

Buggy 1965



Officials



Sweepstakes Chairman

Roger Powell

Design Chairman

David Francis

Design Judges

Dr. Guyford Stever
Dr. David Gall
Edward Lowther
and representatives from
Ford Motor Co.

Official Starter

John Trezise

Head Judge

Col. Edward Gallagher

Finish Line Judges and Timers

Eugene Boyer
Dr. John Fox
Dr. Hugh Young

Push Zone Judges

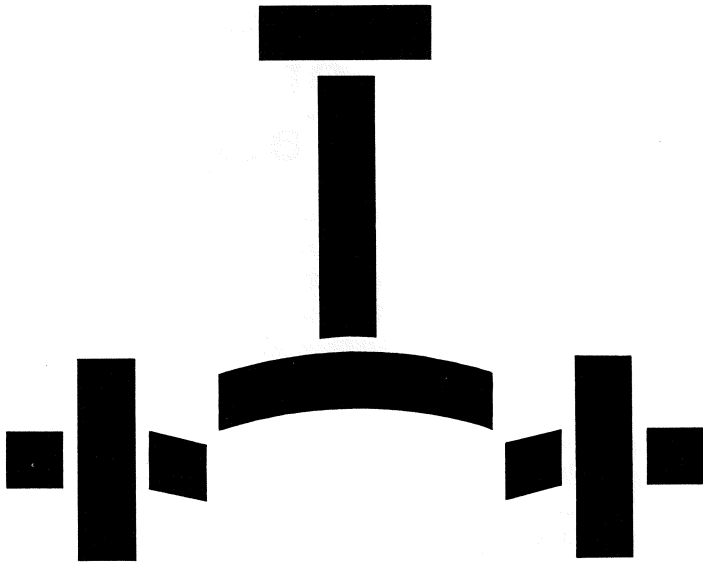
Dr. Wm. Stokey

Spring Carnival Chairman

Richard Elkman

Sweepstakes Program: *The Carnegie Technical*; Dave Leibson; Robert Cooper; Gary Persinger, graphics; Chris Lozos, photography; Jan Wurmb, editing; Dave Altman, advertising; Dave Francis, Chris Macosko and Joseph Valencic, copy.

Introduction



Each spring the Carnegie Institute of Technology in Pittsburgh holds its traditional Spring Carnival — a three day, all-campus weekend with a jazz concert, spring dance, booth building competition, and other usual college activities. The Tech Spring Carnival in one respect is quite distinct from other school's, for Tech heralds the unusual Sweepstakes Pushmobile Competition — better known as the buggy race. Motorless pushmobiles built by campus organizations race on city streets through Pittsburgh's Schenley Park and reach speeds up to 45 miles per hour on parts of the mile long course.

The first phase of the competition is the design judging which is held Friday morning, the first day of Carnival. Months of work checking wheels and brakes, applying seemingly endless coats of wax to the body, and polishing intricate pieces of machinery are evaluated. Automotive designers from Ford, Chevrolet, and Fisher Body help faculty members judge the best design.

Before the judging the workers stay awake for twenty-four hours. Only after the brakes are checked and the designs judged will they chug down some black coffee, shower, and prepare for the preliminary heats which start promptly at 9:30 a.m. About twenty teams of fraternity and dormitory men compete in the Sweepstakes Pushmobile Competition. The buggies represent over a thousand dollars in direct material costs and untold thousands in skilled engineering time. The buggies are designed and built by students from Carnegie Tech's many engineering and science departments. Mechanical and metallurgical engineers, architects and industrial designers all combine their talents to create the ultra-sophisticated buggies.

The buggies must be less than 15 feet long and five feet wide and have no means of self-propulsion. They are shoved from the starting line by two consecutive pushers to the crest of the half-mile hill. The race is won or lost on the free-roll hill and every buggy builder has his own theories about how to roll faster. After the free roll through the park another set of three pushers run the buggy uphill for three blocks to the finish line. No two may push simultaneously.

Grand Prix of Tech



Background

The races themselves have a 50 year history which started with the first Spring Carnival in 1913. Since then, the buggy races have become a tradition at Carnegie Tech. Through the years the contest gained more popularity and respect. It became known as "The Derby," and finally as the familiar "Sweepstakes."

In contrast to the present day single seated version, the old buggies provided a double seat, one for a driver, the other for a mechanic who was needed at the pit stop. Fraternities were required to insert fresh pushing teams at the beginning of the home stretch to assure a "breakneck finish." Among the early rules were a sixty pound minimum weight requirement and four wheels. Also, all buggies entered for design judging were required to compete in the sweepstakes. The number of pushers was changed from one to four in 1925, as the course was changed to one resembling the present stretch. The old course started at Margaret Morrison College, ran up Tech Street, down toward Westinghouse Pond and Panther Hollow Bridge, and up Flagstaff Hill. The finish line was near the present location of Scaife Hall.

Early winning times averaged 4½ minutes, an amazing feat for the boxy models of the twenties. By 1930 Beta Theta Pi had reduced the record to under three minutes, a far cry from the Iota Sigma Delta record of 4:38 in 1921.

With the advent of World War II and aluminum hoarding, the race and Spring Carnival were discontinued. After the war, however, the Spring Carnival began again. The Delta Tau Delta's won race after race until 1954. It was in this year Alpha Tau Omega won with a buggy called the "Green Flash." In 1956 the ATO's first entered their perennial winner, the "Goose," which won with a time of 2:26. The dynasty set up by the "Goose" fell in 1963. It was making what seemed record time when on the turn at the bottom of the free coast, it spun out and stopped. The "Goose" was going well over 40 miles per hour and simply could not make the turn.

From a designer's point of view

. . . a new buggy requires months, even years, of experimentation and rebuilding before it may be put to the course test.

Speed is what every designer keeps in mind from the time



ideas, then apply and perfect them, then execute them using the best possible workmanship, and finally to impress the ideas upon the judges.

The designer must be alert to all aspects of the race such as weather, driver moods, pusher attitudes. All conditions affect the design and the designer must be the engineer, artist, and mechanic. He must blend precision mechanics with streamline beauty and finally co-ordinate the team effort.

The pushers are

. . . a vital part of every race. Seconds are split and trophies won or lost in a close race as the fifth pusher sprints past the Graduate School of Industrial Administration.

Each of the five push zones presents different problems, but each pusher encounters the challenge of running at top speed while pushing with one hand to keep his two hundred fifty pound load in a straight course.

A good 100 yard dash man is not automatically a buggy pusher. It takes co-ordination, strength, and much practice to win. Fraternity men often begin training in March for the May event. Time trials, hill running, distance work, starts and exchanges are all part of the nightly practices.

The first hill is a grueling test. At the crack of the starting gun the first man must overcome all the inertia of the buggy's dead weight and then kick up the steep Tech Street hill. All the time he must keep within his lane until he meets the second pusher. Their exchange is a well timed maneuver. The first man yells, "Now!" and gives a powerful final thrust, and drops back. The fresh runner takes over and sprints the buggy over the top of the hill for the free-roll down Schenley Drive. A key decision on his part determines when he releases his contact with the buggy and sets it into free-roll. Often an ambitious pusher will not release soon enough and actually slow the buggy as it starts down the hill.

The strategists put their strongest men in pushing zones 1 and 2 hoping to capture a lead before the free-roll. The advantage is that the buggy has a free field and can avoid dangerous interference from other buggies on the hill. At the bottom of Frew Street the third man picks up the machine. He must estimate the buggy's speed as it rolls up the hill and decide when to start pushing. He must find the precise moment when the buggy is coasting at his running speed. The length of the third man's zone depends on how fast and far the machine coasts.

At Porter Hall the fourth pusher takes over and kicks up a long steep run. His special problem is avoiding the numerous potholes in his part of Frew Street.

When he begins the final drive opposite Administration Hall, the fifth man has over 200 yards of straightaway ahead



of him and often a rival runner breathing down his neck. He and the other sprinters now must push their machines completely past the finish line and the timers. A seemingly super-human drive on the part of the pushers often climaxes the excitement of the race. Surprise mishaps or sprints can decide the final outcome. Several years ago, one runner tripped and fell 20 feet from the tape. Not wanting to be disqualified, he clung to the push bar letting the buggy's momentum drag him across the line.

The ultimate victory or defeat

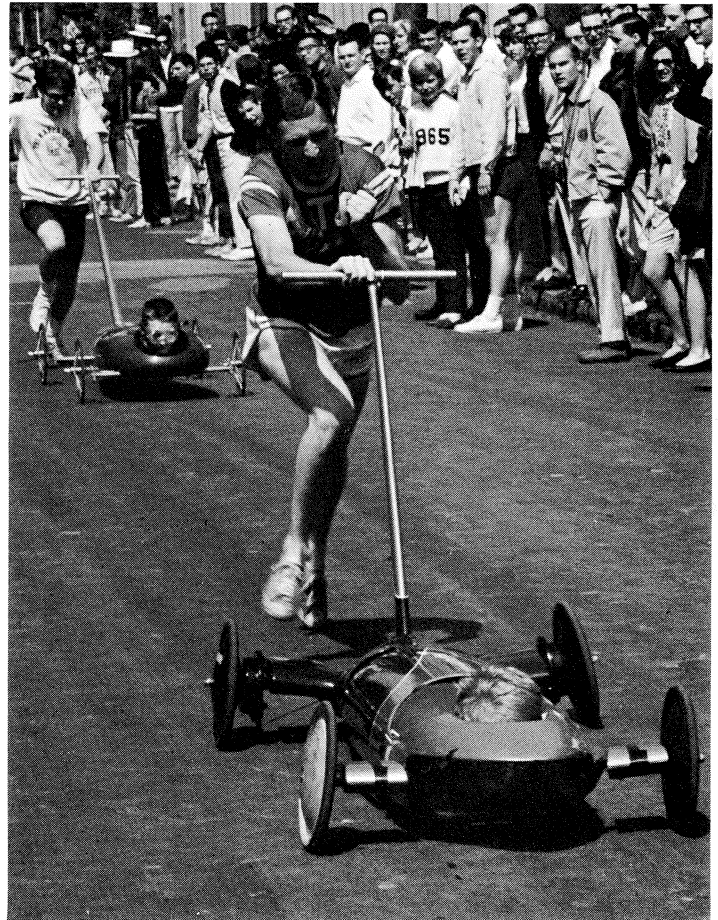
. . . is determined by the driver, the man inside the shell. The small, wiry, jockey-like men of this strange breed permit themselves to be strapped into the fiberglas coffins and bounce down the course during pitch black 3 a.m. practices. The chances they take are just as great as those at Indianapolis or Sebring. For example, in 1962 one fraternity's designer did not pad the cockpit of the buggy. The incessant pounding and heat caused the driver to black-out and the buggy careened into a curve.

