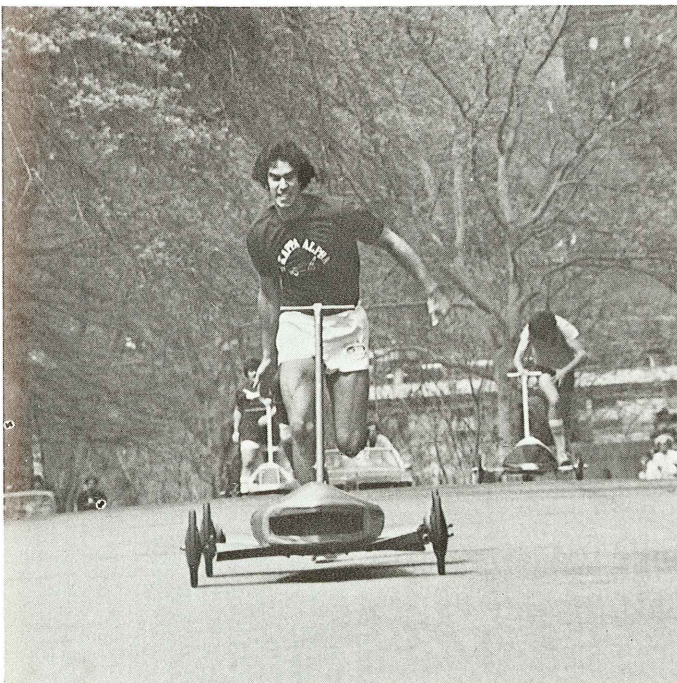


# Pi Kappa Alpha

Pi Kappa Alpha is one of the most competitive organizations on campus especially when it comes to buggy. It's why we have set two course records in the past three years and finished in the top three spots all but five times in the past thirty-two years. Despite the adverse weather that has shortened the amount of practice time, we hope to continue our winning ways once again.

This year's pushers, led by veteran push team captain Tim Bosch, have been running and working out for months. Although most of last year's "A" push team was lost to graduation, we do have eight pushers returning from our "B" and "C" teams, along with some promising freshmen. We are confident that we will not lack for speed on the hills.

Pika will once again be running three buggies: the Pi-Thon, the Tigershark II, and the Tigershark III. We have high hopes for a good showing from all three. Everyone in the house has been doing what he can to enable a win. Look for us on race day.



