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# DEPARTMENTS

First Word By Albert B. Boynoich Wheels Electronic Universe Space By Presson Brook Political Science Arts By Bohart K. J. Kilbaffer A Polish surrealist 28 Funds Books By Robert K J Kilherter 10.0 Omni Online Stars Games Denmark elephant max









Although he died 400 years ago, Nostradiamus haunts us alth, as the cover by Belanske (counter) of Dirochowski Balavij supposs. This month, we reseamere his propheses and look bisyond frem althe main himstell (Art and photo coelds, page 110)

35 Continuum 42 The Resurrection of Nostraformus Taking a fresh look at the Saving Our World's Ving OUT We By Ellen Hoffman 63 **Reinventing Education:** The Chicago Experiment changing the way Chicago 66 Performance-Based Tests Fiction: The Relativity of Chaos Dr Markenia Deserver Conne Wils. 77 Interview nomes Antimetter

FEATURES

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# FIRST WORD

# THE RETURN OF NUCLEAR POWER: Nuclear energy is about to make a big comeback-just in time

# By Albert B. Reynolds

By the year 2000, we should see the reemegence of nuclear energy as the most promaing power source for generating electricity Cheaper than gas, cleaner and safer than coal with a near-infinia fucil supply, nuclear power's the has corre. Assen

The time has come not a momost too soon. Diver the next 50 years, the world's damard for slac trois will grow by 400 percent de spite strudes in conservation, aoconting to the Chaurowy Blan, fairmer presedent of the Electric Row or Becearch Institute.

For a variety of resistons, nuclear is the salaut and most economcal solution to such an expinitively yespanding demand for electricby. Thare are alternatives, of pourte, but each carries its own fees and drawtische

Economically competitive controlled hydrogen fueion probably carnot be diveloped before the

> Raymelds, protection of receiver enquisements at the Definerally of Weglania, writes other one-pabectings energy.

muldie of the next century

Renewable energy sources such as acids power, behavior, and wend power well play an importent part in the anergy mix but are not yet close to being economical in operation, nor can they fit the gap backwall the attount of anergy naceded and the smouth they can breakan

We are all familiar with concerns about using tossil fuels for generating electricity. The potential generihouse impact alone remclars tossil fuels lens than desmible to meet lange-acale growth in electricity generation.

Of basif hulls, returning an offers the most promise, Currently inexeptative, producing fewer greenhouse gates then coal, our abundent supplies of habitral gats are not abundant, enough to meet a huge global increase in the demand for abundant.

Which looves nuclear freeori

Currently, etter 36 years of commercical queriation of hugber / Nacitors, more than 20 percent of Americage selectionary as distinued team-subler glands. That Spure bocomes the more remarkable when you reakes that for self lower a cleaced downesic construction of one nuclear plants has been as standard to due to upset onteer, to political and public percession resume.

Those issues—notably plant auting and weats cispose—are settled, at least isotencally. Over thropaet datacks. U.S. isaktion manulactures have designed a new generation of plants that milled adsensities in science and technol. ogg and also address public concerns over solver

Many safety questions involve backup systems in most exacting nucleer-power plants, the unanum fault is cooled by water. Backup safety systems are required to supply cooling water to the system in the event of an accodest. Present backup systems use electric pumps, putting the system all risk should there be an interruption in power

New "person" plants elements this mit, by relying on an unintion-gatile plantomeron - gravity driven weter flow --for cooling the nearborn, it mooseairy. About half the size of current US plants, the new passive plants can provide electricity at proofs the came cost as larger plants.

Another new genatics on 0 modeer parts are called "exhapsany" plants. These are equal intents to tadys i ways a plants and incorposals addy and cleargh loatowar from the part quark? Distary of nucleur-plant benation. A though they dill rely on pumpe for backgo idely waterne. Ammoni designed exclusionary plants are cumerly baing bull is depented.

b) All valet b) and valet when moving beard octored resolupon with a 50 bitm revealpartion of a stronge site in Yvoca Mournain Nevedia The plan is bore apert. Net (\* high-live) wasna 3 tom rucibat plants permanenty in a goologic repetitity compared of valcaria rock 1,000 kat below the surface of Yuoza Mournain and 700 feet above the swere hable.

Use of the fluctuation of the fluctuation to only a scheduled to bright in 2015—by which firms continued advances will have resulted in whole new lypes of nead/ora being brought online. Many of these will be small, posswer resotors. Others will be the larger 64olubreary plants.

Whatever ther nature or cosfiguration, the read ganeration will be occess perhaps at last unargues by, the most important source of power for electricity generation in a world whose tunger for electricity or so city gang to increase. DO

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READERS' WRITES:

Problems with the drug problem, environmental snobbery and the scent of a bovine

## A Drug by Any Other Name

galize recreational drugs is to deny the sty that no ioncer cares whether they money, or taxes to get drug dealers and caluational by the mobil of data deal-

E L label

mout amounts are speril on the drug how shout the millions record in cash Tom really believe this whole segment is actually a wer on the economy

Dependence must furgismental error in as drugs, as if it were somehow a serole black and white must be retried ino monitaria provers and users bethose people affiliated with the truly so

Chad McEvov Seattle WA

You're nohit in "Gizmoe " (August 1993) ment is good and moral we will not "nine for penchastis that require a Mentale engineeral moral material by diana our

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# WHEELS

CAR TALK: The Brothers Magliozzi go trisyllabic By Anna Copeland

have a theory about Americares and their cash We live that the vary some countries is the trac other live is a country the iso that control their live and an country that the abless been on the move, there is scenaring sociative in the balac dusing of mail and mechanics atop four wheels. Peckster and Cadilaus wegters and pickas—jail validtics on a them. A cir can be seening so the resid on commany.

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Another subject that generations some common ground is their dotation of porthesized in generatited second in a scientist of inder (being about a scientist of inder)) (being about a scientist of inder) (being about a scientist o And even if it wate true, how do here know it is not supposed to be that way? In our relenses to be that about scientus and extrotion is a preservativ dynesion from a treate on dinosaure and toom to subject of a directope and ecological mane and ecological mane

At the suggestion that is an or top for suit as elliptic parameters of the suit as elliptic parameters of the suit as the superior thinks years there is a flowgard million years there is a bound of the suit as the subset of th

Tom counters evolution with sociology "the problem is that there are too many paople in their locase and thiss who are suddenly struck by the fact that they're evolution is an effort to able on one who of immoving they're going to make sure that the spotted not is universe. They for this patient is universe. They for this patient is universe. They for this patient is universe.

In a final latious Hay immught the pack and the future note hits own backward. Here definit a create the metals of metals of 11 valid contents to use DFCs, politike, use my gain grill, and other every immuno? The says But, Tom everts loss in label with the parent's and a future label with the parent's future 'Look' of Look Applied's Hearts' Market outling where warts' heards' coulding where warts' heards' COS

# ELECTRONIC UNIVERSE

OUT-OF-HOUSE EXPERIENCES: Some electronic thrilis you've got(a go out for

By Gregg Keizer

Some fun you just can't get at home. Some fun takes a pie of conts and a trip in the car

That typ can be as short as a quick trive the nearest imagimal or as long as a ross-outtry quot in search of the winhead anywer to an amutehandir park. No matter what the gas bill, the garney's worthwhile to electronic anternaminer, publica, because aut like this just antiports mole of into the home belone your was an growt and oraclasted.

Traditorsi vite acredes sre the assared source for public many of the best sitesday genres eventually might to format viteogame antalines between the second source parts and the second source parts and the second source and compare the states to the second source and compare the states and compare to the states and compare to the states the states source to a source source scale by an end of the states and compare the

You can'i jast yo oot ant bey ogslowent like Sega's AS1 Yor yeer toestip enfertasomeet conter or

One of the best reasons to hit, the mail is What Recrip a multiplayer churg game created by Sega What Recrip posts people at a long, counterfile, penal where each player stared at a long display showing a windlong display showing a



shield view As you drive, your chair nocks and rails, samulaing the roads burnes and burses it may not be as dangenus as NAS-CAR but the Formula One-NS/ ince is a hoot if only because yoursheed-to-head with not play en, not computered with not play.

Another elected to dice oblets at the strade of Vituatris Docugarost the strade Vituatris Docuent of the state of the strade of the electrony and the state strade of range a VR twitted that turbis provide the strade of the strade and gives you stand in a small actiotate to another the strade action acts to another on a strateging the you shared in a strade of the strateging action of strateging actions of strateging actio

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There as, chart of our on staying home all the time. Outingdegis tochnology sen (cheep, and only by serving the massiss, can be apprecisive to the second statum a profit. Nor can the second data the second second second second status and the second second second status data the array status the starts filter array show the same farmers as one seen on the same farmers as the second s

Sometimes-now and in the future-you've suit gots get outsit the house DO

# SPACE

# WHAT'S FOR DINNER? Eating a balanced diet in microgravity isn't dasy

By Devera Pine

when the space has all ways been a somewhat persone - John appellang expanses - John appellang exsuiced applematic to eat in gates, suiced applematic to eat in gates, suiced applematic to eat in gates, suiced applematic to eat in the Ban moon with bacom sources that on the source of the sour

Greened tool for space Numelers had come a long way ence the early dorps when, the Gains, admonstrating their masks out of a tube. "The meats had farmy masses the beard tess and dhadwin stwe, but they were all ground up," says Charles Bourterd, sidsplare manager of space-subton tool at MASK is Johnson Space Carties in Houston "Even like set ma testy tood".

From maals in a tube, NASA progressed to squeshing wenyfring from peansi-bulbar cookes to pork shape. 'Oubes dich' go over weny well, 'Bourland alas

The food that shuttle asthrulas of body been more seartance to excepting food that to bady load in fact, attraction and point the search include the function search includes the dataset obtained the disconting publicings and cereats. Inventing to datasets in terms has bacome to datasets in terms from bacome to datasets that the mission of the datasets has the mission of the datasets has the mission of the datasets has the mission of

"They don't really have a good det on the shutle," Bounland says "Numbonally, the foots are probably a title high in sodium and occasionally high m bit. They're also low in their "

The shuttle's lack of a refrigerator or cooking over contributes

to the problem ruling out any food that must be slowed or codeal for instance, though antronouts can take Tang along, they can'tawa mile or sold. Poedead milk would git around the entroperator problem tout the wison that NASA triad talks table table. Source and says And the ontronouts child's take a liking to were soids, where

preasilition and vegetables are scarce as well The shuttle's hochfood locker can pairy a few days' supply of cernit sheks, fortilla and candy-coated chocolates were also at the top of Thusts lies of preferred foods in Addition, he enjoyed the Whest Thins and goldfash-streped cackies ers." It was kind of fun footing those timps around "

On the other hand, the deltydested vegetabled—all entred in a sauce of some kind to keep, the vegges from Resting au of their pleate container in microgravityhave few farst. You have to put your finger in [the package] and mutan a sword to cell the water



trias, and applex but for the most part, askonauts don't take treph food into space

To seep the creeks happy NA. So alows, there is and the second source of the second source is the second source of the orthogon source of

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to all parts of the vegetables," Thus: explana

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relight cavity as see of the try places where you can play with your food, as NADA astronaut Lorea Skriver damastrates with some cavitycavied sompts.

# POLITICAL SCIENCE

# THE FORMER UNITED STATES Dateline December 1, 1999-Des Moines

By Tom Dworotzicy

annaades soan broke in-"Now that we re deep in the claccome for a modern-day Boston

"We urge state povernors to hand convertion and decide to





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EWIAM OTH & DOUG PORT OF TOTAL underground builetin boards and iown, and the sinte of Northern Collfornia, have already ansources in livese states advers attations, within the next 72

when do you think? Should we Your youwn will be recorded ment P.O. Box 156, Holly,

the following response From Pres Gox "Mytellow Americans dollar debt. But such a sportice toi Would you have us close the sek for your support during this



# ARTS

# AT PLAY IN THE FIELDS OF THE WEIRD-An executive Philiph surregist makes his American debut

By Rohort K . I Kilheffer

the Eastern Bloc hern t tunity in Nevember of 1991. Yorka's agentimatoger Formate Lavastro reserved a small booth ing the Cold War years James or based in Beverly Hills, California

of a mercus. Cowan recalls a let of banal and medicore

Cower out a deal on the sect

In five minutes of second the partincisi the says) to din a book of writer Histon Elleon-enhopes of obtaining an Ellison introduction for Elison liked the paintings so



perdonas in the book. "I was abso-

ly pass up such an opportunity ing #And Fields, a 30-painting other which expertises as more

and Pater Brueghel to Salvador setsity. In Attack at Dawn, a cor pipp supports over a bleak





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One three Filson national unbit

# The owls who couldn't be moved.

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SEGA CD

Silpheed

Of course, the splaxy's greetest game technology is an your side: Sego CD. Which should teip even things up. (SEOA CD oildo mokes thogs Grayzau mate avesome. Yoch, you better stort praeticing. Taday.)



7 this picture was moving, pairil are the lowers small enter, edvesced polygon graphics, every battle crusters and incredibly anerying mitable and lower.

BETOUSLY THIS IS A LITTLE MORE IMPORTANT THAN FLOSSING YOUR TEETH ATTER EVERY MEA

Spland us inclused of Gree Am (#1993 Game Am (#1993 Black Terror) April General April General April Cl. Inclusione is the Harrianal on Incluseds of BOA, 10 1993 Black, 3233 Aphin Small, Hyperet Cl. #4143 All physicae



The CD-quality look is so realistic and finese chromosomel you may funget it a part of pome. But then poor 'I' remember that rule, all dama feacular.











# ARTS

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Elson's accompanying percess are thereauted attistic gama, they pixy of of Yorka's aneges without becoming ideasis, they are utild throws increase at and onorgy, and hey (fixe the pathings) might a shrey, detailed some of vixed nasky with an odd, offbeat factor of the latestac Disears intent conclusions and applications of beat conclusions.

Today, Yerka lives a fairly reckieve exertence in a cottage in rural Poland, locking even a phone subsetting on the sale of this paintings. Since his days at an achool, life any true while, Wrish has autobart have his muse He backher herd your of the manarar and style of contention far. The crisp periodices of your of his titeshift or the pride of her there have have here not of her titeshift or the work, and his institucion relat-

tantly recognized him as a briliant (though popular) talent

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Harlan Elisson was imported by Narka's lesages to write 30 original short stories for the

# FUNDS

# INVESTMENT CLUBS: Making money the old-fashioned way

By Linda Marsa

In today's unpredictable econorry real estate can be treacheroor, bond yeats are scarty, and poling slocks can be chanter than throwing dietä. So how can a rank amateur, who doesn't know the difference between a blue chip and a tortrills, inweät monev his a cref?

NAIC, the parent organization of investment childs, provides the by-step gurdelites, loctuding a campile partnership parentner Why not start an anvestment club? Now that the approximate bubble has bunt, buying stocks is no longer like cloning movetimesment clubs, which preach the writes of self-related and eduoation, provide a low ret enting for a newce to seen and learn how to make the ments.

Invotant dable man drawn are inst members gool resource w, winch bools the' buying poeia, and share beestach choose Menticent their use the dub as a Menticent their use the dub as a filling and the dub as a start themakes, invy don't need the tage advice of a botten-they can use a descould brakeninge or were purchase trades directly from companies through evident from ourganies through evident tagening companies through evident agenerat fore can add to yearly wellab to ammune as 10 periods

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There's wall Street wadam," ays NAIC's charman Thomas E O Hara, a plain-spoken Midwederner with Ittle patience for



the alversificate of latter-day 5nanosal wazards. DHara one of NAID's founders, prefers to make money the old-fashsoned way "Buy and hold is the context therings". Bays Of Hars, whose own 514,000 million (ag has beiborned to \$142,000 million (1611).

