June 13, 1985
Fermi National Accelerator Laboratory

FermiNews

Accelerator Breaks Intensity Barrier

In the course of the recent high-energy physics run, and concurrent with the installation of the Leon-O-Meter (see accompanying story), the Accelerator Division has overcome some nagging problems on the way to setting several new records.

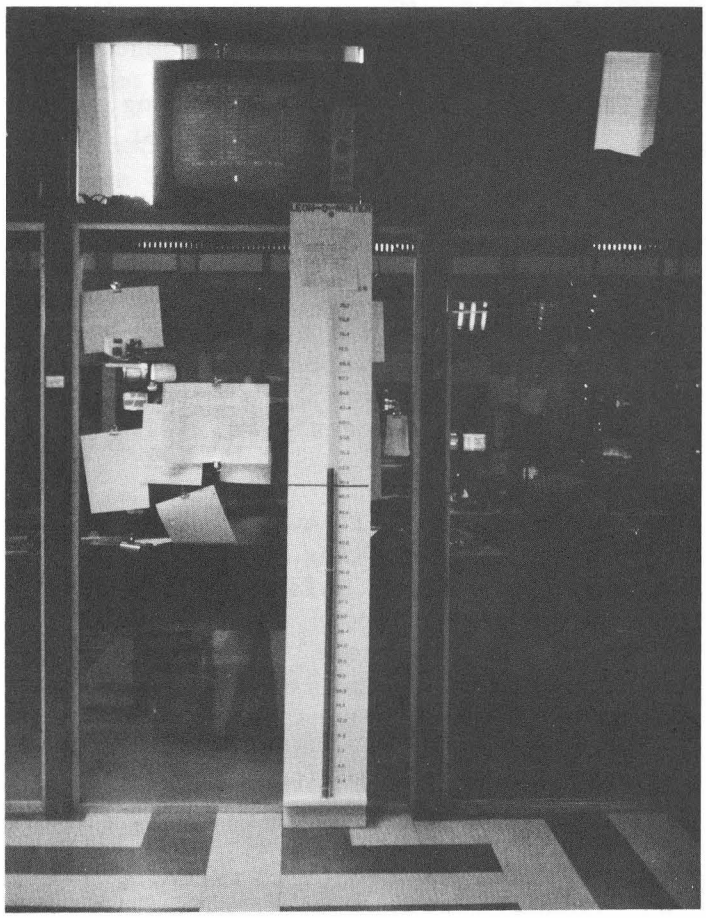
During the first part of the present high-energy physics run, the Accelerator experienced several mishaps which effected the reliability of the machine. These included two power outages, several Main-Ring magnet failures, and several transformer failures. Accelerator intensity was low because the machine wasn't running consistently enough to work the intensity up.

During the last several weeks, things appear to be improving. We have set a new Tevatron intensity record of 1.375 E 13 (the old record for 800 Gev was 1.02 E 13). In addition, several other Tevatron records have been broken: **1)** Most protons accelerated in one week (9.1 E 16); **2)** 124 hours of high-energy physics in one week; and **3)** 81% over-all efficiency (actually, hrs/scheduled hrs).

The Accelerator has not only been delivering beam for high-energy physics, but has also been carrying a full load of parasitic accelerator studies as well as delivering parasitic beam for commissioning of the Antiproton Source. Fast extraction was also turned into an operational mode. Currently, we are running three fast-extraction pulses.

In general, things seem to be going well, with high hopes of further improvements.

"Leon-O-Meter": Physics Marvel or Just Another Kluge?



The Leon-O-Meter

The sudden, unexplained appearance of the Leon-O-Meter in the Main Control Room fired Lab-wide speculation as to the device's origins and purpose. Since the Operators, true to form, would volunteer only a conspiratorial chortle, depositions were sought from informed sources. The following information comes from Leon Lederman, now a wiser, and poorer, Director.

