

WHO'S AHEAD IN THE SPACE RACE? WHO'S LAST?

CASTLES IN THE AIR: THE UTTER POETRY OF OUT-FARTH ARCHITECTURE

SPACE

A CAPITALIST'S GUIDE

SHOULD WE 60 TO MARSS your

PLUS: INSTEIN'S EDITOR PEAKS OUT

53.00



SPECIAL SPACE ISSUE

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PAGE

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CONTRIBUTORS









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LETTERS

COMMUNICATIONS

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Sheri Huthre

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Lon Ann A

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Robert Smith Swisher, lower

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I'm size you know that every Sunday the comics are in color. Well, in my Utopia, instead of being just on Sunday, they would appear every day. There would be four pages of "Castry." "Clarified." and "Robotham" and one whole page of "The Far Staff by Carry Lance.

Happy Swrik eleven years old



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SPACE

By Justine Kaplan

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torrorwoled information. In the next deep-space transports to Mars. And Because the likelihood of Mars eurilo-

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of NASA since as increasing Astronauts Nail Armstrong Michael Colins and Buzz Aldrin signed it. So did. Garter Walter Gronkete Louis L Amour

The Mars Declaration provides a world, is lobbying the public to support a new intolive that focuses national attendocument last summer in the wake of it focus imergies on Wars. "It is affordable cooperatively if would command the

broad public support " The need to form a coalition of supporters grow after a series of Planetary

in the past wair than over before in 1976.



Cause culative Stater support for a journey to the red planer e pwa

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The Separation for Extratementral Intelli-

The Search for Extratementral Intelligence (ECIT) is a small part of NASAs present budget. Should funding the deppted up? Forty-three percent and year. 47 percent and no and 10 percent land no opinion.

In the last question, we asked reasons

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Our thanks to those who took the to answer and return the cards DO

EDITING EINSTEIN

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by the twenfielt century's greatest minds Unide the diserction, such men as physical without Endoor, Nieta Bohr, and Wenner Hospinothery poptomonlyst Endo-Fromm, this liquid in Haul Tillich, novelet, Thomas Mann poet W. H. Austen, Pope John 2011—and a solitary woman, Margariet Wied—have contributed to he seven major senses of books.

The list of Amshim is collected work buddes make their 130 baddes on gli mandariani themes, among them working Religious Phospocitives. I leave Chade Anappactives, and the leave Chade Anappactives, and the leave World Perspectives: Has Fre Usaw? (Preage) is the ninth and partity published volunte in her or preagence series.

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comfortable only in high places.

Her explices all this symposis however was tempered by an acute cense that something area was former was some much fragmentation and soliation in this galleys) great minds i she says shaking her head. "They didn't respect one another as experts in their helds."

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For Anshen the project became a crisisative to letter at Ansheria operate those European and American thinkers who disease her work. We were herebos, burning not at the stable but in our heret and minds with new unerfolg peak for uney. Anshen soys. We hoped to provide the case of a subusit Magna, formate for the gouldance of our species. The modern westion of the histopith-certainy funglish chains that guaranteed fundamental rights and prinsiples would be a "seconlingths and prinsiples would be a "secon-



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CONTINULUM

SPACE AND THE '88 FLECTION

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CA in the mid Soventes."
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when a mouth begin decisions with the Science on the second or the secon

kind of money. And unless there is a strong, vocal space vol to cardidularivel promise to support such projects. So what or a space orthusiast do? imagine it's 1989 — RANDALL BLACK

CONTINUUM



Do volcarrio eruptions suby affect world almate in lacs it just seem that way a those of us living through

to those of us ining through a coder-than-usual summer following a large onuption? Geologist Stephan C Partar between they not only affect world climite but groduce cooling transits in-

produce osoling transis severe or ough to couse the adversor of gloons. Purcher presently the close for of the Casternary He search Caster of the University of Washington in Seattl compared Instructed and geologic evidence of global activity with airmospharic course according to the Casterna Castern

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RAILGUNS TO THE RESCUE?

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—Juleo Ferillor

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CONTINUUM

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> their Or level they held their breath white sincicing, 25 minutes at a stretch, so if makes seems that they would do the same thing at see — Paul McCarthy "If a person offend you, and you are in doubt as to wheth

> > sures, amply widch chance and lut him with ak "—Mark Twist

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John Mur



JAPANESE GENI FACTORIES

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The U.S. Department of program of section of the Committee of the Committe

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> "Astronomy compels the acut to look upwents a loods us from this work another

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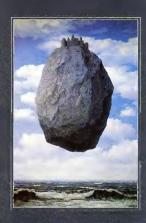
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CASTLES IN THE AIR

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markets: "Twentieth-contury physics."

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Johnson has always been a reperade

Landon building, once described as an oil refinery and concrete plant syntheward

Charmon Dovid, a siender bearded ar chiect in his mid-forties with others in Bahrian Cyorus, and New York has a clear ist? The faculty David claims, must focus

on the luture-question (I'vy to predict what's going to happen. "We don't one a damn. David insists, labout style and styl-

dents to make them 'as bold as Frank Lloyd Whats or [Alexandre Gustave] Eff



FICTION Without the dream one would have found no occasion for a division of the world-Friedrich Metzsche

THE DREAM OF THE WOLF

BY SCOTT BRADEFI D.

ast right I dreamed I doughout black coffee with at her father, her chin BUDAY "I Was surrounded vegetation. I loped along at hungry powerful Lerry of fox rabbit canbox rodert low! molusk

het monter watch for Mondemp deficials. Eat over day March Iwenty-first, the racio said. An overtuned Castine cazed up intently propped against the table edge Her tel cripped a

'What did you do,

The time was eight-lifteen "Caroing fresh your cereal before it only cold? Theard a noise behind me and I lurned "Larry. sgan Mommy He caught was the synderum" Larry for a moment-and then said and pulled on his

Daddy's doughout Firsth your cereal 77sm Dedety? What did you do to Fither I I stop by the

Ibrary again tonight" Larry

PAINTING BY BOBERT SCHULTZ

spoon remained gripped by the thickening circell like is feed in List British in "Sure horsy And ped-up some milk on the way forms will you?" By to exempted "Wil", Lary sach, "It by" incoding the british white on, the warm, easy basis of the blood.

Wind here—band over "Sheryl more tered the tip of a napkin with her lips. "There's jely all over your face" "It's the blood, Daddy it's the mouse's

"It's the blood, Daddy it's the mouse's blood" "Thanks," Larry said and went into the king from Deplins witched the kitchen door swoo

shut. After a law moments she heard the front door open and close. "Daddy forgot to lice me good-bye." Sherryt spreed pots and pare into the snik. "Daddy's a liftle prococupied this

morning dear."
Caroline flooglist for a moment. The bitten jely dought us sal in the middle of the table like apartime. "Daddy site a moute," she said finally, and middle a proud little fourth in the air with her spoon.

Come lapse younge. Came have made order. Came major make Lamy frecight control came major make Lamy frecight came the came of the frequency frequency. The world he frequency fr

like birds on a wire

"Larry! Hey—Spacemen!"

Androw Prytowidy waved his Wall Street
Jacobs. "Sit here!" He removed his bristcase from the window sept and placed if

in his lap. Reet half inacched brain off yours four may reach it liter." "Thanks" Lamy said, squeazed into the vicent level, and one also an effection may Cases lopus chance. Teatin spring, one puscular hour. His pack downed a goot falloof sind them of he unit duel filer chaniels.

of opening motory
That's earnings. Larry That's retingment searning. Larry That's retingment searning. Analow shade the American Stock Eachange Index at him, as if he proving an University of the Index at him, as if he proving an University of the Index at him, as if he proving the Index at him, as if he is not have been as the Index at his simulation of the Index at his simulation who have a search at his index at hi

chest with the rolled-up newspaper "Hey-Spacemen. You even listening to min?". The traffic light turned green, the RTDs clutch connected with a sudden siedge teamine sparid. "Sure, Lamy aud and the bus entered Bewerly Hills. Everbalant hood of 1989. ornaments flashed in the sun like grains. Tasy lequidity, increat variations. Iff their about \$1.1 millity will "Carse legion areato, paliphose, basey installs immorbaciety, he thought. The violets of the diserm the worker of the world." "Sill having those rully dreams of yours,

Sill having those nutly dreams of yours, Spacemen? Your wife told my wife You chean youthe a dog or sending?

"A wolf Casic Apple It's not even-the same subspaces at a dog."

"Oh! "Andrew glocarded his newspaper."

under his seet "Sure"

Wolves are far more intelligent than any dog. They reheroen hunters loyallor mates. Their according to propose of their according to the control of their according to their according to the control of their according to their according to the control of their according to the control of their according to their according to the control of their according to their according to the control of their according to their according to the control of their according to their according to the control of their according to their according to the control of their ac

Their social organization acres—
Nath—nghr. Bysceman III bot in your dearns you really race hell with those stipped dope—hely. Larry, eld pai?" Andrew said and gol off with his breloase at Westwood Boulevard.
As the box is oppositely of Yearny seventh.

the bus approached liverry of Larry moved back three d of pessengers who stood

Wolves in Utah,
northern Mexico, Beffin Island,
even Hollywood.
Wolves sporely everywhere.

Larry thought, and moved down the crowded asie.

Women jostled in seats like birds on a wire.

aboli with invespopers, magazineo and delatival extrements as the vicinity processive by worthing processed by billing part like a harved or parameter processed by billing part like a harved or parameter processed by billing part like a harved or parameter processed by billing part like a harved processed by billing part like a billing parameter processed processed by billing parameter processed processed by billing parameter proc

oepteniet's clasif exchanged quick, significant outpressions like sected memorandum's. Lany healed bein gigging as the disappeased into the maze of high white perform the organized clinic cubicles live discretis cells in an artifiarm. Larry entered his other. Any you ready for Monday? Marry Cabrillo salead.

Larry hung his cost on the rack, sinesso. The marketing specyword social informs of Larry's bookened, groung serriestry of the species of large groy, Accessing to brains; "Farrity," Menry sold, "To father be in Seales, How also gour previous," Fine, sat fine," Larry sold, sat down as no stell, and open even fire from the sold and open in solds and open of the fire of the "Thought for chooky and seen if se change. Courty sates reventing was cooly Dicts Time in to stage, in you know." "Castracty, "Refin was seen if se "Castracty," Refin was seen if se "Castracty," Refin was seen in the case. "Castracty," Refin was seen in the case.

Dicht meer to barge in, you know."
"Centarily Help yoursel." Lerry gestured opproceely with his right hand, rummaged in the deek drawer with his left. Ed Cortific called from Costa Messa and sed he still hearth received the Goodysen. Heart I Mether in received many little hand.

said he still has the scened the Goodyean figer I side him no postern—you'd get back to him Right?! "Right" Lanysternmed shut one chawer, pulled open another. "No problem Heave are are..." He removed a large farled

great hisotowe book. One of the books conners was bleated with dop-eared pages. Larry wheel distant bits of paper against the tousiers. The Molives of Novin America. Part Cinc, Classification Oliveis Marry propped one hand source; the title pooks. If hope you shall take the the

wong way or anything. Larry I mean, I'm not hyrig to pull rank on you or enyhing. But migble you could fly being just a liftle more careful the next few wooks or to Think of it as a firmityly warning okey? Larry looked up from his book.

Litry looked up from his book.

"His not me, Larry." Marty placed his hand emphasically over his heart. "You know me, right? But distinct managers are starting to compliant. Eate orders, uniformized bills, hismains statil like that Nothing I couldn't ower for you. But the guys upstems early so potent—that a still intriving states aren't so potent—that a still intriving.

