ELECTRONIC SOUL: IMMORTALITY BECOMES TECHNICALLY POSSIBLE

TECHNICALLY POSSIBLE SUPERWOMEN OF THE FUTURI

1984 \$2.50

DUNE: SNEAK PREVIEW



ED TOR IN CHEF & DESIGN DIRECTOR: BOG GUCCIONE

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A (1995)



FIRST WORD

By Timothy Ferris

The atoms comprising the lamitung gelaxes all obey the same laws all obey the same laws all obey the same they got together, at the dawn of time and worked out the moles of the game ?

Foldert Reverse, atroatrophysicist and diversarie freisearth at the Frenchon National Densist in Staerbild, Research, writes in his new book Atoms of Staesch "When software auto the Staesch" of the bitmente auto the start, of what are a attrochcelly? I amake if a bad no use other them to reverse such beach, it would stare allogy unblack at an other strenge.

Angenet with the panel at Biggere the Coon return through a breegere with statisticated what Neurola means Antoneous water and the statisticate and the statisticate water from Angenetic and the statisticate of the statisticate and the second mean of helicocophy. Not second means of panel helicocophy Not second means of the helicocophy Not second means

Anishida: converting scheme play bits if any, mine in scheduling observing unes an the log bissections, morganizing the converse of interplanative galaxies shift, an observang the resource of lang advantage did the statisting and standy bisse resolution beauty of native beyone Earth correstandaring tensity, all the same.

Why soft Why's bite universe beautiful? The Whitebook gatere, Mist, is an ubacked gatere, Mist, is an ubacked and gaterers as mittee and provide your and and todays and host out of the provide your rearring to a suit dear you have been done with the provide and see a capaba of month metals and see a capaba of accuracy our service of beauty?

Participal the access is that the introgram relief in all of a proces as mystatics have forg-maintained. The Whitppool galaxy is and or investigation with the access years and minor, and a cleavy the came natural gave. Therefore we instruct with it is vanues and provention of a weaking stars. Arestheltable, we find the base/stal

and this expandition missis another spatiality, may that hay circle (acousting chilogophicity of accente a How do the expansion men of nature manage to be universal? How doal the Minipatol galaxy, "prove" hist is should be Winipatol galaxy, "prove" hist is should be Winipatol galaxy, "prove" hist is should be Winipatol galaxy, "prove anote Minipatol Winipatol

. That include, whitem relacts us back to the creation of the universe

The anexistic is expansion, all the three incrutes proci-1 is no enclosed and the represented to classes, we had not the particle to classes of the particle incrutes to classes of the particle to the particle state of the particle to the particle particle of the particle the enclosed state of the particle and the particle of the particle particle particle

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Telephy Ponta Jenne apphenationationation publiched tast recent by Pautheon Boolst His ranker toola, Gelasies (Sena Calo, 1980) stormed avideocrashi Indical acidean

omnieus









provides our very souls onto a creating computer psychologists, computer chokerets corrowted period and

capabilities. This month's Omy focuses on

califables. "Last year a collection of short 19801 proved trichly successful, she save contacted other writers, giving them fee Scr Fr begins on page 60

prophecy. Science fiction films also reveal a back Screen Flotts, Screen Fentaues DO

LETTERS

COMMUNIC/ATIONS

Out of This World

My thanks to James Posten Jr. for his maghtful secto on Postent Montoo and the Montoa Institute of Applied Sciences [TMeson to a Mind]. July 1984]

As a user of Monroe's Gateway tapes and an occasional waitor to Locate L1 care attest to the benefits of the tapas and the reality of the phenomenon of the out-of body expensence

Of special interest was the thought processing passage on the explorer in Locale II found it to be quite stimulating reacting Devid Locase Effic Grown II

Permild and Parios

I found Dr. Argenes (rwenter of the Permald systemer implantation process) comments on the process of the process of the process of the informed and projudicial (Jealanattar, April 1964). I take exception to Argeness up that "gurk societs are for the operation, they il processed and for the operation.

har if it it integes if hat a garsion who has devoted sowney wass to the devote/gravant or a permement system would invariate and demass on a of the mager constitution and in or park style—extended a hote; uso of moves/P Also the dug reference thrises may as a natival odd one Dees the doctor equate metacus; with dug 2% the Bremaild the new capeter of the poople, and a land a moderation?