Cub members also tend to be cautous and takks to the Benefit formulated by the NACC found emin 1957. Bayl big invested in a wearly portfolior to gened risk and earn hose to benefit undervalued atacks with long-tenin growth, poterful. "Everyow theore the fourth principles is the found that poped actually prick winners quite weil. What they don't do is tage weated the mintain device the south principles at the found that poped actually prick winners quite weil. What they don't do is tage weated the winners of the south principles actually prick winners and the south principles and the south of the south principles at the south of the south principles at the south of the south principles and the south of the south principles at the south principles at the south of the south principles at the south principles at the south of the south principles at the south principles at the south of the south principles at the south principles at the south of the south principles at the south principles at the south of the south principles at the south principles at the south of the south principles at the

The NAIC offers seminars on how to also up the pownrail of equidos using computer programs to chart financial and stockprice data. Memberia are stacht how to rigarcusty screen candidates by looking at the quality of a company menugerset lalen. past earnings and future prospacts, the ownall outlook for the industry and the stock's procision earnings (P/E) mass—Ba current price divided by the earnings per datar for the previous 12 months.

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Everyone agrees on the beware. They understand that the obly is a long term commitment, and they share a concervation inwaitment private leadership of bing in scybean futures. Each month, says Ells, "we single one waitware and loa a took comparsen charting about tour or five of the loa pactorement."

And they have spotted some winners Disrey, which they bought a 514 and was recently willing for 520, and Genoral Election, which legatimete than 30 percent. "Out of every five itocics glue bity, den will do extremely well, three will do extremely well, three will do extremely well, three will do extremely blue will do extremely and out."

If you're interested in sparting an investment club, write to NAIC 1515 E Eleven Mie Roed Royal Cak, Michigan 46067, 1513 543-0612 (00

# BOOKS

### LOOKING FOR A LITTLE RESPECT. Two new books may help de-ghétoize science fiction

By Robert K, J. Kitheffer

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Another récent publishing event stands to bring a little intere to aconsol lictions public reputation as well. The new edineous Fiction added by Pater Mohalis and John Outo (B: Marfr's Press, June 1980), with its



1430-bala pages in a garri of a back apareng few testisti an conengit nutrated of levens and oonoegits with actionation and and and conclusive approver. Even here of Dan Date—Picit of the Future's Knoen test. It. "Davi" Bruth's enliais assoch Se Beauer Dimert's Anrelatence book live ites preserving material accessible to theorem in and out of the externation and worth, and inservice back live ites preserving worth and inservice back live ites preserving worth and inservice back live ites preserving worth, and inservice back live ites preserving worth, and inservice back live ites preserving worth, and material back live ites preserving worth, and material back live ites preserving worth, and inservice back live ites preserving worth, and itesting back live ites preserving worth, and itesting back live itesting the state worth and the state preserving and the state of the state preserving and the state worth and the state preserving and the state preserving and the state worth and the state preserving and the state preserving and the state worth and the state preserving and the state preserving and the state preserving and the state worth and the state preserving and

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Note-present projects unch as Riotatis' and Chde's Encychandle of Reinna Fiction may som the malestream respect, but to that seen thing II really needs?

# ONNI ONLINE

# LAUNCHED AND GETTING RAVES. Omni Online is the place for discussion, debate, and just plain fun

By Keith Ferrell

arian Eliacon Grag Baar, Par Cadigan, Contessar, Par Cadigan, Contessar, Par Cadigan, Contessar, Contessar, Contessar, Contessar, Conpared Fricton, Editor Elion Latore Associate Editor Ribon Test Associate Editor Ribon Test and ma for the "grand opening" of Ormi Chine, Ive Yoon the fittyret Wend Sevene Findan Convention, Italia over Labor Day werkend in Ban Francesco.

The event, which lasted close to see hours, proved to be a fascineting experience not without its initial stamples—this was a stage to which we are still becoming enoughtmend, bud with plan-

ty of autorities and excitaments as well. Readers and online usres from all over velaad our "virtual convenbon party" saying helto to fevorite writies, along questions, offer ing lots of prese (aiways a good lotai when you've got a weller online).

We've taken the les-

San Francisco and are pulling them to work with other events we have in the works or in the planning Mages

Intrg stages We learned, for example, that when we out up an electronic acditraum, the parliesance as for formal questions to be submitted and ecideseted by the panion oncupping canter stage. Our authotion overtis will fand to be the well-publicated appearances originations the elit both locture and answer questions regarding their particular areas of expertise

But there's also plenty of room for less structured happenings. Thet's why we created our three Orns "Chat source." the Orns Geomene, the SF/antary Room, and the Animater Room Hara, we will hold occasional certitopthers to address and debets top-

Since our San Francisco launch, we've held exercing dacussions devoted to topics including the nature of correcourriella, the great challenges facing neuroscience insights from Ellen Dat low and more.

But we've also learned that sometimes the chait scores simpl serve as cambridate and informal meeting places for bathing around dees In the course of a few senengs online in the Omi-Common we band outselves decosting everything from the life of learn America to calked a shifts



In fact, we may be taking abad wherev's on your mind. Don't be sky about nating topolo, or requesting that a liquid be adchessed. We can't accommodate every request, but odds are if there's something you're interwated in decasting, you'r interes who share that inforced.

Nor are the discussors restrictad to realitine live assessmen in the auditorium or chait rooms. Our message boards are proving equally listing ground for indenanging discussors on an incedible array of autosota.

he nice thing about the mes-

any about discusmens in that they are ongoing and can be joined or reversed at any time. Wive anjoyed watching to threads emerge and devaap as Chrin Chline users pursue inthe association of the fector, writaal reality, artificial its concepbal evolution, movee and bod.

trange the legas—all of spontranscentrations are not a manring and grafting to spend time contrast with pages who know so much about so many different theres. One survive different times, One survive different times, One survive different so electronic reserving space, and even the "artification" imposed on sociological participations to their sociological participations to their sociological participations to their sociological participations.

Drop in on one of our chat rooms during a robeduled watch, or skop by even when we don't have anything planned. Someime you'there he place to youself and won't ingar, but other times you might find one or more done without in attendance, along with some of your follow readers. And there is no tabling themes raised in period/ar allcles and issues of Ornix and datmis more areas. The threads make lasonabing reading—indieven more appealing is the fact that you can add your own commericary to the flow.

We also corrected the executed of Received to the second of Received to the requester have provided, both about Orner Online and about be requester allocation and another second, or electronic environment in broezped, etc. a public where their controls come a complement to theory point placed, contracted upon- an onplaced, contracted upon- an ontracted upon- and an onplaced.

te ris rest een veente af operation, Dans Opinion has personnes, beloed introduce a servitiends, and providen a servitiends, and providen a borum for peed tails and debate.

# STARS

# AN EAR TO THE HEAVENS. Improvements to Arecibo could mean dazzling discoveries

## By Steve Nadis

A clubs, mist rises metal bow file staam from a kertal Set in a natural lenatorie depretision in the jurgies of humto Riso the Arecto misis adecopte is instructured by his clense vegatator, and a throng papatetori of arrivationis and meetal. You know those life oreauted that web model using an

conface within the rest of the world?" asks Steven Ostor, a Jet Propulsion Laboratory rater astronomeries of the makes frequent dosenations of Anortholo "Weil, the gent anterna here as the final too-our interface with the rost of the universe."

Areabbi's observed ory hosts the largest curved localing antenna on the planet—at 1.000-footdemain dish covering 20 acress plus the work's most powerful inder system. "Stending near the boet, a person feels small," Gatro says." It suggests how small our knowledge is compared to what could be learned."

Detro and other astronomers travelinauscheid accroenteil effort to natroe the gap between whet we know and whet we could later. "I you have he woldet is gest telescope you have a responstality to publithe system to the intert" astrones deache autmot.

mer Michael Davis, project acientist for the \$23-million renewation of the prestig ious observatory

In 1973, a decide after the totactop was built, the original reflector was replaced by 38,778 aluminum panels that conform to a portect sphere (to within on-erent) of an (nch) The ourrent upgrade, which should wind up in 1986, conserved fue steam. First a



50-foothigh steel tence was encoed around the dehits permeter to black out thermal nacktion from the gound and other radio interterence that creates headaches for astronomeans.

Becode Canada Jaras to reads a Verganismi barde relative any series to book the partineation of the sada and theorem Target on Ethods having a constant attached the sada and theorem a statistical tables and the same constant attached tables attached attached attached attached attached attached tables. The same attached attached tables attac



### terence decreases.

For what puppleak with actionarians look his new and empowed setup? Puby bo a hot punsuit. White and/org at Arecter in early 1950, Avelaneder Wotzcan lound the storaget edence yet of plenets out acte the solar system—hot planets others and plenet pulses a repaidy splenet pulset a repaidy splenet pulset a repaidy splenet performance and plenets of particle and the planets of the planets other plenets.

at part days system for The Origonan reflection system and isoffaste (as earch for inditemport in this part of the system as preserve and and the system of management of the system Connel attempts of the system of the system of the system of the system work and the system of t

Rader astronomy will benefit perhaps morel of all. The Sader manentiae, almady the strongest in the world, will couble in poeen. While the current system can "Isseed show the more adge of the astrong back". Onto says, the enhenced Aracico withew accesse to asteroid back throughout the region

> Desired Mars and Jupper All told, the upgrade will yield pertures of extendes and corress 30 times more citaties than these currently coming an according to Donaid Compbel, assocation and Correlia Nabonal Astronomy and knosphere Centre, which coealies the observatory "For the inst sine, will be obtio to image the nucleus of a correll" his sine CO

### The Areceso receivers and other expansion (above) sit on a 600-too plattere sequenced above the boye reflectar dish (below). Even with its new received ees, the telescape will to able to some only 20



CONTINUUM

SOVIET SPACE SELLOUT: History goes on the block. Plus, beel in a jar, and the real test of a marriage

http://taxiv.wei.get.ai.clast/for.you/ Plassan topacosuits, white mylich with bute tim and chorened zopers, used by actual Soviet oceraniseus, orason http://tactory-enable.if/fin-support sub/or persiste Plastam space capsular? Plastary-enable.if the-support overlast, oor malage degrity alcaded by orbital reentry, original instrumentione, no reasonable offer exhaust.

The memorabilis have been imported by Sobetwy of New York and will be add by satches on December 11 As a georal thready. I found the headware in in werehouse alongs to be reque antegue kineture and mattile datasey. These was a function of an extension's sub for the Rewise meson walk that never happened, a subberand crosh dammy nemed iven learand work due may not be fulf be before out, who made to be fulf light before

Yun went up in 1961, and, of course, the capsule

Dhoey deepded Canner H43 Timent Tappi Capuit, I was chegod hield these commands, we had not onto in excepting the daylor Tapping station in H53, I was looked the in manual version of the UA Andreacommunity module. Lateriat as in sole and deepder door if mage a look later to the original station of the tapping station module. Lateriat as in which tapping the tapping station module and which will not be an end an editer tapping the metal wash with white cleft tapping the and an editer tapping cleft the tapping tapping tapping tapping tapping tapping tapping the tapping tappin

<sup>10</sup> Underweich a chlater of tarries and gray institutions (parties) there exists a structure that the second basis. Dis sches long are and lower and the tarries that the second basis in one and lower diversities the generacy in to find a human tarray with flast resist that forced me to pair my knews as to have him to resist that forced me to pair my knews as to tar with flast resists that forced me to pair my knews as to pair The was how they indefined basis and mit separation with the second me to be partial able to see out through a scoppie of amelia conditions.

The interior reminded me of the codipit of a 8-52 and it smolled old, like the insides of a dustriandic set.



Auction, outlion: Convino Seviel space hardware for sale Cutode. I met David Redden, a senor voe president of Sothebyls whose erudite style makes him sound more ales an expert on fine art than Soviet space herdware

"About Instance years ago " he said, "here were reports about the fluasame trying to marks space services. Icalied up the Space Commerce Coposition in Housten and waid I ddn't want to put a satellite up, but I was deeply interested in the arthous of the Space Rice, because they are of rinestible house impodance."

All this, no one paid much abortion but Reicher persistes and in June 1992, he noamod Husse in search of cosmic scholchies. He realls, "I found myself being twee to factore a actional Maccow Tast owned the adv patholypes. I avoid have been incomceivate to a Weltarment to have visiadition only a tew months oarter beouter they also made amorements."

He also collected memorabilia from cosmonauts and their families.

Signment, in a dramatic display of Russian faith in the free market Since there's never been an auction like this, no one knows whether the stuff will sell.

Receiption to the sector sector sector at the sector sector at the sector secto

He idea of "reasonable" may not be yours. The spacesule, will start around \$45,000. Space ourmry lvan lvanovich will command at least \$150,000. But Recken adds. "There will be some derive that are not an exercised, with exercised."

Decent it assess to be selling of those national humaness<sup>24</sup>-human's list of matanaminks taxes to be dealtoyed over the last thirty years. "Reciden ports out, because no one thought it was worth anything. If the sale does well, theil will all as the most ansating preservative, and this kind of materials will be tasked with more respect in the future. The personsity hopping find more (if will be posit) comparestricts."

Still, The auction will be open to the genetic path, so it you have a topic in the lwing room where a Cosmon 1443 transport Supply Capaule would fit and you think the divedrab heat sheet would harmonae with the dispes-well, here is your descen - CHARE SS PLATZ.



# CONTINUUM



New research or programmions: a substance that improves the memory of mice, may help Alphemer's palents

### MEMORY STEROID

ForgattuP One day you many get a preempine to pred your memory A drug used olumg the 1940s to treat rheumetoid arthrite has significantly enhanced the memory of mice in tests

Repeatschere know that levels of two percursor startad hormones, which the backy makes filter increases avoid (decines staadby as pooled grow clarks, directering by elocal, that is the increase of the start of the start men and samen. Restoring froze sterests might decesses agreement Restoring froze sterests might derectable agreement froze sterests flagtme hours blocher of the neuroblocherssity departation of the california

Roberts suggested to consearchers James Flood and John Morley at St Loan's Valenana Adressalastion Medical Center that they test 'the first subtance from which all Pales Offer cubstances are motioprogrammed to be 'th couple hundred times more potent motional from times the potent motional for motionale than were the other

Ther experiments shows programpione helped laboratory mice learn and namember—but what about humans?

about numbers Roberts and Taruos Maler al Heterber General-UCA Hospital in Tominos, California, recently reconsol Feed and Durg Administration approval to study pregnenolania efficiennosa in combrashing Adhemors closese "Why is long way diffrom houng adminue reviewer about the drug's efficacy and when it might be available. Poborts causoos. If pregnenolone even hits the market, everybody will be adequate

---Peggy Noonan

"An improper mind is a perpetual least " --Logan Pearsal Smith

### COMPULSIVE CANINES?

Jadith Repoport a psychetret of the Netronal Institute of Martal Health was intropued to isom about a possiller carrie syndrome called actri lax demails (ALC) Dogs suffering hom the gynchrem toix carriesh wild be themailed excessively. compare a low port of creating acress their toquis aurgery Repopirt found the behaves strakingly crititer to the recentive introd-waiting. and nai-biting ochibited by humans diagnosed with obseasive-computarial deprider (OCD). Sine and her colleagues devised an roper ment to investigate ALD that would also shed light on the anticopue human disorder.

The instance private grave sectorem sphere blockmins in class of drugs (recluring ) Protocif that like showables the symptome of OCD patients in degra shifted with ALD Due the counte of the 11-work shock the drugs ALD associated between decreased <sup>11</sup> or one knows exclusion there drugs sects, but they like the listed charman sectorem in zome way. Response rays

THE PREGNANCY OF APPNE SALAMANDERS CONTINUES FOR THREE YEARS AND AWAYS RESULTS IN TWINS

Dectors and don't hree where processly causes ALD to COCD. However, treasorthman studying cat before have found a cluster of cells that problems and in process and in the case cause of the process and the

> Dogs skhibit obsessive bishavox, just like kymanic

NO CARL

To learn more about the origins of ALD, a bank has boon outstinkhed for the brans of obgs that exclude the dearder Anatomical exemutation of these brans may identify the root of the problem, eventually leading to more effective susmant for human OCD sufferers. --Store hands

### **GRAINS OF GLASS**

When you hear about glass being recycled, you tend to figure that the being made into each more glass but a Consolinin company. Nati occrea up tech a mose interesting up for waste glass. It grinds the glass up grafts for everything from exclusioning to water filters.