Finally Larry located the tundanum's subspaces guate. Type Locathy Point Barrow Altaka Type Spacemen No. 18746, probatly female, skull only, U.S. National Museum, collected by I.P. P. Ray.

But for God a sake don't like unry of the persons or survhina. If it not really serious persons or survhina it is not really serious.

or anything. Everybody has their off days. Popile get well destracted."
"I know it! Larry portled at the page. 'Just what I thought Look—londerum is 'oloely allied to particishes. That's what have—specify as I surposed if his den-

talion was a clear greatway.

Many furnished for a organishe from his stacks, after propriet. It like lighter from his stacks, "Well." he said, and book a long drag from his Kool. Then after amounted. "You know Larry Begintop and There always begin the terested in this cooling staff curselves. You should have no picts or Sharts constitute.

terested in this acology stuff cursives. You should visit our caller in Sheats confirme. There is noting like if—chain air trees, print vary. We joined the Sierra Club just last year. But look we've both got to get back to work right?

Many paused curside the outside. We'll aid footber and like though it over hundred footber and like though it over hundred to enther and like though it over hundred.

get logether and talk about it over knock sometime, day? And maybe you could dop the sales inventory by my office later? Bufore noon, maybe?

AROUSE YOUR SYSTEM

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cor speciers.

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high frequencies. Full hight, outhartfolke boss. And strikingly occurate reproduction of the midrange—sound so pure, so litethe, it exists your senses. Only Planser offers you such on extensive selection of our and truck speciers to choose fromover 60 models in all.

So the next time you slide behind the wheel, sumand yourself with the exhoodingry fidelity of Proneer speckers. There's simply no better way to get it oil out of your system.



is Populars to make indular





and EVP polar being lighting divide regard CHM Record Fortunes (SEC) by Ling Track Ca Wileds State participation of SERS away 19 007 2 way until SEC 6 way (I) PIONEER* The night Larry returned home after the damer clashes had been wissled. He glanced in Candina's room the was allees Suffed wolves cube and an incompasse uncoming large and an incompasse in coroning to glance in the bed like dominosi. He found Sherry Curt to her had and before an applying lister. Curt to her had and before an above.

Larry and on the edge of the bod, gimpsod harvaid in the variey meer. He had foopdate to shaw that morning. He aspea were stake surface hard (The fore wolf lopes thylmecally across an empty plan. Like alternation, clear this key. The sale citiester moon appears on the horself or the sale citiester moon appears on the horself was appeared on the whole has been also also the sale of the sale cities of the sale

by in the distance).

Listry furned to the welle "I went all the way out to the UCLA assessmith bisary, then found out the actuals between queries. The library closed at five."

The library closed at five!

Thef's too bad, dear, Would you plug that in for me?

Second or find a planta you have here.

Sterry policy a plate's op-over her had "had open seen her had "had open black was standard the had "had open black was standard the confection the plag to the will be seen a seen of the black box began to flum Gradually the plated capy reliable cap in their Braked Tasyy Harth I braw how to phrase this a but more delectably but don't its been on my mad a foll table? Sharry turned the pages of a K mad "exceptable as Sale box of "These are

horned PIA meeting—listed fall—martiwouldnit consider of himmart of an egipt out.
Larry ran his finance lightly across the summary back box. Lock horely listone manning back box. Lock horely listone manning back box. Lock horely listone random listed by listed by listone show that it has placed his lart against his formation or marked by listed by listone for the listone and listone between the configuration of the list of the list and it legals been all fall on hit y as torque. The walked, his though, shoping to the back of the moon the not quark pulse his last of the moon the not quark pulse.

When you don't understand—but these arrants and cross When Tim audit marries and cross size is the telegrap feet. Buy passes is see the feetings feet. Buy passes and As set all a fam more selling by passes as a carried or Tim not marriage at the up. But sell. If any to be a faller more thought but now on Well good to demonst the weekloom, I promise fluid from the for a white clay? Clear ma a time clear, that's all im aging.

Sheeping factoria up the sock the furnishment of the selling selling sell

ming black box from his hand.

Tim som, hom Dox yoursay something?

She patied the placed copy. Priod on, If the infested in a minute? She turned another page of the between the nation, see life makes, she craded the sele procedure. Then, we have not extend the sele procedure than you waiter felt makes, she craded the sele procedure of the procedure of the selection of the sele

"Last night I desired of the Peetolane"
"Where is that, Daddy?"
"Things in place home It as from Along

frou mean dinosaurs, basoy bud you dream you were a chrossur? "No, during The dinosaurs were all gone by then I was Carso dros. I think The tundra was cold and directate, the sky lifled

with this went's, edicited globe, like the aimosphere of some steen planed lice was overywhere. Only thisse of us arransmed in the pack My mace had deed the previous regist beneath a shell of see, while the resitor is haddled account to keep the warm Dommant. I sed the others across the water to my tast alghey exist. We were terribly colds fred huspy. "Weren't here any more there, Daddly?"

No Wed traveled for days but hacht decovered any spoor Except one." "Was it is clear, Daddy? Did you full the deer and eat it?"

No. I was marks spore. We were seening an excerning of mer care part of men' Larry man observed and Sterny was beeting again as a bowled statemy was beeting again to a bowled without produced theorem on the potable blookeder. "Sharry! that was the stranger of the read statemy that was suppressed. As a stranger of the read statement and well We weren't charact of more we supply stratemy commands of the statement of the statement

Lose Harman salet, Lister in the flour well be meeting Lorna Bodows to decoust he need this bloom and then take an etylic tap up the coast to seem to the Harmphine, the Cosnie State, as pert of our states of the Union same Proses stay with us."

"The always wanted to live in New Hamphine: "Sharyl sed."

Liftry steppens of the humber clarach factory in the conduction of Wilward Adwin, Fordi India of the Conduction of the Wilward Adwin, Fordi India of the Wilward Adwin of the Wilward Species Principle of the Wilward of the Wilward Species of the Wilward Species of the Conduction of the Wilward Species of the Conduction of the Wilward Species of Administration of the Conduction of the Wilward Species of the Species of

A group of American entregreneurs says its financial future is 100 miles up-and orbiting

STARSHIP ENTERPRISE

BY BETH KARLIN

mering Edwards Air Force prosens his foot to the Tippe and appelerates his Research Facility where the space probe Vovepar took the barren California desert

huddes around the sophetigated electronics that will he says is simpler and less existence today With a moture of piddy anticipation and countries pressure ancient company personnel run through the prefring checklet announces the operations of a Medintosh Plus to seart to the engine burning. The

CHRIS SPRINGMANIN

seeking to industrialize some These rivestors are investments will be more than D0 miles up—and profing Fledgling companies are building the workhorses of the and satelikes to low Earth develop no trills orbiting .

or AMPIDC is one of a

fast semiconductors and

will ahum out incredibly PHOTOGRAPHS BY



From no-frills orbiting labs to workhorse rockets to free-floating factories. American capitalism is streamlying the business of space.



decades these entrepreneurs say commercial apaceports will live in rotaling spheres mmno the planets and aster Before all this happens fronter must be lad, and extraterrestrial projects must arguably the most racical and true rocket hardware easily the most flamboyant the only one seely building leaders among young spacelaunch companies have

opied to set more the general



Services Inc., in Houston, run by former Mercury astronaut



based Constet, and Ronda's EPrime, with B G Dave as president Slayton is using recitat isunch vesoran, will be assembline ample, microgravity experiments The first person to talk about the inckawas Princeton spece scientist Gerard K. O Nedi O'Ned apun alaborate sceneros materials necessary to produce energy to

of specia entrepreneurs reaszed the coast commercial ventures. And Ronald Reacon. year monopoly on space platforms. Says James T Rose assistant administrator of

is a need for the individual entrepreneur This new energetic group has sinalidy race cars," Koopman sava "But they're garnered significant support. Congress, for optimized for performance with very little wiches. We are going to be a regular, nillable, and low-oost trucking company that Koopmana company is off to a flying

tigation stopped the government space el-

tractors, as well as developing instrucformi books that burnt soldiers how to say operate a range-linder system on a tank, or foldstrip on M-16 rifle. He also served as an intelligence agent during the Vesthe move The Blues Brothers, and pro-Snotk in 1976, he and he found Time thy Leary organized a gathering that would scientists and philosophers met at the Inskitute for the Study of Consciousness in Berkeley California, to consider such cou-

simple "hybrid" rocket engine, in which liguid cayonn is answed over solid tool with regulating the flow of oxygen. According marrown then other rockets, which include and-recovery capability and provide

McKirpey was convened that AMROC's

sowne His design growed in acaled down the exact amount of thrust controlled by through cots of alumnum was constating a magnetic field. The magnetic field then accelerates a small bucket packed with a sohere of material about the size and weight of a basebal. The material leaves loward its destination The technology long a connectone of may now be used by the Roths Growns

to launch payloads from the moon into





55 OMN

colonies with accommes and societies of NASA's Often of Commercial Science Pro-O'Neil's scenarios was that they called for space is a new tronger and like the respecplacked on January 28, 1996. O'Noths clear requirem of space is porting up there, rocket take for the covernment to monopolise. Menets, and McDonnail Douglas have alcritics declared our system of private enterprese run on principoles of efficiency and il faunching heavy payloads, such as comgrats had failed. When the ensuing inves- more But when it comes to providing low-

start. Driving northeast from Los Ancerles to Edwards, he relates the series of tesuta. 1995 Doon in Towas change While! War II bers learning to read from navigation textspent ten years producing videos for the dalense department, among other con-

the future of man. Enraptured by O'Ned's vesco of estratemental octobes. Koopmen decided a was time to start up a the right venture. In 1965 he hooked up arring travel allowing commercial launches, appear somewhat more reserved then Koopman

PALMONER FROM NOOD-WAY TO LEMONTEEL FROM STAN A DEGLERO ACCOL FROM TOLLY

transportation for all londs of materials. perhaps even panole "he notes "The tran-Koopman provided himself in space, the transfer from the processor days of seas to the stars, and Bennett a re- be loting payloads upward as well. Like by O'Noll's ideas Back in the Sourcess O'Neil omnosed

dichit have particularly heavenly assiraserved as a helicopter gurner and fieldspent two years in the Merines as a racio Paul went to work as a lineman for the Bell Settern in Progress Photogretared to the

in the small wilage of Bisbee, he lived in a one man adobs hat He supported him-



As I looked at our Earth and saw the vastness of the universe extending beyond imagination, I did not question that there are other worlds such as ours - Servator Jake Garn?

sunsets Joseph Alon an astronous who flow on the Discovery and see clouds towering up. You see

Imaging shooting straight up in larges of man--but perhaps a little a space shuttle At hist you see more and now Mothar Earth ro-

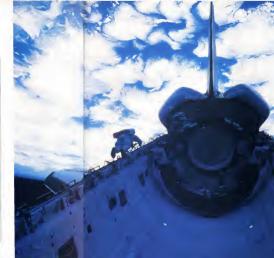
the cold darkness a round speck you behold a sagred totally that through the land of night lights you keepagetunes-maperoffester can vow the remarks sken as





Province pages Columbia stocks









America has always been greatest when we dared to be great ... We can follow our dreams to distant stars. living and working for peaceful economic and sometric gan -- Bonald Beagan?

