

TECH TALK

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

August 12, 1970

COMPUTER COURSES AT LIS

The Lowell Institute School will begin another two-year course in computer technology next month. Entrance requirements assume a knowledge of ninth-grade math, but the course is aimed specifically at under-employed people with limited educational backgrounds who have a desire to learn and a willingness to work.

The full course offers 25 semester hours in such subjects as programming, mathematics and system programming. All classes are held at MIT on Monday, Wednesday and Friday evenings. Fees are modest and there are a few scholarships available for deserving students who can substantiate their need. Admission is limited and will be granted only to those who propose to complete the full course.

Applications for the program must be filed by September 1 and classes will begin on September 14. Those who are interested should call or visit the Lowell Institute School office, Room 5-113, Ext. 4895.



Six Boston-area entrants in the 1970 Clean Air Car Race, scheduled to leave MIT on August 24.

CACR IS COMING

If you notice a sudden swelling in student ranks next week, it's not because school is starting early; it's the arrival of the 1970 Clean Air Car Race on campus for a week of pre-race trials.

This race was conceived as a broader attack on the polluting internal combustion engine than the Great Electric Car Race of 1968 in which only MIT and Caltech participated. It was hoped that 10 or 15 cars of various types would compete. Instead, when the final registration deadline rolled around last month, there were more than 50 entries from 37 universities, colleges and high schools.

Basically there are five different categories of propulsion systems. Most of the cars are powered by internal combustion engines using low pollution fuels such as propane and liquefied natural gas or equipped with catalytic or thermal reactor exhaust systems to control emissions. Five entries are pure electric, and six others are electric-hybrids which will carry on-board engines to constantly recharge their batteries. There are also four steamers and one gas turbine.

The cars, their driving and support teams will begin arriving in Cambridge this weekend. Race vehicles will be quartered in West Garage and the racing teams will live in the East Campus houses. As might be supposed, many of the race vehicles are extremely

valuable, both in terms of their components and the design and effort that has gone into building them. For this reason, West Garage will be a secure area during pre-race week, and only racing teams will be permitted to enter it.

Regular tenants of West Garage will have received individual instructions about where to park during pre-race week. The CACR Organization Committee is sorry for the inconvenience this will cause some members of the community, but is grateful for the cooperation extended by the Institute Parking Committee in helping to assure the safety and security of the race vehicles.

During pre-race week, the test vehicles will be undergoing road and performance trials, and, most important, emission testing. Some cars, no doubt, will also be subjected to last-minute finishing touches and improvements by their teams. Each racing team will present a technical paper on its vehicle at a seminar to be held on August 20 and 21, and the vehicles themselves will be on display at Boston's Museum of Science Saturday afternoon, August 22, from 2 to 5.

Then comes the big day. Monday morning, August 24, the Clean Air Car Race officially begins in front of 77 Massachusetts Avenue, with staggered starting times from 6 to 9 a.m.

MILLS FOR FREE WIND

In the small villages, or barrios, outside Ozamis City, Philippines, lots of water lies five or six feet underground. Last year however, the farmers lost close to 90 percent of their rice crop because there was no way to get the water.

Two thousand pesos (\$500) would be needed for a small diesel or gasoline motor to pump the precious water, more money than the farmers or the local Peace Corps volunteers could manage. Finally one of the volunteers, noting the brisk winds along the coastal city and remembering that air is free, wrote Peace Corps headquarters for information on windmill building. The Peace Corps forwarded the request to VITA

(Volunteers for International Technical Assistance) an organization of people with technical skills who offer their talent in their spare time to help underdeveloped countries. VITA handles many such requests; this particular one eventually involved a group of seven Boston area specialists, including MIT Professor David Wilson and one of his students in mechanical engineering, Charles Smith, who graduated in June.

The windmill had to be cheap, easy to build and efficient. The group designed one that used wood for the fan (the farmers of Ozamis City will probably use bamboo; the design is simple enough to allow the use of many different building supplies), a used VW engine for mounting it, and an old brake drum to support them both. Together with other simple parts, the cost of the windmill came to around \$200; a comparable manufactured one might cost \$1000.