The Galginy-based Wincus Environmental Group (VEQ) has invented a machine called the GlassBlaset, is mighty crusher that can pulvering glassi bettes—

Thing glass bother may and op in norms mary uncosed places including their cape labels and even the state liquid made—mite grains so time. They make conventional send look like coarse cravel

This applications for this ground galas, supply HG president Pbt Cachico, and kegion it a better for canobiasing than sand is Deshon asys to bocause its harser.<sup>1</sup> When mead with concrete or paint, for galass granules add a shimmed They can also be unled in the method sector of the galass. The galas of a new and beam treed of ware filter. Our while show that Galashard bends without the concerned beam treed of ware filter. Our while show that Galashard Mean water better Table same.

THE FARTH RECEIVES ONLY ONE HAUF OF ONE-BILLIONTH OF THE SUN'S RADIANT ENERGY

"A government is the only known vessel that leaks from the top "



Conterne enteries the serve underlying enacture as HTP-55, a new compound that can help degreese Polymerc's devices

### A BRAINY USE FOR COCAINE

An organic chement at the Research Transpills Installion North Chardness has been at the Chardness has been the Chardness has been at the Chardnes

The new compound, celed RTI 55, is the first with the potential to metaute neurona in the beam," says key Carcell the institution telector of organic and mactional chemistry he aud his colleagues have from down the attaches of boomer-and put in backlogather again with backgbal properties" that exable it to tell them when the brain his locality to produce enough dopartnice. Then metersch is a collaborative withst size involving Johns Hopsim University and the Addistan Research Center.

To detect Parknersn's PTP36 must be combined with a readoactive laded and imported not be telecid stream where readical imaging mystems pick to be The compound structed attach to nerve-coal readytack to an area of the tream where large clusters of departme-producing cells are normally taxed. If it departs, doctors have applies externed to be service

Carroll hopes the Food and Drug Administration will spprove HTI-55 more quickly than it does other subtrances because if a a diagnostic tool rather than a medical treatment

sorge Nolabe



# CONTINUUM



Dept Balow sheing that ring on your partner's linger you might want to take a manay that products whether your manuage and had

### TRUE OR FALSE: TILL DEATH DO US PART

Thousands of eliany-eyell young couples, facing a higher than 50 percent Visithood that their message will end in divorce, have began teleng a 155 question lest their products their charcos of anding their union in court

"We can predict with addry to addry live percent accuracy which cauges will diversal, says David Claud, haven a set of the second transperiod and the second and the second PERPARE in pose questions on topics including communities confact recolution, percentity, frances, religion, parameters frances, religion, parameters frances, religion, parameters readiation offer.

A sample of the type of quastions the couples encounter "I expect some of our romantic love will take after martage". We openly decurs problems and usual ly find good solutions" and We have some important designeements that nature assem to get recolved "

The analysis of the queeternative releas not only on how the couples answer tach question, but more experiment on how

More than 20 000 counselens and members of the clarge—including U.S. miltary chaplains—now encourage or require couples to take the tost before they will

Arether study funded by the Network Presture of Mertel Heath and published and your by University of Washington psychologosti. Tugging contents: If the PR-PARE bease that the possible to prodict avorte issign researcher Kim Builtman. We found that the single most important precident of divoce was the hatband's being withdham and direcported i site says.

Other key indicators di

# THE POSITIVE

Tiny injectors of an otherwise clearly position have yielded chametro results in test subjects who softer servicely

Bouldmark look, eso Cability and the methods below and the methods below and the methods below and the second second below and the second seco

"Decreasing the duration of instrump duration framassor and processed fluctroy," declares Brin, who isovidesed the approach with David Rosenfold of the Boylor Occlege of Medicare and Andreas Bitter at Datmice Their Isoformque uses an electromycapien machania by data the reportione, pushing the train mathema is guids the mathema just below the Adamts and it

marital health the orted were whether the occupie glanted its struggles agrinst handdrip together or saw thim sa checks and hop-lases and whether occupies recounted things together and occasiand each ofter to be best factors. If a occupie can eave Four of the seven makel patients showed significant improvement, and the others reported mild deomases in a whitering spasocies, both in their own cubyobile estimations and on a milling scale that measures the seventh of seventh provident of seventh provident of

The reasonates augustable that their bootnage except work because Brin had accessfully asked in on 500 other pasters with a depotence, which causes workshown agreement available of mediumary movements associated with everything learn strates to within camp





Relaxing a tray vocial relacile cars allevate phytomag

great detail about how they mat and their first date Bushiman steps, they probably worit divorce

Tan to 15 percent of couples decide to absendant their plans for marriage after taking PREPARE Olson merr taking PREPARE Olson

58 Child

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halve they mightle, a re

growth process. Svon Enhors suffer cepping bear

reve nerve liber at mcbhs other hand, grow essen

LONGER THAN THE VENUS YEAR THE ITS AXIS CINCE EVERY 243 FARTH DAYS AND ORBITS THE SUN EVERY

stern (stars name) that creath in the substances of the brain control the growth, Ebbea-son says The brain stemut like light or makes -George Noble

We consumation at Thomas inflance

promisia it with BMP and

Autorian of IMP

Unite MSG. mober

or chemical synthesis. Of Inst study BMP to ascertain 

# Resurrection of stra damus RIPPING THROUGH TIME WITH THE MAN WHO SAW TOMORROW

# BY DAW SOBEL

Once upon a time Michel de Notredame, better known to us today an Nostradamus, time traveled from Benadesance France into the future by the clairvovance of his prophetic visions, And althrunh he died in 1586, more than 400 vegra and the long arma of his propheses

eloow their way into our France sought his own day and age Nostradamus, secondfamous occasioneing to his latter day followers, prodicted the publication of his first explosion of the space book of prophecy shuttin Chalanaar becarioset his provides the emergence of AIDS, and a celactorial earthmake that will to come (The earth actorial for 1988 Nostradamus time, but from statesmen and the prophet's interpretors now say they misroad the event I Dubbed "the man a 1981 Orson Welles was that rarrest of and/viduals, a prophet

nationwide, and again in 1550, after the when the witroad ard Nostouriamus to most bouto, Lotters across Europe beaasi advice before embarie. approciated in his care land. The queen of

Nostradamus attractcrupped on at least two ed administra and disclplan who continued open in 1558 when the to social his word loop after he died. In 1781when more than two conturies had marked the annuersarios of has death, the writings of Nostradamus were still deemed popular and perious enough to be placed on the rearbet the future of the Catholic Church's Indee of Prohibited Books Now at the end of 1993 as the million name drawn ninh Nostradament writigily sorings from the make in a tidal wave of public approxision Jananese author Ben Onto reached the los color lat in 1991 with

Predictions of Northan damos: Moisie East Chapter, which eminined how Nesterdamus hed foreseen the rise of Seddam Hussein and the war between loag and Kuwait, In France, England, and America too, newly published books nexamine Nostradamus'a centuries-old prognostications of his name. an foreshadows of secent history, Lising hindsight to document the prophet's foresight, followers of Nostra-

damus conjure Armaged don and apposivose



For the sake of the skoolics amono us. however, the resurred tion of Nostradamus must anchor risett in the fabric of modern space-time, If, as some would aroue, wormholes tunnel through the universe, facilitation rand transit from one epoch to another and back again, then

Mentered array man have been the system's shocked and switt But d the future stands - Election added when I trass protected like a by an "event horizon that is strictly a oneway threshold, then nouncements must be challent up however reluctantly, to imaging tion exterisions. end chanama. As any journalist quickly learns, the sharefree are pumperous. discuss Nostradamus,

the response was You?" the local checked out the stack of books on his orophecy, "Ahm?" asked the owner of a used book storn in a college treen when I want looking for some havito-find Nestrada mus tides, "Oh, mat?" exclarmed a clerk in another book store. Nostraciamus outro by direction me noorn fully to the occult section on a low shelt at the rear of the shop Although I didn't expect the condictions. of Nostradamus washt than a horo-

# THE GREAT PROPHET NOSTRADAMUS HAS TIME-TRAVELED FROM RENAISSANCE FRANCE INTO OUR OWN DAY AND AGE



cars to choose why they had periated kin and times of this famous prophet. has of 1500 at flags, Barris de Deteonce His Jowish tamily had only recantly converted to the Catholic faith and in comolector with local law. chaorad their rame inter Gasacout in Provonce and their property behand.

Michel an modelent student attend-Unwreity of Membellier Upon greduation at age 22, he followed the custom ranged has rearran an that it increases him upon later allow completing medical studen that partified him a physician. served the same plant further outpose in those days as the initials M.D. serve totracisors in particul characters lifetime cloouts him in his physician's garb. His class and stan of into the distance. or perhape mo the detart future His loco, full beend does not obecure her, all remedies to queld trouble with the 44 19404

rosy chooks or the settle on his los-

fice rains behind his right shoulder and observing froms links belower algared learning and respect for the raticlobe while the left holds a part of comneutros anvi a telescono. Desprie fre mfact that Nonlindamus had a creat m terest in estrology-casing horperson lacy configurations and routing of party The world would have to wait for more musts cireth for Galileo to point a tolescone tread the sky

Anished amus mode his reputation as a decire of astranstrary sial ater gave generously to the poor His grandration, which was one of the first onelessons open to Jeas of that time Noscarry ability to help volume of the nian a recover their health. Some modarm interpreters believe he had knowlacine of effection control for about of his time and only pretended to use herosufficielies, who could have had firm burned at the stake for precipition manin its any case, the planted the ives of the good doctor's own wife and two young children in 1537 while ha was abroad in the countryticle, minaterren to his putante. He later remarried sons and three daughters

Companions report that Nostradaing good health until his edverged years, when he suffered ettecks of use in his steep, should a way short of the risks he credicted for his own pod

Because he was already femous during the Eleberary grants of what we know about Nosiyadamus is the stuff of logtime he fail to her known in the must he tore a simple Francescan mark, Broththe young men's robes, esplaning st serverant that he was morely national propor homese to the page. This was not a case of mutaken clerify his furnity phore assert, but of predictive power V...in 1985, construct yours after Nothariamus diod.

Resident of tale tale secole Notice in much wat to Paris at Ousers Calibration



1954: A Russian apacentit will crash in America on August 4, killing two pecpic, augy 4 J. Howitt in Noatradistrus. The find of the Mätianstein Barrica and Schutztr. 1991; based to her decoding systems al applied to Century III, quatrum 65. Nattademus or organitiest.

- When the sepulcher of the great Roman shall be found,
- The next day after a Pope shall he elected,
- Who shall not he much approved by the Senate
- Posoned, he blood in the secred chalce
- The same verse, after application of Hewith decoding system

<sup>1</sup>A Russian species/fi will creaton America. Two people killed. The legger Yaltas will hardly inten to the acronyry. A fool shown up by bloodshed.

1966-1999 The consistent over Antarctica, continues to cause concern, in Hwint's continued decoding of Contury III, quatrian 65 Between 1990 and 1997, we see a second Inde over the Arctic Coost

From the original text above, Hewitts interpretation.

The Grad Hole continues in the come layer over Antarctica. The Actte Obsern-another one spans up its treaters to run the world, which cannot by resell avoid the chacking cyche, the chacking pts."

1999: On August 5 someone will at last capture good him footage of containerschule encountered somewhere on Earth The creatures then fee to then norme world, according to Howits reading of Contury I, quatters 42. The creates with version of £7, televised on August 6, will overfum sectors at boots of en

The original Nostradamus test: The tests of the Calenda of April

- Cotho account.
- Related up again by melicities personal

The light put out, a diabolical, assimbly,

- Seek for the banes of the outra and Poekus
- The same verse, after application of Heattis decoding system

"On a road someone belevities (sec) intelligent alters from the sky with a broken, temping appearance Ha (or she) will put them to flight. He eards them home, although here they also beled."

1999) Between Novembar 23 and December 21, the War of Wars will begin, according to Henry C. Roberts Interpretation of Century I. qualitant 16, from The Complete Proplaceal of Nosthadamus (hiostraidamus, 1982) The organi Nat

- When a fish pond that was a mendow shall be moved
- Sagdanus being in the ascondant, Plague, Familie Death by the reflexy hand

The century approaches renewel Noetradumas social Jaan-Churlos de Fortbrune, in Nostademue Causidown to Apocalysee (Hos, Briehert and Winsten, 1962) also predicts a great war in this year, but on the basis of a different verse. Centry 1 quarter 51: set follows:

- Heads of Anex, Jupider and Setum
- O Exernal God What changes there shall be?

After an ora his swill time returne, Gaule and Italy what commotion! Meanwhile, in his book, Nostrada-

mud. Prophetoles on World Events (Levenght 1961), Stewart Robb says the prophet predicted the War of Amaguiddon for 1999. His basis is the text of Carebury X, quatran 72

- In the year 1999 and seven months.
- From the skies shall come an alaminoly powerful king.
- To raise again the great King of the Januari
- Delore and after Mara shall raign of will

Of course some researchers famiiar with Nostedamus e numerology claim the year of Armegeddon is not 1968, but rather 3797 AD

2000. Humans land on Mars. predicts Hewit from har marpolation of Century X. quatram 22. The original is nothing like Hawit's "decoded" version.

"Mars known A journey to the planet reser to the great age A new power which grows instead of leasers. A staggening success. Possesson outside the rocket."

2007 The dead, pasualties of the great war, will nee up says Robarts parent or Deather V, and an 24

- The year seven of the great rumber being past,
- There shall be seen the sports of the phosfy sacrifice.
- Not far from the great ale of the millionnum
- That the buried shall come out of their graves.

2058. The precisions of Nostradamus will all have been shown "to beer fruit," avows Roberts reading these Centers II, calobian Gé.

- For five hundhed years no account shall be made
- Of him who was the proament of as the
- Then of a sudden he shell give so oreat a hold.
- That for their age he shall make them to be most conterned.

2150: The world will see a complete revision of the migrout contrasts and perhaps a new world conter leading to one migron for all people, according to Roberts' interpretation of Century IX, output 72

- Ones more shall the Holy Temple he realized
- And depredated by the Senale of Trultude

Saturn two three cycleo raioling in April, May: people of a new licever request in 1556, when he was availend in the regist by a young pope knocking budy at his door. The young fearing hungs dogs, hoped the famous sever could help him. Notativalfearing hungs dogs, hoped the famous sever could help him. Notativaltion as a said to have beind the advance out of bed and whoch even waining but pages in classify himsaid to posd the quasitor his table the page to not out the woold rind the means dog being ted on a least hindeed so the ridry page to page or classify and have a have the page or classify and have a have the page or classify and have the page or classifier of the hole page.

In 1550, following two decades of medical practice Neethadismus published the first of his annual almanaes. This book, and 15 more like it combrend readily predictable information, such us the training of the phases of the moon, with integrits soluce coming events that rested on selentive infoeledge of anyonform

Having launched a second successtic center as a published author. Nostradarsia also wroto a proctoral book about home remedee and committee and later transpart Galant's classmost toots on phatomy But he is best remembaned and most reversed for a series of prochests govern called Carthane pubished between 1555 and 1558

a cross between iturgy and node

- When the serpents shall come to encompase the ar
- The Prench blood shell be angered by Splan
- By them, a great number shall period
- The chief flies, and hideo in the surface of the marshes

-Century | quelitern 1

- The fire shall take by night in two houses
- Many shar be sched and burit by
- Near two muses it shad for certain harmon
- Sun Arc. Caper they shall all be

-Century E. gustrain 36

These qualitation like all the others lose scinating in the translation---the thome in oil French the first and third inter of each qualitain thyme with each other as of the second and fourth. Be that as it may qualitain 19, above its aved to predict events during Wintl War II when the French work threadered by



The reador in the last and the scattering of president tell from whiteut he extrurige has been applied and the extrurige has to question 35 Notensiames public have splittly unread its untetfring mysterin pains pre-strongpal induits of taking and the strongpal induits of taking and the strong and taking and strong the strong and taking and taking and taking and taking and strong taking the scatter and Sale corrus the sea goat, which is not to each off and taking the scatter induits and sc

The lensing of these previouslike the sectors in the Inter-officer, and control - means serves to those who as control - means serves to the any table. The first dever server controls the server of the server controls the server of control first the server of server of the server of the server of hexasisment in the server is hexasisment in the server is the server of the server of the server of the server of control first the server is hexasisment in the server is herein the a time to the server of the herein the server is the server is herein the server is the server is the server of the server is herein the server is the server i

The series data manufactures at Motoradomuses as all on the title settered to in the backet backets and statutined to include 100 gammans. But gammans the autoentimation are as banching a manarerige in them – rollrage as banching a manarerige in them – rollrage the definition of the settered to the settere definition. The settered to the settere definition of a settered to the data Manarerization animation of the data of how one years to for minimate. The data Manarerization animate of the data of the settered can be provided in a settere rig point as that Arrangedotto a sites on the toward out open to more the minimate of the settered can be in the settered can be and an in the work? Court of Wart in 1707.