Every buggy has its idiosyncracies but all the drivers face similar problems. These fearless, little men must bounce along while cramped on their stomachs or backs while trying to follow the lanes. Claustrophobia is a common sweepstakes disease with these "no-waste-space" vehicles. Most steering and brake mechanisms have tight clearances and necessitate the driver's awkward positions. Lying prone also makes the centrifugal force seem greater on the turns and the driver must learn to adjust to it.

Since air ducts cause drag, the designers again sacrifice the driver's comfort for speed. With the lack of fresh air, the heat of a warm May day can mount quickly in the buggy. Sweat running into the driver's eyes makes steering difficult.

All vision is blocked in the rear so the drivers following the leader have the responsibility of avoiding collisions. Enclosed machines have limited fields of vision, especially if they ride low to the ground. Several drivers must count trees to make turns since they may not be sure that they will be able to see the turn.

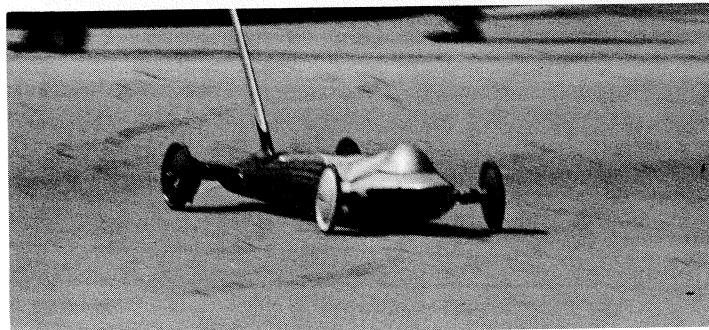
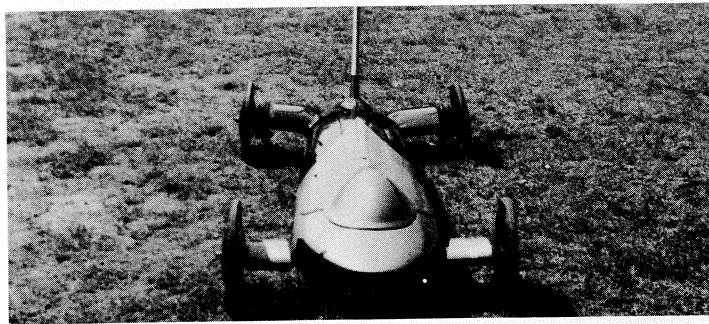
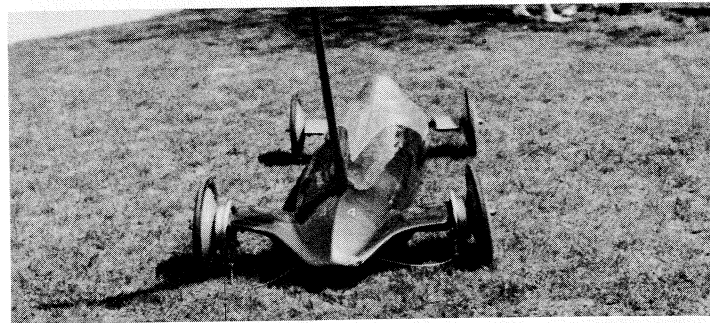
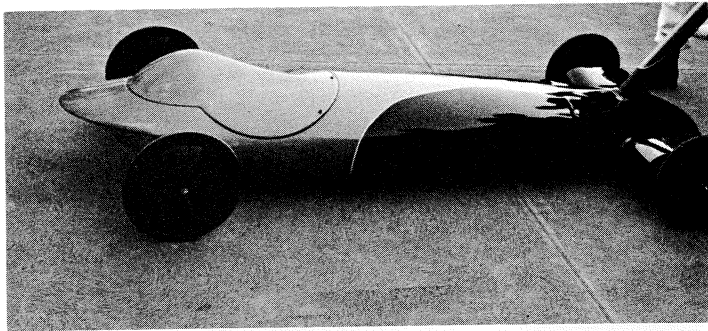
Perhaps the most famous example of a miscalculated turn occurred in 1963 when Alpha Tau Omega's "Golden Goose" was going faster than anticipated. The driver turned at his regular count after passing a specific tree, however, the buggy was already past the turn and the "Goose" spun through 540 degrees shearing rubber from the wheels.



Alpha Tau Omega

"Golden Goose" — four derby wheels, green and gold (course record 1956, 2:26)

"Andy 1" — four derby wheels, plywood, open top, red



Alpha Tau Omega is well recognized in the field of coasting racers. From 1954 to 1962 they were unprecedented champions of Carnegie Tech's sweepstakes races. The streak was started in 1954 with a then record time of two minutes twenty-eight seconds, set by buggy "Andy 1." The next year saw the record broken by the same buggy with a time of 2:26.0, a record which still stands to this day. In the same year a newcomer to the field, ATO's "Golden Goose," took second and in 1956 went on to tie the existing record. "The Goose" went on in succeeding years to become a consistent winner.

In the spring of 1963 rumors flew about the campus that ATO was ready to break their own record. "The Goose," well out in front in its heat, was clocked at more than 40 miles per hour going into the turn by Scaife Hall. It never pulled out to make the turn. The driver was forced to turn too sharply and "The Goose" went into a more than 360 degree spin. It crashed into the curb. Last year she again failed to negotiate the same turn. This year, under the direction of chairman Steve Palko, the ATO's hope to change their luck.

"The Goose" will be in the running again this year. Made of fiberglass and green with a unibody construction, "The Goose" incorporates many unique features. The sole front suspension consists of a tennis ball which rides beneath the buggy and is covered by a large brass plate. Rear suspension is pure natural rubber. Braking is effected via drum brakes mounted on the rear wheels. The push bar, one of many features added by former buggy chairman Ron Pellman, is revamped airplane strut. Ron was also responsible for the current braking suspension systems. The buggy rides on soap box derby tires and has solid stock, bar axles.

The body is teardrop and shows excellent laminar flow, especially at the rear section. The driver steers and brakes by control rods placed at his sides as he lies on his chest while driving. He sees through a plexiglass windshield located just below the nose, giving ample vision of the entire road. Entry is through a removable canopy at the front.

ATO's second buggy this year will be the course record holder "Andy 1" which had until now been retired from service. This conservatively designed buggy with direct steering runs on a solid axle.

In charge of the push teams is Paul Magnuson who hopes to train veteran pushers Tom Kline, Gerry Unger, Lou Stevens, Denny Kelly, Randy French, Fran Hogle, and Mickey Graziano. Promising applicants for position of driver have been competing for the two coveted spots.

Beta Theta Pi

"00" — four derby wheels, dark green (1st '64, 2:31.5)

"000" — four derby wheels, papier-mache, Sunday comics (3rd '64, 2:37.7)

Beta Theta Pi machines are the "Cinderellas" of modern sweepstakes racing. In 1956 their entry finished dead last. In 1962 "00" (double zero) won the design trophy but barely qualified in the top half of the race time. Yet, last spring "00" won the sweepstakes and the brand new buggy "000" took third place.

"Double Zero" was built as a three wheeler in 1959 by Dale Dietrick. Roger Powell, this year's sweepstakes chairman, was caught up with the excitement and competition of the race his freshman year and vowed to put "00" in the running. By working with the bearings and weight distribution, Powell got the time down to 2:37 — good enough for a third place in 1963. Last year an imaginative mechanical engineering major Joe Van Ryzin took over the machine. He converted it to a more conventional four wheeler and improved the aerodynamics of the shell enough to win the race.

"Double Zero" will race this year with much the same features that won last year. The chassis is a flat honeycombed aluminum plate. The molded fiberglass shell clamps together in two halves entirely covering the chassis and driver. The running gear and the chassis are independent of the shell. Four modified soap box derby wheels with special bearings are used. The brake system and much of the steering assembly are new

this year. The driver lies on his stomach and controls with handles at his sides. "00" will probably race in dark green.