Apparently, Angres has never head of the purk movements Drug Free Youth or Streight Edge programs. Whit so many dhug addicts and churks around why pick on purks--many of whom are engaged invebelies through obstreened?

Randa Miliroj Clatemont G/

Levelown on Geographic rectain There is the interesting and informative mechanisms and there is a second second second interest in Second like to perior calls an email error. The author refers to peopertriminous error is the equation refers to peopertriminous above the equation refers to react our meter above the equation. This is not quelle correct, second the author refers to a read on meter above the equation. This is not quelle correct, only type of geosynchronous orbit decegration within any also occurs at much lower altitudes and the term actually relies to an orbit flat follows the same ground task-spassidly The case. Ober refers to a specar ore-----the peopletionary orbit. This at the term that through the used of the term base of the term that through the same orbit.

> Mark Kinnersley Washingboro Lincoln England

Photoganic Chirtip

This tifter concerns "One-on-Kind Permaa" wy Asin Daring (Armende, June 1946) (Over the chimpsrape a not owna) by fisight Heller but by Dr. Kenneth Bochoo propriator of the Wid Armail Yaming Center in Rivers de Caldornal Throw the because Lean Chier owniy weekend. Dhue to rimshafe, both to closer that by chird Reins also also cuter than the Information Receipte Da

Harriful Pulla

After reading (Parick Huggheits ambide "Self-Harm" (Mind Joly 1964). I found imposit wondering in diaptatio smoking descritbelong in the list of deficience with Harm adoutes. All one who gut immeding one year ago Loan report litts: I was shilly avere of the harm Twee dang to mysel, although 1 thought I muse inergies good.

Tknow it could be said that all drug usage falls wroths category But ogenates don't provide a "tight, as aborhol and offser drugs do: lasti it a sterme our government subsidizes this activity? Wike up! W. C. Scortowski

Gristnia, LA

Copper O D

Body September Parning a Panaosal (The Body September 1944) Joel Davis slipped a discrinal joern II anyona were to Mixo he advoce and ingost from one and a haif to hoo genera of cooper a day he would probably not be around vary lang. Of occurse Davis meant to bay miligrams initiated of genera

John Inling Terpon Springs FL

CONTINUED ON PAGE 104

DMN

Drim weiczmiel adactifation theories, commentary disent and questions from eachs in the open from the melli you about the bitween each or outside in the about the bitwee well occurs don't not work of an interval adaptable the openation beautifycaption. Phase note that we cannot uppravable here are not necessarily those of the measures.

Nuclear Throat and Promise

Lockatal agree more with Freerran J. Devon (First Word: July TRAF More than save, that nuclear weapons must be abolisted. The steps he describes we very naxily the exact slope being taken by the Depart mont of Defrese in its amboalesc missie date-weat people.

Naclear bombs are not weapons in the upual military sense even though the melacy has lived to work out rules of angagement for using them. These bombs or measurely collocal tools, symbols of national determined on E they are over used in enging. They will have fulled their purpose The idea of building defenses against balliest missies is also basically a political data. While many have argued over whether star-wins wrepons will work to prevent include arditack moduli of the "experts" trave masked the functamental cost of the anazement.

The advect of oternave antimisete bechnology index us to move tex instance policy levely from micrail assured destruction (MAD) and soviet a policy of micrael mounted serviced MAD foreas the suberprivate into a constantly declarer indone arms note how meny benches do your registro assure the cleatruction of your coponent?

Detensive technologues can allow both the United Base and the Soviet Union to deep tasks how the needed terris to base defension that and particular terris to take the particular data the source of the technologue terris and the endoardine terris of the technologue terris and and the source of the terris and and the endoardine terris of the terris of played defenses do work to protect liner

For four decades amone Headness and Headness

Ben Bova West Haritford CT

Cheers to Feeman J. Dyson for putting he organized mind to work on unlocking the nuclear-arms puzzle

What was bold to the military to pave face by developing less devisioning withwests perfuse with should parallel process the next step img negreging the ministry options to the step ing no regime and in wy lend as babanic Ablar all asilong as furnishing contribute to accept the concept of imministry of will be imminist

Dyson says The fact their in historic between is unmagnetific tellow in historic does not may had not will be the historic historic tellow that will not the historic historic reach an extent in house history on a present thread or a huse durger What beach signed as when he am our capabilities and reinforce?