On or near May 5, I had to make a difficult decision concerning the duration of the current running period. Either we could shut down in September and begin the DO, BO construction or we could run through until the next available date for a construction start in sunny Illinois--March 1, 1986. It was a real dilemma. The Accelerator had been working poorly, many of the beam lines and experiments were late in coming up. This argued for a longer run. On the other hand...Anyway, on balance I opted for the September shutdown and casually remarked to the high priests of the Accelerator Division that if the performance of the Accelerator did not improve substantially, we would all be

Cont'd on pg. 6

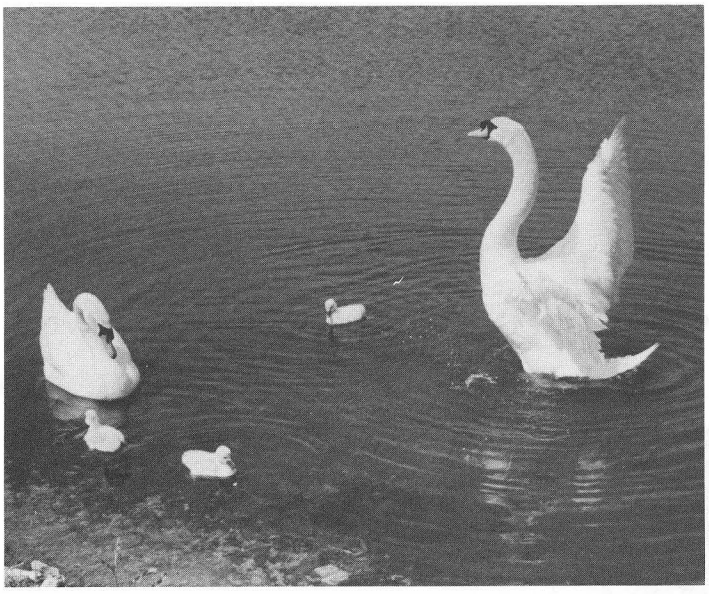
Growth in Swan Population is a Cygnet-ifigant Event

Congratulations To . . .

Mr. and Mrs. Mute (Swan Lake) Swan on the birth of quadruplets on or about Thursday, May 16, at Fermilab. Three of the baby swans (or cygnets), the first swans born at Fermilab, are safely at home on Swan Lake. Names were not available at press time.

* * * *

Two species of swan grace Fermilab's waterways: mute swans and trumpeter swans. Telling them apart is easy. Mute swans have orange bills with a black hump, while trumpeter swans have straight, black bills. Mute swans grunt; trumpeter swans, well, trumpet. There are two mute swans on site, six trumpeter swans. The mute swans are handing out cigars, the trumpeters aren't. At least not yet.



The mute swans have been at Fermilab for eight years, the trumpeters for three and, as mentioned in the birth notice above, these are the first cygnets born here. Tom Warkins, Fermilab's Prairie and Wildlife Coordinator, thinks the cygnet-production shortfall can be attributed to domestic strife and feeding habits.

"We had three 'mutes' last year," Tom said, "a male and two females. The male and one of the females were paired off, and apparently she wasn't a viable bird. They engaged in all the proper nesting activities, but no eggs were laid. Since swans mate for life, that pairing wasn't too promising in terms of offspring. Last year, that female died, and the male paired off with the remaining female which, as we can see, is a viable bird.

"Also, we have our swans on a feeding program comprised of a balanced feed-mix, so the mutes are feeding better than they have in the past."

Mute swans begin their mating cycle at four years of age, and can continue up to the age of seven. They'll mate younger in captivity where the laws of survival are greatly relaxed.

"Birds in captivity don't experience territorial stress," Tom explained. "In the wild, swans need about 100 acres per pair. Here, they don't have as much space, but one pair can rule their territory without stress. For instance, one pair of trumpeters rules the entire interior of the Main Ring, which comprises about 20 acres of wetland habitat. In the wild, younger birds are displaced by older, established pairs of mates. And, too, swans need a stable habitat. Fermilab's lakes and ponds give them just that."

Tom hopes the cygnets signify the start of a breeding program. The basic idea is to develop consistent breeding pairs, and release the offspring into the "wilds" of Fermilab.

"Really, the Lab is more of a nature preserve than people might imagine," Tom pointed out. "The Pine Street Woods are a bird-watcher's paradise, one of the best natural woods in this area. We have a trail through those woods that people can use; but watch out for poison-ivy, especially if you're sensitive.

"We have red-tail hawks nesting out in the center of the Ring. At least one breeding pair each of upland sandpipers and black-crown night herons are out there in the Ring; both of these birds are on the Illinois endangered species list. We have upwards of 24 blue herons on site. All in all, we've spotted at least 100 species of birds here, 40 of them permanent residents.

"And, of course, we have skunks, pheasant, fox, woodchucks, raccoon, deer, even coyote."