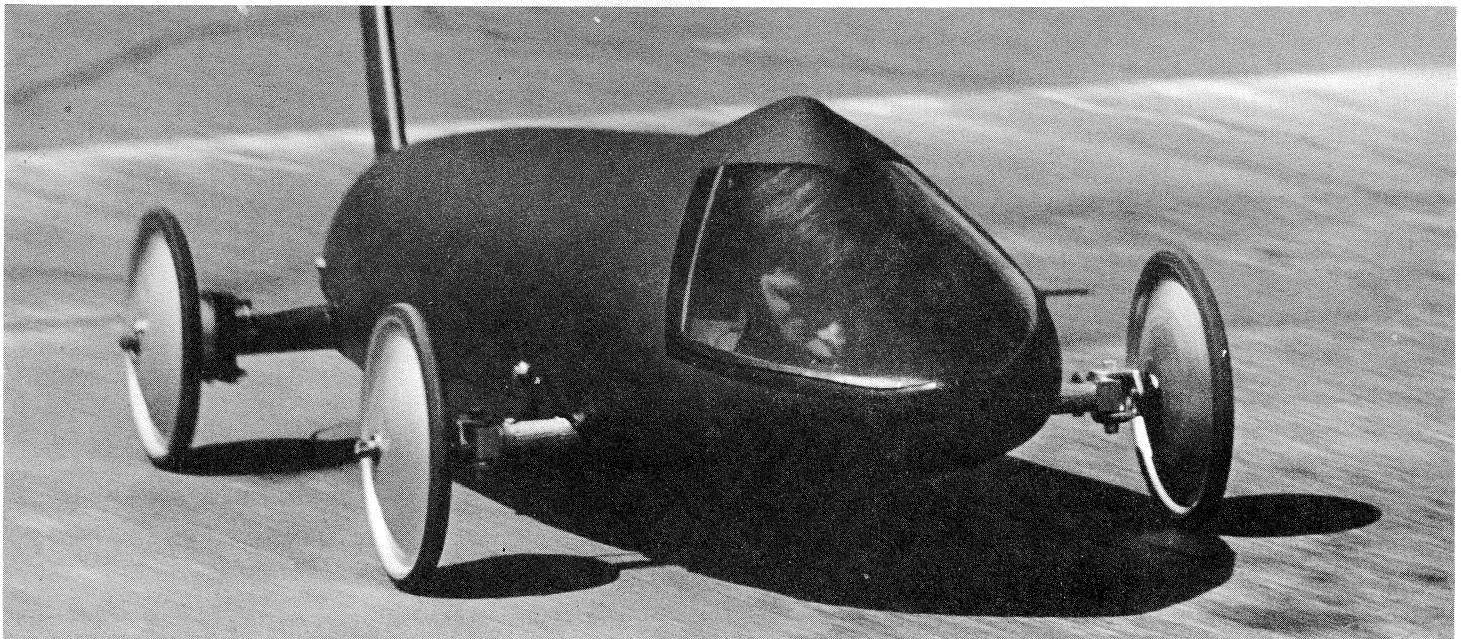
Last year Powell designed a brand new machine around a welded steel tubular space frame. It sported a sheet aluminum skin and due to its long nose was promptly dubbed the "Anteater." Much design has to be ironed out in any new buggy. Despite these problems, the "Anteater" took third with a time of 2:37.7.

This year Van Ryzin and his buggy mechanics have scrapped the "000" aluminum shell for a daring new material — papier-mache. "Triple Zero" will line up on race day sporting the Sunday comics over a chicken wire base. Like "00" she runs on modified derby wheels and is driven from a prone position.

Veteran driver Gus Savukus will take "00" around the Frew Street chuck holes for the last time. The 130 pound Savukus with first and third place trophies in his career will be a hard man to cut off on the inside curve. Dave Francis will relinquish his spot in "000" to a younger man this year. Several wiry pledges are trying out for the spot.

The pushing team will be as strong as last year with Dale Johnson, Sam Cupps, Ed Dawson, Bob Holan and Ron Defeo.

The Betas' are going to push and drive hard to keep their excellent standing among the buggy racing set.



Beta Sigma Rho

"69" — three bicycle wheels, dolphin shaped, blue and gold

Beta Sigma Rho's "The Dolphin" number 69 is the only front steering three wheel buggy in the race. It rides on 12 inch bicycle wheels and is easily recognized by its single enclosed front wheel and dolphin shape. The sleek blue and gold buggy will be driven by Bob Serabin, five feet six inches tall and 140 pounds.

"The Dolphin" was built last year to replace an older three wheel buggy, "Wheelchair." The older buggy ran on two large bicycle wheels and one smaller wheel. Running remarkably well in the first year, "The Dolphin" turned in a time of 2:39.9. However, it was nearly disqualified when Steve Zimmerman, the second hill pusher in a fit of excitement, ran out to pace Butch Davis, the fifth hill pusher. The grave mistake was partially due to the fact that "Zim" was still recovering from a head injury incurred only two days before when he had inadvertently been run over by a motor scooter.

"The Dolphin" itself has never been in an accident. Nevertheless, its safety is proved beyond a doubt. Last year, novice driver Ken Philips accidentally plowed into a tree at 25 miles per hour. Even without a fiberglass shell to cushion the shock, he was adequately protected by roll bars and shoulder straps. Ken walked away somewhat shaken but unhurt.

Remarkable as its performance was last year, "The Dolphin" has been greatly improved for this year's race. The push bar is streamlined and the center of gravity lowered. In the frame many aluminum pieces have been replaced with improved steel counterparts.

The unique three wheel configuration presents some special design features. To reduce wind drag, the driver's face must be placed directly behind the front wheel. He looks through the front wheel which is only one inch from his nose. This is similar to looking through your hand if you place it only several inches from your face and focus your eyes on something several yards away.

"The Dolphin" was designed by co-chairmen Bob Gammons and Steve Rosenblatt. It was built by Jerry Berger, Bernie Lubell and many of the active Beta Sigma Rho members.

Dauntless Zimmerman will be back pushing, assisted by several newcomers and trackman Bill Borland.

Delta Tau Delta

"8" — four wheels, driver seated, bubble canopy, white with blue stripes

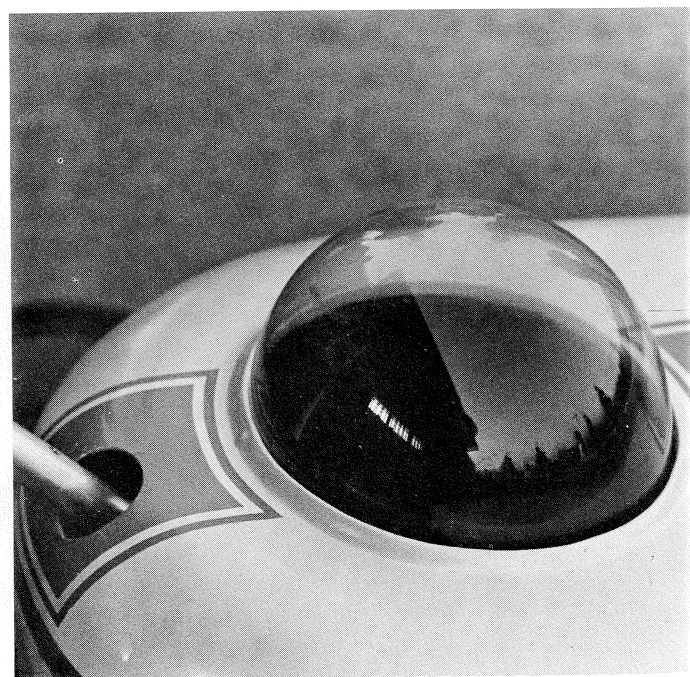
The construction of the Delta Tau Delta buggy began in 1962. It was completed in time to run its first race in 1963. The preliminary designs were done by Henry Rianhard, Dan Elmore and Dave Royer.

The frame is constructed of aluminum tubing and has a kingpin type front wheel suspension. This assures independent suspension for each front wheel. The rear axle, also with adjustable suspension, is quite solid. The two piece fiberglass body is white with blue over-spray. Blue stripes run along the top with the number 8.

The driver position is uniquely functional. He sits in a semi-reclining position while a bubble located in the rear portion of the top allows unrestricted field of vision. The steering column extends from the front axle between his legs. The brake handle is located beside the steering wheel.

The braking system is hydraulic with two main cylinders inside the body and an actuated cylinder outside. Two pairs of discs on the rear axle generate a retarding force. The Delta Taus have also ingeniously designed self-centering wheels.

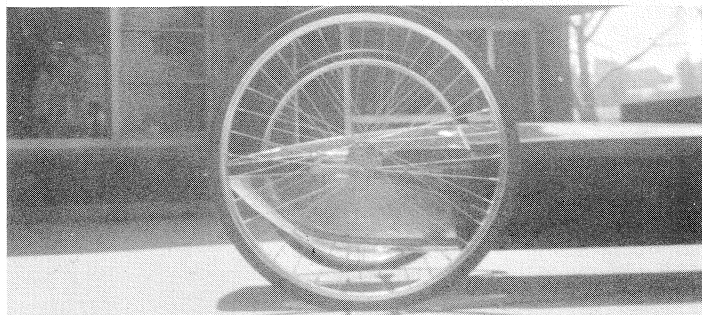
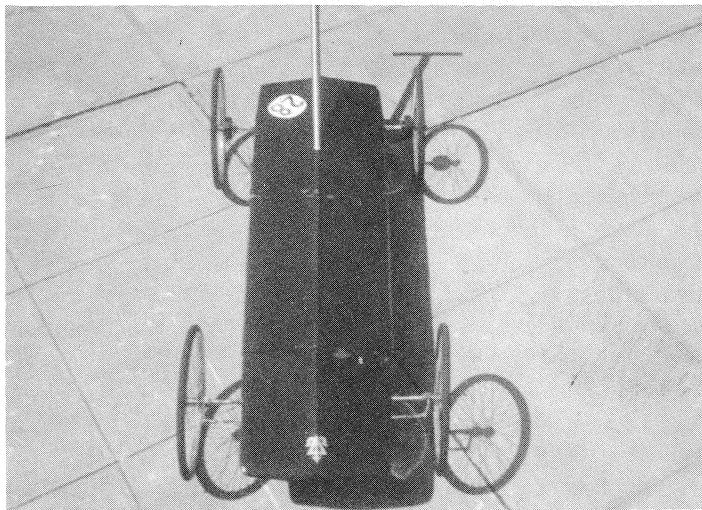
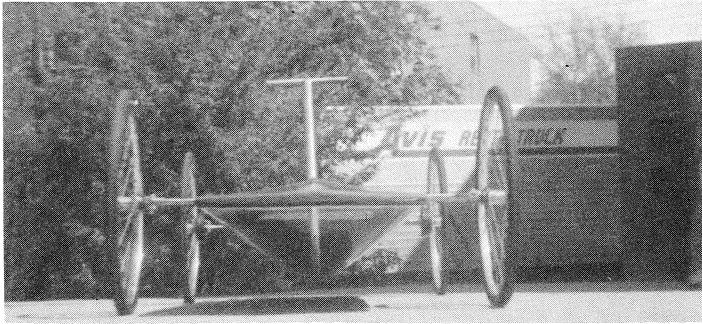
Manuel Deus and veteran Bill Hovis are the chairmen of the Delta Tau Delta pushmobile machinery this year. With two years of experience Bob Salter is a top driver while three superior pushers — Jay Earley, Ron Konnick and Joe Baier — will take the field for the DTD house this year.