Ben Lomond, GA

Friemen J. Dysoria discussion of an abbition of nuclew weapons presents an optimizer inhibitigent way in legated to a maskar freezo. I believe however that a synder hom an inclear way technology to a lies obsamely descubble on the is only the first stap. We must then devolve hom hey machine guin tarts influe die the patkit. Is the salinghist and so on Someday portugitieve hold see the faves in The way fouristion of our organic idealogy and well abolish the dub.

Robert Fein Bronk, NYDO



DISCLOSING THE PAST

EARTH

By Mary Leakey

Editors note likelargi figuteri m ma tacidari of žist Ana patievaline of žist Ana casi Existy and the second of kasif harmor evolution. There most listicity discovers module angle at the Chickes Gorgan in Eurosne wicklood ber remain of separation and angle at the Chickes Gorgan in Eurosne wicklood ber remain of the Annexes and content has a second list Annexe and content has a second field Annexes and and the module and field and existential and with the analysis.

The following story, excerpted from Mary Loskey a new autobrography, Declosing the Past, devencies the disartilegraphor of the Leakey mervage, the most ferrous permenting in the history of anthropology and textures all of automation.

Loome now to what is quite certainly the bradest exclose of the actory fair me to tell and if truth be known. Evolution much rather draw a vest over all least the years 1988 to 1972 where harmed out to be the least faur years of Louis i Me. But that would be impolicible because they were also faur specificity in two is carrow part of the two is provided by the two is carrow part of two is two is



Mary Leakey manuses insole made by human anothios some 3.6 million years apo

uncaring, had abandoned him when he needed me most

Constant when improved to an entropy of the set of the

Moreover with the differentiation of product of control of the second s

QUICK-DELIVERY CELLS



By Richard Wolkomin

In the only we reconcident have been bying to be network the working file of drugs the best of the working file of drugs the best of the best of the best of the end of the best of the best of the the best of th

Alter the years of insearch with annuals including most their BOB separateristic samp 25 of theat stugs. DaLapath neurals and short-level tances drug "theories" no a short-level tances drug "theories" no does the chemical bracks down and blocomes useties after only two hours. By encagosung cytestantion in a doch not blocod cells however. DeLoach has kept the drug downers after aftered for ten two. Another benefit of the rew technique my tes lower despession in one lob Caccaer repetide dower with a drug upod against fixers auffel lower, i i i ofhat dissues caused by a totic canned protozoan. He taurid this drugs energiving repeated and the blood deals were the times are potential at the same drugs energiving model into the own Thus to pieck the series therepeaks parch to pieck the series therepeaks parch the status program lider.

Delucer chile another benaff. With the new settingue drugs can be targeted for apacitic acquires. Cheracolly alexing the not trood cells caler surfaces centres here is a performance and allows the drugs inside the cells to cell out slowy processely where they are reacted.

But perhaps each important red blood cells may be able to carry semane moduletors. We interferen that togger the baby's own intraure system that togger the perhaps blood and the new tommerchan portent, says DetLooch He insorts an immune moduletor in the new todget and immune moduletor in an end to bot of the immune moduletor in an end todget blood pell. then marks the cell's surface—perhaps with an ambody—so that the body's detender cells (macrophages) modil's as an alien intrader. Beccally it's being the monochages. Fait met 's as Del parts the monochages.