Indeed, the meanwarding thy/firms and nch imagely of the Contured seem to inspire new meaning in the eye of each new behadisit—like inkitids in a Poschadr test, with every latter-day integreter free to need his or her own ware inch the uniter wards

According to the scholars the writen world: Therefore, the hosted life angutarts supposedly don's with the photostadamus to hold the two signifsations of each prophecy until the moment of availation Author V. J. Haist, who believes hersall to be the two internet and available to be the two insets the second state of the second state and the size come along takes this and the size come along takes this as gatem of substituting lefters in this works of aerit nation the works and lattical dates for specific events to occur through the year 2001. Her practice of mathodological and repeated form substitution suggests that Nachtalamila las benchmödig of many benitethcentry personalises, including Secom Hussen, Reison Machtal Margintet Thaschar, Bons Vetson, Richard Gere Jane Prode and Tool Turner

Verse 35 from Century II for example is a famous prophecy which is generally conceded to predict the death of Prance's King Herry II in a 1558 publing accident.

- The young Lion shad averagine the old one
- In a marbal field by a single dual, In a golden cage he shall put out he con
- Two wounds from one, then he shall de a cruel deeth

Weeking her todhnaya, Hewit mansayes the quarkar in socialized apps to that unfolds, live a drasm analycol by Incud By solutehang letters a bit as three site choice housidarius over well geographic areas and owntoes of time. To see from Howell's cryotography changes the ongrani verse at most the ind or predication, with the unit most the ind or predication. With the decoded qualtan below

A Galifonna Barthquake "Ater the aarthquake the United Brates is cracking within a rodus with strattetes from coast to coast Everything will redden Under a hot sun, cracpa also an fina focks and herds die Grain is octore."

Uphasea's in Africa. South Africa Providers Nelson Mandela himself, a dying man, manages the tegider of multiplying Black voices. The dry heat grows A guartered wirus plucks a page of betray."

Reversal of the Aging Process \*\*kow medical treatments for the disease of aging, the old groom young with smooth skin. The service lose their confusion. Robotic Laury: A pure thytem kols at lumos".

Of course clever or too can make quick work of interpreters who take such locense. Even when toilowed more theratly, the quarkets, with all their accompanying vaguerate, can make the prophet seem to fail aport like a trilwe man.

But despite the rise of physics and the deappearance from everyday expenience of mystical signs and won-



dani, 12 di the Canunia paraist There is after all something conficting in the rotion that is character out of history cauld have correctly called confilone of the present time. Whether or not Nos hademus naw the future remains a mailter of conjucture. But the human need to before the did is a metter of record.

All the may, I den't accupit Notitissis, provide the second secon

Although 1 deep Nostradmus the per of same segment 1 mink his balanced was provided by the Internet Neg evens proceedings by the Christian and parallel de ythe implements but attaches parallel de ythe implements but attaches parallel the dataches of curriculum at choice in Alegories, which externet solution in Alegories, which externet couples and the balance of the restruct to relate in form prophraces specifies to relate in form prophraces specifies and the theready in the serve of and energy to prove theready at serve of and the server of the server of

During a utyl filtel mociales (or sonan Caterine and Hotersteiner) which of her has pass auch devolution which of her has pass auch become in a der wernalig for end BL Nicher had auf wernalig for end di BL Nicher had auf wernalig for end di BL Nicher had geflerently. Ihre panolition make under differently ihre panolition make had geflerently ihre panolition make it i Sacradamus netwi knew hen this I Bacradamus netwi knew hen this I Bacradamus netwi knew at her sacher her her her and at hull france subscheding mit archer dus to dury destin her het her om this i knew her her on enderen

For his service, Noshadamus raves, Ineless win the queen I lavor and Nolong protection. He related tome alter the meeting to relative of which he Containes the first volume of which he had strendy published, and to his with and volves ann. Osaar born 11555

A book of remarkable popularity the

Cardwish has remained continuously in primt for more than 400 years. I had no trouble finishing a copy at the booleance in my neighthroad where it insquertly have to order the books. I want to reade Na other progint states Biblicat trives has held as constant a place in the haves and inmits of the population as Nationalances. Whether by dirt of the successful bulan vesore of the determtive transpers of his versues he has literative transpersor of his versues he has literative transpersor of his versues.

The compared begins in the decades there the project basis in a Charlow the basis have been as the transmission of the basis have been been been as the basis have been been been as the transmission of the transmission

For Nontraturenz, the needs to create which of criticators into the Born Social work of criticators in the Born Social sets to values in the Cardware Nontratiticators and the sets of the Social Social Into Contras into work in the Inter plants provide the Social Social Social Social Interpretention of the Social Social Social Interpret plantsceles to search Social Social Interpret plantsceles to search Social Social Interpret plantsceles to search Social Social Social Social Interpret plantsceles to search Social Social Social Interpret plantsceles to search Social Social Social Interpret plantsceles to Social Social Social Social Social Interpret plantsceles to Social So

Writing the Censules' hoged hostindemark in link with Cenaris Haus, as the shows to discore the sort of world that awared the child Through the Centuneo Nostanisarius also asside that any basedge form had done as much the passage form had done as much the chine all hell addred the the a simeless stormy. He had done as much the chine all hell be childen the much dane were of the horoscope cleans by the hadwarely to choose and holding the hands of the patients as they faced the unstrative of death.

That is as much of a bridge to the future as anyone can hope to build DO

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keys, sea turtles, and the living coxels of the world's second largest red system

Benefit hundred misis wave, if the dense truncing pungle of Neerest Charges status the microsoft pungle of Neerest totat the August and the microsoft pungle is unable of the Negre of the status throads of visities every year based measures on the finge of the intervision of the Negre on the Negre parameters of the Negre on the Negre Intervision of the Negre on the Negre of Landon Avecas the Negre of the Negre of Education of Negre of Negre of The Negre of Based of Leeps,

Der Baber um Seine World Hentage Ust oresecht vom Verhalt Hentage vorricht, an Lichtmahonst Interfahr abproven in 1972 und senso then signed by 154 of the world's 108 neurona. The List constants of natural and cultural may and mountemath that meat specifto orthom designed to verhy their "subdiancies of world their "subdiances of world".

To get on the List a site or monument must mail at least one of service onten bits emphasize both unrequences and superstative quality because to a for earryte might quality because to so for earryte motil contry helps unage of the earlyte exclutions has a risk the service of the earlyte exclutions to the or the helps for an interaction. These ened anemal or plant spaces. A manmade sits or monument, such as a balling or a group of ballings: might make the List because it is a "unique artistic achevement" or because it inspresants a civilization that has discoperend

If we want to protect the world for Juure generations to her can enjoy the bandites of the work of netwe of millianna the diversity of plants and spocies, the Warld Hartinge Lat can Naly us do that "says Bernd von Drote a Garman ecologist who divects the program hom the Warld Hartinge Cantrivia UHESCO headquarters in Pare. (he is subologisable on the operang page 1)

A sector, systematic buriekanil of the polytim when he was conducting business at the Work! Hertage Commiter's annual meeting in Senta Fix. New Mexico, tast Doomber in an interveni von Diodai revealed himraiff as a poesancte acknossie for her Work! Hertage Convertion as a tool for nothing leas thes served new work!

Why do we need downky of spocast? Of cubure?" He areavered he can queston. "We need hom for human survisal Since we don't know about the future, it's before to isegs all the knowedge we have about how to adout."

One purpose of the Santa Fe moeting was to celebrate 20 years of the World Hentage Convention-which the delegates did at a series of fettive nceptione and dramas sciencrowd by locate/beaks and calural interations. But they also heard a dramo rail from van broas who reported. This year merey damaged or under thread han wet hofree in the tarobay of the Convertion, and cilied examples including earthcashe damage to the provincil and diralign to the merekan and wet damate to the merekan and wet damate to the merekan and wet damates to the merekan and wet damta to the merekan and wet dam-

age to the insulated toy of bioconstances Population growth with electrical poweng and acid reducation grictel within ing and acid reducation grictel within induced the second second second second induced the second second second second physical threads to attes on the List "It who believe with most operating are anyng", his said, "construction will be in the a head there".

To understand not just the shrywait but also the horizing policial and francol breaks the inter on the List Seclis necessary to understand how the Wast Hastage Convertion works Induvating povernment anomala also with mithar borders. They must converse the difference (the graup has media likes with another international World Herizage Commission (the graup has media likes) and and media and supposed inter media. The ofference functional to machinol.



The belowing World Hantage Attentone Deal Rections on the Campu-Last Decause of Recess to or develoption of the characteristics for vehicle they were placed on the List. The date agrillos the year the site was placed on the List.

Berlin, Royal Patadasi of Aborney. darbage gauged by Streads (1983)

Bulgaria: Grobarne Biosphare Reserve, stainage af wetlende Sex clamaged the atcogistern and threatened bird hebitate (1992).

Combodia: Angkor, the fortiese Khore capital has suffered reserve we demogo and tacks a comprehensive plan for rehabilitation (1922).

Creatile: Pitvice Lekes National Park; cear the border with Serbis. Net without a pompethenove manageroent structure and, clue to the writ, a total loss of spanent income (1982)

hervy practing of wattile, its gal live statis grazing, and a proposed toard cirrelinuction project (1992)

Gainea and Cote difective management, Nontos, tapk of effective management, possible uncontrolled manual, and en million of advances from Literia (1992).

Higherite Kingdom of Jordelij Chil Oty of Jesulatem condeim civel the antheedograf methods used to document the Cid City and its wells (1982).

fidia: Manas Weble Sectury durage to park telenouciare test-ry vesers of Bodo interpropie, includvia "Bodo interpropie, includvia "Bodo interpropie, includ-

Mail: Tentschist, encyclosotylinpet of doreset sound (1990)-

Nger: Air-Janété National Neture Reparka, figitang patween goverti munt females of Napler and the Tuendy religie. This meet Lyre of the park shaft were fixed foretage for more them a year and is half. Four word teleased, has even tolled (1992)

Qenan, Batha Fort, general cleanpriving creatilities and poor restoration practices (1988)

Panu Chan Chan Archesological Zase, damage forti excavation work and glundening (1985)

Poland, Wellczka Salt Mine; deter-

Yaposiews: Notor and bi Gall, carth paske dismage (1978). Old City of Dubesvilk, war dismage to dity wells and eld buildings, especially their corts (1991).

Zeire: Gazembe National Park, slamming reductor) in population of reptilier nimite throaderos (1964).



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The Committies accepts, or rejects rotemations to the Late of the basis of information supplied by two nonprofit generations: the hierinstroom (Lound) on Monuments and Sale (ICOMIDB) in the case of outpand or maintaide sales, and the Which Conservation Libon (ILCOM) the of these groups is no official organiof UABSCO. This is not a written into the Convention's candelined.

Twenty years after its creation, the effiguroup class documents of 378 state. With an annual budget of acound 22 miltion to unplement. The Convention some ative have being varied by importal websetem. And, whough its buring descated, here is in a suche pagram of monitoring to ensure that all solars are prefected from threads of enonymental degradation war, variantial too, tourism, and development.

Once on the Last, a tell or monument the Committee believes facels bencos and specifie dangers"—such as well dangers, and the Committee in the dan "sufforing from heavy backing of an organization of the wester, specified on the dangers of the service as the sufficient work of heating of the benches as the dangers of the service as the sufficient committee of the service as the sufficient committee of the service as the sufficient of a table of the service as the committee of the service as the sufficient of a table of the service as the sufficient of a table of the service as the sufficient of a table of the service as the sufficient of a table of the service as the sufficient of a table of the service as the sufficient of the stable of the service as the service as the sufficient of a table of the service as the service of the service as the service of a table observative meeting.

The United Bases has the Wheel Initiang when, working Dand Darways pardsnoor leaf in Philasephia, and his pardsnoor leaf in Philasephia, and his portadate. They are initiaged by the National Net Service and supported by National Net Service and supported by National Net Service and Service Service works, where these is loss business and another the service is loss business and works hand to stroath? In they do in sovery hand to stroath? In they do in they do in sovery hand to stroath? In they do in sovery hand to stroa

The Committee spends some of its lands on technical cooperation and iteming--restoring earthquake-damaged alities in Egypt or bisiming natural parts managets, for exempter-but lacks the resources to support large-scale conservation projects

During the week-long Santa Fe meetng, the delegates—some clad in colciful Arlocan robus or gaugy sans, others in the more severe attree of internatonal diplomacy—attainded manatom sessions in a hoal balloom UNESCO stift humed up and down the asles, detibuting a bioxettol Finneh- and EnIsh anguage documents while the Committee discussed reports, guidelines, and budgets and made decalons via simultaneous bandiblor, which were offored in Prench and English

In netsfort is expanding the Using the second seco

By the end of the week, the Commosee's decarsions had illuminated not on-

There is no way to ensure that altes are protected from environmental degradation, war, neglect, tourism urbanization, and development ?

If the physical invests facing the most membro ballows meet of the financy fills, dimensing to be interviewed. For exception were provided that the physical strength and the physical strength and the physical and the physical strength and the physical ballows and the physical strength and enterviewed the physical strength and and the physical ballows the object and the physical ballows the strength and the physical ballows the strength and and the physical ballows the strength and

 Brould the Use even distrigant between natural and usitual later. To often, you Drotte sops, "outpre and not are enthrough separated. They belong together. If you dainty the adjust fragment in the second  How can the Allot shellings Celling is many size? Publicators takes and valurary combusions to the budget, but yon browse appoint that as needs for both many and behaviors and behaviors assessing prior the ownait budget at the deposal of the ownait budget at the deposal of the ownait budget at the deposal of the the the deposad is that many borntes the the deposad is that many borntes and many appendix in the investory contrabulations. Appendix in the average appendix is 55000 for the years appendix appendix is that more the years appendix appendix is that the years appendix a

Break these imitations, does the Warld Herriage Convention really have an impact on the future of the earth's mean important, other thread moruments natural habitate, and cutural step? What has it accomplained? What cheakengas does it hose, and where we its reservents for the future?

ULCR's Trense has compiled a law of 22 cases in which Wrid Heilage Commission Intervention, he respitrough poleation pressure funding latchneal assaultance, and the like-hist heighd protect or improve threadment alles The success autoint include EC uadro Salargeos stands where tourses control poleare were includeed? and farmare in theorement and were for the success the success and farmare in the theorement of the removed from the latence in all.

But these accomplishments even like a drop in the budiet when comgened with the size and needs of the entire List and von Droste s gloomy appressil of the current state of World Hertage afforts

One case in porth-decisions of the diflargh in Sparks the because of the difcuty of agreeing on what to do about some the standards the boots of Quarence and herry Coast in Week Africa. In 1980, Mount, Namba--which is desched in a boot what Herriage as a baseaflui and instated devices mont, "the habits of large species of basis, before, and other distris and aneriage uses and other distris and aneriage uses and other distris and an-

Testivo years tatice at the Senta III metering, the Committee plastial Mount Namaa on the World Henhage In Danege List, citing two mays threads to its energity, a proposal by the Dunnia, goammat's to page the Dunnia disport to the site, and the presence of an many e6000C aminemity poor Lbash induplead in the asgion who you Droop do the Occmentes, "I'not hupped, will be the Occmentes of the Section of the Occmentes of the Occm

Despite diplomatic conversations and meetings, technical massions to the

SR CMM

reserve, and extensive details at Sumta Fa and personals meetings, the Commities can it were agree on the boundstress of the World Hentage site—and whether the proposed minis really is insoft hem. The Sume governmenth delegate told the Committee in Seate Fie Add the proposed minis - wheth the govemment, has been developing for more than 20 years—fives meet pritooled under World Hentage' because.