Delta Upsilon

"A" — four bicycle wheels, V-shaped frame, blue and white

"B" — four derby wheels, gold



After a somewhat disappointing performance in 1964 the blue and gold buggies of Delta Upsilon went through extensive revamping this year under the direction of buggy chairmen Andrew Icken, Barry Millman, and Stanley Sholik.

The sapphire blue and white "A" buggy, which finished fourth in 1963, rolls on specially constructed 24 inch bicycle-type wheels. The frame is unique in the competition and the buggy is quite interesting to watch in the race. The driver rides suspended between the four large bicycle wheels in a tubular space frame. The frame is V-shaped below and flat on top. The buggy is covered with a fiberglass skin. One of the pit crew dubbed it the "surfboard."

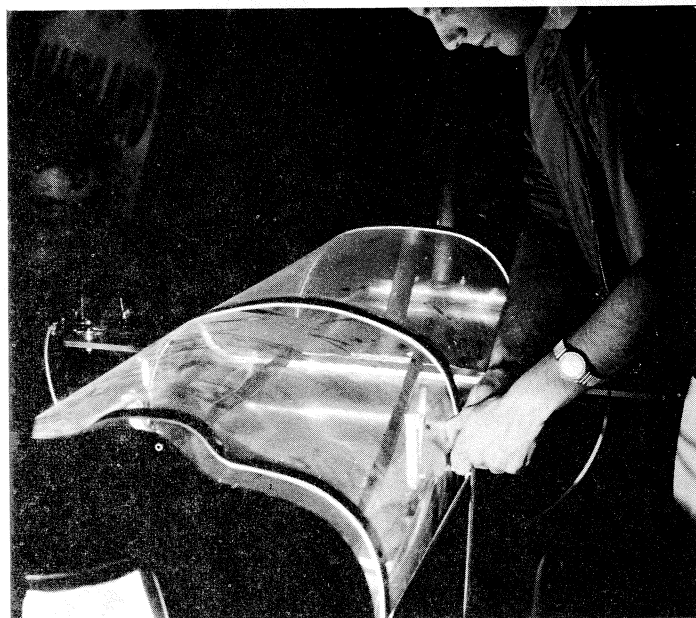
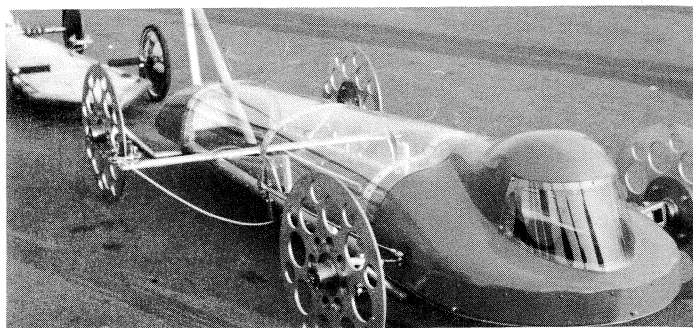
The frame provides a built in suspension to damp energy oscillations. This year's edition features hydraulic brakes and steering, and is equipped with new innovations in bearings and lubrication. The "Old Gold" "B" buggy, a fourth place finisher at 2:36 in 1961, also has undergone extensive changes that will hopefully put it among the top vehicles on campus. It is a conventional four wheeler with soap box derby hardware.

Four DU driver trainees are: the experienced Tom Pangaro, and freshmen Steve Ruvolo, Rex Allers and Harry Light. DU has an abundant supply of strong, fast pushers. Smokey Merrill, Bud DeRusha, Jim Huckelberry, Ollie Robling, and Tom Terpack will probably be the DU starting runners, however, teams will not be set until the race day.

Dormitory

"A"—four derby wheels, clear plastic body

"B"—four derby wheels, no shell



Although this year's dormitory buggy shows tremendous promise, the history of the dorm buggy efforts is rather gloomy. In a free roll in 1963 the buggy hit a curb and was demolished. A new blue colored "A" buggy was designed and constructed just before the 1964 race. Unfortunately there was not enough time to locate and iron out the many problems of the novel design. All efforts this year are being directed toward experimenting and refining the potentially excellent 1964 design. Some changes include the replacement of the radical solid steel wheels by a set of soap box derby wheels donated by G. J. Artsma, Chevrolet dealer, Wyckoff, New Jersey.

An aluminum tubular frame and steel-tube-dropped axles are part of the front and rear shell design. The steering is improved for prime maneuverability. The body is extremely light and flexible plastic. As buggies go, the driver of the dorm buggy will be the most comfortable of all the competitors. The entire inside is padded with naugahyde and covered with foam rubber.

One of the greatest problems in buggy design is reducing the weight without sacrificing safety. Experienced designers have tried to resolve this problem in the "B" buggy which has always done well. The 1965 design includes a four wheeled sled chassis of large diameter aluminum tubing. It will have no skin.

One hundred and twenty-five pound Fred Welter, a two year veteran will drive "A". Several talented newcomers are trying for the "B" buggy spot.

Sophomore Gordon Barrett is chairman; staff members include Dave Shaw, Dave Ver Planck, Tom McGarry and Paul Gritt. The dorm men are hopeful about surpassing their 1960 second place standing.

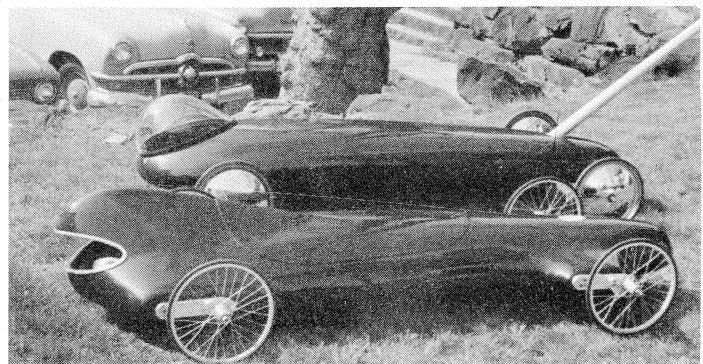
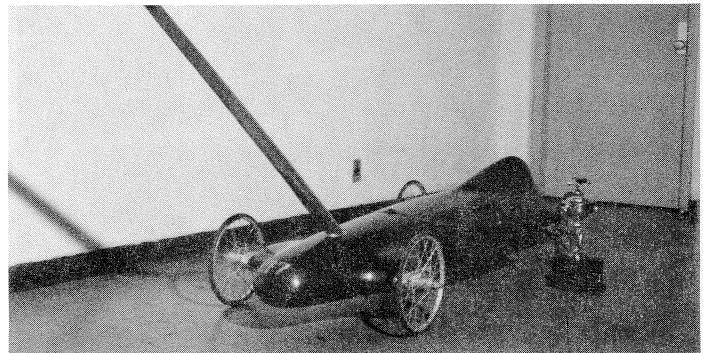
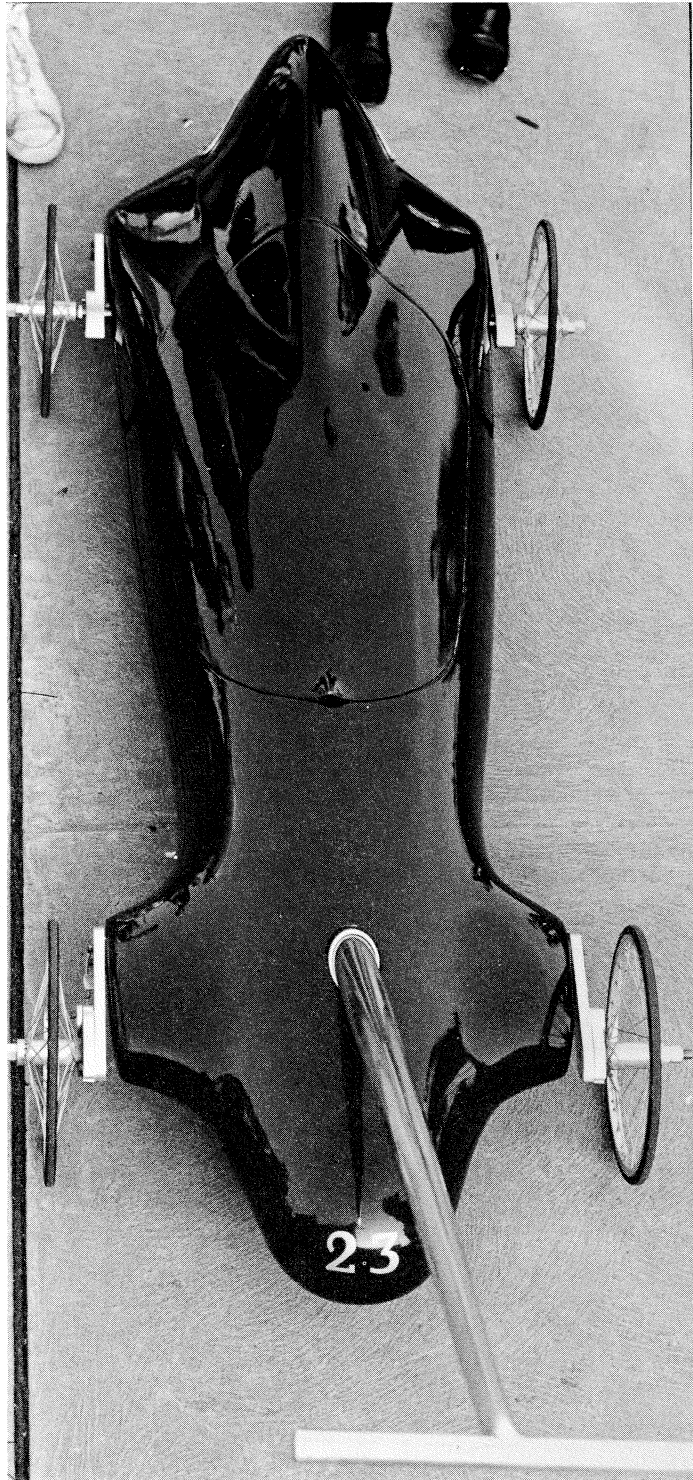
Phi Kappa Theta