Evening of "Music of India" Features Yodh and Karmarkar

Dr. Gaurang Yodh

1985-1986 marks the Festival of India, a celebration of Indian culture in the United States, which opens in Washington, D. C. in June. In honor of this event, the Auditorium Committee will present Music of India, a performance with commentary in Ramsey Auditorium at 8 p.m. on Saturday, June 22, 1985.

The classical music of India is often compared to jazz, in that the music is not written down but is created on-the-spot by the performers. It represents a centuries-old tradition of great vitality, in which the central elements are melody and rhythm. Most familiar among Indian instruments is the sitar, a plucked string instrument which rivals the violin in difficulty of performance as well as subtlety and range of expression.

Dr. Gaurang Yodh introduced the sitar and its music to this country in a 1949 concert at the University of Chicago's Mandel Hall. He has since performed widely in the United States, including appearances at San Francisco's Museum of Modern Art and the Smithsonian Institution. His recordings include two releases on the Westminster label which were among the first recordings of Indian music in America. He is also noted for his clear and lively commentaries which have enabled many people unfamiliar with Indian classical music to appreciate and enjoy this fascinating art.

Yodh is accompanied by Subhash Karmarkar, who plays the tabla; this pair of Indian drums is the usual accompaniment to the sitar in performance and is capable of a remarkable range of effects, including the playing of melody. Mr. Karmarkar won the 1955 President of India award for his playing, and has accompanied many well-known artists, including Ravi Shankar.

In addition to their musical collaboration, Yodh and Karmarkar pursue scientific careers. Yodh is well known at Fermilab as a high-energy physicist and teaches both physics and music at the University of Maryland. Karmarkar is an engineer specializing in mechanics, metalurgy, and management and teaches music in his spare time.

Admission to Music of India is $3, and tickets are available at the Information Desk in the atrium of Wilson Hall, ext. 3353. Phone reservations are held for five days awaiting payment. Due to ticket demand, those reservations not paid for within five working days are released for sale.

--Dan Kaplan and Stephen Pordes

"New Prairie Project" cont'd. from pg. 3

requests the Lab has received from people interested in seeing just what real prairie looks like. Since public access to the interior of the Main Ring is a problem, an arboretum-like setting intended for the general public is seen as a way for the Lab to share its prairie rejuvenation with visitors.

Tom Warkins of Roads and Grounds estimates that it will take three to four years for a worthwhile prairie plot to develop. In the meanwhile, a few extra steps are being taken, such as planting a cover-crop of oats for a smoother transition from grass to prairie, and as a means of keeping weeds down. Once the prairie has taken hold, the Prairie Committee hopes to add trails and a system of informative signs.

"Leon-O-Meter" cont'd. from pg. 1...

forced to join the Fermilab buffalo wallow. As a spur, I remembered that charity fund raisers always had a large thermometer posted prominently, the final goal at the top, with red paint showing progress on the way up. The point was, I always thought, if one didn't hit the top, the residual function of the thermometer was clear to all.

Well, Bob Mau and his cohorts revised the idea and provided a plastic tube designed to hold quarters. As the protons were accelerated, one would add quarters. When they achieved their goal, there would be enough quarters for a party. That is

Congratulations To . . .

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

* * * *

Thanks to Chris Randall of ***Benefits,*** *who acted as stork-spotter and kept FermiNews up-to-date on the latest deliveries.*

Prairie Rebirth a Sure Sign of Summer's Return

Spring has returned, and while most people think of taking a hike in the woods to view the wild flowers, there is another, in fact once dominant, aspect of the Illinois landscape that is also awakening.

The egg-yolk orange of the "hoary pucoon" is once again on display along with the blues and whites of "blue-eyed grass," the bright "yellow star grass," the hot purple of "prairie phlox", and the subtle color and delicate beauty of "shooting stars." Also awake with the spring thaw is the Fermilab Prairie Committee, preparing ground, growing seedlings to enrich the existing plots, and engaging in the annual spree of fun and hard work known as burning the prairie. This is one of the most important factors in the life of a prairie. It reduces competition from woody plants, clears away dead plant debris, and provides the jolt of nutrients that stimulates the blooming of the beautiful and varied prairie flowers. While our restoration is not as diverse and abundant with forbs as a native remnant, an inside view is available along with a chance to observe the progress of the restoration by coming out for a tour or helping out on a Prairie Committee workday.