At the same area it put Mause Heads on the Danger List the Committee decaded to send shorther mission is study to locardinare, chainmen film emparts of the threads to its "universal value" of the threads to its "universal value" againment pithe to postact the reserve The mesone was exceeded. If entroporting ponetably agreed on new boundareas for the site. The Mount Manta Januar by Word Harrange Conventions that the Word Harrange Convention that the Word Harrange Convention of collective buard.

 The Constitution has lating processing built for Conversions and instribution delay for the Conversions and a software of the software of the Conversion of the software of the software of the Conversion of the software of the software of the three modelling works delay of the Conversion of the software of the software of the conversion of the software of the conversion of the software of the polycy, used in the properties in market or conversion of the conversion of the conversion of conversion of conversion of conversion of the conversion of conversion of the conversion of the conversion of conversion of the bioteneon-more procession of the conversion of the convers

• The Convertion has left generalized generalized as the intermediate for individual gala but for received by mightener particle in the leverage cover a large of the output for the ou

 The structure for implementing the Convention is sensitive to political presures. The World Hentage Centre is on creat. chysically located in UHESCD havecure to an objective come function and/or to an objective come in Unicing and/or weithor and the Centremarks. Invester, are nonperintered of UHESDD, (The objective mode and the UHESDD, The objective mode with these action on an intermifree as well as mode program 2000; the same and a mode program 2000; the Mount Nertes care functioners, contervision plant may return a long contervision plant may return a long travelage that the energy as a dark and a soft free meetings as dark and a soft free meetings.

Despte the structural sales controlling the Convention and the continuing problame aurounding Mount Namba, telfway around the world from West Al-

Will our grandchildren be able to visit the Taj Mahal or the Galápagos Islands? The rock churches of Ethiopia or the lagoon of Venice?

nos. Australia effers a different more positive model of the Korld Hentage righlam an example of how emissionmentalrisk used the intermolimal traaty to salaguard sites in their own country and to stimulate public debate and ascenness of antwommental issue.

Australians have a hietory of lighting in public about these brings, " way Andrew Turner then-assistant socratary of the Commonwealth's (indexe) powerstreet is) Nature Conservation Branch, our breaktat one moming be then the Committee work into ensuing then the Committee work into ensuing then the Committee work into ensuing

When the government proposed a togging ban in the Wet Tropics of Queensland, a Warici Hentage tits, he recalled, "You couldn't walk into a pub without someone picking a fight about it, with someone else or with you.

Australia's constitution grive landmanagement power to the states, not to the control government. I in the easily 1990s. Tumor recounted in the Tasing the builds damittak would have floodad the valley of the Gordon Rever, including a tol of aborginal cause with widence of early habitation." The proposed dam was in the Tasmanian Wiclemeas, a World Horitage area that now encompasses about 10 percent of the state.

The Australian High Cost set an important proceedent in the 1960s in Neo document when it chied the national governments commitment to an international treaty—the World Heritage Conventin—takegroup that the proving the Daminorwealth government's powiend and pictheting the proposed dam ported to Taxanake

Unlike most countries the Australian government publishes a regular montioning rupport on all of its World Hansage sites describing the resture of the propenty connect seases, such as proposed condituation or lourism growth management plans, and the number of people who writed the area.

Most observers and participants in the World Hentage process agree that an important key to the future affectiveness is increasing averness of the corrcept and the reasons for protecting reiuei and cubusel monumants

The Livited States played a key role in creating the Convertion's and makes the largest contributions to the program budget. But if toot the meeting of the Contribution of the Instage to a pure the National Park Service to control test to providing micrometan should which filesages to the mellions of people who visit on these revery vert

In contrast, Spars, which has 15 arise, nangarg from the prehistoric caves of Alternit to a twenteth-onthry Decement house designed by inchilact Antonio Baudi, publishes a glocsy Illustrated partphlet describing each abe and this purpose of the World Hertero Convertion

It may or may not be considerinal that are of Ward Hestingsin maxipussonate advocates is a Spanard. Fo dence Mayor, who is UNESCO scherber general. "Sach others of the world advold become is defined of our world-pertage. He seed "I like to may emissingle or oscidancy of tentoring but, missing or oscidancy of tentoring but, that must come from the world live it."

Mayor said he's encouraged by the publicity given to conservation of environment by the Ro conference and the possibility of increasing functing through the new Global Environmental Facility istance in 1994

His vision for a vigorous effective World Heritage program a discade from now emphasizes oducation and public severeness. "In Pare: at UN-EGO heredynamic wei here a classmphoze for nitromation with publications from all over "In addition to the Para-Carne, the Papes is as an free or an regord cortex and rabbiel programs backgrowness with Pressar and here programs and the second second and asserted them is pressure and and asserted them is pressure and and asserted them is pressure and the second second second them is pressure and asserted them is pressure asserted them is pressure and asserted them is pressure asserted them is pressure asserted the second them is pressure asserted the pressure asserted the pressure asserted them is pressure asserted the pressure

The person most on the apot new to shape the shaws of Ward Heatsge is Centre director Band won Drasts, who became director in May of 1992. Enupped with his messar budget and the strategy that comes frout showing you'rd rgift, von Doote has begun to defauss messen of paths exercises todewisen serves on Ward Heistige and beening provide work of the stage and todewisen serves on Ward Heistige and todewisen serves on Ward Heistige and todewisen serves and the stage and todewisen serves and the stage and todewisen serves on Ward Heistige and todewisen serves and the stage and todewise serves and todewise ser

Van Droate also has a sineal of direams for the future. Steesang that these are his paracersi ideas, not offioal UNEBCD or Committee poises his offered the following water of an effective World Heintege program 2D years down the road.

 A World Heritage Fund of \$2 billion or mote with new mechanisms to fund it, such as an energy tax

In tools also a strategy was associately of The Provide association on excellence - exception any supportion—to see that Werd Hear tage is derived on the higher Heart tage as derived on the higher Heart tage as derived in Heart age message - Proper measurement of sources at all deals so that they continue to be protroted at the same time that they controted at the same time that they con-

Will due children or grandchildren beable to visit and appreciate the sublime achilochne of the Tip Meha?? Will thing see the blue footed bootses of the Galápapo? The rock churches of Ethepar? The appoint of Venias or the maorithe of Storehenga? Or will thay only be able to reveal rubus them in boots??

In an ideal world where we all nooptions and agences nature phonombody where resources in a second and phonotopic of the second and phonomopy all of these which hereage allowacys all of these Welch hereage allowtic second and the second and phonomality and the second the second and allow the the second and phonome of the world's protected areas and the origin based the second and phonome of the world's protected areas and the world's posterior: By the explosions, its worth doing. Clinic theng that the tage hereis build bringter: CO



Carls inclusions in a Louisery Billion and Carls will be

LEAVES ARE FALLING ON ANOTHER year here in Lynchburg, Tennessee, home of Jack Daniel's Tennessee Whiskey.

We've been boise than ever this year making lack Daniel's for tennisd all over the world. And, so say our barrelmen, the pace worlt siskem till Christmass. Bot no matter how much whiskey we take from the barrel, we can promise you thus every dop is aged and mellowed to the short, we can promise you thus every dop is aged and mellowed to the was how you here it lymchburg. And every day of every year size 1986.

SMOOTH SIPPIN' TENNESSEE WHISKEY

Towerse Bedge - ECER details, wave BER point - Datase and ECER's in a lower Dataset. Low Redge Trapage Res 1: Lowing Prop 2017 Evenant 21332 Taurit et de Nataset Region of Risters Plant by the Unaut Science Concentrat

OR CLOSE TO 30 YEARS, BARBARA INTENSIVE RETRAINING PROGRAM AT BURRY TAUGHT FRACTIONS TO SECOND CRADERS THE SAME WAY SHE HAD AFEN. TAUGHT BACK IN TEACHER-TRAINING COL-LEGE THIS SOFT-SPOKEN CHICAGO PUBLIC-SCHOOL TEACHER WOULD DUTIEUUX GO

TO THE BLACKBOARD AND DRAW & CIRCLE, AND THEN WITH CHALK IN HAND, DIVIDE IT INTO HALVES AND THIRDS. AND QUARTERS AND HER STU-DENTS AT MEDGAR EVERS AN ALMOST COMPLETELY BLACK SCHOOL ON THE CITY'S TAR-SOUTH SIDE WOULD ALWAYS STRUGGLE "ITS & HARD CON-

CEPT. ESPECIALLY IN THE LOWER GRADES \* FUN AND THE CHILDREN DIDN'T SEE ANY. REASON FOR WANTING TO LEARN THEM." BUT THAT ISN'T LOW BIERS TRACHES ANY. MORE AFTER SHE WENT THROUGH AN PORTS "RECAUSE WE MADE THEM INTO AP-

AND SCIENCE, HER APPROACH CHANGED. "I BROUGHT IN GOLDEN DEUCIOUS APPLES AND OUT THEM UP INTO THREE TOUR AND EVE PIECES " SHE SAYS "'AND

> THEN I'D SAY 'HOW MANY NECES ARE YOU HOLDING? TWO DRAY SO NOW LEWE PLIT THE APPLE ALL BACK TOGETH-ER. HOW MANY WOULD THERE M2 THEY DAY (THREE OWN) SO THAT WAS TWO OUT OF THREE OR TWO THIRDS IT THE CHILDREN COULD MOVE

AROUND AND SEE I TOLD THEM 'JF YOU IT: AND BOY DID THEY:

BIBBS DIDN'T STOP THERE "THE APPLES UNIT THE MEDIAN FOR SCIENCE SHE RE-

# ARTICLE BY SHARON MCAULIEEE PHOTOGRAPHS BY PETER LIEPKE





piceouce to the children could see how a proce of wellar changed shape hrough hasi and separation. And again the class used the matcines to kolve the roction and cook---puting in one-lived case of the and one-funct rough of that Finatio, the audients wound up fixed ing wherey Applement and one wound up fixed ing wherey applement and one acceleration topos of assists are created.

"When I was in actual" says libbs. 1 don't remember anyone considering math tas libb with my utiliate now. It say 11s time for mathematics, they in simatic out of their seats they re so existed, his a well change."

### A Prizewinning Dream



A CITY'S ING SHOULDING: LION LEDERMAN, NOBEL LAURLATE IN PHYSICS, TAKES ON CHICAGOS SCHOOL SYSTEM LOPINING PMGB AT THE ACADEMY, THE ACADEMY, USE SIMPLE MATERIAIS LIKE BEADS TO TLACH SCIENCE, KIDS LOVE IT country." he says We see it as a modst for twenty-five other othes."

The Academy proving a known of the comparison of a many proving the comparison of th

The antinous project logger with a Simjie phone, call back in 1980. At that time Lederman was dividen of Fiemlah to establish allocatory in Basiwa. Timose where some of the most advanced research in particle physics is done. Farmiliab a unity the Department of Exercy and on this side. Laberman's bossulance bislow. Then secularly of lance apport able report had coefficiented the country's crease in secared, and math optimizer common

# PERFORMANCE-BASED TESTS

If any second se

"If you want to see if someone can one a bike, you don't give her a multable choose set. You see if he can do it," soya Dala Canton director of the California Learning Assessment System (CLAS) with conducts sandarduad tabting in the abase's elemenary and exacutary schools

Dubted "performance-based asassmert: The new kind of earling a linked to cancular informs this promole bandson or experiential learning advases Such refermance, screng skills, not emply ther ability as memorano reclusion threfung and sasoring skills, not emply ther ability as memorane reclusion threfung and screng skills, not emply ther ability as memorane reclusion threfung and memorane reclusion threfung and the screen screen and threfung you want tools to know." any you want tools to know, "any Lawren Memorane di performance di perfor chology at the Learning Research and Development Center at the Linvanity of Pittiburgh 1

Tor search, is that har scence inversion calls that har scence inversion calls and the second with the search and the second scence days, they had to dot the scence with the search add in electromysel to sence any days and the second scence inversion substances. Finally, hyseris Generative Net Wen, such the second scence in the second sce

THE REFORMS AIM TO DEVELOP KIDS' THINKING AND REASONING SKILLS, NOT SIMPLY THER ABILITY TO MEMORIZE

Because most sucking auto-mail to learn how to seek in groups and communicate knowledge with other papels some performance-based assessments call for students to partipate in group work and decusations before writing an easily or conducing an esperiment inductability and enricy to dit mail/b.

While escators went choosing multiple-boards tests comprisely they're decreasing hor use. Somechoose questions, which in treshchoose questions, which in treshcould snelve several concents and more than one catalogy and size loss three multiple to ansate. "We re wearing ourselves to use multiplechoose questions, but with the tot the best" says Carthon At the same time, educators are moving to replace some testing alongather with " assessment portfolios" — collections of work chosen to reflect what the student has learned during the war

Performance-based assessment is in venous relays of discussion and implementation in namity every statuality and the status of the first working to easifyith at his of performance-based assessments and indication of subcit at his every terranders in subcit at his every metal status of the status of the status of the standards for subcit at his every metal status of the status of the status of the standards for subcit at his every metal status of the status

California is among the leaders State legislation mancakes that by the 1997–1998 sohool year all fourth tiftis, egistit and sarch graders will sake performance-based exirine in reading, writing, math, history social science, and science.

Actionates of performance-based testing believe that new statewide tests will stimulate teachers to create amiliar measures for classroom use throughout the year. Many actroit destrots in the apate of Cellernes, for waterpile, have already bought soence experiment kills although the tests that accompany the kits aren't yet required.

Booring the new performancetaxed tests is expensive since loadtions and to pread them. The immediated California total will calif SQD per subarch compared to SQD per subarch for machine accord exists as highly cost effective, since they give subarches a terme accurate income activity and existence in the to the statch with existence field.

Teachers who participate in scoring the existing indicutis the quarky of students responses and have to proprove along performances. Petenskpanets and apprintements of the prodeter loss and start focusing more dotaking the starting. Performancetaking the starting for the starting deter loss and start focusing more dotaking the starting for the starting genes on in schools' is say Guideon "Its generation is not have the whole spatem ensured" -- Native Seet

# If you don't think your tastes change, let's think back to that haircut senior year.





Nustration by Brad Holland

A collection of short liction by Michaela Roessner, Connie Willis, and John Kessel

**RELATIVITY OF** 

State of the

### MEZE CORRECTS AN INCOMPLETE REPRESENTATION OF REALITY Zurich, 1935, Mieze fathers her ears to her skull and thrashes her tail about in the manner of imitated cats everywhere. She opens her laws so that she can smell with the inside of her mouth, a motion that humans take for nervous panting, Humans, who think they know so much. Who know so fittle. Mieze needs



# WHO OBSERVES CATS FOR THE BRIEFEST LENGTH OF TIME KNOWS THAT TO ENTICE A CAT INTO A BOX, ONE HAS ONLY TO LEAVE IT INVITINGLY OPEN.

the axtra chactory sense to track her surroundings in the sartigit, light-tight box, where even her enomous, luminously golden eyes climit see But there are many ways of "seeing." There are many word of observing.

Eye binded inside the box, Maxe still incars her surroundings well. She's been here before she's entruedmary basics in it's container As con as her human pet, Felcae, isaves for school, Relice's Striber, the great Herr Tholeseon Hare Inda

With the sensitive organs in her foil itsueds Maza breakhes in the small of the event honey heavy-leaded walk of her prison the acid intellitator and tok of the Gegre orounder, the sick glassns odor of the bottle containing and marking, the now, the operated gas, and the wood and she of the harmonic posed to creat down on the opencie bottle.

But ween more than these she transpotential observes/brows the pulse of electrons and tranbing of racio in the life case that contains the notasche lobage. The analytic case that contains the notasche lobage. The analytic case that contains the flor of later of say that leter them as even the flor date of says that leter them as even to expect of later cases the flores date heart notable that he heart amiliary excured the bottle of caandra?

Well, have the oute of the mater: and if Net the great operating approximation (III Net with 35 Meand, the rereared Datase Einstein, calating publicative and output the west representation of mather is an incomplete representation of chaldh. Not, the true reading the earl representation of mathy as that has human pot (Pelicite)'s tative (Ever) downs mater.