"Shamrock" — four derby wheels, bubble canopy, green (3rd '64 3:37.7)

"Snorpus" — four derby wheels, hawk nose, black

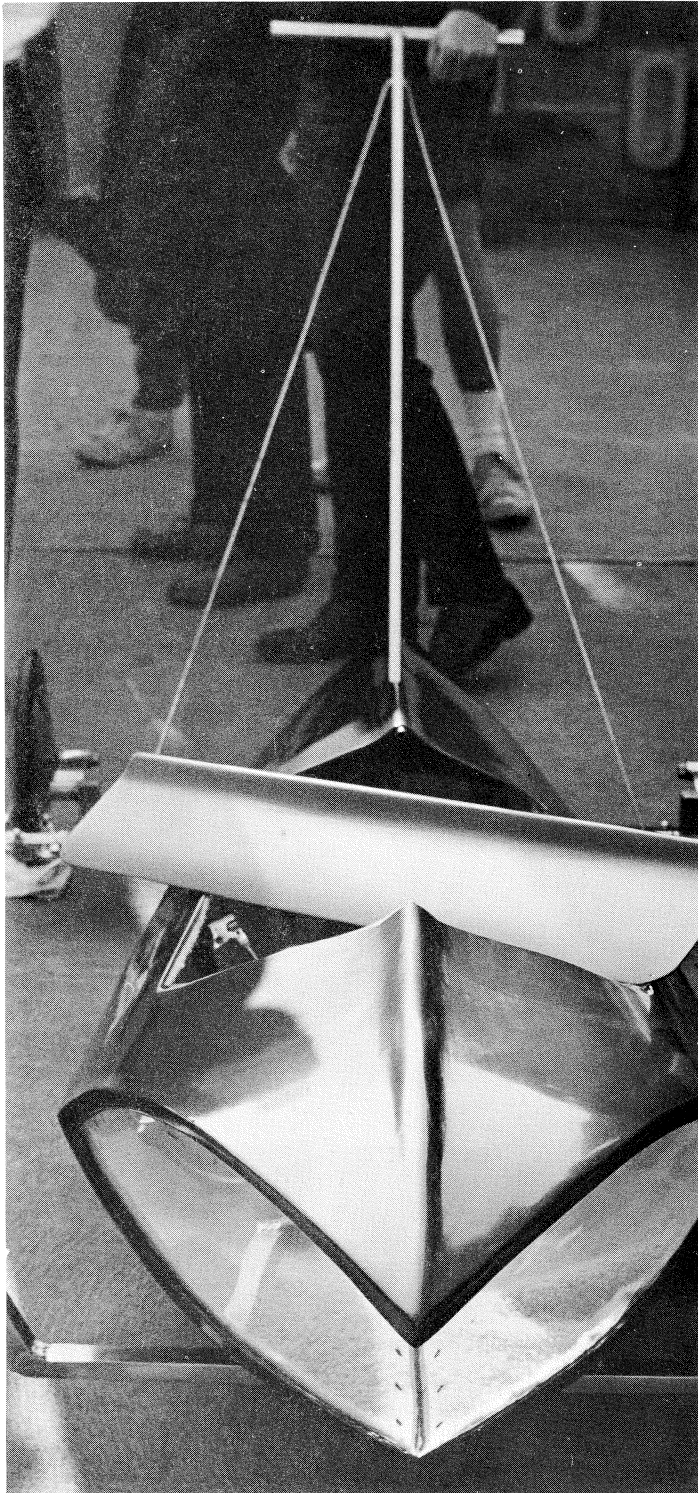
Phi Kappa Theta this year is entering two race-proven buggies, the "Snorpus" and the "Shamrock." "Snorpus," introduced in 1963, incorporates several styling and design features that won second place design trophy at her debut and third place design in 1964. The "Shamrock," a one-year veteran, proved her worth by winning second place design and third place sweepstakes trophies. She is the first buggy in Sweepstakes history to win two trophies on her maiden voyage. Buggy trophies are a tradition with the Phi Kaps since old number "77" maintained design trophy supremacy in 1955, 1956, 1957, 1958, and 1960.

Innovation has marked the Phi Kap buggy efforts in the last decade with the introduction of ideas like prone driver position, free-standing pushbar, and unit fibreglas bodies. This year, sporting a metallic Carbonado black finish, "Snorpus" is distinguished by a falcon-like hooded body and slim rear quarters. In contrast, the Nocturne blue "Shamrock" incorporates a strictly streamlined profile and simplicity throughout.



Pi Kappa Alpha

"Tiger Shark"—four derby wheels, black
"Shark"—four derby wheels, black

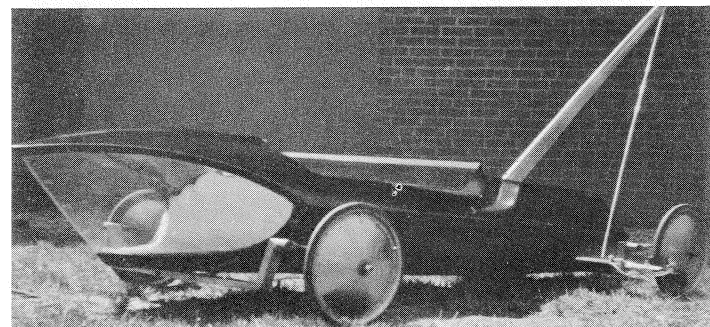
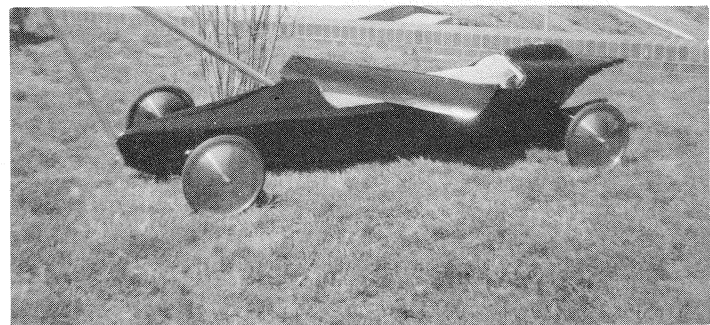


Pi Kappa Alpha has been a top contender since the beginning of the Sweepstakes over forty years ago. The Pi Kap's helped to bring about the highly engineered models of today when over 15 years ago they introduced the first fiberglass body. A year later PKA brought out the "Shark." Since that first year this machine has consistently placed among the top three eliminators. In 1963 it took first place with a 2:34 time.

Last year a new buggy, the "Tiger Shark," was run for the first time. Slightly modified this year it will be PKA's first machine. Both buggies are quite similar. Each uses four externally mounted Soap Box Derby wheels. Each body is molded black fiberglass and comes to a wedged shaped point in front. The driver, lying on his stomach, peers out through a plexiglass windshield that looks like a gaping mouth. They ride on spring suspension and employ a wire steering rig. Caliper brakes are used on the rear wheels.

Ed Escallon and Hal Shelton, the buggy chairmen, are three year veterans and will be driving again this year. Escallon drove the winner in 1963 and is probably the most experienced of all the drivers on campus.

The pushers are training under the guidance of Jack Elsey and Tim MacMillan. Jim Probala and Bill Sahie also have pushing experience.



Sigma Alpha Epsilon

"1" — two wheel, bicycle frame, maroon (2nd '64, 2:30.5)

"2" — two wheel, bicycle frame, red



Although radical in its design, the SAE buggy has been a formidable opponent for its four wheel competitors. The SAE buggy, designed by Bill Faircloth, resembles a bicycle and takes full advantage of the excellent pushing ability of five SAE pushers. The bicycle-buggy has netted two thirds and two second place trophies in the past four years.

Although its two spoked wheels, pneumatic tires, and steering system are obviously derived from basic racing bike forms, there is otherwise little similarity. The driver lies flat on the main supporting bar of the buggy with his chest supported on a molded fiberglass shell. Being the lightest buggy entered in the race, the bicycle design gives the pushers an added advantage which more than compensates for the speed lost in free roll due to the buggy's light weight. The drivers wear leotards to minimize air resistance and a molded, heavy duty plastic helmet for head protection. He has unimpeded visibility, excellent maneuverability, and has braking power through a conventional bicycle hand brake.

The lightweight design allows the SAE push team to use a "spurt" pushing system. Each runner pushes the buggy forward with both hands, then runs to catch it and push it again. The result is maximum push and maximum speed. Capturing second place last year, the brilliant maroon buggy clocked its best time at 2:30.5. This year both the color and maneuverability have been spruced up for a smarter look and race.



Sigma Nu

"Lizard"—four spoked wheels, driver seated, external shock absorbers, candy-apple red

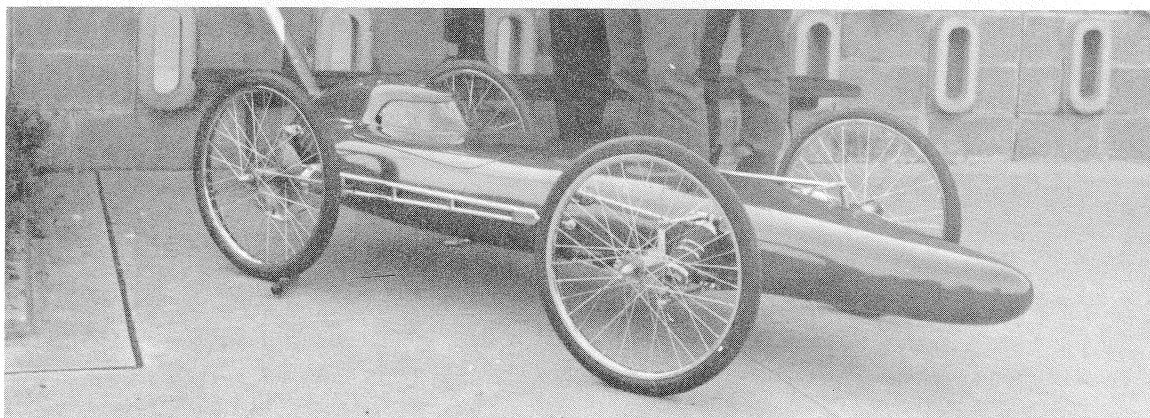
"13"—four wheels, driver seated, blue (new buggy)



The Sigma Nu racing team enters the Sweepstakes this year in a stronger than ever position to capture the cup. They will roll two potent machines, the well-known "Lizard" and a prototype built this year. Incorporating many new design features, the fledgling has shown promise in pre-race trials and is expected to hold its own come race day. Because of the inherent secrecy involved in buggy building, not much has been disclosed about this new buggy except that it will bear the number 13.