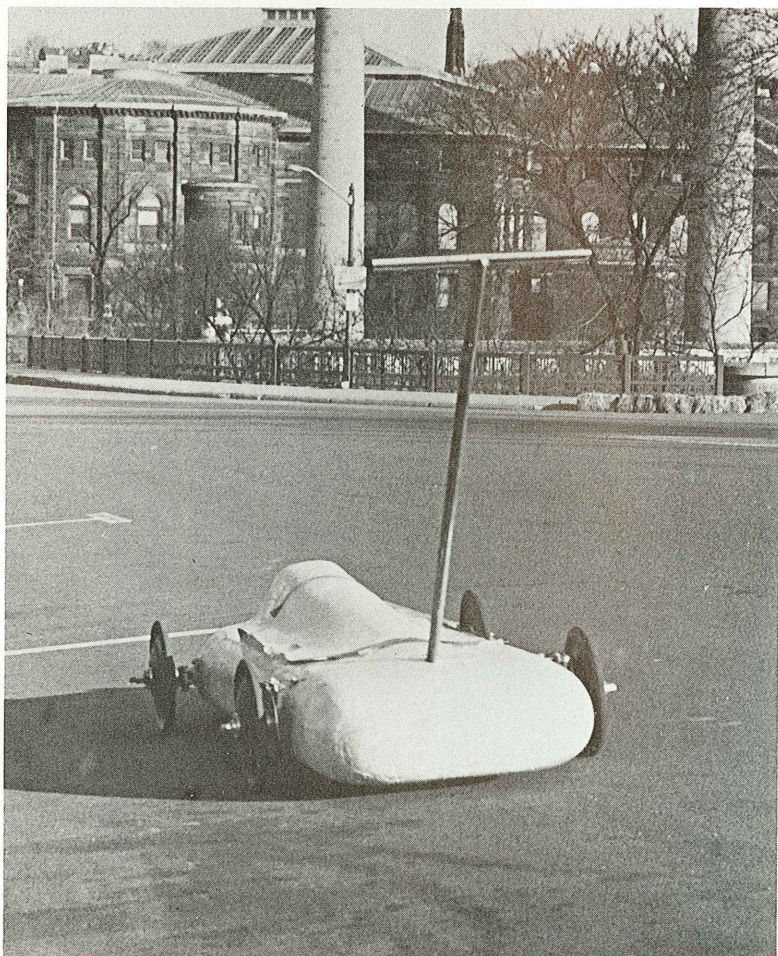


# Pi Lambda Phi

PITTSBURGH, PA. Pi Lambda Phi Buggy Design Committee asserted that the rumors of the resurrection of the legendary *Blue Dolphin* are partially true. A PLPDC spokesman stated that a three-wheeled buggy externally resembling the fastest buggy ever to roll (Beta Sigma Rho's *Blue Dolphin*) is under construction and will hopefully be completed in time to qualify for this year's races. The mechanicals of the new buggy are an order of magnitude improvement over the *Blue Dolphin's*, and are expected to survive 60 m.p.h. runs through the Chute.

Sisyphus-MX will return this year sporting a new paint job and certain modifications pertaining to various aspects of the race, which, due to push-handle failure, were not implemented last season.

Additionally, Pi Lambda Phi will attempt to go on record as the first organization to field an all women's team.





# *Sigma Nu*

Sigma Nu sees itself in a successful sweepstakes position for 1977. Hornet, still acknowledged as the fastest rolling buggy, will again be Sigma Nu's "A" entry. Special attention will be given to the Hornet this year, as it will probably be running its last competitive season. In her 10+ year career, Hornet has always turned in exceptional freeroll times, finishing 6-3-4-1-2-5 in the last six years.

Perhaps more important for 1977 is Sigma Nu's push team. The Zoo will have the best push team in two years. Innovations such as the 1974 "Flying Exchange," will update pusher technology. Expectations are high for a first place finish.

Sigma Nu has always looked on as an underdog or a darkhorse in sweepstake competition. Our freeroll performances are often deceptive, but true buggy participants watch for Sigma Nu to finish fast; perhaps fast enough to take home this year's top trophy.