This spring, construction of a sample was carried out on a windy green hill in Middleton, Mass., where MIT is building its LINAC. The prototype windmill--which can be constructed in under a week--works well. When the plans are delivered to underdeveloped countries through VITA, the water-bearing oxen in places like Ozamis City can go back to the barn: VITA's windmill will be pumping over 4,000 gallons of water a day through lands now dry and dusty.

BLACK BEAUTY

If Karen Schwitters accidentally leaves her diamond ring lying around someplace, chances are it'll still be there when she returns to retrieve it. Who would bother taking it? Would you recognize a black diamond?

Karen, who works in the Foreign Students Office, loves the odd, pyramid-shaped stone even if it isn't worth as much as one that sparkles. For one thing, it's the only such stone in the world that's been cut and set, and besides, it was a gift of her husband



Charles Smith, MIT 1970, (center) with fellow VITA windmill builders.

Roy, a doctoral candidate in physics at MIT, who used it in an experiment in high energy physics that will someday tell the scientist much about the make-up of tiny particles of matter.

Last spring Roy went hunting in the world's major cities for a ten-karat "perfect diamond," one with faultless crystalline structure, an octahedron shape, and a clear white and flawless purity. He first found the two-karat baby gem, now Karen's, which was used as the test target by Roy and his colleagues from MIT and those at the Stanford Linear Accelerator Center where he was working. It sat under a beam of 16 to 20 billion electron volts for a month, during which time its chemical make-up changed--its white sparkle turned green, then amber, then black--but its structure remained intact. When the diamond was no longer radioactive, it was given to Karen.

Later the group at the Center secured a perfect five-karat stone, sliced it into pieces measuring twenty thousandths of an inch and bombarded the slivers with electron beams to find out what happens when a beam hits the diamond, splits into polarized light and then passes into a hydrogen "target."

Roy says a diamond, because it acts like a reflecting pool by polarizing the high-energy light, is useful for a great number of experiments. Karen meanwhile wears the ring daily on her right hand, fooling everyone including the astounded jeweler who set the inky stone.



Upward Bound students Georgette Moses and Avis Brooks working with cuisenaire rods--small pieces of wood of varying lengths and colors used to teach arithmetic--under the guidance of math teacher Mike Efron, former associate director of Upward Bound and one of the originators of the MIT Science Day Camp.

GOLDEN RULE DAYS

Many people were skeptical about the possibilities of motivating 30 rambunctious, under-achieving boys enrolled in the Science Day Camp when it started six summers ago. Some boys dropped out and were replaced by others, and the program itself evolved greatly, most notably when it became the MIT/Wellesley Upward Bound.

This year Upward Bound has reached its first measure of success. Its first "class," now including both boys and girls, graduated from high school this spring and nearly all will be continuing their educations. Two have taken jobs, three will be continuing as high school postgraduates and 25 have been accepted--some as scholarship students--by institutions of higher learning. Eight of the "graduates" have been in the program from the beginning.

Started by MIT students with faculty support, the Science Day Camp was an attempt to excite the imaginations of youngsters turned-off by some traditional public school curricula. Innovative techniques continue to be used by the MIT and Wellesley student tutors this summer at Wellesley, where 65 Cambridge teenagers are living in dormitories during the week, studying each morning and enjoying films, sports, lectures and music in the afternoon.

The ethnically mixed group was culled from references by teachers, guidance counselors, local agencies and, frequently, Upward Bound student "veterans." So important are the students in the running of the program, in fact, that some serve on the admissions committee--telling the maybe-interested applicant just what he's getting into--and this summer six of the older students are living in the dorms as counselors-in-training.

Director of Upward Bound John Terry welcomes all questions about the program at his office in Room 20C-006, Ext. 5124.