Sigma Nu's veteran, the candy-apple red "Lizard," will carry the number 3. The "Lizard" has taken first place design laurels two years' running. It's slim lines and chromed "A" arm suspension make it look more like a miniature Lotus than a pushmobile. Construction-wise, Lizard's tubular space frame is skinned by pre-stressed aluminum and damped by rubber shock absorbers both fore and aft. The front suspension is typical of formula junior machinery, while the rear combines the best features of single and independent axles. Through a wrap-around windshield, the driver, lying on his back, has a full view of the road before him.

Plagued with ill-luck, the "Lizard" has yet to finish a race without a mishap. First run in 1962, it spun out. In 1963 it was involved in a collision with the DU machine. Last year things looked good for "Team Zoo," but due to being rammed by another buggy in practice the night before the race, rear suspension members were weakened and a broken axle resulted in the race. This year Bob Erskine, in his third year as chairman of the Sigma Nu team, is confident of avoiding more mishaps. He also believes the push team is the best in recent years. If he is right, Sigma Nu will definitely be a team to watch this year.



Tau Delta Phi

"13" — two wheel bicycle, driver crouched (new buggy)

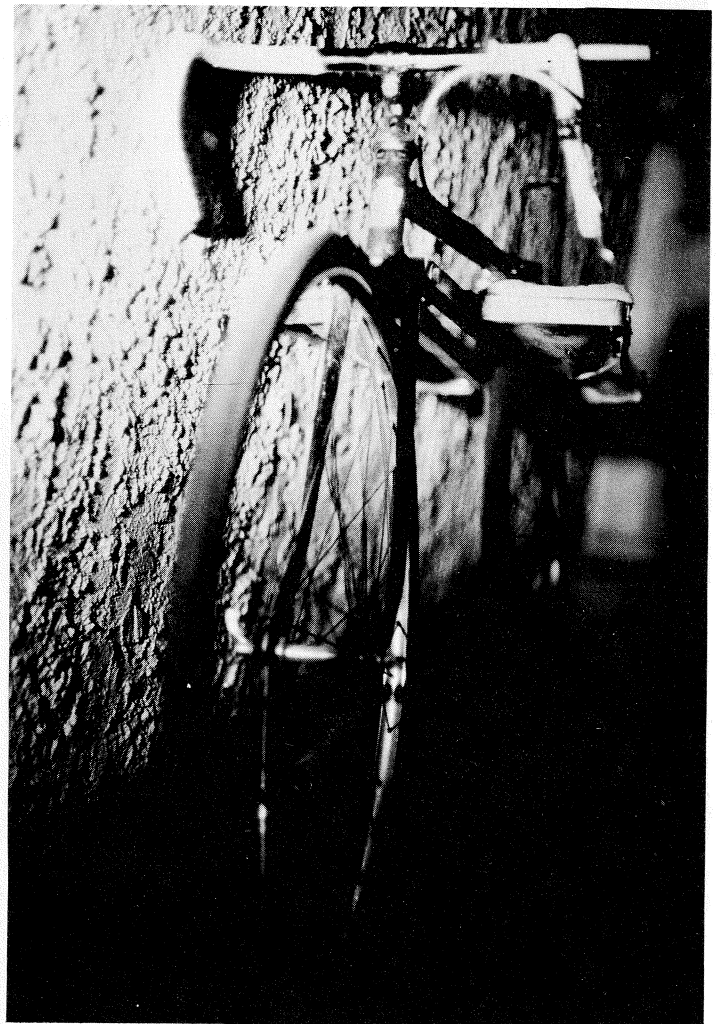
One of the prerace highlights of the 1965 Sweepstakes is the return of Tau Delta Phi to the starting line after a five year absence. The Tau Delts' new bicycle type buggy is the first one they have entered since the 1959 model had an unfortunate wreck. The Tau Delts have pledged to overcome any odds and their "Number Thirteen" is the rookie to watch.

Their newcomer is a two wheel bicycle-type rig made of an aluminum alloy for strength and minimum weight. Functional simplicity is the major asset. It is streamlined with a fiber glass windbreaker to decrease wind resistance. The center of gravity is lowered to the minimum point and the high pressure tires and specially designed steering mechanism provide speed and maneuverability. The driver guides from a crouched position.

The buggy was designed and constructed by Buggy Chairman Mike Pollak and staff members Steve Weiss, Steve Silver, Dick Cooper, Glenn Paris, Howard Greene, Jerome Kaplan, Theodore Mankovich, Elliot Schrank, and William Fairman. The style was determined by Frank Vigliotti who decided that he didn't need the wheels of his English racer. He now walks to classes.

Trainers Roger Blau and Donald Berkowitz have been hard at work preparing the pushing and riding team. The driver will be chosen from candidates in the 150 pound weight class. The push team has been working weekends and after school at the gym strengthening their running attack.

The Tau Delta Phi team may be short of experience as it lines up for the heat, but it is sure to overcome adverse odds with enthusiasm.



Theta Xi

"3.14" — four derby wheels, red

The Theta Xi buggy features the same red fiberglass shell that has made it so popular the past two years. Oddly enough, the Pi chapter has selected 3.14 as the buggy number. An extensive engineering remodeling of the frame assures a better-than-ever buggy for the '64 race. The machine rides on four soap box derby wheels. The torsion bar suspension system and disc brakes have performed so well that they will be used again in this year's race. The driver lies on his back with his head resting on a support in the rear of the machine.

New additions include a set of bearing housings and a

newly developed lubricant. The new secret lubricant has been in the test tube for a greater part of a year. Essentially it is a mixture of various ordinary lubricants, but it should make the TX bearings virtually frictionless. To house the bearings, the TX men have designed a superior set of housings.

Veteran Rod McDowel and several newcomers are trying for the driver's seat on race day. TX's three top-notch pushers are Fred Klein, Rich Black, and Dave Harris.

The house is confident that the mysterious lubricant and new engineering advances will produce surprising results this year.





WRCT PROGRAM SCHEDULE

second semester 1965

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DAILY Monday through Friday

Morning

- 7:00 am First Cup of Music
- 8:00 CBS News
- 8:05 Second Cup of Music
- 9:00 CBS News
- 9:05 Second Cup of Music (cont.)
- 9:15 Music Unlimited

Afternoon

- 4:00 pm Club 90
- 5:00 CBS News
- 5:05 Club 90 (cont.)
- 6:00 CBS News
- 6:05 Duet
- 7:00 CBS News
- 7:10 CBS News Commentary
- 7:15 CBS World Wide Sports

MONDAY evening

- 7:30 pm Concert Hall
- 8:30 Tech Top 45
- 9:00 CBS News
- 9:05 Tech Top 45 (cont.)
- 11:00 CBS News
- 11:05 Sound of the Theater Organ
- 12:15 am Upper Balcony
- 1:30 Music Unlimited

TUESDAY evening

- 7:30 pm Concert Hall
- 8:30 Featured Artist
- 9:00 CBS News
- 9:05 Featured Artist (cont.)
- 9:30 Censored
- 10:00 Showtime on Broadway
- 11:00 CBS News
- 11:05 Many Worlds of Jazz
- 1:30 am Music Unlimited

WEDNESDAY evening

- 7:30 pm CBS Dimension
- 7:35 Around the World with Music
- 11:00 CBS News
- 11:05 Spotlight
- 1:30 am Music Unlimited

THURSDAY evening

- 7:30 pm Concert Hall
- 8:15 Operation Moonstruck
- 8:30 The John 'D' Show
- 9:00 CBS News
- 9:05 The John 'D' Show (cont.)
- 11:00 CBS News
- 11:05 Modern Folk Show
- 1:30 am Music Unlimited

FRIDAY evening

- 7:30 pm Music to Get Ready for
Your Date By
- 9:00 CBS News
- 9:05 TGIF Part I
- 11:00 CBS News
- 11:05 TGIF Part II
- 1:30 am TGIF Part III
- 3:00 Music Unlimited

SATURDAY

- 9:00 am Breakfast in Bedlam
- 10:00 CBS News
- 10:05 Breakfast in Bedlam (cont.)
- 11:00 CBS News
- 11:05 Breakfast in Bedlam (cont.)
- 12:00 CBS News
- 12:05 pm Saturday Symphony
- 3:00 Steven Bank Show
- 5:00 Roland Stone Show
- 6:00 CBS News
- 6:05 Roland Stone Show (cont.)
- 8:00 What-Cha-Ma-Call-It Show Part I
- 9:00 CBS News
- 9:05 What-Cha-Ma-Call-It Show (cont.)
- 11:00 CBS News
- 11:05 What-Cha-Ma-Call-It Show Part 2
- 3:00 Music Unlimited

SUNDAY

- 9:30 am to be announced
- 11:00 Curtain Time
- 1:00 pm Ceilidh
- 3:00 Sunday Symphony
- 6:00 CBS News
- 6:10 Tape Series
- 6:30 News Review of the Week
- 7:00 Sports in Review
- 7:30 Sunday Spectacular
- 7:53 WRCT Rock and Roll Request Show
- 3:00 am Music Unlimited