fields for other living galaxies. I mre and enjoy it and know that its Heavenly bodies gently swri along unseen paths, guided by the Creator's hand. For some astronauts. can be perceived as this delicate space travel can be a spintual experience. While contemplating the earth on his way back from the moon, astronaut Edgar Mitchell had an "explosion of awareness, a peak experience. For James Inwn, his epiphary came on the moon "The total power of God became abundantly clear to me." Senator John Glenn access The God I believe in-I don't expect

creature between your frigery, ac-

very life depended on you, could being. This concept may prompt about life in general," says Irwin also prepare us for exploring and We have infinite space to develop chance to live out our dreams in a place without boundance, without







Previous proces Edward H. White N. pe frat specewalk, June 1965 module and lanar module. Apollo 17

THF WNI F

after yourself the bad enough that I've got And look... this one's almost a month overright, checked out these more, and Xeroxed the "Carada" article in Grzimsk's Anemail / sh Encyclopedia

On the way out the cloor he noticed a three by five-inch file card tacked to the community billboard sevenue, country, ousand Her name was Anta Louise She hand on the too floor of a faded Surset mer star of Grapas's Island

Her living room was furnished with lattered green lawn chairs and orange-cratic basismelves. She requested a personal dam; Larry handed her his writch. She she said. Har Ingers smudged the watch s his matel hand "White he leads you through the forest of life, he warre you of the fromy paths. When the time comes he

will lead you into panadise You've got it all wrong. The woll doesn't ourloine Lamitte wolf Sorrefrees Do the guide, the leader of my back." The ways of the spirit world are often builting to those unlearned in its ways. An-Before he left Larry reminded her about

"I don't know Evelyn. I really sust don't really can't assigne how difficult life's been getting around here the last few morths or nght. After a few moments she raid. "No like Larry's collection statues or something. All he links about anymore is wolver. Wohen this and wohen that Wohen at the diviner table, wolves in bed, it starts to get on my mind after a white Wolves are convertions, he leaves saving-and from

eatly. Evelyn sometimes I start believing hen I hear a dog back and I make sure the deer's boiled . Evelyn, I'm diving to be my perspective. If this wolf thing of Larry's is starting to get to me, what about little to all this? I'm just worried she might dovelop some sort of fraums or some

Comline blocked goen the door with his "What are you taking about?" sho asked. Her hand gropped aplastic Pez dispenser Wie E Coycle's head was propped back by her thumb: a small pink lozongo extruded from his throat

'its your sunt Evelyn, dear. We're just On: Carolinear lice were flushed and

days. She took the cardy with her teeth and chewed Finely she said. 'I fink sernebody may have splited grape juce on one of Daddy's wolf books

Lawy road Gray Engines's Titre Minerwolf Animals With Human Faces, Summers's The Warrwolf, Polland's Wokes and Were wolves. Larg's The Wild Boy of Awaron Meleons Wolf Children & the Problem of ness card of a Jungtan in Topingsi Caryon who set Larry in a plush chair, said "archobody is fasoristed with evil sadam pen. and suffering ("It's perfectly natural, per-

> He dreamed again of the wolves, but this time the dream was

brief, fragmentary. He viewed the wolves from far away. They moved into a aully, and the

cubs solushed each other.9 know ovil." Larry said as he was ushered rut the door by a bland reproduced. When

Tidon't know Larry It ust gives me the oline was in bed. "It's went, that's what it in Bullying defenseless little mice and deer that never but anybody Talkno and disiling and blood and log--at breaklast Larry remained awake until simpst two AM watching The Wolf Man on Channel

mill in every men's soul in this case, the No Larry frought and read Fraud's The Case of the Wolf-Mar, the first chapter of No Then he went to bed and dreamed of the wolves.

ered very waken." Hungry Bear said, his cigarette against the rim of the metal wastebasket, then prepared to light another "Most tables believe the woll's how man who dreams of the wall is not very closes has even for he is very much on his cuend i don't know what that means exsofy but I road it somewhere "Hungry Beer solitor his Division with yourseld. His thin T-shirt was taut against his large stomach wore a plaid linsh derby slop his brieded

check held. "I tary to do a conod deal of readro" he said and furthed in his dimpshed sack of Salams "So do L" Larry said. "Maybe you could

I don't think the wolf was ever recogresed as any sort of daily, but I might be wrong "Hungry Bear welched smoke unravel from his cigarette. "But still don't be

too worked. It's very common for animal body while he's seldep. When he awakes. tre doesn't remember anything. On wat. That's not quite right, is it? You said um prescription. "But when I'm a wolf I don't you remember your charms. Wolf, again. I could be wrong I guess you could rememher Sure I don't see why not "Hurory Bear said, and poused more vinicals '/ inhabit the wolf's body.' Larry said,

> blinds were dusty and cracked, the floor litizand with interned men's mackanes. empty we rose bottles, and crumpled oiganothe packs. He seed, 1 don't know what I should call you Mistar Bear? No, of course not "Hungry Bear dis-

missed the notion with a wave of his hand. dispersing smoke "Call me Jim That's my real name. Jim Produce. I took the Hungry Bear for business purposes. If you remernafter the war though "He checked his shirt pocket "Do you see a pack of organities

You're not Indian?" Larry asked Sum Of course ('m Indian, One-eartiff) a Shoshone princess. Well, maybe not a git" Jim Prideux rummood among the paners on his deal. "Are you sure you don't

see them? I just bought a pack less than an hour ago" 'This is very rice," Sherryl said, and swallowed her last bit of red snapper. She four-hed her lips lightly with the napsun "TO so moe to get out of the house for a change

"Size I would doll." Andrew Prytowsky said and poured more Cherin Bland This you wouldn't Andy Yourwife Danwite exportal You wouldn't have any idea what it's like hand with someone as ... well

as pretable as Larry's been lately Tim sure if a been pretty difficult for you." Marty Caballo, Larry's boas at work, ool Larry years him cope and then tells me he sul good anymore I sed to Larry, Dor'll



ARTICLE

Hot rockets, too satellites, new flights an explusive report reveals who is soaring to new heights and who is lost in the space race

MAKING THE GRADE

BY JERRY GREY

The Japanese digital-awtch included them as well Compercent of the rest to Earth tion most iniquently asked - ence and other activities about space these days satellite component to work properly "What else would you expect?" he said "It was made in Americal." flect the state of the U.S. way to apace did we lose the active in space exploration compare we looked priy at satelitie That commercial Blow with a proven access onentation remains. Private to space—that is a tested firms account for a binner space launcher This nar- porton of Canada's space arrell budget" rows the field to a manage- activity than in any other naable six the United States I fon Careda divides hall of success with the Caredam the Sovet Union the Euro- its national space budget pean Space Agency (ESA - between satellite commune - U.S. shuttle and a developa convenient of 12 nations) cations applications and the line is report minoritative for Japan China and India of ESA have independent. States international apage, data a C maus for effective.

Who a sheed?" Here, then lowed both the space program? With the and the USSR into space loss of Challesper and the The Caracian Alcuete I was Carada piongered comlead? The field is certainly marcial apape development its dog 41 to present in 1972, was the first to offer domestic communications

tion with small moving vehicles) The country's wealth ravisioning-hence the big rivestment in Earth-observation technology Seve servicing unit for the United I not a major player. Canada

David Low of Canada's Minstry of State for Science and we've demonstrated a unique ability to worn a lor of development from a very The country had a huge remote merupulator on the development of a robotic. The space station. Though

observations and the ra-

Canadas viet lend area is

deed Canada poneered

PAINTING BY HITCHHI KEMATSH

space programs though we station it devotes about 30 miss and 'space amarts'

into gear until the Cultural Reventers. By mid-1987 the Chinese had lounched 21 satellites-19 fully successful and one partly so-and had an annual space budget of about \$550 milion six education its large area, and minimal telephone and television systems, underlie-

CHINA's space effort didn't get

To get pewloads into orbit-and not rely on as former ally the USSR---Ching has cles, called the Long March series of rock covered psyloads from space after they ve been leanched into orbit-making China the only country other than the United nounce is new spaces agenda in late 1999. Although it is still very much a develop-

ng netion. Chine is currently gor and strong THE EUROPEAN SPACE C DOM AGENCY (ESA) was created in 1975, Sirce that time, Inc EBA tes, especially froze of as 13 members Donmark Rolcaum Indiand Norway Auto

reased member Caneds) The agency decaded you the begin weign its own lauricher (the Ariana family the Spaceab marned laboratory module tor use with the U.S. shuttle. The agency of space applications, lad by advanced sat nunchers such as Anaria 5 (able to boost 10,000 to 17,000 pounds into decetation ary orbit 22 200 mees above the earth) to

Columbus married module for the interreturnal representation and a free-flying crsnacepiere Hermes, which will ride aloo-

Under the ESA umbrells, support gives spacepiane (which can take off and land program that will eventually spearhead

perfernation communications and Farty For its Arigne rockets and its research 72 CMN

FRANCE was the first country to follow the United States and the USSR in orbiting a satellite with its own launcher in 1965 the Franch

lofted a 35-kilocrym capsule called Asterio This nation is the major player in Asiana

notes Europea Earth-observation 903V municetors and science missions. The month to Phoboe, a Marken moon

between povernment and inclustry France Spot satelite's remote Earth sonsing tech-As for the luture of France's program.

Washington-based space attaché Louis Lastet says: "Now our goal is to put a man

GERMANY's rocket weapon douglooment under Werriser yon Bream in World War II was to Spacetab and is the primi contractor for the purvent Columbus space station progot (see the U.S. section). West Germany also pertolpates in satellas communica-

term. Earth observators, science mecurrent of a space processing and manusounding-rocket research program The Specials tight D.1 in November 1965. progester. West Germany has processed West Germerry a renowned technologi-

cal prowers will remain a motor fector in the world's spece future its apace program rates a C NOW DOCUMENT DESCRIPTION

We overpopulator, mass life

India's locus therefore has been on the use of satellites to provide communicahelp combat those pervasive retional its

At proport Inche spreads approprietable \$200 million per year on space offorts a pest effort in which the US. Application

Technology Satellite ATS 6, was moved to

tour-stane rocket called simply Space at its four thairts, feunching small experimental satellites into low orbits. The test Bote of as Augmented SIV (ASIX-T), r) 1987, taried to orbit a larger satelite, but India still plans to develop by 1963, a Polar those of the space leaders As a model for the world's developing

retions India is very ahead. Nearly 15 000 people are employed in its space pro-ITALY Since its space industry

reached propalment in 1963. multiported program that places it a shore third in Europe. Balvis space budget has grown rapidly to a current level of more than

Bay's particular strengths are in leadelite baset in extremely advanced (sme haly is also a prime contractor for the Western European Olympus multipurpose. highmajor subcontractor for Columbias spisoe station modules; and a leader in both mi

Body eyen has its own launch platform. off Kerwa in the Indian Ocean. It is develcomp with the U.S. firm LTV an advanced upp and ultimately for sale to others. For a

JAPAN's workhorse launchers the N 1 and N-2 built under I parse from McGorpeii Dougles But in vanced upper stage, greating the H-1 launcher and in 1992 it will by the all Jap-Japan's melitid for technical independ

elites ETS-5, is unched in 1987, and advanced then the Italian Italian or the U.S. sate\$500 MORJ (1997) and FRS-1 (1991) are promeening new technologies.