MEMORIAL SERVICE

A memorial service for Professor Emeritus Avery Allen Ashdown will be held in the Chapel on Monday, August 17, at 11 a.m. All members of the community are invited to attend.

FOR SALE, ETC.

Girl's 20" bike, American style, \$15. Call X564 Draper 7.
Port stereo recd player w/ AM-FM, \$40; clock R, \$5; vac clnr, \$10; clothes size 10; ladderback chrs.; twin bed. Call X7488, 10-2 p.m.
Free baby gerbils. Call 527-5312 evgs.
Olympia SM-9 typwr w/ math symbols, 5 typit attachmnts, pad, cover, case, \$60. Call Helen, X4592 or 492-2831.
Heating & a.c. units (3) for central system; (1) generating set, 3 kw, 110 v., 27.3 amps, w/ Wisc. a. c. engine Model ARN. Call 851-4267 evgs.
Free: fluffy kittens (7), calicos (2). Call 894-5253.
Parker lawn sweeper and sm hand mower. Call X3887.
Tuneable under-reverberation unit, \$16, brand new. Marie, X5315 Linc.
Kenmore port dishwasher, 2 yrs old, orig. \$169.95. Call 434-3226 Marblehead.
Craftsman Mitre Box w/ 16" back saw, almost new, \$7.50; child's 20" bike, Huff, convert boy/girl, \$10. Call 862-1935.
Two-man mountain tent, \$10, 6'x8", very gd cond. Call X7141 or 864-9095 evgs.
Uprgt piano, recond, fine tone & action \$95; antique square grand piano 1870 by Bradbury. Call 944-2138.
Conn Rhapsody organ & Leslie, orig. \$2, 895 now \$1,350. Call X2766, 491-7434.
TV, 21", exc. cond, \$20. Call 924-1772.
Refrig, \$50; (2) desks, \$15, \$35; dbl bed; \$80; rugs: 11x11, \$10; 9x12, \$30; 18x12, \$150; (2) propane tanks; oil for Saab. Call X5717 or 926-1619.
Scandinavian bed, teak, 80" wide w/ attached side tables. Call X2247.
Spider plant w/ 40+ shoots. Call Don, X4170 or 868-7097.
Port P.A. amp, ideal for demonstrations, 9 w, solid state, nds some work & new batteries, \$20. Paul X6389.
Couch, \$50; match end & coftbls, \$20 ea. Call 666-0957.
Weightlifting set. Jim Lyneis, X6671.
Medit. sofa, 7', bl/wh floral pattern, \$50; frosted wig, \$10; (2) dry irons, \$2ea; elec curlers, \$7. Call 266-0882.
Oasis II '69 camper trailer, used once, was \$695, now \$450. Call X7995.
Free: puppies, mother poodle/shepard, father scoundrel. Sanford 862-4597.
Necchi Supernova sew mach, fly auto, exc cond, \$115; TV, 10", 4 mos. warranty unexpired, \$50. Call 547-9411.
Bogen 35 watt mono amp-preamp, wks fine, \$25. Ted, X428 Linc or 643-0889.
Ludwig drum set, 4 pc, high hat, (2) cymbles, 4 mos old, orig \$850, asking \$400. Call Terry X2894.
Wire wheels (2), 14" dia., 60 spokes, \$25 ea. Call Howard X4233.
AR stereo amp, \$150; Heathkit FM st tuner, \$170 or best. Call X387 Draper 7.
Chaise lounge, velvet, \$50 new; vanity tbl & brass stool w/ glass & 3-way mirror, \$25. Call X3339 or 924-4086 evgs.
Philco a.c., 6, 000BTU, w/guarantee, one mo old, \$140. John X3241 or 277-2510.
Encyclopedia Britannica, '70, royal red bndg, 23 vols, index and atlas, bkcase, nvr used. \$350 or best offer. Call Jane X4487 or 648-9435.
Air cond., bdrm 5000 BTU, 2 yrs old, \$99. Bill Blatchley X4576 or 868-5873.
Refrig., exc cond, \$25; sngl bed w/spring & matt, \$35; solid mahog dining room set; assorted hsehd goods. Bill X5377 Linc.