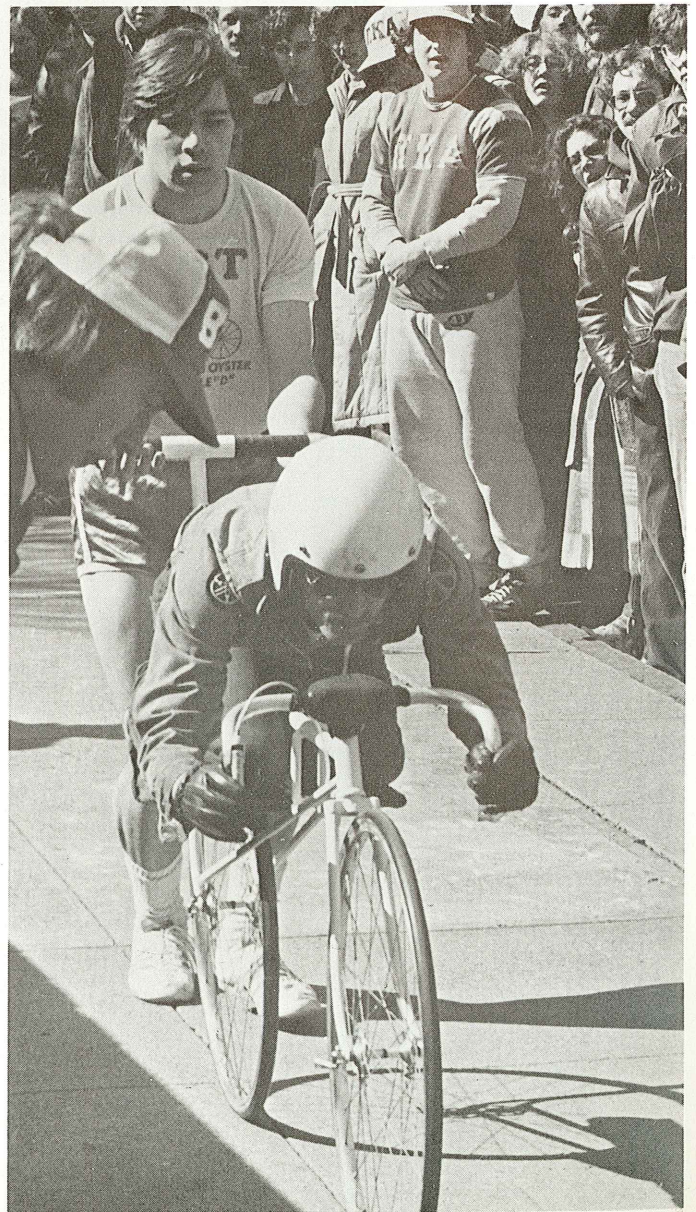
# Zeta Beta Tau

Zeta Beta Tau, in its continuing endeavor to negotiate the brake test, will once again enter an ultra-cheap buggy, completely equipped with such high cost extras as wheels and bearings. The team will feature an immaculate driver with a record, and five competent pushers just out of the slammer.

Our "A" buggy, the A&P Special, is designed for the utmost in speed and safety. It can easily negotiate turns through the aisles, survive the cold of the frozen foods section, and bounce back from a ten mile per hour crash into the meat counter. Our chief designer, George Edsel, has made major modifications to the buggy this year by painting pictures of ferocious cats on the sides.

Our "B" team will be competing with our two-wheeler, the Mountain Oyster ff13 LeD, which has a wrought tubular aluminum frame and weighs a scant 12 pounds this year, down from 12-1/4 pounds last year due to inflation. The driver is positioned beaver style which cuts down air resistance, and provides a better view. The bicycle design should prove once again that our driver can confidently look down on all other buggies of the conventional design.

Under the auspices of chairmen Frank Lefkin and Darryl Lict, ZBT hopes to double its performance of last year with two finishes.





# Sigma Alpha Epsilon

Sigma Alpha Epsilon is back again vying for Sweepstakes honors after last years hard fought fifth place finish.

Vehicles for this year include the 5 year veteran Intrepid, sixth place finisher in 1975 and winner of 2 design trophies. Intrepid features a heli-arc welded, channelled aluminum pan frame with rigid suspension, double pivot steering and a fool-proof brake system which has been demonstrated by numerous panic stops during this years free-rolls.

Joining Intrepid as a mainstay of SAE's buggy effort is the Hustler, a second year buggy which turned in a 2:26.8 performance in its first race. The Hustler features a lightweight aluminum tube ladder frame, and a highly dimpled body for maximum aerodynamic drag along with the tried and true brake system of Intrepid.

The dark horse of SAE's buggy stable is still the enigmatic Limo also known as the New Ken Taxi, which thrilled onlookers with unexpected speed in the chute and terrorized the pushers with its ultra-massive design last year. The Limo combines Lincoln-log construction with battering ram crash protection to achieve virtual indestructability. Whether it will return to duplicate last year's last place finish remains a highly guarded secret.

Personnel for this year include veteran Ed Shirley and freshman Chris Davis behind the wheel, with muscle being supplied by a nucleus of last years push teams in conjunction with a healthy crop of prospective freshman pushers vying with them for top spots on the teams.

Expectations are running high for another hard fought and respectable showing by SAE this year.





# SDC

The Student's Dormitory Council is expecting improved finishes for both its buggies. Refinements in last year's buggy have already shown their success in significantly decreasing our freeroll times. Our unique plastic shell combined with our driver, Leslie Neft, gives SDC one of the lightest buggies in the race. These factors together with our ever strong push team will guarantee a high finish.

Our bike, which always turns in a fine performance, is SDC's other entry in sweepstakes 1977. We expect continued success from it under the guidance of experienced driver Dan Capouellez. Due to the wealth of talent within SDC, our second push team matches many organizations' "A" teams.

Chairman Frank Worbs thanks all of the people in SDC who helped in the many phases of our 1977 sweepstakes entries.