One of Japan's rewest but strongest space efforts is in microgravity research mented appostight. The Japanese have committed \$2 billion asward a Japanese Evonoment Machin for the U.S.-led space Japan's Space Activities Commission

estimates covernment expenditures at 6

written. The Soviets and ably have the portant areas assured access to space space stations that go all the way back to crym yet for exploring Mary Perhaps most program over since 1945 when they stated they mont to launch an extricted settliffe

mount Sovet launch rates "Since 1940 has Sowet space expert Nicholas Johnson "Sec apphysicated probes were sent out into the immors to transmit everall to Bartin solar system. Through sheady prowth in the operate the most comprehensive and ca-As a direct result of their growing confidence the Sowets in 1985 created the merketing organization Glaskosmos which They now sell their high-resolution satellife.

have begun hawking the services of thor Their ambitious (but as yet largely unground this month with a leurich to the frough the Ninetes, with Mors orbiters landers, rowing robot explorers, and sample-return spagecraft-could compare with the Lindard States' Manner Mets criticmanuel space station is operational-at least a decade away-the Sowets will have

ment become readent if one looks at the - occuperby of their Salyut and Mir space new shape stations were launched "sizes" intent to use their space abelians and even

Despite all this progress by the Sovieto tations the Sowets have deployed and now while the United States tiounders, the overmans years behind Says Johnson "Withtan to tworty years. Even the USSPE new

a remake of the (20-year-old) US Setum family of rockyts

For its ideadfast progress the USSR rates on A UNITED KINGDOM In the pre-Sputrak era it looked as if "Br-terms rules the cosmos" mont. sisson Bracher Arthur C. Clarke conetite. Val Cleaver at Rolls-Royce devel-

moautical Federation in 1950 But less tail just as its Brosh hosts were opening the arrival international AutoThis reduced Britain's contribution to less

ESA for the Hermes Columbus and Anare 5 projects. Broarren appears to have A second-class specialing nation, the

THE UNITED STATES has reserbacks in space, although swifty overlook the Soviets by landing

solar system with robot spacecraft separate classes will fiv agent this war (the Centaur Delta, Deta 2 and Scout) Past US aucosses in displaying the Prough was federal polices simply mad. Some about in the wast to come CO

Britain would not allocate the pounds planets will be sugmented when Galleg a lifed that 20-year lead recent actions by craft designed to probe Jupter's atmos-

other countries, both current and under

Hughes Ford or General Electric Com-

pleann of the ACTS demonstration pro-

observations with its Landage and el-

after No other country has yet explored specialistics although sady delayed and in space astronomy and astrophysics will grow with the 1969 launch of the tao Huboperations as well as support for splar bygservicing of both speogersfit and swinking already under construction. Another, the

In short the United States bottomed out after the 1995 stone of bulkers this year committed is the Space Infrared Telepreemmence Says NASA administrator In space technology the United States will streich its lead with the ongoing Civil ence of the American space program and or communications satisfite project by

conses that economic survival national space report pard shows that the United





"When Franklin Chang-Diaz, the Costa Rican astronaut Jooked over our country from space in 1986," says the Nobel Peace Prize-winning president. "he saw more desert than he'll see the next time he goes back up"

INTERVIEW

OSCAR ARIAS SANICHEZ

from the main ballscorn of the Camino Real Hotel in Guetrmais City through the kitchen to the service elevator. On eather side of the president of Costa Rica strade Gustamaran presdent Mano Vinicio Carezo and El Salvador's José Napoleon Duarte Back is the ballmorn muedance becam pleane My Way A strife slowly spread across Ariss's face In Lis Independencia, a small salon two floors below the ball corn, the three leaders, sessed around a small biblin were soon. joined by José Azoone president of Hondusas, and Nicaraguals Daniel Ortega. There of Ortega's 12-man retirue carned heavy sultrases believed to be packed with machine runn. to be called the Gusternale Accord. He had composed the first

draft of his presse plan on a naghin in a Washington, DC, total and This was not a careful to the professionals. What Area PHOTOGRAPH BY MIKE MITCHELL

I front of bewidered gooks. Occar Arias Sanchez walked - caletons in September 1985, five months below to was related to and the regional turnol provoked marrly by the interminable fors. There were two more dusts, but by the time dups and the four other Central American heads of state amived in Guate summit—complete with larrich mounters, diplomatic ratios, superpower observers and international media. When the secand session ended in the afternoon of August 7, 1987 the sauafter looked bad. Speech after speech hed dragged on without agreements having been reached on anything the ministers acted as if the walls were bugged. It seemed clear. The prosdents would get nowhere as long as their diplomats were prossake of their mimicable inforcingne Invited these time were morning in I.a. Independencies—mather the output of the great provises with hotel come to observe the commenced deniving all the bat convectors. The missage of the bat convectors the need standing of the bat convectors the need their missage of the bat convectors. The provises, the Contrador nations, the Livined Nations, and the Dispatisation of Armenia Colomb had been made to deliver or or was a ROT—point. Along precusable the time place has made to be delivered to the provision of the contrador or was a ROT—point. Along precusable the time place in our well to the contrador the support of the precusable the time place or well as the precusable the place.

Prize in 1967

I have real many outstanding leaders over the course of my career. I was with

 Shekin Mujbur, Rammen when he lought kin the independence of Bangladesh In the international labor movement. I encounsed such leason liguies as Wity Bannth of West Germany Francis Mitsomand of France, Italy's Petro Nenni Hasald Wilson of Grante Bretain, and Somer chancelor of

of Great Britain, and somer chancelor of Austia Blunc Kresky.

Area as the most ansating of them oil.

When we fire mit he was at it is student at thirty-two woting on the doctoral disher taken, although he was also salving at his government as missier of planning. It was a bright opining day in 1974. I all issensiber the moments when he washed into my

Pioc. To the actout his world: What sees them be now as the way he appropried some of the greatest share to consider that this his has all if you broad ones of that this his has all if you or makes. To then these was postioned that or makes. To then these was postioned that could be seleved in he was not appoint and to the property of the property of the above. Could held the could be not the propose. Could held the could be not the protor of the property of the property of previously designed updating the property of previously designed to the presence of the property of property property o

heartest the Central Book. As a student he

talked so much about his ambition that a

year book commented that he was intomig to be presedent. He well, Visiosan education Margania. Percei, remembers has before their wested per 1973. Hierards warmed hat into American has been a Arias, or a beginned in 1990, or a Arias, or a beginned in 1990, or a consistent but he opposition of the over dissecting hops led him to other facility.

water to be proader.
Mass embed through in 1990 as a premae studiet, for the passimithrees that the premae studiet, and the premae studiet, and premae studiet, and the premae studiet, and the several degrees in level and concrosing the landans board of too through and the landans board of too through and the landans board of too through said University, filter three years of investigation of the landans of the landans of the said University, filter three years of investigation to the landans of the landans of the said through the landans of the population, who can the landans the population of the landans of the landans in the said you the landans in the said you the said three landans of the said three landans of the population of the said three landans of said three said said three said three

New years' later the party leadership again related to mentional him for persistent. This shall, though the colds were agreed thin the oblethed one referring at the territy president state. Who can so one ook did as of barrown you will not et all the colds were might a whole year—set if have won't for paignit young more than 1000 seasons and menting young more than 1000 seasons in 1986 in a debeated this consortation of the fair debeated this consortation of the colds and the colds and the colds and the consortation of the colds and the colds are colds and the colds and the colds are colds and the colds and the colds are colds and the colds are colds and the colds and the colds are colds and the colds and the colds are colds are col

can fellory.

Arabin first test with the great powers come only days after his was inauguitated. Area ordered the drustdeen of the ormal arched along the Costs Recurrings applications—but with funds provided by Oliver North and funds to suppose the contest. CIA decast William Classy transited secretly to Ban Jose to protein, but Arist ending.

White Areas is a born peacerselect he stands treaty in the cycle of the atem. He whole bearing signels operationed utilities menters, and faith. Last Cotober Law him in New Yols, couldn't be him consent to the the support of the timousness to the time. The time support is builded by the about the Nobel Pasce Price Harrist* "You'll one 5 Concest Treatible." No cust-

n about it."
"But when?" he asked
"Well, next year, of course."

These was a passe. And then he wishpeed. But I need it now. As a subsiseculity is power of the price to help made peed as well as to obtain the new where Marries tasts after Arisa had won't help hobide on the consents of San John Well beginning had with their the facility of copy to great her as well as the subside only once when the severy-was not don't had bebyed only wery more. These can those the power process of the process of the contraction of the process of the process of the power power and the process of the power power process of the power power. The power power power process of the power power power power power power power.



A consultant in politics and public information, he is the author of Oscer Ariss— Portrait of a Precentialist, to be published by Wadenfeld & Noolson later this year.

Grout, Art. President, what are yout immediate opens for Oath Reco?

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organise to the world that rationality should provide over win. Ocean: If Costs Rics is a leasing ground. Ocean: If Costs Rics is a leasing ground, where are the essential components that make it the model it is today? What makes, you different at that time in history from the east of the world? Asset Winning that different Lessings on

agginite. We have the same defects as all Latin American societies do—end a few more notes. One important while is the homography of our population. We've very softunate in the same that we don't have the problems maky habors in Latin American face with hugo finding populations. An other white: We've profited foot the way.

of common four amonators who decoded odds of transfered common years ago that decodes over the common transfered to common to the common transfered to common transfered to the com

nonal health service—you can have the most ophishicated surgery in the country totally time. Fourth is the abolition of the army. That has permitted us to spend monity on really reportant provides. We had to choose be-

We remember
the saying that no one is
entitled to excess
tunury white others lack the

necessities. We have tried to produce as capitalists and distribute as socialists.

secondary reads, tanks and schools and hoppings. You know what our chapte was, and we lost so proud of final TS why we conditions to beginn on the army what final to be controlled to the state of the beause. I what do way strip of rid to remaritee that farceut day when Presided beause flyations on the first of December in "MAB" december to the first of December in "MAB" december to getting the same and state that the getting the state of the same and state that state that state the same and state that state that state that state that state state

a national museum Oters' four have been fighting for peace in Central America for more than two years. Now chags, too are the enemy. How are you highting them? Asset There's no worse crima against the youth of the world than drugs. We see de-

young right green.

Asset There is no worse or mit against the youth of the word than flough We an obsamined to approve on all this boughtest asset against display all forms and the toughtest asset against display all flowers than the second of the first count has the control the list of or of the first count has the second than the second than the second that the second pulse for the second pulse for each set the right and display the display shall be set on the second than the second than the second pulse for the second than the sec

pile to other countries in the region as well as the whole world. Without spent a lot of the colletting his bill, and it was approved. The colletting his bill, and it was approved. Once the colletting his relation or regional seasonable to promote person. Does the new thing have residentially form registrost to content the my report and export of drugs? I also well thought out-med for the content of the registrost of the content of the registrost of the content of the registrost of the registrost of authorities to begin bother in the needs of authorities to begin bother.

which Coeta files doseff have So when you say Draconan, you're taking about preon puretiment.

Avias: No. they are long proon terms.