Lg 7-dwr desk w/ chair. John X6176
Cof tbl, sm din tbl, dresser, sofa, ironing board, \$3 ea; (2) blk chairs, \$2; steam iron, \$5; sngl bed, \$5; all reas cond. Bridg X7006.
GE sunlamp w/ cord, bulb, shade; 10 gal fish tank. Call X4714 or 868-5549 evgs.
School book, 19th Century, best offer; 3 gal Torraine house paint, suntone, \$7.50; new Eiseland ski bndgs, \$10. Call 926-1685 evgs.
Matchless 350, '54, 8K, body gd, eng in exc cond, \$400. Call 868-2876 evgs.
Edson crib-carriage, 30x54x46, w/ 4" mattress, \$45; Collier carriage-stroller, \$20; Murray tricycle, \$10; travel crib, \$5. Call X3425.
Baby carriage, cribs (2), carry seat, bottle sterilizer, others. Joe 272-6965.
Lg. port stereo, \$35. Call Shirley X408 Draper 7.
New queen-size mattress & box spring, 1/2 price at \$75; queen-size blue/turquoise Bates bedsprd; heavy blanket. Call X5003 or 277-6833 evgs.
BR set, 4 pc. w/ box spring & matt, exc cond, best offer. Claire X7101.
Xgl beds, \$5-\$10; desks, \$10-\$20; bkcases, \$5-\$10; vac clnr, \$15; free chrs; lg refrig, 5'5"x2'x2'5", \$30. Call 491-3280.
Golf club set, new, 9 irons, 3 woods, wdg putter, cart, bag, \$150. Tom X2871.
Sngl bed, \$25; bureau, \$25; desk, \$15; bkcase, \$10; Call X366 Draper 7 or 354-4736.
Old wooden keel sloop, 23', \$1500. Call 547-5233 evgs.
Ivory/gold vanity, \$35; (2) drum tbls, \$17 ea; (2) bureaus, \$25 ea; bridge tbl & (4) chrs, \$23; flr lamps, end tbls, others. Call 266-0279.
Free: (2) kittens. Call Bernard Murphy X7670 Draper 14.
Encyc Brit w/ case & atlas, 2 yrs old, like new; 1/4 k diamond ring, pretty setting. Call X5730 Linc or 944-2142.
Queen-sized bed w/ maple foot & hdbboards, \$25. Call 935-3016 evgs.
Contemp walnut LR sofa w/ 2 attached tbls, \$60; walnut dinette tbl w/ 4 chrs, \$45. Call 395-4382 after 3 p.m.
Piano, console, Whitney, mahog; 8 yrs old, \$525; bench incl. Call X7374 Linc.
Puppies w/ shots looking for gd home. Approx \$6 ea. George X4472.
Gibson guitar, steel stringed, narrow neck, nrly new, \$75. Free carrying case. Ginger Rae X652 Linc.
Mich X 165x13 tires (5), 30K, tread left. Bart X5878 Linc.
K, LR, BR furn; sewing mach; refrig; rugs, all cheap. Also new Yamaha 80. Call 787-4763.
GE port tape record, new \$50, now \$25. Used once. Call X4661 or 648-7757.
Twin (Hollywood) bed, 1 yr old, exc cond, orig \$75, now \$35. Mary X6633.
Kitch tbl & chrs (4); maple LR set. William Nowell X7129 Linc.
Misc. furniture; 21" TV. All cheap. Call 868-5583.
Rug, blue/green nylon tweed, 12x15, exc cond, best offer. Kathy 868-4677.
K tbl, chrs (2), \$20; end tbls (2), cof tbl, \$5 ea; rm divider for Egate, \$15; baby crib, \$10; stroller, \$2; misc. items. Call X6922 or 491-8754.
Car radio for Triumph, w/ face plate, brand new, \$50. Call X2380.
Sectional sofa converts to twin beds, w/ slp cvrs, \$85; lounge chr naughayde, \$10; platform rocker, \$10. Call John X5001.
Nikon super-8 movie camera, case & editor, \$200. Peter X7365.
TV, lg tbl model. It works! \$10. Call Tom X7667.