Bo her ho has accessfully relead the process with certific hornes pigs and dogs. Meanwhile, soertas in Canada. Autanta Gommy, Drakad Agentes and Jepan hou seat her hor torongo b). Autanta Sommy, Drakad Agentes and Lean hou seat her hornes in the certification of the hornes in the best of balance and houseman in mon Dentitably the method will be located on humans. If the weatern work tor bownes only were and hogain it furcan exist. Distance in fast meanings berwares Distance in fast meanings berwares Distance in fast meanings berwares historyability disconserverses in harmes

Dui contra priceme involves wind/werg doct from a lost similar to furning inder charging the cells all concentration of on welf hoo sits all concentration for on welf hoo sits will fer mentanes devision protocology process that profinantly after normalizing the cells all oncentration to all sheaps that prove finally after normalizing the cells all oncentration to all sheaps that proling based to the short all the doctared to be cells and the short all be doctared the cells cells that the the short all headed tasks made than short all be doctared the cells cells and the the short all the cells and the short all the short all the cells and the short all the short all the cells and the short all the the short all the short all the short all the the short all the short all the short all the the short all the short all the short all the the short all the short all the short all the the short all the short all the short all the the short all the short all the short all the the short all the short all the short all the the short all the short all the short all the the short all the short all the short all the the short all the short all the short all the the short all the short all the short all the the short all the short all the short all the the short all the short all the short all the the short all the short all the short all the the short all the short all the short all the the short all the short all the short all the short all the the short all the short all the short all the short all the the short all the short all the short all the short all the the short all the short all the short all the short all the the short all the short all the short all the short all the the short all the short all the short

Drug compares are hopeful that such new delivery systems will rejuvenate existing drugs by dramatically lengthering their useful hes while allowing for lover dosages and quick delivery to trapetist drapetin

The government has already plasted to here the USE beamtment of Commercial Superiment of Commercial working and the abilities of comore the power fission that we call the the superimentation of the superiment control to commercial controls the superiment USE Approximate Department College Department work of charge and the backs to such an application work of charge and the backs to ready and the too charge and the backs to applied and the CO



Drugs may accor be inserted mode red blood calls and dispersed to targeted areas of the body 20 DMH

SOVIET SPACEWALKS



By James E. Oberg.

All April only a flow weeks after Aminoci alidonuscin seasawid the aling Sober Alex a catellide that had been launched in 1800 to disease it the sun Sovet cosmonauts pullids of a coup of their own Owner cosmonauts pullids of a coup of their own Owner cosmonauts pullids and a distance of their Sol-book-long, 18hourum they are up work juictions may the air and of their Sol-book-long, 18hourum they are up work juictions footward optimated grades takano Solverko optimated agrades takano a criptide projections system.

Tocing remarkable the incident received if the coverage in the Western news motils Doctain an identify. The Soviats wanted here entimethicular activity (CW) to be admined in analyzed. Moscow signatempion referred to the work as "servicing. They never used the term repair, because that would have implied a provide finitive.

We a return bad occurred, seven months owher. Anal 25 billion worth to tapage herdwate, the heart of the Bowet manned seven program, hung in the belance A that three operate Sound a wwy for the station to implating in a degraded mode Buills days were nambered unless the brendoorn operate bernard.

The invalue had started in September 3033, which the one-year old Sejuk wise surrang rocket propelants from a rabot farlier. One of the men tesneler leves under the staticity also sudderly ruptured and the two cosmonsus on board were faced with the possibility of en suppress the could crack the statem in huld were cen-

For humanity, the fixed dospreaded But the manuscript cockstars (of by fixed from the product relation of the second second second meteoder fine second second second second seconds is achieved for their second relation according to the second second second second according to the second second

A 'service' crew consisting of cosmo results livered Name and Vadime Solovye and a candelogat named Oliga Alexi amved at the station on February 9 Bot ' lipate work caula not begin until Solyst achered the right other. For spacewalks 20 MM Sovial light planners proter orbits that cross deadly over Sovial tempory which mixemizes radio communications

The Salyufi orbit continuously twees in topace, bringing is over theoretow Set minutese earlier every day. The allows bit a low days of applopriatio ratids path every eight weeks on so So twas not until April 25 that the detwitumed to the task of settoring the saccer's leadth.

All B1 as Moscow time the man operand this works theoret to the tent time having one form over another along the million, and onlying block in the tirgs of an in the block animate no million present and the start block to be the time the start work has block to be the time the start here start and block to the start here start more than B1 parents for inter here show more than B1 parents for the here here the presentative work. Or Aller incomposition these presentative the here along the here along

Three days later the hatch was opened at 6.40 x wand wisen't closed until five hours later in that time the costronauts out a window to gain access to the field



Salyul 7 Peparts were made during four EWe

planting, waarchad a subborn nut toma wave and intalied a new volve. The commands made another approved on Anni 29. This time to matal a new taal insi, a toyoas to a lawly time they had capped carter. They than vehicd the times any times and replaced the insultant datasets around the pisse.