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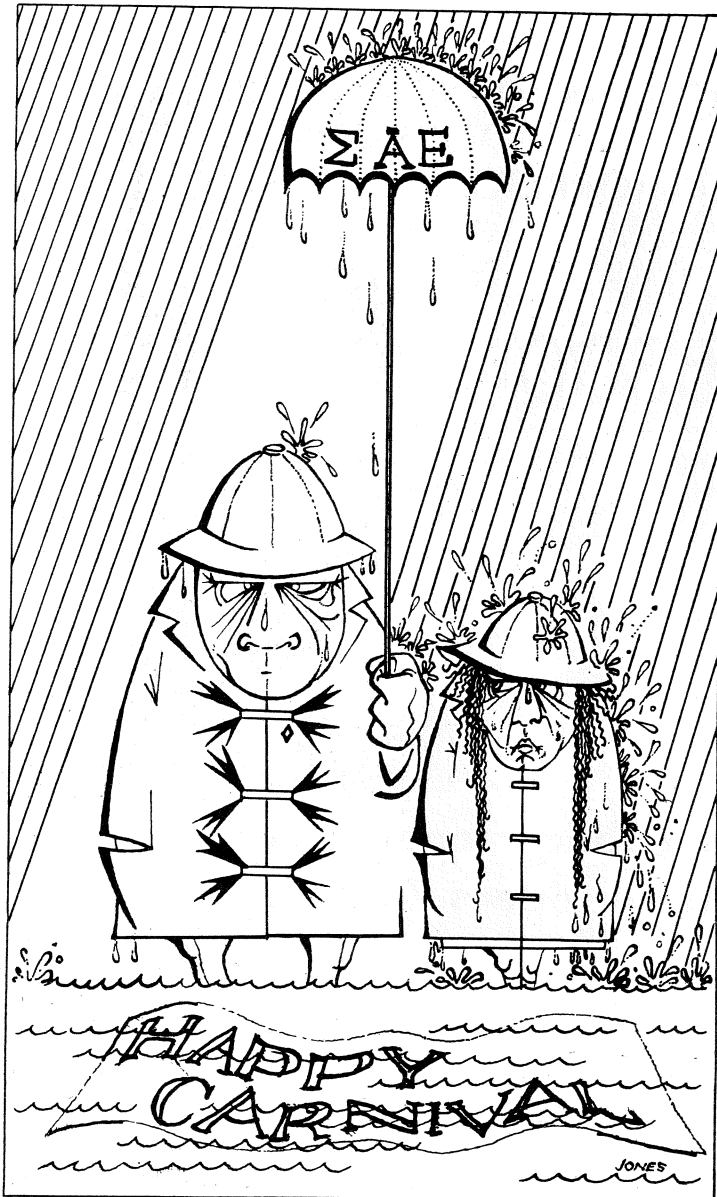
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The Scientific Approach to Buggy Building

In a recent seminar Seymour Crankshaft, Melon Professor of Mechanical Engineering at Carnegie Tech, remarked for no seemingly good reason, "They just don't build Carnival Buggies like they used to!" What made this even more surprising to his discerning students was the fact that Seymour's seminar topic was "The Maintenance of Blow-out Type Flush Valves." However, not to be out-done by their Know-it-all Prof., Seymour's class compiled a seminar in response to the accusation entitled "The Stress Analysis of an Ironing Board," which, of course, dealt with how to build a better Spring Carnival Buggy. Rising to the occasion, the class compiled datum upon datum and formulated an ideal equation for maximum buggy performance, $F = ma!$ They also evolved such an all-inclusive proposal for a Carnival Buggy that Prof. Crankshaft was forced to remark, "What's this got to do with flush valves!"

The first premise — that the job of the buggy was to win the race — prompted the inclusion of such James Bond devices as an oil spraying nozzle, a tack dispenser, and an air jet to blow sooty Pittsburgh air in the face of the pursuing driver. Four tires were used much to the remorse of Tommy Jones, age 5 of Squirrel Hill, who found his Red Flyer wagon missing one morning. Regrets were expressed by the class to Camp LostaKano when it was learned that the Camp's candy-apple red fiberglass canoe had suddenly disappeared during the night, but, as class leader Fred Furg was quick to point out, "Where else could we get such a nifty chasis for nothing?" Not to overlook the importance of the suspension system to the buggy's performance, Furg entered upon a laborious experiment whose calculations revealed that carriage springs, cheerfully "donated" by Schenley Livery Stables, were most efficient and inexpensive. Furg's classmate, Sam Forthright, assigned to the intricate design of the buggy cockpit produced a seat cushion from the Holiday, a gear shift lever from an anonymous Volkswagen, and a windshield from an unattended Lambretta — all meeting the group's rigid specifications for reliable yet inexpensive components. Because of its tensile properties and low wind resistance, a nylon clothesline for the steering mechanism was appropriated from an unknown woman in Shady-side who possessed a rather good size shot gun. "The running helped get our pushers in shape," commented Furg who now prefers standing to sitting.

Once the materials were collected, the delicate job of assembly began. Duff Dunstan's basement was chosen as the ideal spot because of its proximity to the television set. "We found the friction joint more efficient (and easier) than any other," Forthright revealed as he attached the axles to the suspension system with four six-penny nails bent into position. The simplicity of the system allowed complete rapidity in construction. Probably the buggy would have been completed in one week had the television not gone on the blink. Buggy

chairmen must allow for such unforeseen obstacles in their production schedules, if their buggies are to be ready by race time. Despite this delay the remainder of the assemblage went smoothly. The gear shift was skillfully tied to the clothesline and then knotted onto the right and left ends of the front axle. The fiberglass body was mounted with Magic Mending tape to conceal the joint, and the cushion was cleverly attached with library paste. The windshield was astutely secured by three skillfully bent nails. Last of all the pushbar was lashed in place with the remaining clothesline and the buggy awaited its pushers.

Pushers trained by taking two steps per stride in Doherty Hall between classes each day, and by carrying their trays to the dish-tray conveyor in Skibo. This, plus butting in the Snack Bar line, has more than conditioned them for the big race.

Furg is positive that this well-designed buggy is a sure bet to finish the course in 2:05. "There are still some flaws in the system," Furg reluctantly admitted, "but by the final race we should be able to complete the course in *under* two hours!"

Professor Crankshaft is, to say the least, exceedingly proud of his students' achievement, assuring us that, "It will make a tremendous advancement in the science of buggy manufacture, as soon as I can figure out what this has to do with flush valves!"

Design Rules



An important part of the sweepstakes takes place even before the race is run; buggy teams spend months preparing their entries for the design competition. Held early Friday morning before the preliminary heats of the race, design judging is a critical evaluation of engineering and construction of each buggy. Design awards are as coveted as race trophies.

At about 7 a.m. the teams carry their buggies to the display area behind Tech Bowl. By now each part of each buggy has been polished to a mirror-like smooth finish. The bodies receive perhaps 20 coats of hand-rubbed lacquer and nearly as many of wax. They stand gleaming in the early morning sunlight. Teams often set up elaborate displays with charts explaining design features; sometimes cloth backdrops are used to set off the color scheme of the buggy.

When all entries are in position, the five judges begin their evaluation. Two of the five are chosen from Tech campus and are usually eminent engineers or industrial designers. The remaining three are guest judges and may include automotive engineers and stylists imported from Detroit or well known figures in auto racing.

At the start of the contest the judges are given an opportunity to wander freely through the display area, thus becoming familiar with all entries. During this time none of the participants may converse with the judges. This part of the judging procedure is important since buggies are unique pieces of engineering which lie outside the direct experience of most judges.

After this perusal the judges proceed in a group from entry to entry evaluating each against the official point sheet. The group spends 10 minutes at each display and the teams usually provide spokesmen who explain the design philosophy and salient features of their buggies. Each buggy is evaluated on the basis of 100 points; 35 are possible for general appearance and beauty, 10 for workmanship, and the remaining points are divided between engineering and safety features. When all entries have been examined, the point totals are summed up and kept secret until the presentation of awards Saturday night.

To be eligible for a design trophy, a buggy must compete in the preliminary heats without design failure or infractions of the racing rules and must finish in the top half of the races. Trophies are awarded to the two eligible entries with the highest point totals. The results of the design contest are often surprising since a top rated buggy can place last in the race. The design that appears best may turn out to be impractical or just not perfected when put to the test of racing.

Sweepstakes Rules

Eligibility:

Any organization of Carnegie Tech undergraduates may enter no more than two teams. Each team consists of one buggy, one driver, and five pushers. The driver and pushers of each team may only participate with the buggy in their team.

Safety:

In order to participate in the sweepstakes, each buggy must pass a safety inspection where it must demonstrate:

1. adequate vision, 45 degrees to each side.
2. adequate braking system.
3. nuts involved in the control of the buggy must be fastened with lockwashers or locknuts.

Construction:

1. The length of the buggy may not exceed 15 feet and the width may not exceed 5 feet.
2. No internal propulsion of the buggy by steam, gasoline, oil, electricity, jet, liquid air, or any other mechanical means will be permitted.

Contest Rules:

1. The Friday Preliminary race shall be run in heats of three buggies each. No two buggies from the same organization may race in the same heat.
2. The race shall be run over the course shown on the map.
3. Each pusher may touch the buggy only in his push zone (see map for zones) and the adjacent neutral zones. The last pusher must have his hands on the buggy when it crosses the finish line.
4. No individual may enter the street to pace a buggy pusher at any time.

5. The combined weight of each buggy and driver must be constant. Jettisoning of weight is prohibited.
6. The time between the start of each heat will be ten minutes with warnings given at 5, 2, and 1 minute until the start of each heat. Any extension of this time interval must be requested before the 2-minute warning.
7. The three buggies with the shortest preliminary times will race together in the finals on Saturday; their order of finish in the race will determine the first three places. The three buggies with the next shortest preliminary times will race in the consolation race on Saturday; their order of finish will determine the 4, 5, and 6 places. This arrangement is used to prevent any possibility of mechanical timing errors in determining the winner.
8. Any buggy that has a design failure or that deliberately collides with or cuts off another entry will be disqualified.
9. Any buggy that complies, in the judges opinion, with the rules and is involved in an accident or slows or stops to avoid an accident will be eligible for a rerace. The rerace will be granted if the buggy is immediately impounded and passes, except for accident damage, a safety inspection.
10. The judges may disqualify any entry for going outside his assigned lane.