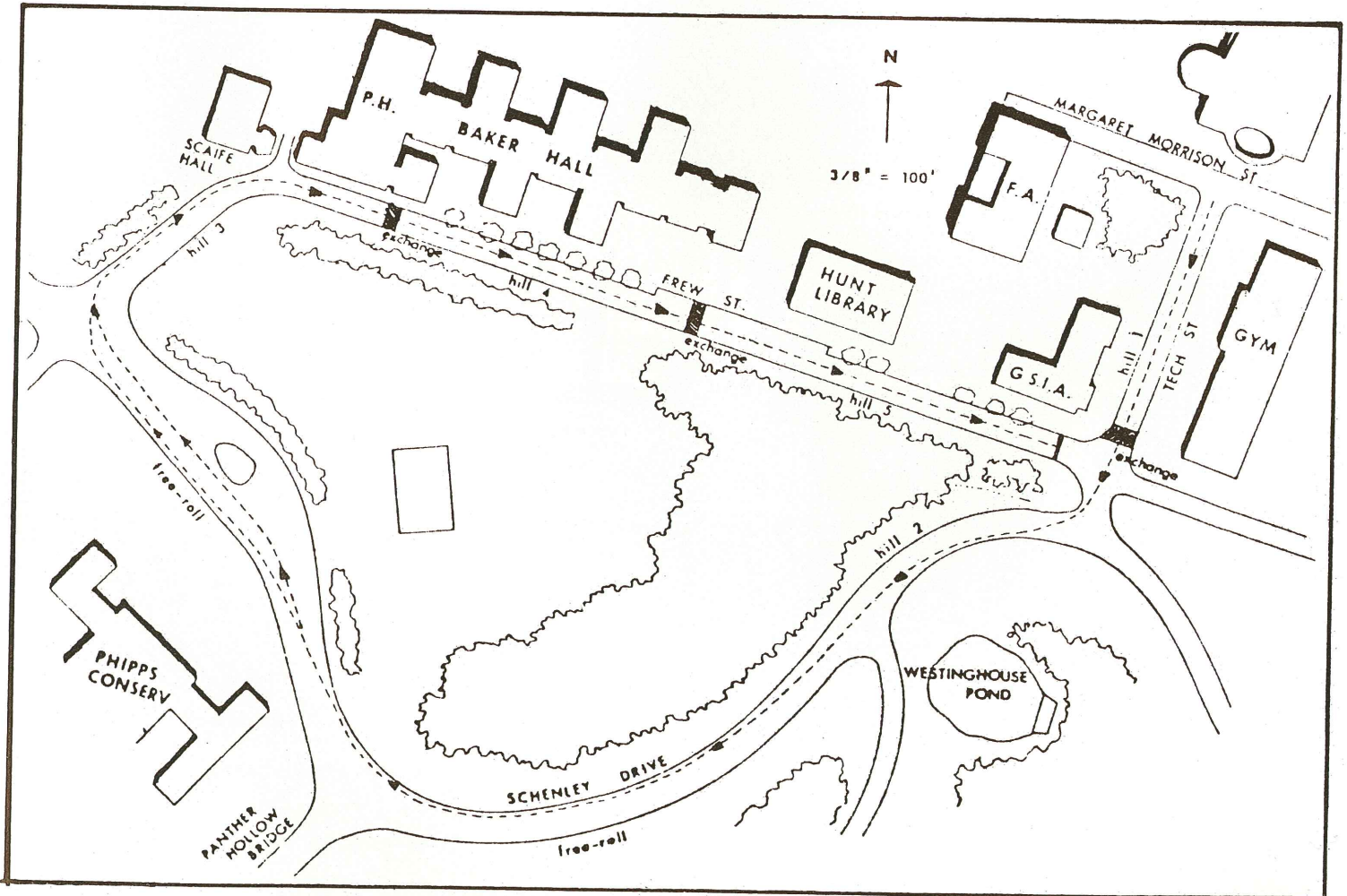


**SWEEPSTAKES PRELIMINARY HEATS — FRIDAY**

Heat	LANE 1		LANE 2		LANE 3	
	Organization	Time	Organization	Time	Organization	Time
1	KS	B _____	ZBT	A _____		
2	ZBT	B _____			DU	B _____
3	BETA	C _____	SAE	B _____	SDC	C _____
4	KS	A _____	DU	C _____	CIA	A _____
5	BETA	B _____	PIKA	C _____	Fringe	B _____
6	ATO	B _____	PKT	A _____	SAE	C _____
7	SN	B _____	SDC	B _____	Fringe	A _____
8	SDC	A _____	DTD	A _____	PIKA	B _____
9	DU	A _____	CIA	B _____	BETA	A _____
10	SN	A _____	SAE	A _____	ATO	A _____
11	PKT	B _____	PIKA	A _____	PILAM	A _____

**SATURDAY FINALS**

	Name	Time	Name	Time	Name	Time
HEAT 1	_____	_____	_____	_____	_____	_____
HEAT 2	_____	_____	_____	_____	_____	_____





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