Spring is in the air, and so are banks of smoke as the ritual burning of the prairie renews the Prairie Project for another year's growth.

Fermilab is home not only to a prairie restoration project, but also provides habitat for some of the prairie's former inhabitants. Savanna sparrows, meadowlarks, bobolinks and even the rare upland sandpiper make this their summer breeding ground. In addition to restoring the vegetation that once thrived here, the Prairie Committee hopes to reintroduce the birds, mammals, insects, and other animals that once roamed here. Many people are aware of the trumpeter swans that inhabit the ponds next to Wilson Hall. These birds are still young but it is hoped that in the near future they will raise another generation that will eventually fly free and migrate with other species, returning to the area they were imprinted upon and so re-establish their kind as a viable population in this part of the country. The same will be attemped with sandhill cranes, and perhaps someday prairie chickens, and other species. There is much work to be done, but the results look to be very exciting and possibly significant on a national level.

A progress report follows later this year. In the meanwhile, new hands are always welcome, as are those people who are merely interested. Contact Margaret Pearson in the Public Information Office, ext. 3351, for details or to leave your name.

-- Mitch Adamus

New Prairie Project Takes Root Between Pine Streets

Fermilab's Prairie Restoration Project is about to break out of the Main Ring and head for Pine Street.

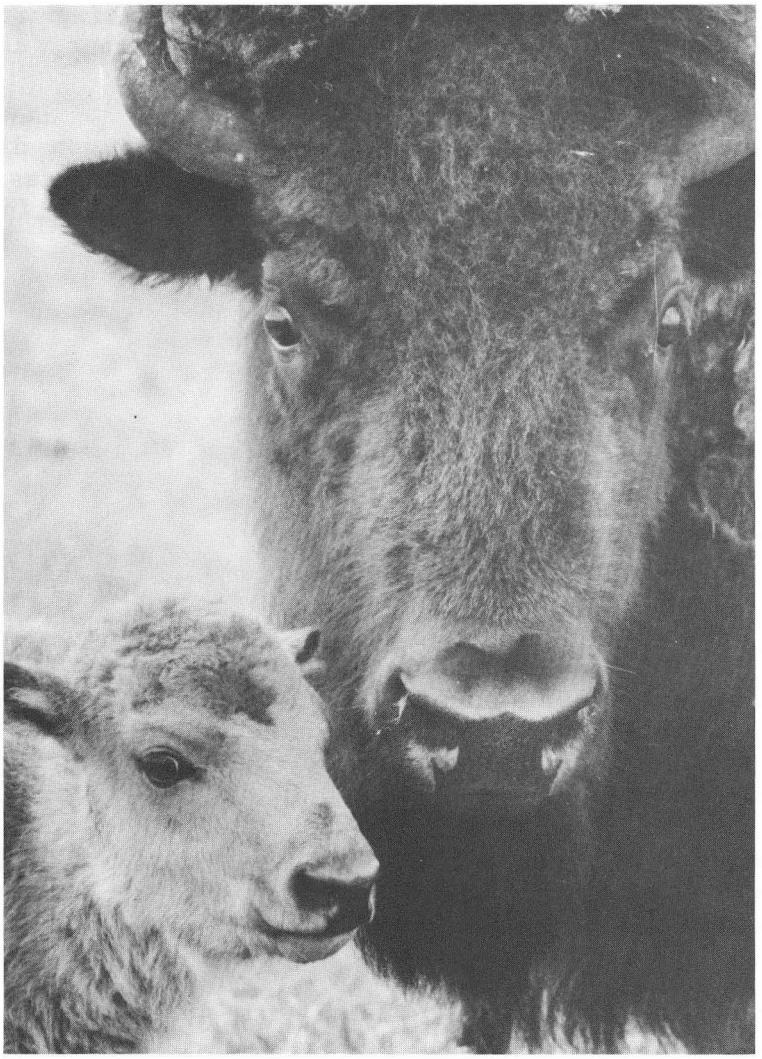
The "island" between inbound and outbound Pine Streets has already been plowed, disked, and cultivated by Roads and Grounds. Soon, a salt-spreader will be used to sow a crop of flora taken from the Main-Ring prairie site.

The genesis for this new off-shoot of the Prairie Project was the number of

Cont'd on pg. 5

Fermilab's Bison Are Nice 'n Prolific. Isn't That Terrific?