SCM Classic 12 pica port typwr, \$45; AM-FM stereo port R, \$40; new tennis racket, \$10; texts for 6.01 & 6.03, \$8 ea. Call Al 868-1191.
Zenith TV w/ UHF, 1 yr old, \$70 was \$135 new. Call Mike X1833.
Tires (4), 6.50x13, snows (2) and regulars(2), \$30. Call Dorothy X5252.
Free: kittens, avail mid-Sept, 3 to choose from. Call X7604 Linc.
'60 DeSoto in rning cond, R&H, body exc, extra wheels. Someday a collector's item. Best offer. Call Tom X1761 or 782-7730 evgs.
'61 MGA 1600 w/ convert top, tonneau, R&H, new clutch, valves & fuel pump; nds some work; \$300. Murray X7203 or 1-358-2877.
'61 Ford Falcon w/ rebuilt eng, exc cond, \$200; also LR, BR, children's furniture. Call 547-0029.
'62 Olds 2-dr auto trans, new tires, tune up, wiring. Call 666-0096.
'62 Fairlane, gd 2nd car, \$75 or best offer. James Green X2564.
'63 Chevy, exc cond, 58K, \$500; also wash mach, 3 cycles, \$100; small appliances. Call X1630 or 566-0838 evgs.
'64 Volvo, not a beauty but exc running cond. Best offer. Janet 262-7449 evgs.
'64 MG 1100, \$275; also furniture, crib, iron, TV, vac clnr. Call 643-0630.
'64 VW, 41K, orig owner, \$550. Call Jim 643-7459.
'65 Austin Cooper S, v gd cond, best offer. Call 868-0910.
'65 Barracuda, \$350; also hi-fi, \$80; other items. A. R. Wilson X7875 Linc.
'65 VW, 38 K. Call 354-6031.
'65 Rambler Classic Wagon, V-8, std, overdrive, positrac, \$500 or best. Call Mike X4496 or 262-0036.
'65 Rambler American 440, exc cond, \$500 or best by 9/1. Claude X3105.
'66 Olds Cutlass coupe, exc cond, new tires & vinyl top, 3-spd, \$850. Call Carol Libby X1663.
'66 VW Sqbk, 44K, engine rebuilt, nds body wk, \$600. Call X2459 or 742-0414.
'66 Fordvan, std, 4 dr, gd tires, 50 K, Best over \$25. Call 491-0422 evgs.
'66 Ford Country Squire, white, exc cond, 55K, \$1600. Call X5383 or 581-0563.
'66 Volvo 122S, 4 dr; also beds, tbl, desk, bkcase, lamps. Call 734-3393.
'67 Opel Kadet avail immed; '63 Chevy 9 pass wagon avail 9/8. Call X4337.
'67 Toyota Corona, auto, 23K, radio, \$800. Call Ross X1981.
'67 Saab, oil injection, recond eng, \$550. Call McCorison X7465 Linc.
'67 Ford Galaxie 500, exc cond, powder blue/ blk int, w/ stereo tape deck. Call Lucille X2766 or Jim 625-5763 evgs.
'67 Camaro convert, gd cond, \$1100. Call 729-3349.
'68 VW sunrf, R&H, 46K, exc cond, \$1100. Call Bob V. X6989.
'68 Porsche coupe, Irish green, sunrf, CD ignition, new konis & pirellis, many extras, 30K, like new, \$4800. Call Peter X320 Draper 7.
'69 Renault, AM-FM, looks & runs like new, 43 K, \$1000 or best. Call X4358 or 389-3291.
'69 Fiat 124 Spider convert, 12K, 5 spd, AM-FM, white, 14 mos old, \$2700. Call 262-0488.
'69 Camaro convert, 396 cu in, 325 hp, super sport model, 4 spd trans, disc brakes, 15 K, \$2000. Call Dave Sheldon X3213.
'69 Triumph Spitfire Mark III, radial tires, R&H, tonneau, less than 3K, exc cond. Call 491-6186 evgs.