So if Negati in the process of this to-be famous opperment should inachestently bump into the opande instruct of weiting for the statistical judgment of the nuclei, what will Herr Enwin 5 aay? Ine sill say, "I am a Sweet scientific. I am not responsible for the notprocesson of Beines."

Yet for all the stoopence she knows he would

protess, also naticals how grigerly to lifts the Id at the end of each experiment, the glovas he done, the air-filter mask he weers over note and meath-

In space there range lidears a characteria and take on valued by the cape arrand the local of radiotiotise-matter it inventeds that of the cape that secure fieldings burthers and there may and the write basics that continues listicater mother's centrery. Heads and too, the unit of the antice particular tempole, the of and gain, worthing her wettings them. Judg like the means the take there parts unling out to each the heads the take the parts unling out to each the heads the take the parts unling out to be the means the take the parts unling out to each the take information become herein.

At these moments the sympatrices brinfly with Herr Davis 5 is the not the semine table table basis observed in him as he sets up his experimenta? When his populates upon and opportunits the existinditutioning bits of knowledge, after has seen the samp space for thir of a successful hund the holewest he may seven separations a brief, abwette somation and of thir or features signant the inside of his mouth, a nath of the sevent warmh of based

But after a while of such conjecture Mozo grows bored and tred and wishes she could skeep. Then also again becomes imitized with Herr Erwin 5 the is not stupid 11 she dozed, if she supports her observations, the could de

A some part in the time data sports in here there than 51 here. Exchanges the balavies that there is a fifty-percent chance (in his mind at lass) that one of the nuclei in the case will decay and tragger the Gager country, sustant's the faitment is decanded to be both contraining the toymab. Next Stratdgrage level to a brief intermediate declaration of memory that is both some that lass and the door not open the boar the ain million deal not a sime of the local the ain million of the local time and the local the ain million of the local time is both. Doards that is a local time and the local the local the ain time of the local time and the local the local time of the local time time to the local time local time. Yer Merce has relaced that lie has up trans sin them in those for longer than necessary to make its deterministic of the time in the additione unmerced of the time in the additione unmerced to goothood. Latter the accepted the costing terms of the time of the costing time of the time of the costing time addition of the time time accent what would later. If an a Sweet physical What would like regulationate?

So the moment he places her in the enclosure she challows har breathing share the deare to sleep

Poor ferrer them 5. Mano horses is compatibility thread of his sociality arowers, yet ho lacks the most instructiontry concensional with Table at minitive groups and the table at miniand bags of all ministry. The set miniany was not observed calls for the brief of the bags of all ministry has been a call risk above the table and a call risk above the table at the control y will lead it uniterrary to anontages. Nat may active control it to ministry of the bave (ministration) and the table of the control (ministry) and the prove (ministration) and the table of the control (ministration) and prove (ministration) and the table of the control (ministration) and attempts a the ministry is control of the proviant table at the ministry is and provide the control of the table of the provide table of the table of the table of the provide table of the table of the table of the provide table of the table of the table of the provide table of the table of the table of the provide table of the table of the table of the provide table of the table of the table of the provide table of the table of the table of the provide table of the table of the table of the provide table of the table of the table of the provide table of the table of the table of the provide table of the table of the table of the provide table of the table of the table of the provide table of the table of the table of the provide table of the table of the table of the provide table of the table of the table of the provide table of the table of table of the table of the provide table of the table of the table of the table of the provide table of the table of the table of the provide table of table of the table of table of

Not live Texns 3. Her Prevence, were and a density how more here, the mean and carsuly how more here. It can be and carsuly how more here, the previous how the prevence of the tax of the tax of the mean tax and tax of considerance. The advance of the tax of the tax of other means and the garantee sharped Celestons, texns of considerance, are advanced by the tax of the tax of other means and the garantee of the and celestin extension. The more with and tax of the tax of the tax of considerance, are advanced by the other main of the tax of the sate of the tax of the tax of the tax of the sate of the tax of the tax of the tax of the sate of the tax of the tax of the tax of the sate of the tax of the tax of the tax of the sate of the tax of the tax of the tax of the sate of the tax of the tax of the tax of the sate of the tax of the sate of the tax of tax of the tax of tax of the tax of tax of the tax of ta

Meze yawns Statemating nuclei is too teary She is had planty of time, too much time, to trank of all the ramifications of hor stuation.

On, yes yes, she knows that by Impaining her will to live that in a parallel reality another Mieze (she assumes a relatived version of hersel) is clying. But Mieze is pragmatic. She is only concerned with lier consciousness continung along this periodiate file line.

She is imagined so many other pos-

sbiftess in another universe Herr Even S is daughter is not called Felicie and deel not lea cata. There Maze choos to be mistress to a darymeric family She lives on cream by a waim heads in other comstruates Herr S.

Has only sons no daughters and kap naps his feline victims from alleys

is married but has no children

o not married has no childre

Only propose the experiment is in data. Isseing others to follow it through as they will. But he doesn't tool the oats in that reality. After all, if he tody meant no makes why ddn'the suggest another anseal for the experiment, say, for example, a doo?

Misse corpectures other earlier reaities the known must exist. A continuum where before her receive hit dootorize in 1910 Herr Schrödinger is drummed out of college for a sexual scandal wrohving a mtddle-leged

She has endured session after session in the box, thinking with a softened heart of Felicle, who slips her monsals of chicken livers ?

where is baron's wife and daughtet and great amounts of charry shuded Whole universian where at the age of egint young moster Scholdinger hings over a black cap while on his way to school and is not over by a parsing cotigon, his exit, charded in the set of the school and is not over by a parsing cotigon, his exit, charded in the set of the school and is not over by a parsing cotigon. In set, the school and the school and is school and is not over by a parsing cotigon. In set, the school and the school and the school and is not over by a parsing cotigon. In set, the school and the school a

The set lister would have be too late, be considered with the set of the set of the rest and we departmenting in the list mission of the set of the set of the mission of the set of the set of the set of the description (mission) and in the set of the description of the university from the determinant of the university from the set of the university from the set of the lease of the university from the set of the university from the set of the set of the university from the set of the set of the university from the set of the set of the university from the set of the set of the university from the set of the set of the university from the set of the set of the university from the set of the set be perfect. Not here is carely not a white for the grad that Mezze social would cause Felce. How hearthroken Felce would be to know what a moretar her father truty is. Far befor to save the child from that inverse.

Makes stretches in the controls of the bar is a docided than. She cannot be like the made and the caresy, even it have whell at She is an observed or have defining, a hunter fat superior to herr. Swape, there is the bar parameter herr. Swape hunters are bar to be herr. Swape hunters are bar herr. Swape hunters are bar herr. Swape hunters are herr some the second second second the second second second second herr some factorizations (her herr some factorizations).

-By Matheela Postanter

A NEW THEORY EXPLANING THE UN-PREDICTABILITY OF FORECASTING THE WEATHER

Diery es i'm orusing around, looking for chroka, and it statts to rain So 1 hang a left under a likes bush to get out of it. I hope some chicks have had the same rate, since the/re arkes worned about their looks and getting weland stuff, but the only timig under the bush a time conteptio

He gives me a dety look and says, "The e of your built."

I don't usually hang out with peddetrians, but I figure maybe hole hole hears emeriting insout what happened what me and Buzz were draggin the morning in the meedow, so I awy, hear pareal "Half?"

"The rain" the centrede says "You caused it "

"You're all wat " I say, but does he laugh? No pedestrans have no series of humor. He says. "It e your fault that the name."

"Who says, creeo?"

"Edward Lorenz nava."

"I never even met the guy." I say "it musta boot comebody else"

Then why did he call & the Butterly #Hecr?

Ticon't have any dee what he is taking about and enywey, if is stopped tening, and i see this oute chick ( i know, ), torget her name. She is fullering around wagging her tear in full way chicks have that make you chard, so i costoh up with her and say. "His baby Weene on the is som?"

Bits guas me a look like I am some land of bug and fires of whole laying anything. I figure site mosta heard about me and Darlens, so i teles of after het bug as I fly past the rokes I set this bug pink too like site is vasting for me wegging her wings 42ms, so I pus on the briefs and bug up next to her "Hya, cheamboat," I say turning on the oid pheromones. "Wanna park for a shree?"

"I didn't approciato the rain," she says, real stuck-up. "It emost runied my outit," and free off

Man, I am nasily confused now because I never bomb with chicks, and here I've athuck out twee, "What's going on around here?" I say

<sup>1</sup> Chaos theory: represendy using, and I see it is a spreak crawing around on the rase leaves. I don't usually hang out with the fuzz because they are always oying to put the outs onlyou. but if any body knows what's going on, they do So 1 asy What do she mean by that crack about the rain<sup>2</sup> I don't have nothing to do with it.

That's what you think," the spider says "Chess theory aby you did its a new theory that was hormulated to explain the unpredictability of forecasting the weather. It explains chalons systems here any the options are flow which are senaliya to furcilitations too emails to be mealured."

The whole time he is saying the, he is crawing up the rose I am on, at I tool on over to enother one before I as her what that has to do with me.

Tary vanitions in a chaotic system become magnified into large-scale

changes Your Rutering your wings sets ar patients in motion that can cause a trphoon in China. Or a drought in California. Or an attention allowar, which I might add" he takes "restrowed can of my ball widu !

No vary man 1 waan't anywhero near the place, 1 is y "How come youre tyng to an the on ma? How about motin? Their wergs aro begrer than mina. How about brid? Or cela Ne known coll that could drup the RHM enhost this clagrass set by looking at you?

"It is were then fault is wouldn't be called the Butterly Effect," the spicer stype

Who came up with this theory anysup? I say

"Humans," the spider says

I mights lectern Humans are great at consin up with stuff. Like the butterily net. And Red

Herd shift? the update says. "Noudent swart to caude a head wetter in Maccord: the says, and I see that the whole the wetter has been toopoing the breaze his has been togging a web the beach in update and the rate in with, so I don't wet accord to sale what he's too . If you'd, and then I get to the fixing about wheel arm probably doing to Calterna, and then o in a time if you do fit. there thinking about why they've laid this rap on me I mean who are they sying to laid? One little faip of my wrings causes a typhoon but thirty milive Tevation closent in anything?

And it they're looking for something to gen the weather on what about all these theorem humans keep coming up, with to buplish stuff? They re got it have one every day—child fusion and abbetoe nervoal and punctuated equilatitian—and they're always standing shound yapping about them. It's anough hot in to cause first hybrid-

I am threan problemy who has even have harves about the becau about apply-adde economics is going to buleade check acome tail, but aud then misale check acome by like the dorsen't aware know i'm sites, and it is chronical the threat and the problem. I also because if ghan a check y direct, which because if ghan any start which is the a to like humana—everything is always assessed y direct. Ruth

So I am siting there thinking this cha os theory is about as good an idea as the buttartly hat when up comes Bucz "Hey, warns drag?" he asys

I den't ansaint hem

"Wenna go pick up chicks?" he says, looking at the chick who haw by

NICKS.

NICKS. NICKS.

NIX.

NOW EDGE GEL EXTRA PROTECTION FORMULA has more friction-reducing lubincarits than ever to protect you from micks and cuts better than foams for a closer smoother shale. It's us it in the risk of time

ULTIMATE CLOSENESS. ULTIMATE COMPORT. THAT'S THE EDGE. INTERVIEW



A ong the bunks of the iner Neckous day in Heickearg. Bert Sakmann bricycles up to a red brick laboratory in the university town of baroque buildings. Bounding winters to exercise on the bag holding an apple and a benerina—hai turch. Except for abreak at the exeptboing cald, Salemann will spend the day explaining to me how muncks and brain cells communicate with each other, what physcelly happens when a brean thinks a thought. A living body is a west milwork of shamcal and electincal signals coursing through neurons out from the cartial renrous system to muscle cells and back Calls talk to each other in back by means of tors. ONE OF A NOBEL DUO WHO REVOLUTIONIZED THE STUDY OF CELLULAR COMMUNICATION

PHOTOGRAPHS



### 108:

Director of the cell physiology department of the Max Planck Institute for Medical Research in Heidelberg

### UOTE

"I had the experiment under complete control "

### ECENTLY WON:

1991 Nobel Phase for physiology and medicine, with partner Erven Noher

### DISCOVERT

Describing the function of single can chartness in a cell, using their patch clamp technicule

# WHAT ION CRANNELS

"A turnet and a gate. The nervow pertileta peess justione sonata time. When a transmitter is around the channets reaminged is orable a hole, or gate. You could anywage the inner wall as make up. of the barnel staves that the in to close the channel. When the transmitter bands to the receptor the staves until and the channel opens A1 lead this is one theory. The actual mechanism remains a moster''.

## ON PATENTS:

'it's too much trouble They're a distraction. I'm no going to make money out of science, it's far too meneating for that'

charged patholes such as obsium policioum and chiloris that entar and earl horough gates and chilornols lie asphanes stabiled up on a busy day at O'Here Solay's knowltransmission, nooploss intransmission, nooploss intransmission, anoploss intransmission and the envolution appears and doior mochars trans by which more taken and policy and wonder the and I. New sol

longtime colleague Erwin Noter sharon the 1991 No. and metions. The award month of research a decado earlier when the two sch ing ion channels in cells" ful mos of luck and talent. they perfected a bost of for islaning into the converor calls was a class renote, which can be as eler of a human har it enabled them to speak functitring cells without interfering with their wild moreese of emitting signals

Once spawed, calls ocidal be bathed in one and merigulated in many of the ways the body fault uses for intractivitian ensuing Writally overrught, these methods became standard practice for cell physiolgets and bran researchers everywhere.

Note recently Balmann collaboration in recombnent DNA superimenta lactaring proteins that deterguint diffuent kinds of chemnelar. He is working on nue rectiments to replaying, diabales, and other diseases caused by multi-information abales, and other diseases chemetis. And lately, he has been studying how the callular architecture of nonrens conthourses to auch higher brain functions as lavered and support

Among the raid of accomplastments, the country salarean seman unflagoble and unsaturing. Naror using the fut operan amonous in his published withing, he soundes much of his seminal work to charaos. On getting the out from Stochkolm, has fest thought west. "Onwhat a ket phase!"

--Thomas Bass
LIKE ARTIS
Editor's note Thomas
Bass collector of Interwave from Cerrs, blied Re collector of Inter wave from Cerrs, blied Re collector of Inter the Ruture with the STINAPEE.

published by Addison Web ley in December 1993.

Omni: Bafora we loave your lab, do you need to instruct your impos?

Bakmann, No Yilo do smailreake avaintide hens, do ourexperimentis. by hand There are no sample recopesitive the protocols in molocular bology. Membrane biophysical is still a science where experimental and a way important.

Omn? When did you know you wanted to become a scentist?

Balemain: The only subject that universitied mo in school was physical if was facenated by biological opcenteed by biological opion of the same of the same ter how to At a moving twipet with a gun. for exam-

### WE RECORD

ELECTRICAL SIGNALS AND INTERPRET THEM, BUT THERE'S NO STRAIGHT-FORWARD INTERPRET TATION OF AN ELECTRICAL SIGNAL. LIKE ARTISTS, WE DRAW PICTURES OF WHAT'S GOING ON IN THE SYNAPSE. pie, and applied them to understanding the function of annuals, by analyzing the flight patient of a bartic flight patient of a bartic system and the flight and underlying principles of them as bars worked withwith the bars was an owned with the bars was to build a man-the flight would a plan her flight would be a man-the flight would a plan her the build works.

Making machines and explaining awarni bahawot seemed the same thing New we know the a lot more complication, but in Germeny, the was the prevaling view. When I was a long i lowed to construct anpianee and shape operated by smoke control. It was assumed in biscore an engrase, but then I got interested in biology.

Over is a possible to reduce human nature to a cybernetic model?

Saarnahr Some appoints of it, yes When you first start out, you think you can asplain awarything, ovon higher prein function. This anthusasm is due to ignonance. As you gain intight, your goels bedottill more modest. Now I d be very happy to four out, how it





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synapse in the central nervous system (CNS) works

Otto: What models did you use to describe how humans learn?