Already one of the largest in the midwest, Fermilab's trademark herd of buffalo (actually, bison, or *Bison bison* from the Latin), is about to become even larger, according to Vic Kerkman, Fermilab's Chief Buffalo, er, Bison Wrangler for the past 10 years.



Twenty bison calves are currently on display in the bison pasture along Road "D", and six more youngsters are expected any day. That will bring Fermilab's herd total to 78; of that 78, all 26 breeding females have either calved, or are about to, much to the satisfaction of the four breeding bulls in the herd.

Vic, why so many calves?

"For one thing, we have the right amount of land for a herd this size. They like their privacy. Also, they have a variety of habitat: pasture, woods, plenty of water and mud. And we feed them right: they have lots of grazing, and we supplement that with oats and mineral blocks."

While Fermilab's available bison land can support roughly 120 of the beasts, Vic plans to hold a bison auction a year from this October. "We expect to hold an auction every year from then on. The proceeds from each auction will go toward paying our feed bills." Fermilab's last auction, a major event held a year ago, drew bison-fanciers from as far away as Montana, and thinned the herd by 25 bison. At the next auction, Vic plans to sell his breeding bulls in order to keep in-breeding out of the herd's bloodlines, since in-breeding could result in weaker, smaller calves.

As many ranchers are finding out, "weaker and smaller" is not the way to go. "Ranchers are raising more and more bison that they sell as meat. Bison don't need as much feed as cattle, and ranchers can sell bison meat for up to one-third more than they get for beef."

Fermilab recently loaned a bison yearling to Philips Park in Aurora. The yearling will be a resident of the park's miniature zoo during the summer, and will return to the herd this fall.

A word to the wise: those cute bison calves are best viewed from "D" Road itself, not from the fence-line. Bison are not notoriously aggressive animals, but in the spring, when the future of the species is at stake, bison, especially mother bison, can be very unpredictable, as well as deceptively fast. "Our breeder bulls weigh around 2400 lbs., and stand seven feet tall at the hump," Vic observed. "Like the sign by the barn says, 'Stay out of this pasture unless you can cross it in 9.9 seconds. The bull can do it in 10.'"

FLASH!: In a late-breaking bulletin from the barn, Vic reports that Richie's goat, Lilly, is pregnant again. More details as they become available.

Editor: R. Fenner; Assoc. editor: S. Winchester
Photography: Fermilab Photo Unit

Fermilab is operated by Universities Research Association, Inc. under contract with the U. S. Department of Energy. Ferminews is published by the Publications Office, P. O. Box 500, Batavia, IL 60510, phone (312) 840-3278.

CLASSIFIED ADS TO BE DISTRIBUTED WITH **FERMINEWS** JUNE 13, 1985

FOR SALE:

AUTOS:

1984 CORVETTE. 2-tone silver, loaded, very clean, low milage; $20,000. Call Jim, ext. 3371.

1979 FORD FAIRMONT. 4-cylinder, 4-dr., 4-speed, runs good; $1,500 or best offer, must sell. Call Ed, ext. 3794.

1978 GREY CHEVY IMPALA. Good condition, but needs some work on front grill, A/C, AM radio, P/S, P/B; $2,000. Call Jeanette, ext. 3721 or 879-8042 after 4 p.m.

1978 OLDS CUTLASS SUPREME. Sharp; $3,500. Call Lucy, ext. 4623/4624.

1978 BMW 530i. Silver met. w/blue leather interior, 4-speed, P/S, P/B, P/W, P/L, recent rear brakes, very clean, excellent cond.; $8,400 or best offer. Call Angelo, ext. 3654.

1977 MUSTANG II. 2-dr., H/T, A/T, P/S, P/B, excellent cond.; $1,900. Call Gerry, ext. 3930 or 365-2961.

1977 V.W. DASHER WAGON. 4-speed, sun-roof, new paint, excellent cond. Call Greg, ext. 3011 or 557-2523.

1977 ASPEN DODGE WAGON; $500. Call Lucy, ext. 4623/4624.

1974 MERCURY MONTEGO. Available July 12, 8-cylinder, A/T, P/S, P/B, A/C, AM/FM radio, elec. rear defr., 81,000 mi., good cond.; $600 or offer. Call Milan Nikolic, ext. 4007/3852/4899.

1940 PLYMOUTH. 2-dr. sedan, good body metal, many double parts, restorable; Best offer. Call Gerry, ext. 3930 or 365-2961.