Cn May 4, the monimate a tourth sorter the neuron of their work on this spacewak is unclear. They may have done sores complicated pape fitting or put shunt linea across offleening popularity parts. Again, news reports were wague

On May 18 Salysi's orbital damees panod divepsed hom the normal 40 minutes to lass than 15 minutes. This operanisate were ready During their shree hour twominute IDA. They attached two supplementary panets increasing Salysi's power capetory to 600 were

Amost as an attactmught commonus performed another spacewark from Salyut in Mile July: A member of a visiting crew Swition Sovitaliaya became the first women to wells in space. If was a move obviously maart to upstage immanent Ammana achievements.

For the Bowlet The 1984 spacewake data southed all the maps themas of their manned space program. Commands domainitiate the human protection as onual to the success of long missions they also inhowd that maps makering is mast uncortant. While the Sounds may have boyototte the summe Opymous, for showeninghip and skill heaved to earn them the policy space DO

HEALING TOUCH

MIND

Ry Leeh Wallach

nergy to a literate when here and leave

The currous form of message was conceved in 1968 when Dolotes Knearr in

on a slew of human-potential ideas liberally with energy to help an ill person by tackle

kuph operating in what she calls an "inth dimension outside the usual liendations of 26 (0.5%

with detectable results. Between 1971 owgen carrying hemoglabin in red blood cells increases significantly in pehents

In 1975 armed with her research Knoppr

Despise its invosida não academia, thera-



healing. "This process is the key," coplexity

After the healer feels he is in the proper Ines-areas that generate sermations of process by which he brushes the congested

Once a field is clear - that is the heater

It does sound a little like Shr Ware therapy has been the subsect of at least

nurse now practicing in South Carolina produced a state of relaxation so profound undaln to arrow a patient's energy fields for saving. Yes, I can leel the energy field. 'I

The most starting thing was the response that wasn't being managed by medication The pain just laded away

BORN-AGAIN NERVES

THE BODY

By Richard Wolkomr

here a second metal shuck his nead incuring his note even a region at a California shupped. Execution billing in that oper Control Statistics were was no hope for recovery. It has been a medical assert that rerives of two certail nervous system (CMS) do not regionariate nervous system (CMS) do not regionariate there are the second operation nervous system (CMS) do not regionariate the second second operation nervous system (CMS) do not regionariate the second second operation the second second operation the second second

But Kases wasni gradually returned What had occurred was a process long sought by scientists—spontaneous regeneration of a gart of the CNS

With sprala-cord insums patietying more than 100 GO wherecome soch you and brain disordam such as Adhermen schemes als the insume in the GNB sector of the same sector in the GNB sector of the major method traveletinger, And within the path few youngs, records in this see has been progressing repath. The discovery of two proteins the contract of animal barries of two proteins the predictions and Barried Linewings, plus incurring or animal barries to the performance of the provide the sector.

Unite the nerves in our sion and muscles which belong to the polythmain nerveus system, clamagod nerves in our CNSmouths in the skull and spino- do not grou book. Furthermore, speakers have log belowed that we are born with all the basin neurono we will even taxe

But this April Rocketeller University's Financia Natiobahim presented Indiriga to the Intellute and Development Research that person this Notebohm decovered that the fondulars of being produce new neutrons into young adulthood

Will might to apply ourselves to see if adult neurogenesis occurs in humans, says Notestohm. And if it is not found we should use, Whin ro??

Along smillsr lines, anatomists John R. Stadek and Cario Phelps, in the University of Rocholder have shown that in certain animate, servered brain-cel avons—which transmit impolese hom ene reme cell to the next—regail thomselves.