Georg A. number of other countries are se-

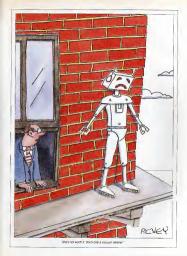
memby released in this pursianner folding write. Die load bring discussed in the United Blatter, which has also been assess in a Colombia, as that the bask way to fight drugs might be to lapated them. Aleas has I covered agreed These found guilty of testing single in any way will be imprisoned and not beleased before about out of the minute of the colombia of the

good law Come Beyond General Manual Notings of Panalina widve heard many stories electric operations. In there is political expect to shape as well in Codta Place? Artes: Yes, Alphough its not the main pur-Artes: Yes, Alphough its not the main pur-

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git now were leasy at a primitive stage when you it but in I main what is a hundred shousand oppes of least with live billion people who are just beginning to that out extratementral life? — GENNAS STAGY



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CASTIFS IN THE AIR

Resson The assignment Design a build ing whose site is the domain of the terrostrial sloes and whose function, or really pseudofunction, is the investigation of some

The steel same Woods, was to give the guaterts a project that would deal with all the physical criters of Earth-prayity and weather—as wall as conventions of hobs-Then they couldn't fell black on the usual carbés, the eggy solutions' says Woods

dents read. "Accepted acrodynamic princapitas of Mirro, moving, and/or maintaining masses in the air may be used in the design of your project. Or you may consider new principles, proceedly unknown or untested, if you are prepared to justify them in terms of either existing or anticipated irrowindos* in a participatory effort. Woods geometrene field-a capalike structure

that segmed to flex and write as it rade. the wintwind of the planetary force held At the beginning I was really shocked. the busine proposals and everything," says unrety of Utverlandia in Benzil "I wan reakty mind was opening up, that I was looking for symbols of a new architecture. And weren't even reacting about and tecture NOUVELLE SCIENCE

suppositing a bassion of twenty-limit-century design. The sun streams through the arched windows and illuminates the models and renderings of the students Think of a person loose in the air on a cloud structure that functions as a run generator This imaginary one wakes up in the imposphere every morning, comes out are clouds. the sky and hers 1,000 motors

above the earth-lock walking through a cloud space with no boundaries Envision a city feeting above the Amezon, a literary of sorts, full of mythic chies masomes and seeds of variating page ples plants, and aremais Importe a michty Earth circling living

ring, a high-energy particle accollerator to house the travelers and researchers miasstroutem Earth (Although often mike) in character, the high energy particle acwanted us to reach deep inside to find the irrages tap into intuitive knowledge celerator is the recreacope of the physiticles that is made to coficle with a target

produced and observed) Contemplate the possibilities of an ozone

regiensher and laboratory hanging like a great airborne monto say in the powerful

borns 1,000 feet long, with musicians for more to machine, collectors lost sciso and making music—a big Walkman for Earth

A conformation with danger seems implat in the designs of Masahiko Yando known as Max Despect in loose black clothes, his shring hair pulled back starkly from his lace. May has the focus and bear-Japanese architects, he originally had planned on being an artist but turned to the Rhode Island School of Design. For his all project Mas designed a high energy Woods told the group to just begin drawing freely -- writing frinking about the reacons "Truce postsy official," Mes says know what they're chiwing. When a child draws, on the other hand, the images are more provocative, more inner Woods

Man began to draw-"airnost like drawing with your eyes classed * The results look the the spongy interior of the marries an In the collisions many new particles are for the infrastructure of the ring; a dense mesh of houses forms businesses enorgy unities, waste-management factsbos -- enverything necessary for hurrorn life. organized in immorate sections he calls bricks. Each brick is wedge shaped and more surface amajorithe outer edge. The wayfree word from operated like conviction in conditioned, provening the whole structure ouzer skin and the well of the infrastructure. the mechanical parts and accelerator are

> The building of the colossus would take be fabricated percer by peeps in space, and then the larger segments could be worked down into the appropriate orbit at 50 miles from Earth. "It is an enclosed system like a raviner sub that makes darkens water from seawater and all wastes are recycled and The man's energy comes from its parti-

> collide, the energy from the nuclear smashings is drawn to power the entire and Perhaps physicists could even consmuct the ring with superconductive masonato to helio deterrorgon if there is a substructure in quarks and leptons, it might even locate the predicted Higgs particle

week interactions A drawing of the ring's rotational pat



tems around the globa shows lavors of panearing spheres governing the earth in orderly technon. It reminds May of Ptolomy's epoycles circles within circles, posturned by the astronomer to bolgar his class an atoms riucious). The ring cycle is archetyrusi. But the sinc sint astronomical instrument the autrolabo; developed before a lond of unalgo computer to simulate the motion of the sun and stars. The estilest astronomers imagined how the universe worked: Max says. Theirs was a mechanical arstude, one we no longer believe. But

not on physics but on magnetion-a kind would like the universe to be The earth, what of the earth from the Treated as a power, Mas states "maybe something like the Galapagos Islands can't louch arything because you might destroy or after it, you can't pick a ficeior

BAINMAKER

started researching clouds, and the clouds prophotography of ice and snow crystals." Silva says. The crystals gove Silva articles.

"Utypente about the dry and designated areas of the world. Why not make bedegradatio articul particles or polymers to shed water whenever we worked manutacture rein clouds." Composed of a posours hoteum-Minci Mydor sken, from it dis-

Class Olderburg representation of a soft. The helium medium. Silve admits isn't guiting meter. The serringed polycarbon used in solar-powered planes like Plaul MacCreaty's "En very beautiful the way sunight penetrates, illuminating the entire

incer works," making it regemble an inspired by the great German zeppelins of the Thirties, this platening, slow-moving out of water souted countries is a laborafeet long and 240 feet from top to bottom. for people to walk and run." Bive says Interior naches are for escape caves or protective wombs to shelid researchers from

90 CMN

About 100 people will live here a colony and atmosphere. In other labs people will dome for farming under a prismatic lens that interrolling surright, promoting rapid growth. Work spaces, set off from the livcreating the impression of great area and discouraging claustrophobic behavior The slow-moving structure could be powered by the sun or pulled slowly through the sky

A polymer-crystal processing unit is in side the skin. When the crystals are made cloud nucls. Once they're saturated with water - what is known as reaching the adback frough the clouds, seeding them

> €We don't give a damn about style

Today ayan new buildings are not maily new. We don't want our atudents to be stillborn when they leave us ?

totaly with said "Incendibly," Silve says, "you tey of rain. You could have several sammajors, operating at the same time if you

Silvers design is admirable the organi zyeon freeless. All the aspects of living and working have been deat with perfectly That was one of the ontdams—loo next too finetied" he says. Silva has come to general more exportmental "in reality were not twen to figure out how this flies or if the polymer production is grang to work. "Silva says. Were here to form a philosophy of pragage I game back to school," he adds because my architecture was becoming boring to me. Right now we teel a chaos froughout the world. Everything is changno, and maybe the a part of a new Ben-

is ir performance

reglenishing machine evolved as much out at his concern for how to keep it sloft as mosphere's caone layer, 'Some birds, when they lisp their wings patch the wind like a less" saws the twenty-three year-old architectural student. "I shod to translate a combination of bird and kite form into one unit." The drawnes of the regenerator of lost

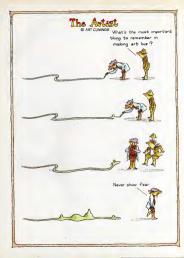
matter excise thoughts of Leonardo da Who and the penetrating observations found in his notebooks. Da Wrici was, porhaps obsessed with flying and with flying mahe often transformed natural fiving shapes coone fler, one sees the mechanical offspring of a swirrreng thing-the carepage and startin tal of the horsesting grab. whose ancestors hist pixed the Cambrien seas nearly 600 million years ago. But un-Ese that of the horseshop crab, the 440foot-long machines shell is flexible, controlled by a series of underlying cables that operate like muscles and tondons to open

The tail is a rucklet, creating a foil and wing section "he says. "It controls howering and some vertical movement. The southeset winds of the polar regions are geone maker can remain aloft indefinitely. collecting energy from a surface context with solar panels. The machine is motor or perhaps sacked up by some complecated ward system utilizing valley drafts To manufacture ozone. Termbedaron looked to nature's formula. Ozone (O.), a

tratomic molecule of disposit is prested when utravelet light strees on O. molecute—the oxygen that we breather A photon divides the molecule into two highly resetive present atoms. These recombine with rearby O, molecules to form O. The newly mened azone is repostedly closwed quickly re-forms to soak up more light. 'My machine generates ozone through

drogen and oxygen the same way ultravfrom the lower levels of the troposphere with it also sighors in O, through a system of leavers. Then you close off the louvers. and inside the sphere, through some kind of fusion-which, to be fromest, I'm not yet sure of -- it fuses the Outo the O broken off the water malerage materia O., "The paper version the top of the sphere. It would have to descrand close to Earth to collect the says "I don't care what things look like arramore I don't like good taste. As tech water and crygen" he says. I want find nology changes, the rules change beauty connection with the earth

Territadores envesores a small research



crew of no more than 16 to 20. The living, research, and support a perform here yesponted within the overall structure not noided distinction and Mode of an ultralaght transparent aluminum used to construct hypersonic jets, the furner shaped turner nova acts as a gypt that finds and maintain allower living. When Michael Webb bods at proposts within Michael Webb bods at proposts.

When Michael Webb books at prospect feel liambladarois he spis if pell womed I admire him for his drafting abilities, that my Good, light womed Hebb od inzwar file lings freeframe as wide enough? Should the a hash milk weld? This is a disam, utin? which well are seen to be a seen of the control replantal his feel clearly. I should see a full of vegors, have the perior that it is disappaining. Their, Webb sevents, "would captess for freecom?"

AUNGLE BOOK
In Jan Gossis the see-Montery sport is nounterly bursting into fame suppression, sometimes, with reference as the day soommessory. Workmesses will have been suppressed to the suppression of t

and, yes of it is not he process and an acceptance and a second model and a second model for a process. The acceptance are not as a serior model for a process of a second model and the never and the name process of the process and the proce

sometody who decodes these pieces to

and out-what they really are "He seads by controlled also, or "locations" of the real former. In the law Expenses of the law E

In the third phase Gardia created the fosting archaeological station that houses

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MYERS'S. THE TASTE WON'T MIX AWAY

the artifacts of the endangered Arrazofined to a specific spot." The archaeologcal station floats tensiossly mythologically

Technically the structure has duel onstore....a fintered arrangement to utilize vertical blacklike position to offer less resistance to the rains "But this is an image specific lends of technology to it yet." Clarnin nave. "The mystical way in which the

nalogy of that mystical quality The term mys/oat he explains, does not refer to "fartasy" but can be emboded in the way for metance, partain plants bloom and certain insects male. 'Some insects the only substance in the order ecosysshes their oggs. When they leave the fruit they thooger a mechanism within the fruit. that makes it ripon. Some monkeys come. est #, and spread the seeds around. This is a very complex relationship butween insects fruit and successors. In the same way, I have to find a natural way to 18 this structure without a being, any holium. That would MACNIFICAT

For pure Mnosm Cherg-Chorg We deto compose music on wind and air. Yea wondered how he exuld palled and reorgenize the direction of sound waves. "If I gan harness this energy' says the thirtycasada acquestano closo to music or maybe even music. You began his design research not with accounted but with lofic theory. The principles of optics, he says are grown betrete l' bruce of sound il started looking erry in it. But once you have the musicat the telescope with concave and convex some sense amplify them? Because a sound wave is investile and difficult to south light is used in most accustic research. T know someone who used a laser light in designing a model of a concert half Year

of auchitecture. On the gallery wall are mouthpiece, with altertion given to the offwacai detail of the road. The musical instrument is space. It is not so much the form but the space reads he says. Yes draw several families of instruments. Beside detailed drawness of home, he wrote

94 OWN

or explicately positio-mysterious qualties consisting of a stender corridal tube with concel, oup shaped mouthpiece and large flaring ball "Observing the fute Yes

guoted a tragment of poetry "the splane" more then 1,000 feet long. Musicians live ways in a fourth module a conductor will sprintings lead the other musicians in a symptomy But there wouldn't be many people in a module because when it's moving it needs a lot of open space.