Sakmain: Psychology held to ithread both mit, if had ne sepaminent boti effet in German is calked Vernahl etoniki or reason-by focusing on paitern incognision. The requires function and brains, and you can perform sepaition incognision. The requires function mouse? Rectinicity is self strugging with what I workdow on 25 years ago to construit a machine capabili of recogtange measures, patterns, is normaling nearing penceptes underlying how the term risks is .

Omes: Are there any other scientizes in your fam N?

Seimen: My great-grandistre direct and a projekteric hospital, and boh my grandistress were doctors: But my the her was a these forector is Suitgert he lived in a comparately different world. Like theses particularly playanghts like Breath, and was inflaued brings heater i want to the these of through heater i want to the these of the lister because.

Ontel Why did you decide to go to medtoal achoe/P

Creatified was exercise of pattern reception in the was special and comparison in the second second second second second hom the second high school While we school the second second second second the segment had to build an exposution to be the second second second as calls the response of these secals calls the response of these secand second the response to the second second second second associations the response of these secands the response to the second association the second second association the second second association in the second second association of the second second association of the second second a second protection of the second a second beam of the second second as second second second second second as second second second second as second second second second as second second second second second as second second second second as second second second second second second as second second second second second as second second second second second pund a receptive held.

Ormai. These techniques seem crude compared to your later reasurch

Sawmann: Yes, but I'm sying to tel you how your ambition becames less and less. I's gaded by shat is technically feasible. Hou was not to have things under control. It was only when I found e. system with repeatable results that I was hoov.

Omey For many years you stopped invalidating the brain Why?

Bainingmil decoder higher brain humtions were too diffusit for mits but i tell wartad to work on the bails mothamen of how information is transmission withoducatory leaders and an end of the withoducatory leaders and an end of the mits data (Neaders ware green by Binmark Satz, Pholosian and an end of the sease consumpty parameters, release their othermosis in pocknoss which he ease consumpty parameters, release that no target would i ask quanters that no target would i ask quanters that no targets would i ask quanters to understand the meants transition

The neuromalicular punction, the symapic between nerve and muscle, is the model synapse Most of our concepts about synapse transmission, relates of turnerstike, and the opening of alternets have been developed here. The only thing the neuromacular junction doesn't do is learn, although our ideas should their might charge.

Other How does this work?

Seitnens When you doubt to more you hund, an excited on in your more for obtaint sevels closely you there to be the sevel of the sevel the transmission of the sevel the is finally transmitted to the more the market come does not auch network address of the seven the does how any the seven the seven the come of the seven the seven the does how any the seven the seven the come of the seven t

Other What are potentials-membrane systemic action and sp pro-

Baiemann Mernhane poorsia a ar bremeans by which hells communicate tray, result horn the flow of services missis to autobic the call, or vice versal at this of potensian morrise a cells breats of about a service a cells breats of about a service a version of tractational and probability at other merein maxim, and probability at other ones control to service and the services and and the service the services of the service between the service and and the services between the service and and the services of the cells in the merein and services of the cells in the services and services of the cells in the services

### ourement for signaling in the CNS Over Action potentials?

Seinamen The international that takes the aftering networks. If is made by the change is polytration A call has a hastnographic takes the state is the set of the reversal of this state, as the call goes from -80 is +40 millionts. The say in processing and theole through sochum channess and depolatomes indiparent hask an academ is in throms torough soch wards to paramet to incolute call. They will for existing communications.

By various potentials are local and control topol along a new flat water nearly a instrainty, and in storage match a instrainty, and instrainty and water to prove your body, your local water to potential the instrainty and more nearms. These calls generate an exploration that must store given the your topol water to the store call and the store of the store and the store of the store and the store of the more nearman. These calls generate an exploration to the store of the store of the store store of the more near the store of the more near the store of the store s

Salavierin Carl Lawie could do it a lot quotor, in arenth of a record or lives, although were he has been stowing downliably Alternativos for transferring unformation between ray, the blood system, which uses harmonic eligibilis, or be lyrigh system take minutes instead of sevenite.

Other: Why do we parwart electrical signals into chamical once?

Sakmann, I don't lenne, loat II does meker II aaker ID generate different confagrankizes of these elements. A maconfagrankizes of these elements. A materior transmission of leaving the ana type may be to domain motion of leavar lype apose. Electrical investmentation lacks this lend of feasibility Chaencesi can othergo quickly (16 good at this relation advise settation available

Ormer To learn something, do I build up neurons and synapses?

Severary This is help locusor. Ever typ possible motherism has been oxided more synapser, more insumtion, more incorpts, gleaker sensible, by more dramade or donges in them you included. The lowery hest they have "proof" on an incorpt, included people and alternatively that they have "proof" on an incoming in don anyther, then both. Perconally, I don't people and alternatively that they be a both. Perconally, I don't people and the second and one hands. A tell the Deneylerd

Other What was it like working with Kata in England?

In Katz'a lab in paid a live yearsbehaven 190 and 1903—betodremstry and physiology of the uptapid become enseatorial: I kink learly exciting to as in on overyday decomisme. It become crystal clear wind warking to do look at the molecular properties of symaptic transmission and at one chemistia in perturbater. What could count, measurate them schemott them.

Carles Two data you meet than it have the second s

Using a votage-damp amplifer was for me a new way of doing research. Paviously 1'd sport hours preparing in an mal and trying onders times to percetrate the coll and stay intracelularuent after about three minutes over-



If you new a comparer and a moder, yee on get even more of the OMS' topperate with ORNI Magnesse or Aversa's Dalas Boordan you because and earlier the worklot distance access factors in all the worklot distance access factors in all the manufactures and access factors in the manufactures and the other OMNI and the manufactures accessed board of the factor of the access access factors accessed board of the other of the other of the manufactors accessed board of the other accesses and the access of the other accesses access of the other accesses accesses accesses accesses a constrained board of the other of the other accesses a

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Omni After London you hocked up

Selement: Al another Max Planck thattute in Göttingen. It had everythinginner chusics chemistry cell biology, ed. I found Erwin there as well. He was

Owner Who recognitized the use of or

Selmann. They were used in the For-rents recorded by our pipottag in the

Sekreent, A whole industry is devaled

But Erwin had already agreed to work for a year in the States Each of when one day he called and said held found much insee: longer charmels and larger ourients in pipens, an Amenoan fing. This helped us, but we tell weoff touro what we ware measuring I got hold of some pipers in Germany, and this made a big difference.

Even oams back tor Ometman, and we wroto one obusen lying to repeat our meatrizes. I of bear lying to repeat our opportents to not all. The noise analyse indetted the stade ones large charterizes. Even built offleerer amplifices while i versida and particular the sidetorics. Even built offleerer amplifices while i versida in new preparations for these match libers The circle in our parts and the integration of the these match libers in the integration and were integrated on an wells with operations of the wells with operations.

I was gathing list up when one day as neo-Annoton carme to vice, Read Sachs, a physical, but working in membrane physical but working in wembrane physical but work work work of phyphysical but the set of the set of the sale or checkers. You proceed a bunch, then lat them all grow giving you prepavations for the whole week. This operand the way to trypy many different operand the way to trypy many different operand the way to the set.

But is set that an any discussion is the set of the se

### Oner Luck scan

Savnern Yee, and a stort the law, agent by charact, I decovered that with a spit week year can remove a patch of cell and sail get recordings. I acculate the known was my preparator, here was my popular year here, and I was fill recording channeels Wate's geng on? Their I weiware from the rest of the cell with its seal from the rest of the cell with its seal here. Land Lager the was a memory and that Land Lager the was a memory and lucky observation. Now I could manipuisle the an bath on both sides of the maniprate This was the particit experiment for researching on flow.

coad onluar paches?

Samon Ve Could bath the patch has been very the remove any the service any the remove overeal that if you keep on soulder basel, you any part backs to the intercedure steel the remotioner. Could be a service to the service relation set of the patch and the membrane call the patch and the service set of the set of the membrane call the patch membrane call the set of the set of the membrane call the the set of the membrane call the the set of the membrane call the set of the

i accidentally knocked the table; the pipette leapt out of the dish. Here was my proparation, here was my pipotte up in the air, and I was stil recording channels! What's going on??

### bathe the outside of it.

This set haspessed in 1882, in Me boys weeks after Christma, Linen and I after and hand christma sonder the Minn Auditian and Philips sonder the Minn Auditian and Philips sonder the Our links were stateset and weeks of Our links were stateset, and we have obstated the ministration of the analysis about the ministration week pair disconend were too exciting to be list abouend were too exciting to be list abouend were too exciting to be list about the ministration of our opend? Selevant Fristman of an Austalian in the Selevant Fristman of an Austalian in the Selevant Fristman of an Austalian in the

### Ontri But with occasional exciame tons in Rench and German?

Sakmann, Nau, "Hisp!" As news potad, many vettors carrel from all over the world bringing their own propanatens, until we bacame a bit very and write our until dua pape, a sort of a coshbook. Then we colected all the tickle of the thinks, were a kock about them and offertid a course to our thered and oblaboration. Oton: How wedaly used is the patchclamp technique now?

Between Thestcaly werry coil physdisplate in the source laws it is your events the summary source is the source is events. The summary source is a source is the summary source is a source is the summary source is a source source is to the gate, process, and but ret or lab backbone much source is one process. The share the source is the source is the source is a source is the source

People cain new study charvelle new detectly molecule in fast symptox banksecond measurements of a second study of the second measurement of a second study of the whole measurement of the second study of the whole measurement of the second study of the second stud

Oms: Which of your findings were most surprising?

Bakenerin Thal all colls have many types of channels in their surface momtiones. This guest for muscle, nerve, and secretary cells. Plant cells are paolead with hese channels arealing opening, sarving some sort of function. Nytten, ous channels have even been found in supporedy unexcitative cells that don't do anythma with some.

Omm: What modical advances will come out of your recearch?

Balantam: Mary of times revery classor ends channels have inmediate function all againstrations from regulating intracellular restations. The research will be important for those deceased whose the classifies an excerved in agrinaling etc. database, cystic, fitnasis, and goingvit The gath-classifies (1, just allows up to furne out what is very of there of the addition of the second second future out what is very of

In cystic fibroxis, the chloride chennel detent open as it should in the presence of AIP. A protein malfunctions, but the molecular details of what is gone wrong anon't quite clear. Five rooms mouther as

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# ANTIMATTER



# DEVIL VALLEY

Xinjisng Uygur Autono-mous Region have long synded "Devil Valley the valley is said to bring who stray through it. Now scientists from China's **Ondial Province** say they know why. The region is not cursed with demons, they claim

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says "If you look st Infimo statistics was could say the United States here a 'Daw Volky-Osney World In Criando. It's right in the center of where lightning concentrations in the Linter States But that's because patients not because of some unusual apploance! -Shrev Bake

### but rather with lightning According to the Chinese news agency

netwed basalt created by

during the Triassic period

theorize, attract electrical

charges in clouds, gener

ating the lighting that

But not all emerts

across David Bust a

physicist at the National

in Norman Oktaborna

says he's never seen

magnetic fields affect

lightning " And lightning

expert Ed Jay, professor

the Georgia Institute of

Technology in Atlanta

of magnetic materials

attracting lightning." he

ot electrical engineering at

passing through

The resulting magnetic

WHIEY IS CURSED-Xinhual dedicarsts who risked their lives to study the area discovered that DENCINIS, BUT WITH Davil Valley is filled with lame quartities of man

# KLINGON SPOKEN

Mingan Hardbalathing (Do you speak Kingon?) If the answer is no not to worry. Now you can inquists have gone before and learn the Star Trekwith the help of the Kingor oon, a new Simon & Klingon correspon Philadelphia-based Kingon Language Institute (KLI).

# DEVEDSE WATCH

Imagine that you could predict how much time Wouldn't you after your Invisible and habits to fulfill you could optimize the Hits of your days? David Kendnck of Bark share. New York, thinks warwould That's why he recently patented a watch that runs in niminar chronological order and even seconds left before the weater dies type" who ives in a rahir

in the woods and earns he living chooping frewpoo Kendrick get the idea for his watch when his tather-in-taw was during of emphysema. 'He tok us all the things he found time tor," says Kendrick. actuarial table will held wearers program the watch with up to 50 Intestvie variables, includ no ape, sex, race. dity, diat, stress and exercise levels, and cruntry versus city living.



Why learn the output spit-spraying, made-up language? Linguist, psy chologist and KLI tourder Lawrence Schoon sava 600 members want to be more authoritio while persona "We approach to study like we would that of a dead language

he notes

American tongues, and more, "Locked real human sounds, but mixed limited Kinood voctibulary willkeep on expanding. as Kinoons are active in

the Star Trok universe. Meanwhile, Klingon er existing lexison to write Kingon fiction, and some and performed Marriet stamped envelop to KLI P.O. Box 634, Flourtum Pennsylvania 19031-0834 Sherry Bake



MYSTERY STUFF

EROM OUTER SPACE

A seacecraft returns to

Earth coated with alien

material from space. It's

neither animal, veoetable

experts, but rather some

explicisubstance reserve

be, but in this case, the

bling nothing they've ever

story represents e real-life

scientists studying the Long Duration Exposure

Earlity (LDEF), launched

in 1984 to study how

materials in anapa

radiation, space debris,

and other conditions afford

Studying the craft upor

its return to Earth in 1990.

NASA materials scientist

Jim Zwiener noted varnish

"That's not unusual." save

under en electron scon.

streak of brown discolora

ning microscope, one

like marks on the hull.

nor mineral, come the

"crystal-like structure resembling a series of rabbit erra-screething never seen befere Rolled NASA m

searchers checked to see if the strange substance by the satelite on Earth It wasn't. Nor was it an stien life form. "Standard anothesis " raves Zwianes "showed it wesn't anything biological stall Rocently, however, the mystery was solved

spectroscopy technique that enabled NASA scientists to identify the utrathin substance's molecules. Zwiener now believes that battery



cells aboard the LDEF natured, emiting dimeti dis lide cas which mark ed with other contern mants like silicate under the unique conditions Simply put, he concludes the mystery stull "is basically plan old plass - Shorry Rokor

with no living speakers

who created Kingon for Star Trok At based the language on snippets of Star Trek movie and werth from there, combining Yiddish, Japaneso, Native human language rules Okrand adds as long

want people to ask

really worth it?' People

damage they do to

"until it's too late.

themselves, 1s my lifestyle

on't realize how much

But what happens if the





# INTERVIEW

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voloping eatersmichannel blockers and other drugs that increase calcum flow lan-channel technopies calefy the signaling pathways, allowing you to think about how to interfere, and other full you how takes churce work

Correct Do you hold any patents? Selvment: No: Its too robiting and too much souther, really a distancion 1m not geing to make monoy cut of soense. It's far too interesting for that Owner Am there invess of information

that issuent been discovered yet?

Bauvariani Many Fer entretail: these that open when you a usafet fin to ment boarse Bui I minit with Ver Sound Ithe work of the Bala Scholarse I address Apple Uncertainty, with when I collabotated resources of notmote the fitting sole experises of notmote the fitting sole to manyous in the fitting sole to manyous the topological state of hospital to the sole sole of the sole of the sole of the sole sole to manyous the topological the sole of th

Oms: Are you looking for a 'unified

Salamann: That would be too much to ask. But the scetylcholine receptors all heve semilar anergy profiles, share a common structure in their subunits. A cohorent picture is emerging

Greve to the achieve you're thomp in exactle fiber present in the brian? Sakmann: Yee although brian roomptors have additional properties. For exemple, inhibitory channels in the ChB can be moth lifted by setablives life Waltum.

Dees this mean our brain has endouanous Valium? Why else would it alrough have channels for Valium? These channels aren't present at the neuroeutoclife furction.

Chrol Exception asiate do lon chron revel chrain function faith the chronic structure Bakmenni Welte using contracta and anystee demander all the introduction parage we seen in the brain "happie tack mentes questions and term make fun in the answer accurating me of samp the basis is ophymican than a big muoole Saft with batemater guested charmeds and basis the chronic structure and a set that autoexten big cyropho termination on and interthelia similarities and it basleves, calibrain proceders

Omy. If the brein works the a muscle, how should i exercise (7)

Salamans, it would be more to interove synaptic functioning built have notides, what is would take. Theirs what we're sying to find out DO

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# EDUCATION

CONTRACTO LADIA NATE OF

eclubation New Website was each of reading reports and warted ection What could his national late actually do to halo?