Inclement weather:

1. The judges may cancel the race due to inclement weather or insufficient course protection.
2. If either the preliminary or finals are cancelled, the winner will be decided on the basis of times.

Sweepstakes Heats

Preliminaries,

10:00 A.M., Friday, May 7

Heat 1

DELTA UPSILON _____
 PI KAPPA ALPHA _____
 BETA THETA PI _____

Heat 2

DELTA TAU DELTA _____
 BETA SIGMA RHO _____
 ALPHA TAU OMEGA _____

Heat 3

THETA XI _____
 DORMITORY _____
 SIGMA NU _____

Heat 4

SIGMA ALPHA EPSILON _____

 PHI KAPPA THETA _____

Heat 5

DORMITORY BUGGY _____
 SIGMA ALPHA EPSILON _____
 TAU DELTA PHI _____

Heat 6

DELTA UPSILON _____
 BETA THETA PI _____
 ALPHA TAU OMEGA _____

Heat 7

SIGMA NU _____
 PI KAPPA ALPHA _____
 PHI KAPPA THETA _____

Rerun (if necessary)

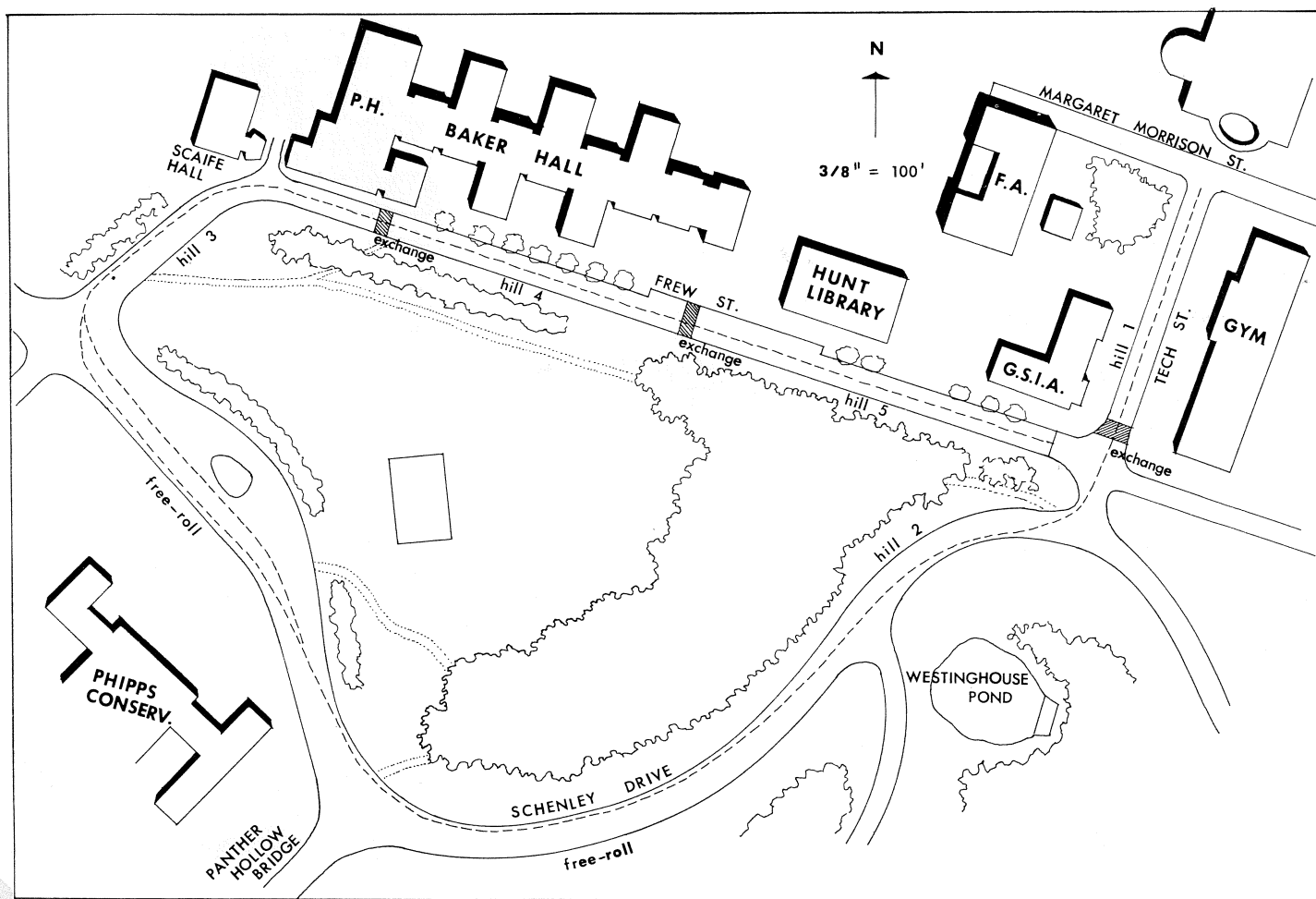
Finals,

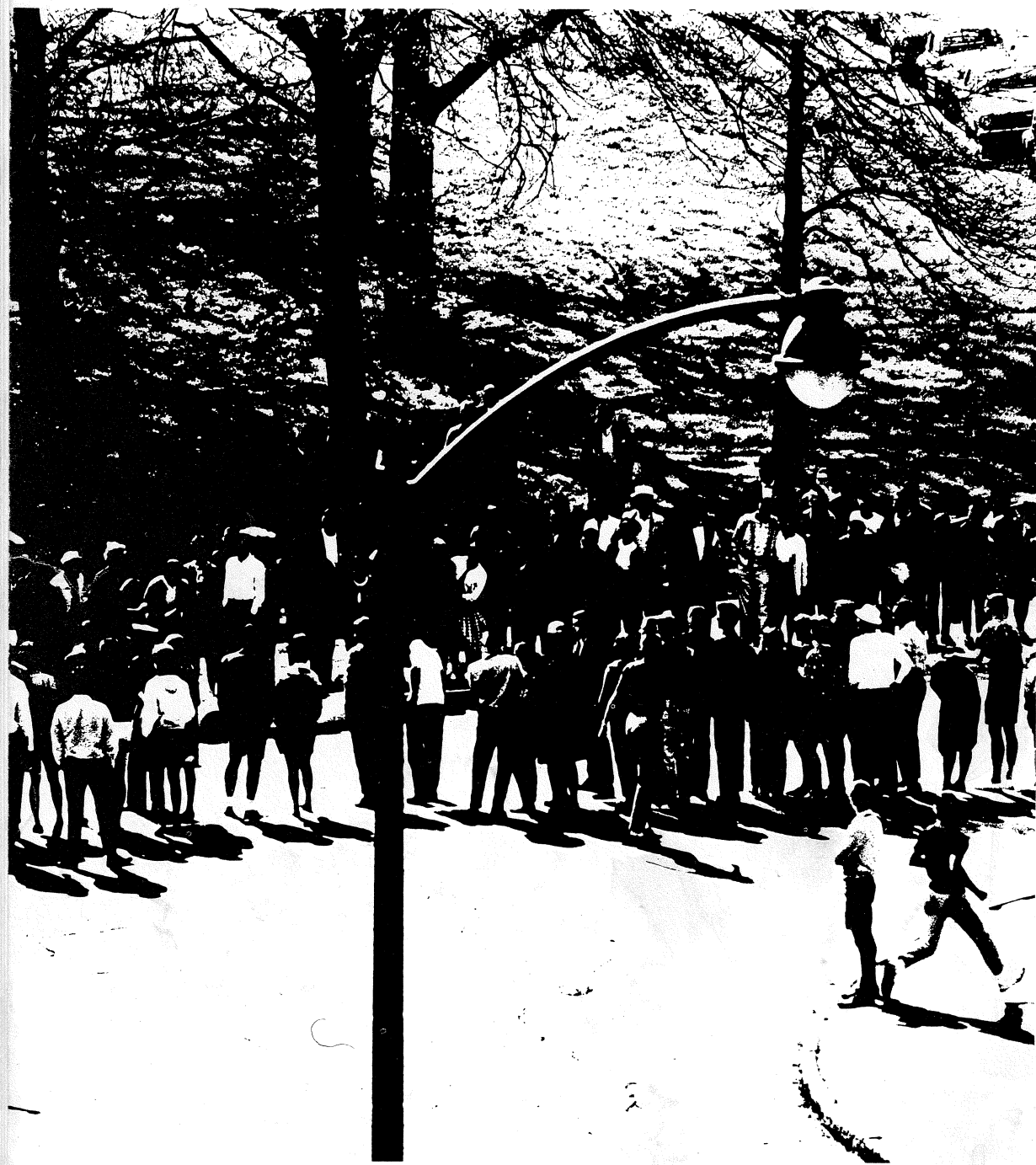
10:00 A.M., Saturday, May 8

(lanes are based on the six fastest times)

Consolation Heat

Championship Heat





Sweepstakes Heats

Preliminaries,

10:00 A.M., Friday, May 7

Heat 1

DELTA UPSILON _____
 PI KAPPA ALPHA _____
 BETA THETA PI _____

Heat 2

DELTA TAU DELTA _____
 BETA SIGMA RHO _____
 ALPHA TAU OMEGA _____

Heat 3

THETA XI _____
 DORMITORY _____
 SIGMA NU _____

Heat 4

SIGMA ALPHA EPSILON _____

 PHI KAPPA THETA _____

Heat 5

DORMITORY BUGGY _____
 SIGMA ALPHA EPSILON _____
 TAU DELTA PHI _____

Heat 6

DELTA UPSILON _____
 BETA THETA PI _____
 ALPHA TAU OMEGA _____

Heat 7

SIGMA NU _____
 PI KAPPA ALPHA _____
 PHI KAPPA THETA _____

Rerun (if necessary)

Finals,

10:00 A.M., Saturday, May 8

(lanes are based on the six fastest times)

Consolation Heat

Championship Heat