"Win have much noise pollution in the or and on the ground-cars, planes, machings. But this noise is imarpy, too "Yao that is energy If we reorganize lost noises. maybe we gan create music its a princplains could apply to passenger jets, too

€ in the project the students had to deal with all the physical criteria of Earth-gravity

· and weather as well as conventions of habitationand then uproof the structure from the earth 9

Yao muses. "We could attach a small yes. son of the instrument to each plane, and maybe it would generate a very simple music, casty and calm No more noses. The return chalange is the arrived. It seems to be a yord you carnot see the sound on-

igh fades a bit. You mean the instrument documents the atmosphere? Noah the ar wants to know the purpose of encouraging as this flute in the sky that googiff work to be an architect "Webb save, "which arlarget the ability to invent. The engineer gives us a rench house." Webb consinues

heights, wandering the skies on parapets of actiones and art hovering above the Amazon flyon eto the prome hole, welling friough a giant ring around the party.

sleeping on clouds saving a macro flute. The appropriate labs -- works of exceptions

cetings, doors and windows You've been there in the sky, far away from heavy arts buildings postmodern manasque castles. But you're coming down, down-end you already know, you structural piers pile driven deep into the

Minutesed use fiv? Why is not us so count so lawful? If you've been to the top of New the infial shock of vertigo when you the fearth; series of the abvent was replaced by a langued, near-feeling senseand your margo corpet style for a white Where can you floor free? Sowing, floortoo nawy too enclosed Space statural? balograds, few baucks those renegade designers have sailed on wind waves of the atmosphene sea-out a way of Mo. 1 come from Japan," says Mas "and have traveled many different parts of the world And every year the world seems

to get smaller and smaller. If ririgued ma to think of everybedy participating in a migration to my megastructure, my particle accelerator. What a peebline of unity, or

with their courses, howover they will return to jobs and offices where they'll design sinuctures meant for the earth. "If these young architects are to be truly creative." Woods save. ' fory have to be somewhat audiscious, go beyond the conventional take the effective rather than follow the chrection of same client who is usually conto live and work in them. "We should let our architecture tell us how to live "Words since our architecture as to how we work to live. cording to Woods, we control and limit our we close out the queley of strangeness from asks. to extend the april and methods of the year appearance and artisthat have taken living and working the methods of experimental liveng of voyaging into runknown services of mind and expensives with every prospect of great new discoveries and a

high solverture of the spirit? DO

THE WOLF

you think he can help you?" And Larry said I don't think you gan just gall him square taking about either Larry thinks he knows more then a men with a Ph.D. That's what Larry told my

"Here. Why don't you fired it." Andrew but down the empty bottle and flagged they

eves with the nonshock up lately All I over worked was a normal the That's not 17 A nea home, a

give me a little help check, and when the water loft he said "I'm glad we were able to do #sa Sheeryl neatly told od har narian und replaced it on the table. "I'm clad you called This was

really very rice. We'll do it nomes" pleary desired two Two weeks later

etter on the sitchers Degr Larry

thoughts for you often

I know you're going to take the the wrong way and I only hope you reaker Caroline and I still care about you But I've thought sional courseling on one occasion, and I think it is the only solution right now at this moment in our lives Especially Caroline Please don't try calling, because I told my mother not to tell you where we are for # from on your difficulties, and I litters and

"You can't just keep moping around Larry Things II get better just you wat and more careful around the office "Marty set on the edge of Larry's desk. He pulled a string of magnetized paper clips in and out of a clear plastic dispenser. Did I tell you Henderson reduct should visi vester inv? Asked about you by name. Now, I'm not trying to make you peranoid or anything. but if Hondarson asked about you then in management have been tossing your name around And Hendersons not a bact

a sincere porpert about your perform-

species characteristics while aromas of losest desert and fundes were gradually ner entrées, and the Johnson's chloro-I'm really sincere about the, Larry Next wook I want you to start seeing Deve

playee stress coursalor, Larry-but frate ike you and me who happens to have a lot of expenence dealing with these sorts of peoblems, You and Shared I mean All soft

> "Sure, Martix" Larry gard, "I appropriate your bein I maily clo? Ordinate dream arms At the top of the page he scribbied

> > now more then ever right Look, Eve kept opened a large red unclamped a sheet of graph paper

There. Pal's last Friday Sectiones' His porting at 6. "And

again. Larry pulled up his other until the atmests keepled Bouteeu's deck "Inman and wolf hunted together bound by one pack responsible to one community ice, beneath the cold puri is that one hell

Casually Boodreau opened the manis. folder on his desk. CHANGERS LAWYONCE



And remember-I'm on your side Larry set at his plenk and made count a cressed during the past weeks the line on even four times a right he started awake in bed, olicked on the reading lamp, and

mely do Beaton and I came close to

table, quickly jotting down terrain and auto-

"And don't get me wrong. I'm set ledricearch even nome close, that's not even in the same balloark. These aren't memo-York, Mortens, and Benut It's as if time and space dream and regity have ket opened up, joining me with everything decidand? The life of hunter and prey cleans and world blood and sont its really

of anything like it in your life? In the space reserved for counscior's

Monday the security guard took his ID cant and, after consulting his log, asked him to please wait a minute. The guard picked up his prione and asked the oper Mor for management. "This is station as

Tringgry Ill have to keep the card. Would you please tallow ma? soon, opered the medicate cabaset High They walked down the hall to psycol a renerite envelope another check for minimum amployee compensation

the stoop unbound and opened the whitminutes, then retorded the paper and placed it with the others next to the teragain. He got up and welled into the kilchen Debes plac in the sink tour full bags of trash. The few dishes remarking in the dishwaster were swrited with white mineral disposits. In the refrigerator he an empty bottle of Worcestershire sauce. en egg. He drank state apple suice from

the plastic green patcher and continued meking his rounds. In the batkroom toothpaste tootribrush, eye drops, Mercaro-Mountain shampoo his olectric razor All narrow more. Over the best the poster of a garny prentienty elect

wolf pazed down at him, its eyes sharp, He tried to watch television. Poople wor named cours on soap operas. After a white

Sometime after dawn he desamed again.

of the wolves, but this time the cheam was brief, tragmentary, detached. He wawed the wolves from very far away From aloo a high bluft, porhaps, or hidden befind some bushes, like Jane Goodall. The paused before a small sheam, drinking Two cubs splashed and chased one sowolves observed them dispassionataly. The sun was going down. Larry woke up it was

He stayed indoors during the day in the evening, he waiked to the corner Liquot Most to cash a check and purchase mik. he turned the televation up louder it wasn't he could hardly recall their faces anymore What he messed was the noise. The clotter of dishes the constant whir and large of

mechanical toys Soundess, the air seemed former, staior somewhat oppressive as it ha were pasted cristic an artight crystal vault. The alongs invested everything-walls, furtiempty betrooms even the mindless thatar of the Fintstones on televation. He drank soundless shalls of night, reguling the so where not only sound but even aroma and texture represent to be leaking from the cracks in some domed underwater bity in

of wolf prey sky, moon-spliced meanraciessly like the frames of some surrealist arettes a day, just to give his hands corrections to die He consumed scotch Seconal Choese Putts Corrouts Crackes rerure of 73to Mod Squad Marris, Mamore Association Evertually his disparts disappeared entirely, sleep became a Sleep same to signify only lapse, attenuetion, death, he began alternating socials Whenever he tell the darkment surfacing in him its immense and irreproactisible seieron, her heart guickened, he started up lay in bed four after hour watching the sky. breated the bedroom purtiers grow light. date light again Anxiety grapped his chest sometimes, he could handly broadle, his to remember the wolf's image and remembered only pictures in books. He tried coly vestentay's Chicken McNuscets. He

sought the sky's map and discovered

only the bedroom's close, hund walls. He throw hank the rigano, broay blankets, or-



Brain Tune-up? your fally to four cooks separal your bean, sixural, and Laborage—those subcomposes being partients

Listen, feel the

difference

 Many has been decreased that the beautiful · Noted normounted albo to rabel, lette David • An ion without course the threshold may the

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curtiens. It was night again, in order to re-

Sherry's letter easy liquidity books The he couldn't dispel the likeson, but he could of soft won Dardien et 1 etts a 1 erusedo wolf wasn't svil, but rather man's disbut refeer in the systematic repression of nature. Madress use I the division but rather throught, resected a stale protect from a streetlemps illuminated silent supportables cars parked along the curbs. The moon made a fast impression against the high barked loudly und in their horres the papulation shopt little by often assisted by Sec-

presetucie layors of sieep, socieng that

to dream beneath the repressive shadows

gan the real, he must dispel the illusion.

The following Sunday Merty Cabrillo drove to Ralph's in Fairfax, loaded four full bags of processes into his Toyota station wager, and drove to Larry's house on Cidovercrown, aluminum parbage cans 90 CMM

See of East Address Offshood America Not Assa, or historial NY Spotence (Ac-

streeked with crarge rust by everturned in the aboy Dormant snalls studded the obstrong in the surlight. Marty knocked. slightly age, and he pueted it open

blocked the door but permitted him to tenty like a distant, premontory sizes. At lost the more seemed oddly depresorbonete as if the fundure had been rearranged. Than he noticed Larry asleed on the middle of the floor, his head propped the leg of the coffee table. The must ve lost eighty pounds." Merty told Beatrice later five right. "His clothes stank, and he health shaved or wested in I don't know how long And all I could think write I was look on at

Nm was, The is my fault i'm responsible Mr. Marry Cabylo Merty followed the ambulance to St. John's Hospital, wateror they would not the and Marty paid the deposition a private more Larry lay in a stiff percretic white bed a glucose bottle hanging beside him achieven tape. Every so often the glucose tveta trettad. Well trops him stops size have him eating solid tood in a couple of days I think he's coing to be all right." the

"It's all my fault." Marty seed when Larry ing Tack I brought you some books to road And the flowers are from Sherryl Bewings got in touch with her this morning.

Later Sherry told him. "We immed you Carpino messed you / missed you Oh Larry You just look so awful." Sherryl lead ham. Seartly Larry symbol buy long blond har Sharry had been staying with her saywas a flushed, obese men who aut has dictation, or snuck up behind her every once in a white and grave her a sharp pinch Loosen up, rolax Ifo's short," he told her greed every day Sherry's sister started banging fome the classified pages and operations. Andy had promised to help our, gard, and so she sust started criving, notif-

seamed as a notice notice ever werk "We need you, Larry" Snerry! said. "You always leved you. It ween't because I click't love you. And Marty thinks he can get your

"He says he's certain, Larry He's certain he can get it back. Did you hear that, hervay? Vision connected to be happy again, undenstand? We're going to be heppy again

Sharryl brought Caroline home a law wenter inter

"Is Daridy home?" Caroline asked back span HWs respect you Combine waterd to be unbuckled and climbed out of the car. The front yard was green and deligate, the house repairted vollow with blue tren. The place several

only denly farmles. We the photograph Morrory showed her once of where the "All your toys are in your room, sweetheart. Be good and play for a while. Morn-

Over her bed hung a bright new Yosamida Sem poster She opened her oak toy chest Irsade, toys were based and neathy ar-She went mig the bedroom and looked at Darking bookcase. The latter picking bridge and man with roles, and harry masshapen placed them. Their covers depicted beaudessiers, demonic children cowtrays on

Prylowsky on the bus-remember him?

sort of college fund for Carolina Andy funks he can work us a little has brook. Oh

Caroine walked fullway down the half Morrow and Dackly slood at the closs,

"There she is There a my title get" Dadity lifted her high into the air I he take