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They suffer from the usual math and science phobias' and cope by grabbits a testbook. Poorly trained in math and scence as tray are the soing grace is that the teachers really care about the craterio.

Litinatily the hope is to provide time inform in elassion that Lederman powers, or me chepseng out, and progtimes that three so many emerges alaries. "According to assist Betweet of the manual Barders Foundation or end that privating spectrem that hold be busided that privating spectrem that hold busided that private and the busided that private and the busided that busided that the the busided of the private busided that the that the busided that the busided that the that the busided that the busided that the the that the busided that the busided that the the the busided of the problem glowing change on the therebase.

### The Academy

The transformation from textbook to hande on leading begins as a fail research building that stands like an oas as in the denier of a rundeau nagebehad on Chicago s south sale (it is here, on the campus of the litnes is struct or Technology that the Acade my and its "Dold data) or insputcies. and administrators first welcome the sity's public school teachers

In our poor, Marchall Rows, I analysis, I and I

secon talk about a mombusi

the data you collect into a table turn

their classmales and spen versus roughly the same area on the praph the information and try to make some about a kanceroo? Most leachers are

of nature. Or as Lederman as neetly

calage. They were only gaves issue to carry there. Nothing about patting mathples ecross in any depth. So at the ance. What do we need of one side of

this equation to balance the other?

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The Name of Post Name Work, Mar 21400.

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With in their discussions. More then toothink in the diskinstic diskinstic homes toos lamites that are balow the power box lamites that are balow the power out roots in oftenaily reported at 46 perout roots in oftenaily reported at 46 peront built roots box curvely may be as high as 60 or 70 percent And Chao of duberts perform way poorly on nail tools balot, with over half the orty a post shorts with over half the orty a secret Change of the balow. The resonance of the percent provided the theory secret Change of the balow of the percent of the percent provided the percent secret Change of the percent percent percent of the percent percent percent percent percent of the percent percent percent percent percent percent of the percent percent percent percent percent percent of the percent percent percent percent percent percent percent of the percent perc

A lot of the qualisothpowery langing is based on the black the bornshow poor childrain surved learn and test acence and marks have boardbears, says Monbaught to these children; says Montagacht, But we say wild ont care if a kild is poor of not if in has a good monto detailed. Has been to the test in the detailed based bases are threadment and the says and bases the communicate these subjects and kilds only lark lists.

Math in floot is now being selled "be gatekeepor" in Arrenzin society. A reorn kasiy by the Colege Boerd in Tew York Day touch that mitnarity stuarers who completed eligibitis and geometry in fight antibidi wavai git on to escoped in college at nearly the same rate as White elistents. But they Block and Hapatils children got the right smmt in path of hildren got the right smmt in. elementary school By the time they inside high action, if is boil also. These students have already been "tasked" into vecebreal or referscale mash progamm and exolused hern the academic usational researcher sums up the spioken. "The networks to college A a one edusational researcher sums up the spiden. "The networks destroat is one of the most segregated passes in American Reserve."

Backase serky most his hing as on two call for load works a many point at memory and the series of the series of the memory and the series of the series of the hing to serie of high school 'I don't area that be an alread unsate streads, or unbling to obligge, or nothing points at the series of the school 'I don't area that be an alread unsate streads, or any most and an any school the school of does in school tasks for the school of polymous later can then them is a way polymous later can then them is a way of the series of the school of the way and it below?

### In the Trenches

John C. Harres Elementary is a typical school whate the Academy program has been hed. All the students come from low-income tamilies and many have difficult iwas. My Ario Amercan children are motify from sincle-family. homes," says Dandy Hasster, principal of Hanos And Tray see a bit of poobe hurt, not of people kinds, a bit of dhuga "Juaith get to school each moment on, the kilds who has in the "Jaster" and the "Hiterd, two nearby public house in gardyacta small yeak should be dishibition of the nane under the Dan Ryin flavoresers, "Es homber, togat Houston "Its filled with liquer better and smells of uno".

While its too soor to wavalate the Academy's over indivenense, the rey regim to Harren and soor and soor and soor too the soor and the soor and the soor soorbeet to one of the mail selective soorbeet to any of the soorbeet and the soorbeet and the soorbeet and the soorbeet and the soorbeet wave particular to one of the soorbeet and the soorbeet the sole the sole sole to be the sole and and sole sole the sole and and sole sole the sole and and sole sole the sole and and sole work in a sole and and sole to be the sole and and sole and the sole and the sole and and sole and the sole and and sole and the sole and the sole and and sole and the sole and the sole and and sole and the sole and the sole and and the sole and the sole and and th

Different Harres Idachers have taken to the Academy traileng to verying degrees, but overall there is a new sootement and commitment to teaching math and science that can be failt throughout the lackating Chergin Celegy most base law marks provide a dargering hard hard production telegy with the bit use consistence and marks the bit use and boundated of Peopole streets to consistent the street of the street of the street of the boundated of Peopole streets to consistent the street of the street of the street of the boundated of Peopole streets the street of the boundated of Peopole streets the street of the pole level of the street street of the street of the street of the street street of the street of the street of the street street of the street of the street of the street street of the street of the street of the street street of the stre

Cynthe Bott, who taxafhes eighth grade, used to just do "hartook seence, which are audents—most the set, august not annexer quivalants—and both rels and the students—most both traced but groups to the Academy. "Nex reagonade comes to mex, lively Bolt, and my loss are more antiused and exception. The nex downers tould be ready to be encoded to the set of the

But hereaf had another mercease the para a narbana document main to be as a narbana document main to be as a narbana document main to be as a narbana document main to a normalized of the second second second and anything to sec until allow and how all anything to second anything to a second and proper of there anything to a second another be as a second and anything to a second another the second the second another and another anything to the second another and another proper of the second and another the second the second another and another be as a second and another the second the second another and a second the second and another the second another the second another the second the second another the second the second and another the second the second the second another the second the second

Itrasting chicks into small process inclusing hardwork into any structure digets agents is week particularly will be approximately a structure of the finally concease they potential will be approximate from a structure of the structure will be distant include a loading distant of distant include a loading distant get in Balfa class—they associated and the include a loading distant distant and a loading distant and distant and loading and distant and out of all loading and loading motional "Greg Bear surpasses even his own high standards. Moving Mars is a visionary. masterful. inventive. innovative and indeed, a moving novel."—Keith Ferretl. editor. Omni

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"Stimning and remarkable inventio

of creatibility

seem to cut out much of the hubbles and embergement associated with tasditional learning. "Inseed of getting a dawatering to a chieft says Bibles, the manipularized at them see white the manipularized at them see white the reelity responding. We don't say its tight or wrong entrymore. We ask, "Old it work?" Dufr't it work? How can we dowing at it it doesn't work?"

### An Evolving Experiment

There take been many difficulties in taying to barry alocut the level of educatorial rotorm. Some sectors have found working with the Academy—and is mathedis—tough. "It's herefor to treach this way," says Casey "It's a been in the model if your ond croamnaid So you have teachers who have all those minipulates with loader an input teachers all acready to a to box end to be the set of the s

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CHAOS

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before and who has landed on a peorry now and is looking real cute.

about the butterfly effect?"

phoons?" Buzz says 'Sure men."

"So what are we going to do abou 17" I say

Do about nº he says, sounding surprised. Nothing man Chicks love n They like guys they think are trouble Watch this.

He pasks out and I follow him over to the peones and land next to the chick who doesn't even notice me

She is beeing at old Buzz. "Is if Irus you can cause a typhoon in China? she says

"If im in the mood," he says hold ing his wrigs roal still, like he's afraic he'll hurt something if he moves. "I mode it snow in Montana last week."

"Really?" she cays all fluttery

"Thirty inches in the middle of Jane' he says "Wanne go for a nde?" "I don't know all should " she seen

al gipply 'You might be dangerous?'

"You call a showstorm dangerous? Laky real ecol. "Anythody can make it show in Montana."

"What's that supposed to mean?" Guzz says

"Nothing I say "If that a the best year do Now a really dangerous guy." I say to the chuck "wouldn't waste his time on Montenia. Heid stir up a bizzard down in Fonda."

"Can you do me?" she says

Wped out the whole prange crop The week I mwarking on tornedbes

"Texas," I say and fep my wing

Shit gives a little scream. "How many

otredoes?" she says

'How meny do you want?

Ternadoes in Texas are nothing can do am in Minnesote. Watch this Buzz says, reving up his wings but he chick ent paying attention

"Can you do nice weather too? she says to me

"Sure 1 eay 1 Beirry breazes warm righta 1 and right them there two other metly cust chicks for y up and aak me if Lean do memocins, and I can bee old Buzz is right. Chicks love it. And I have to hand it to human. Ther theonics aren't much, but they come up with some grout ways to per chicks.

I can do dust storms in Kansas, Buzz saya faciong his whos like cra



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zy, but the chicks even't paying attantion Can you do humcenes?" one of the

"Can you do humcenes?" one of the chicks says to me "Sum" Law, "Watch this "

-By Conve Wila

### THE EINSTEIN EXPRESS

"Whatever you do, don't offend Mr. Solornon, "Manaca aad, pushing Dewid up the atawa to the correster pattorm. She sugged his fix-in-the Workson knot ted the straight. Monica, shraiya took auch a notarily inforce in the appaieance. She would never in the strainance She would never in the appaietion.

11m not a child. Monici

You need this socounting job David Its 1941, I can't many a man who fit data away his time or butletfies."

"I know Merica". David was impresent by the authority of her eyebrows Monica had the eyebrows of a five-star perienal. "But you're going to hate wearing for me while I make this long openies."

She proched he cheak. "I have weys to keep myself pocupied See you longht" As the simel to go David yied to kee her but she danced avery 'David David Back and drive off

Denotated aread the other communenvestrag for the ban at the New Zior station of the ban at the New Zior station her really wanted to be a locaterologie not an anoxything both the bady pocket her pulled the follow containing the appearance "Natadata Moguha dia pocket her pulled the follow containing the appearance "Natadata" fore and austrimed J, drowing of Amabanes, angles and the third of the hirth. The Integular was very rare. In had appenditions on its

At the other and of the platform a young woman in an overcoat and enselvets was proving eround multiaring to hereaft Stw parad lowerd Devel, oheiding har uyes with her hand and statistic over to him. "Have you seen Mr Strato?"

"Nr Smth?"

- "He should be here acrewhere
- "What does he look live?"

"Well actually you can't tell. He's in a look." She had a pake oval face and draxght dark hax. Her cost was four sm as too large. "You have him, don't you What did you do with him?"

Whit?

"Did you open the box? Has then been a spontaneous decay? Did the bot tis break?

"My good women--"

"I'm not a woman. I'm a physicist You look like you could be a scientistor an accountant."



"I am an accountant---"

'-and I have no idea what (d want with Mr. Smith or his box-

were staring at them. He supposed he tions become toon. Ten moules lat rived, and left. "I've mesod my meat"

So what? I've missed my dog

Devid networked stransion her "What time does the next j'an leave?"

Well take the metress. It should be

a seal in a merch that hummeri as if it accelerating smoothly David was

You know. The onazy woman said in Summ What's yours?"

Back in New Zion a year passed, and Montos asked Lance Wited by a man

Lance emoothed his mustaclas. "He s

Morece brushed away a teer. The

"Yes thank God-for your sake "He

Down t this train seem to be moving a

You warred the express didn't vor?

Somewhere near the aboud of

case I'd better telegram Monica.

Monica wouldn't do that. We re to be manied

David blushed I m not the port of fel-

New Zioni We left there ages ago

The engine was sleek as a bullat the one burnished silver a seat in a coach that hummed as if it were full of energy 9

poll Shale not poing to want to hear

"Lat enable the judge of that"

The men handed David a velicer telecraph tom. Susan shoved a penol m-

David repeated His heart futhered like

Should be home for supper," she continued "Sign it. Love David -- no

handed the the conductor "Send that

playing the latest Sanatia hats and

ghaved of her Finally, a year and a

out a reply He torp of the tape. In

That I be setated deliars

"Albundhed twenty-four total, with the

Their depends on hely on how many

David stack his head out of the holds-

could open the door. I cen't see any thing! There's a green blur of scenary susteno casst, but when I look should

"Witre moving too fast The light comshifted out of visibility in back of us it a

boht A radio fashight Get up on the

didck face, but he couldn't read it. cious to har abread the turbotion word

"It's Dopplered! ' Susan yelled

was coming up fast David gave

The ashinay, traveling at nearly the on ten humblen with a facilitati

They a mighty skying take on that

But they were point too fast. We ve

Mighty skirry to that falla's wearen

"Get on the horn to Electate Tell frem we vo got a runeway commuter

"A short runaedy commuter train ender photo of Merine Monroe, and the simmony Tunnel up ahead." he mut-

"I did #" Devid shouled But paering behind them in the gloom, he couldn't one where the memorale hard landed

Sugar stuck her head tucher out of the baceage car roof "Tunnel"

"T-real" She correct funtcely be-

Turoni?" David turned around



dimpsed a blue reflection of maioning

Atter Noon lost the election in 1980 Labora pol a pio in advertising Real the volos want when you bruth your teeth with Persocient

took up bridge. Langs gained thirty and England Youth, her centerits said, was

They struggled to untancia them anison from the explosion of broken capes, kip gage, and chickens. "That was terrific

Land bunnell

Down found his classes undernessin christ the traje of stern trapped, say, ly three feet from one and of the plat-Stoney endors workers wearing skinny

He wrestled compared the wreating He wresood griffy with the

heard?

reveal a message meaning for her mothread ARRIVED NYC CAN'T WAT SEE YOU DAVD

After the Finstein Evolution culled into

poorly. He had no record of an apport-



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Solarron perked up 11s thet a Nahadi "Why five been searching for this but the eaves read "New Zon" but the sta-

sand be read

Some U.S. Steel? General Motors?

1 dorft know much about those things ?

"Well Fith an accountant I could use

pet you a few hundred shares of IBM."

The trees rule back was upervaniful

"That's easy for you to say

You re really guite handsome, you

"Burnant aut inen Monana."

wrans of minoce. Monica had received CANT WAIT DO YOU LOW ME7 AR-AT STATION MOTALS STOORED THAT

The abelian in the Lincoln. They stopplich

The train algored At last, scaleshing it

table and a startingly short skirt Her nously demaned?

"Just runipled from the chickens"

women looked vegualy familiar Har reacst. Then he left a serieng feeling. "Mon-

Tibeg your pardon young men Do

He looked at the old woman, the old

Sugar bought a paper which cost another. David stared disconsolitely out rute 'Talk abroit a loon commute!

"Gur manybing a changed

"That's not necessarily bed." she said, examining the stock prices

and kiased tem - By John Keysel CO

why the stress of the stress of publication in the stress are set of several effects of publication (\$50 Box must be then if the stress of the stress of publications) and the time in the stress of the stress and stress of the stress time in the stress of the stress and stress of the stress time in the stress of the stress and stress of the stress time in the stress of the stress and stress of the stress time in the stress of the stress and stress of the stress time in the stress of the stress of the stress of the stress time is the stress of the stress of the stress of the stress of the stress time is the stress of the stres

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# GAMES

# BEATING THE BOTTLE: Can you figure out the puzzle that stumped Scot?

By Scot Morris

Several years ago, Will

nubber bende wohr or even seemed worth twing LONDER OF THE DONOM AND what? Turreng the bottle up

I abent less then a merule Stribos' address on ri-and rotteng elso. Harl he instructione? Wes I muciterity and broot about it

Two years later. Lisament ment to this and the other

EMORITE TOY OF 1960 Onlis of (800) 548-9548 to participation should should be



difforent



instead of paymenting a play. I you as a course of monitor for a target that dama within

showed one a plostic puts or carding insula

animal. Write closer or blas

last letter of the country with the last letter of the 1.000 1.000 20 received to Interviewil, hunshed sport and explain why

If you roll up the paper and the bottom you can effec-1. I have made a prediction contents (pape 4) Under

3 Most people, adding they total 4 100 ships anocker-1, base ball-2, footbal-4, baskatbell-2, footal-4, bassarin Fabruary Extra-credit question. What are the socoar and volleybal? CO