'70 Maverick, auto, r, economical 6 cyl, \$2150. Carl X2338 or 275-0465.
'70 MGB, 7 wks old, 2.5K, avail mid-Aug, \$2800. Call J. H. Frailey X4974.
Rockport furn 3 BR contemp, mid Sept-mid June. John Harper X174 Draper 7 or 546-3033 Rockport.
W. Newton Hill, custom designed house for sale or rent, 3 dbl BR, 2 B, library for 2000 vols, \$62,500 or \$450-500/mo. Call 244-0039.
NH Sunrise Lake vacation chalet, furn, slps 12, beach, sailing, swim, 50 yds, 90 mins to Boston. \$125/wk. Call Ian X4322.
Wat nr Cushing Sq., 4BR, den, formal DR, two fpl, sunporch, attached garage, mod K, 1 1/2 B, exc cond. \$41,300 w/ extras. Call 924-4648 evgs.
Ashburnham 3/4 acre vac lot, priv lake, 50 min from Bos. Ken Collins X4211 or 322-3034.
WANTED & MISC.
Seamstress for reasonable price. Call 926-2169 evgs.
Sitter to care for infant in Wat home from 8-5, 5 days/wk or part of the week starting end of Sept. Call 924-8454 after 5 pm.
Handsome M Lhasa Apso champion blood looking for F. Object: puppies. Call Max X5758.
Cabin trunks (2). Call Mrs. Das X7716.
M rmmates (2), 2 rms avail., one immed, other in Sept.; within 3 min. walk to M.I.T.; \$50/mo. Call Michel Lecomte X4192 or 354-6803 evgs.
Beer drinkers & dart throwers apply Muddy Charles Pub, Walker 110.
Fem rmmate w/ apt, pref 3 or more, pref Brk or Camb, beg 9/1-5/31. Call Beth Maxwell X7166 or 261-1347.
Sail or sunfish to rent for 2 wks in Aug. Call Dick X2180.
Pentax stopmatic body. Call Joel Altstein X7600 or 924-1773.
French grad, M21, nds bed & brkfst w/ family nr T in exchange for helping children w/ French studies; Aug & Sept. Christine Durling X2295.
Bicycle. Call Jao X6865.
Sitter for 1&4 yr old sons in my Camb home beg 9/1. Call 868-3738 evgs.
Will deliver you car to West coast. Depart mid Aug. Jon & Wendy 442-0608.
Rider from Revere area (Gen Edwards Bridge) 9-5. Barbara X6483.
Student, pref F, to receive rm and bd and sm salary in exchange for lght hse-keeping and afternoon sitting. Call X6013.
Rent or buy cottage nr White Mts. Edward Walker X5761.
Washing machine, gd cond. Call 323-8382.
Guitar for beginner, reas. Call John Dario X3584.
M rmmate for own room in 3BR apt nr Porter Sq, avail 9/1, 2 B, a.c., dish & disp, w.w.. Call Joel X5881 or 868-0315.
Martin guitar, second-hand. Call Diane X652 Linc.
Old mattress & FM radio for sanctuary on Mt. Auburn St. Call 492-2000.
DR set; 26" girl's bike; sofa bed. Call 547-0950.
Fem rmmate for Arl apt on lake, a.c., pkg, on T, \$90/mo. Sally X6304 or 646-2960 evgs.
Fem rmmate for 3 BR apt in Brighton, own BR, nr T. Call 734-4224 evgs.

Tech Talk is published every three weeks during the summer. Send news and ads to Joanne Miller, Room 5-105, Ext. 2701. Ads are limited to one per person per issue and may not be repeated in successive issues. Ads not accompanied by full name and extension or room number will not be printed. Deadline for the September 2 issue is August 20.