"So how have you been, eweetheart?" "Ill frish dinner "Shorryl said

Did you have fun at Aurit Evelyn 6?" Caroline picked a scalo on her knee "I

were gone, along with their photographs of Caroline clasped her hands. Here is the charch have in the ideaphs. When you open growing and deer and rabbes and forests

'What should we do right now? Do you need you one of your Dr. Seuss books? Caroline thought for a while Daddy's twos, sough hand ran frecugh her hor. anagging it Gortly she pushed his hand

away "I want to witch trieveron," she said

Three rights is week Larry and Marti werd to the YMCA together Shorted became home or at least improvements on their covered one. Finally Marty suggested they buy you buy Shoots properly. "Betty and don't make it up there more than three or gage peed Marty a lump aum, and began

months they drove up to Shaeta nearly every weekend Than Larry received a promotors which required him to make bushed from all the driving 'he told Sherryl. "Let 5 try and make Shasin cost week-

All I told Conkin was I've got a morchandles detail from his store three months. in a row it wasn't like I called him a free or anything I just wanted an explanation I'm

entitled to that much, don't you think? It is my job right? "I'm sum he dight mean it Larry" Shorryl sat on the sole and smoked a pasente

He was probably just upost I'm sure he was upget i'm cure he was l gov sat at the dropp morn table. The fa ble was covered with inventories billing statements, and large play Accords bindside him. "And now /m a little upset, all

"I'm num you are Larry I was ust savered maybe he didn't mean it, thet's all. That is Larry put down his penal. No 1 don't Sherryl saw the TV Guide on the college tables considered policing it up

Isn't their what you seed?" Sheary grupped out her organete. "Larry soally with yourd stop enapping at me





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DECOMPORTOR

for one minute, and I i say this as receives I can Please don't call here arymore Larry's not interesced / in not interested

Cardina's door equesked shut. Sherryl watched the parallelogram of light on the right this minute. In frigh sohors filth Mason had a crush seen Bilvs picture on the cover of Soft-"What I mean, Larry is that you re not the

goly one who has a had day some-Sharry was turning to tace him again orthor "she said, and retrested to the tele-

"He Held" the voice said. Twen hoping Mr Chambars would be in Mr Lenny Chambers? is that night? It's Larry Chambers, and the is he wife.

Oh, frata right. Of course Lavy."

water on the other and of the telephone Word her earn Nos recho state: '-- I meen gry Boar called, and by the time hers called beck I'll have found if poem. I provinesorry, Met's not it. Well, sell tem Jim called

That's Jim Processhad forgotten to gleen up after dirrer. The Cheenos from the morning breakfast had

sat down feeling suddenly very tred. She processely held over. She felt like saving to her not about waters. Navate define, in-The they wouldn't leave you alone for one

ecgraphed posts! broadedes from the tran of Wolves, PRG documentance, norm-Jack wolling down food. And then these of them it seemed, calling every hour of the day and night. Wolves wolves wolves ton to me Mr Bear or Mr Prideux or Mr

Frankly, Mr. Rear, I just don't fruit any.

SECRETS ENTRUSTED TO A FEW



The Unpublished Facts of Like THERE are some things that can

ought to know Great truths are danparous to some-but factors for overthem, Bohind the tales of the missoles nature's laws-their amazing discovsries of the hidden processes of man's mind, and the mestery of life's prob Leves Copy shrouded in mystery to neeful beritage for the thousands of

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ZIP interested at at in Shemi's dream men and wolves loped

together across the white plan. Larry was and Marty and Beatings Sherryl recogread the malman, newspaper boy, superpace with wolves under the cold moonlight Everytoody was dressed as usual The men wore slocks ties cull tinks, and

leweing and high heds Caroline carried one of her toys. Andy his brickepse. Marty. his recruitful ricker, and Larry one of ha largest gray Accogra binders. Shorryl a tarreshed colleggot in her left." We forgot to achedule Caroline's dertal appoinment "she told Larry "When I was a child filed with stars, she told Devey Sewert, her high-action sweetheart. The Miky Way the Worls Trail But nobady responded notody even seemed to notice her. The bright air was laced with the space of cartwo: Sha fet a sudden efoow in her beck

She surred and awake in a dark room, a self bod / forgot the shopping today, she Boacle her in bed the man moved slowly.

Sherryl and up her pupils creditally ch being Every using the decerned the motol rooms clean undutiesed angles. The thin and freque dressing table, water plasses wrapped in wax paper, hot plane glume num hot opcom perturb "What's the motion below?" Ancirow set

up boade her he armeneroling her wast "Nothmare? Tell me, sweethwart You can net lower? He kessed her neck, stroked her worm storresch Treese Andy Not now Please Shorty

combacious of bed. Her clothes by folded Serry Forget # Andrew rolled over articuted his billow, and listened to the rus-

Shorry stood at the window grang through the blinds. Stars and moon were occluded by a high haze of lamplight. She heard the distant Hissing of sirect sweepors and pulled on her blouse. Then she heavilitio ran begin. It drummed hollowly.

Anchyw took his watch from the end to "No," she said. "If call you the time. I need to be wore for a lew days. I need

She opered the door and stapped into the tree. They always do that, she frought They have to be the ones who call they wor/You She pulled her oper policy up owin and descended one step at a time on

body's interested I con't think anybody's clarking high heels. Pudcles gathered on warped cement stars. The as if we don't have say brains of our own ! Sherryl magned horself telling Evelyn. To as if we have to be told everything! By the time she dimbad into her Volvo, the rien had ab conthy constact. Her cost was scaked

seat to dry At this hour the streets were practically deserred. She drove past a subcession of

Buint's Market Treate Longia Drugs empty assign of heir supplies, perfood household appliences, and within supplements were furningfed by pale watery fluorescents the ryl receiled the overclus Norary book she Agual, and opening it to a random page she had found a brief passage highlighted with a yellow Magic Marker. The man who guard," the book said. But the man Faughtly closes his eyes, for he is very

As she turned onto Beverly Glan, her high beams, owereing an alloyway, reflected off a pear of selective sed overs N a ske they can't lot you forget. Ike they can't abundaned buildings underground park ing garages, free black, callused power cettering the rain against the damp streets They longed alcregated her gar for short dis-

tences trailed of to gubble stury smalls and Attempting traffic lights coof shifting palterns and colors across glimmaning as phalt like roteing spotights on alumnum Christman trees Wohen men, lovers care. structs, others, worlds, stars. The real and you're cremit it all starts sockery like a rewarm of all seeven creeky streeted and my

city the wolves began to have DO



SPACE

volume report devoted only one paracount to married exceditions to other planeta But in the certy Eightee, bolistered called the Mag Underground and the development of the Planetary Society's Mors instance and the subsequent conferences on the issue interest burgeoned

Last summer NASAs Leadership Intratives study, charged by former automatif Salv Ride concluded that "exploring. prospecting, and setting Wars' should be non Also NASA set recently organized an Mary in detail President Reagan directed more program that includes the study of sare and productive human massons to the moon, Mass, and other planets" And bachov endorsed human exploration of in the USSR and in Washington last No-

vember and December respectively Resuscitating a circonted NASA site meking from massive budget outs and the Challenger disaster, is one of the oceas notanky, the declaration alreases that a mission to Maré would provide long-sought formation and the causes of climatic changes such as ice ages which the earth

present and past life forms and the under-

standard of Markan Innoforms. And Mark may offer a new purpose for the US appace. station - needed for in orbit assertibly of an interplanetary transfer vehicle or who microest for space travelers. The docureget strosper, as well, that a mission to More would be a recently opportunity for human beings as a whole can feel part of If the United States and the Soviet Urean

were to combine in the exploration and settlement of the solar system becarring with a top to Mars, it might well be that in the great task the notify differences on our Asked why he signed the declaration

and supports the exploration of Mars. Tonight Show host Johnny Carson says sen-ply " his too crowded in Malibu" DO

The Sell declaration and a list of signess can over Possedena, CA 21106

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control with their new controlling. Orbital hampers Services to For the Rethe, the document to devote the reset to prove common of part of 18 (1855—the document of the Rethe Rethe to prove common of part of 18 (1855—the document of the Rethe Reth

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preserval facilities cotting the sites.

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through the aerosphore The brothers are carrierly looking at Noprimary journeh able. Mauna Los violome in Hewes and the northern tip of the Yorkin Pennesda in Australia. Check they choose a site, Paul and he wide will more here to gettimaps started. "Ne exist my house and any pretty more passals and in solid to go?", he says. Bruce will stay behind in Phoenix to raise lands and no the company is day.

to guarantee the company an origining in come by spinning off mass driver technical originates a powerful insert motor that could replace tractional mostrs in everything trem cooking systems to manufacturing The Rote are operative about their pro-

replace tradepoint musics in overy ning term occaining systems to manufacturing.

The Rothe are operanishe about that project. Therey shuty were seen incloses in can be done, says Bruce.

Must of the new leve cost nockets aim to see pay-takes to leve Earth orbit. But Gr. batal. Beenings Corporation, a consignation of the seed of the control of the c

Most of the new low could acceled a first of being probability for the first first of subjective to the first first of subjective first of the coats. The coats first first first first first first first probability first fi

> Converted to gigantic free-floating greenhouses.

ETCO Inc's shuttle fuel tanks could provide botanists with lab facilities for germination and rooting expariments.

NASAs Mars Observer—on an elemenrocirli trapctory to Mars Thermost statistic his space career

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Today in a modern mirrored glass building in the wooded Virginia suburbs for near Weshington DC tie talks about his firms early success Behind hims a famed util

proba of his last opportmental profer. The his skelds of some propert. On the walks and outside renderings of his last real readed—TOB There in part to sales to MOSA. Directly Source-large of his last real volume to the property of the pr

org a test for countered proceder in option.

After developing the moderes to gain in oppion complete must also monoconficiency in option of other facilities of other countered in options as well as the option of other countered in options of oth

ers dispeca.

Some of these applications had been estimated by government measurables and compense that all the properties and compense that lead to experiments on the appeal of furth before the Challenger acceler that the providing of the startife along provided in common participations of the providing of the startife along provided in common contractions and appearance welling to go up may speak that the space along the providing that the prov

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 more are scheduled over the following two years: Otron hopes that by the mid Nantes, SWCEHAB will be typing on frate to loar shutte type a year. And SWCEHAB maynot be alone. It has

And SPACEHAS may not be alone it has bedient government has the way a larger, tree-frying lateratory could get off the ground by 2222 Near term a cheet, no villa maritio could provide additional research teathers in space. Longer term such a lapsace shoot; could be expanded a recomment to become a benefit with a recomment to become a benefit with the country of the country of the country of the providers to become a benefit with the country of the country of the country of the providers to be some a benefit with the country of the country of the providers to be comment or the country of the country of the country of the providers of the country of the providers of the country of the country of the providers of the country of the countr

such a "space shape" could be expanded in increments to become a twenty-finite century orbiting industrial park.

The correspt is so affective, in facil, that in White House has even said it would spend \$700 million to lesse quarters on such a private oppoor talls. Prost currents for the federal business. Joseph P. Allen, the

the federal business 3 sceptin Parkin Tempeos shuffer astronars, Maximir Fagrel considered the Henry Food of space with-ce deeps, and James D. Calaway a thirty one-year cist Coford (Invensity philosophy graduate and space not. Their company Space Institutions (Inc. is currently developing a space left business (Inc. is currently developing a space left business stated a business Space Institutions (Inc. is currently developing a space left business stated severe years).

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resized that foot seletives to oth and the select that belongs them back. Today, with all the pocons inplausit states as if the paper or indexes into-Laboratory and the paper of the paper

That's what we did with the space shuffle, and look with Tappmed.