MOTORCYCLES:

1983 YAMAHA 225 DX ATV. Many extras; $1,500 or best offer. Call Carl Lindenmeyer, ext. 4024.

1983 HONDA 250 R ATV. Ready to race, spacers, pipe, flat track tires, carb., other extras; $1,500 or best offer, Call Carl Lindenmeyer, ext. 4024.

1980 HONDA CX 500. 14,000 mi., new battery, excellent cond.; $950. Call Sharon, ext. 4179/4155 or 879-5930.

1972 SUZUKI 185ts. 4,000 mi.; $400. Call Lucy, ext. 4623/4624.

HOUSES:

RANCH HOME IN CAROL STREAM. 3 bdrms., 2 bths., fireplace, attached garage, oak parquet floors, just 20 mins. from Fermilab, excellent location near schools, shopping, and parks; $64,900. Call Mike, evenings at 690-7642.

TWO STORY OLDER HOME. 3 bdrms., 1-1/2 bths., newly decorated, excellent cond. Call Jim Forester, ext. 3713 or 742-1989 after 5:30.

continued on reverse

MISC:

For the following items call Gerry, ext. 3930 or 365-2961: Butchers' butcher block table, 30"x30", $125; older camera outfit, includes 35mm camera, telescopic lens, wide-angle lens, bellows & light meter, $50; original early 20th century oak porch swing, 5-1/2 ft. wide, 3-person, $50; or best offer on all items.

TRS-80 MODEL 4 HOME COMPUTER. W/dual disc-drive, a TRS-80 dot matrix printer model DMP-120, plus extras; $1,500. Call Bob, ext. 4467.

For the following items, call Ed Dijak, ext. 3654 or 690-1145: 8.75x16.5 LT Goodyear tires (ww) on Ford 8-lug wheels, 4 w/30,000 miles and 1 brand new, best offer; 4 Deluxe full wheel covers to fit 15" or 16.5" wheel (Ford standard equip.).

For the following items, call Richard Rebstock, ext. 3499: Nikon F2 35mm camera, w/35mm lens, and Vivitar 265 flash, $290; running shoes, New Balance 1300, new in box, size 8D, $79; tire (one) P195x75R 14, new on GM wheel, $30; 10-speed women's Schwinn, $50.

CHESTNUT QUARTER HORSE. Gelding, 7 yrs. old, 14.2 hands, goes Western or English, good jumper, but still in training, must sell; $800 or offer. Call Pat, ext. 3201 or 879-5945 or 879-6430.

36" GAS RANGE. White, like new, clean; $200 or best offer. Call Carl, ext. 4024.

For the following items, call Lucy, ext. 4623/4624: Technics cassette/stereo deck, $80; Pyramid 250-watt car power-booster equalizer, $65; cassette/equalizer, $60; 14"x8-1/2" magwheels, rear pr. only, $60.

For the following items, call Jim, ext. 4293: Fenwick fishing rod, heavy action, bait casting model, $25; Mitchell "300" spinning reel w/extra spools, $15.

SOUTHBEND 9" LATHE. With 1" riser blocks, 3 & 4 jaw chucks; $400 firm. Call Dennis Graham, ext. 3370/3371.

STEINWAY PIANO. Model M, built 1927, Louis XV, walnut, excellent cond.; $9,500. Call Andrea Green, 879-7140.

For the following items call Stan, ext. 3340 or 985-7204 after 6 p.m.: Brinkman model 4000 metal detector, like new, list $150-sell $50; 7'x3' maple butcher block drafting table, excel. cond., $50; 18' fiberglass canoe, $250; 100, 16"x8"x2" cement blocks, 5/$1.

For the following items call Sandy, ext. 3808: 48" round oak pedestal table w/2 drop-in leaves, good cond., $280; 1964 Chevelle Malibu SS parts; 6-game bowling machine (Chicago coin), $550.

WANTED:

Vanpool from Joliet has room for a regular or occasional rider. Call Mike McKenna, ext. 3370.

An HPISC calculator was borrowed from my desk around 5/15/85; serial number 2337 A07402. Reward with no questions. Call Jim Crisp, ext. 4460.

Former retired couple from Geneva to rent or "house-sit" apt. or house for one month this summer. Call Max, ext. 4446.

Old lawn mowers, any cond., cash paid for those in running cond. Call Ed Dijak, ext. 3654, or 690-1145.