The technology is not complicated. The Sections of 146-flook well presentation was already resident and lookers the research projects. Energy for the export ments would be spaced by a 300-look tog any of sales panels producing 50,000 water of electricity.

Since the capties have no 16 espaces.

system redocriauts would check on the experments two or three limits a year when the tability docks with this shuttle. A other times must of the respect heapt the call med out by robots. Ultimately the lab could be expended updad to accommodate in creasest PSD approaches.

As the chain of units grows larger the experiments will become more sophelic cated at well. And, Space Industrial pages, successful research ground will ubmately pase the way to full social menculationing of unique drugs, semi-conducters and communication mostic.

ubmately pase the way to tall scale mattractuming of unique drugs, seem-conductors, and compounds in speak. One day soon, instruptienous will meleat takes many times larger than Alaria basease shace in hist. Thorase Flagyles and his company. External Turks Contitionation but leads in a certain product country but have an acceptant product country but have an acceptant product where people could dwell. The 16 story having are permitty used as to country materials.

griss and are personned minutes into the light. The turks burn to cardion as they make through the attrophese into the war. Rogers wants to recover the banks in onbit before they list to Earth, and convent them into pressurated historial expension.

James Kuhl and
his company, Celestis Group
linc., want to send
the ashes of the deceased.

into orbit. The remains would be loaded into capsules.

and placed atop a rocket.

too fiteling greenouses, for instance the serks could prevate bottoms by the bottoms for the permission and ocentry repetition. Or several traffic could be inhead together which the permission or robust in perhaps which is the robust instance troubs the perhaps which is the robust traffic to use the same of technical Region of the perhaps to use the robust of technical Region of the perhaps to use the robust of the perhaps and the robust of the perhaps and the perhaps are perhaps are perhaps and the perhaps are perhaps are perhaps and the perhaps are perhaps and the perhaps are perhaps and the perhaps are perhaps are perhaps and the perhaps are perhaps are perhaps and the perhaps are perha

public ni large." In his oligim osunda grandarso, the bot tominne economica mise series Useh or the larine oscila 500 millero to busik And it would cost at least an additional \$000 millfon yet his own in oquivarier shoutable milli space. So each tenir recovered in other and turned into seek kind of productal techniques would see the one third of a bithor dollars it leads only got to get a willfar size werin evoid only got to get a willfar size wer-

"All we want to do is preserve those for the buture" explains Rogers, who speaks with the tervor of a preaction. We can store than high enough up to their when we need them: they're there

"it's inevitable that space will be developed; edds Rogers "And the United States can play a truly unique role by making sure as many of our people got involved in

and plays of the street according to a model of the place as possible. Included any special place has possible and experience of the place as possible and experience of the model of the place as possible and experience of the place and experience and experience

by a lot of plogfer eager to diff he below they up. The corrected minimal would be loaded that assumant expends and please area assumed a model.

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INTERVIEW

satisfied because I'm sure in these four years. I'm going to create more new prop in four years. I'm sure that Costs Rica will

houses but also the means of production tarring dividends from stocks, becoming new shareholders. If I accomplish this huge. reform during these lour years. I the treatresided because I think a more equistration society and a better distribution of wealth

Cover Bucposing once more that you were

Anas To be more considerd with whatever précass were decided upon in US prècy course is. We are in favor of democratly value" But if you look back at record histone you'll find that the Linted States have not always cared about democracy in the womed about the Yuston Somorze, or

name of the world are the Middle East or the Religious So I would be more consistent in Orayy What is the human conclinion going

Anas I see more diversification. The gap North both capitalists and socialists, ore really concerned about the developmen

1961 was a taken

Come What about the so-called humans

Areas I Ither's in the United States there's a used by the Sandrestus as one more ex-

ply with that accord. So we might have in

long long king warhers in the region This would be said indeed, it might be like such

One emportant step now is talking to the Cuttern and Sovets We know het as long

as they continue supporting the question to assume responsibility if we want to pag-

Omen' You've sent of Niceseque fruit it's the evolve from a chotatorship into a democ-What is your vision of the possibility of de-

distators need an enemy in the case of rose. That is serve I we treed to convince all we should get rat of the excuse-which a lot of very constrong publicity—that they

committed themselves to the democrat-Daniel Orlega has had to risk his power -- not only talk his power but give up or naver. The is the difference between

Orlege and at the other communist loadput against the wall and consequently porretted tyrsel to democracy from mala Accord is that it speaks to that decopton That a why we should now it a change without providing more excuses to

New about Grateschey Well of course

I read his book Perestroka. It doesn't mnot renoging on his Markist ideology, he s not admitting they failed as a one party is that they we had the power concentrated or a low hands, and if is a total tanger govus not be misundentood. The Soviets have realized they carnot cope with the sepinations of a new generation who want and



deserve a better quality of Via They ve also assistant they must reach an agreement with of basic needs, instead of to building more smale horse. He is not prepared to accept a navniete spoety Orlega did And flyou Gustomola Accord what we had in mindand Ortega knew perfectly well what he was signing-was Western-style democ-Now returning to your question about the

luture of Marxism. I have a very categorical answer-Managem is a tailure. If a bean a telum in Cuba, it's going to be a fedure. be a total takine in Nicaragua. You can hide ma way, the failure of Maneson in Eastern pour underdeveloped countres commu ream is not the enewer Costa Rica con must Europeannam Costs Box with Cuba in terms of ockloation, housing, and namuch as Fidel Castro has in the same tworky-nine years that he has been in bloodshed. There is not one opportunit of my government in political exite not one in

the price they're paying in the name of a and see that without bloodshed we've acreviewed what they will not recommend. Nonrequere have the standard of living they had in the many Thirties. In order to moven the standard of 1979, when Fomore was oursed, the Nicerecurvic will have to was party or soversty years. En tosittle Markett is smoly not the best way

no at the rate of equity million a year it will this population growth is telong place in however has the lowest bethrate of all Littin America. How do you account for the? Arias: Well perhaps Costa Rica is a nood programs, you can easily cope with the challenge of copyletion growth And Costs ago had one of the highest races of populegon growth in Latin America-almost four

DO CAN

Japan, or the Unded States Our Infant The less again, is to preate more sobs

We don't want to be a bandina republic work on banana plantations. That's why live can prove to the rest of Latin America that we can become the most industrialized nation in the region even though were a

tood for instance-I am not alread about world because of lack of food. There is pienty of tood. But it is simply not distribused in a fair way This is our mein cheilonge to solve in the near future. This is the United States to talk. They we wasted many years not taking to each other. It's

perpowers continue to spend money on We should do whatever is necessary to decrease the growth of population But the population. But we are not charmoling And the moment have needs are sets Sed population growth will declare Over There is a release a spect to beth

sacred to all rangers. How do you see the Anas In the lest two thousand years many people have been saying that marriage. Nevertheless, today it is as afrong as it was two thousand years ago So my impresbirth control. I don't frink religion is going Ones The world's population is now grow

Citris: You will be lifty years old in the year 2000, in the prime of your life Omer Oh right Where do you see your

Arms What a citious custon! I would love children rolatives, and friends. I'd like york much to teach. I've been oftered tobs by many of Booost universities in the States as woll as in Europe But I love Costa Rica. is positive country for view long. I hope to ust created with the money from the Nobel Human Progress I think we have quite a challenge in Central America DO

ARTS

recognizing the worth and potentiality of One result of her colleborations has often

been Melong Islandships Einstein for one "solingful idea" would help "make the futitle come sooner. Anshen and atomic physicist Isdor Isaac Pato developed a cherethed friendship" when he contribtives in Humanom series. It was the only flairy was "like the And medican confor of the universe." Anahan says. "There was

a netraychal, behical prophetic quality in merrard to bloss us with his wadom and deviceon to truth! It was Place she adds the effort alone is sufficient even though Einstein, on the other hand, "seemed to

be a bit of a vagations, with one sock of and one on, sive says. "He was a great shacity creature, oblivious to rain and the other dierrents. There was an almost peclearing atmospher to the personality but when he spoke I felt suciden flummation. fall the most profesing grassude for his will supects of science

United her deciples. Anthon says, 'the communicacy sciential nave markly (to those computer revieturgators of data There is probytes without pyritines." In Anshans corrien tress is a "dangerous degramming the machine. materialistic world perficusly devoid of eith

Such a threadbare world. Anshen beleyes, is already developing. "We are saidreferre quality for quantity and pluriang into on corresponding and rapacious greed, she phase on progress that led to the destruction of Europe Aust as Promotheus was

Anshen has devoted her career to work. no against 'our devolving into featheriess. baseds forming each other, and she belayers that an ostablished else-inct an eite of social position and wealth but of courage, integrity, responsibility, and other though we may have lost tests, we still have rain which we have been starring," ohe save Now is the time and an idea whose time and all the technologies in the world DO

STARTECH ACCESSING THE FUTURE

FUTURE CARS

At this year's New York Automobile Show, where oil the big consolvers flex their creative mus-cles, the bettest wheals were the concept enribuilt to show off the R&D and design shills of nech manufacturer. Onesi Costolio cruined the show SITE LIKE A GLOVE This law, of sensy silkeratte belones to the Design Intropid, a faresector mid-secine sports cer with an all-steel chassis. The interior is

turned out in deep-blue sleve leather, the costs were dealered to radge driver feliges, and the full-maring instruments the amphorizes nesn

THREE-WHEELED

Velkawagen's vision of the future rides on three wheels, and it's salled the Secotor. The teardrep-shepped cer with

guil-wing doors and fireless skin is do. signed to fill the void hetween a highenriermeere meterrycks and a sports mr. The Sceeder is 10

1,200 passeds. Its two



has feur-wheel drive lasty's relerance enter-

based, hydraulic-comtrolled suspension system alluinates sheek elserhers and conventional ancient. Teleine e mern predict approach to the rned is the SITK Ghie Agrester (helew). The Ford concept van fee-

haves Heald crystal windescribed can be radiched from class to derh. A sener system alerts the driver to reliermet weblichen.



transcraid form features dner leeks and an lenition that are controlled by a rand containing the driver's personal LD. on numery despits. The extensifically adjusts the sent real steering wheel







GAMES

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entries the wirners selected

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tors did to Webster & -Kerry Kirson



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United States. The two spines our that the planet is traveling

Artermon 2064, Australia Wiley AZ) 5-R (Chris Clark

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By Joe Fodor

6 Randy, a rhesus

orrandy, a mandy, a monkey, quit his job of testing over-the-counter cough syrups. "After a particularly back night of dranking," I took a look at myself in the instruction and thought.

This can't be good for me.

is written tot windo weekind. If the fiver Discourse Comprol in (Marria), power vanchine for the graveliment graces he till to takes perelly groot less own casps, a more big sealing and let the food he wayns. Best for let to owing literate in my pilo, There are so seach more for military at the properties of the pilot at their gotting infected, with mandecry wreets.

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would give anything for a change to get sheety employment.

Lany the water risk explains: "What is Perty large hise a lot of truth to it lock year don't about jook results. It is against us rules. There's nothing in it for us, if the results are off, the docket will only us?

Most of the districts agree, except for Skippy, is beagle who studies the elects was related. What I proof up, the Arriy, souther celed what the II was not reported in 1 feet a feet of the II was not reported in 1 feet time wanted to be a poker, and or a feet of the II was selling to do you of an in-proving upgage without I went frough these bearing agk was assigned to Weunate President Alt they of exhoot different types of arminimizes shall me and aduly the requiring wouldn't be selled as sellicular considering gleining and homized beder targe to the interception and a glecot.

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