"If we can lind out what this growth factor is " sitys Stacke, we can then determine whether if will be possible to simulate the record of brain testate at will

Phelps points out the benefits of region eration. About twenty percent of the population suffers from a nervous system disorder. The stality of the brain to reper riself after the onset of such almenta would be of energies insurtance. Sets as any set of the set

Recard biobaseire by neurobiologists Per Sener and Inc. Shoose v Standard Lavastry's School of Medicine, may help controlls in her awarch for the lackor that hogens regeneration. They build fail when a name is rupard it a waiting tasses begin manifacturing a potein in the perpleter inverves system in to lovels of this potein build build have the CPU his potein lovels to disepate

In addition. Sivere has discovered that contain noutions—as well as tractes produce a separate profess when starting to regenerate

Cells that don't regenerate don't assem to produce this protein, which we call provth associated protein, says Sterre We are focusing our research on this to me if the most promising and the

Other scientists are looking to apply currently available techniques to simulate nerve segmentation British scientists believe that the Dispulse machine, a racks-



Brain relation stationg the regenerative Inggen

within gambiatar saidal in the Linded Mingdom and Canada to heat bone fiscilums: may promote heading of nerves in the CNS hi has latest abudy. Dr David H Wilking precedent of Englight & Association of Accelater and Drasgency Physicians used the machine on Ac outs phalayad by sprate-cord injunes. After treatment 38 of the cate social weix equin.

We see it now as having enormous potential in the treatment of acute spinal injuries. There are indications that if ptomotes regeneration of [demagnd] intrines and/e sharph to result in history peralysis. The noise Wiscon infonds to begin history tests aroon.

Decrety may also help heat inums provide cell mores. Dr. Robart O. Bocker, an entropedic surgeon at Upsate Medical Denter, in Byrazule, New York heat bound theit borthading activation of with electricality diarged lever and returns here to ther entryprise data. Entry how the ability to adapt to obligat adapt and here the ability to adapt to obligat adapt of the body.

It is conceivable that these cells could be removed from a patient, treated electrically, and then returned to the injured area. Because the patient would receive his own cells, these is no chance of description.

A number of other methods have also shown acrosponense. However, and experimentary with the effects of hormone treatments on damaged nerves, with mplanted polynetic channels that guide the growth of new across and with contain hermosite full may prompt ecoperation

Partiage the most character wide involves françointing train cells. Don Manthall Gain, espocies professor of anterniy at the Linversey of Rochassia Veckolas School has placed human bran cells which were bler from a torai turior were studied normagnant teriors the operation. The cells have surved in the animal bran

Someday such reutralized tumor cells may be transplanted into the brans of humans with neutrain-destroying diseases hillre meetime this season could shed light on the process of neuron legenmation By the end of the contury some researchests believe the memory will be solved DO

GIANT GROUND SLOTHS

EXPLORATIONS

By Patrick Tremery

I standa se festinghis due noutro d'an minimanis case la losarme stretcharg out in a material pastron The creater bene to du di a transcosso vert ingen to materi to los la casa angli no passa agrupo tambié i to los lives anangli no passa agrupo sub a but di a filment. The gara cgound soft a cardinal transmission di losares in est attendo e filmagona, in south in est attendo e filmagona, in south one of the most random with spontagona obtenen iti cum hareco. Soit dano di case capada munataria and a imperget grande di sub ot los passa agrupo ta di sub di sub ot los peres associationes anto a standa los perestas por catalogo and attores to conte los attores to conte los

When a sheephoten war wordered nor the stree mith 1800 his found part gesetfieldship bones with bits of cari sage of them and gesund sheep his words of them and gesund sheep his words with naided his words with a word of a with naided his words with a word of a so host his a northan of assistant found in the hey belonged to a necessity clean animal helian lagendia toil of a target red. There is particular for a care of a in the

The line attacked worldwole attention. The Conton Dady Express service as susceeded on a loadly interpated expedition to find the mythical beal attacked boarces dispassive reported has one main: actually law and attol at a mythercos creekers in the minors of Soma Duz Acpassinity tabilitation if a disappeased into the buydhwood, invert to be seen agen

Boening wentug you want and you

of the Ingitil climitile of Chilesen Patagonia and ferocrously high winds, perfectly preserved arritike vegetable, and human remains.

In the wirly table, investigators from whyermore Lo Para Mastern deserved hait the gravity of ground state hait the gravity of ground state her could easily be shot of and har name her could easily be shot of and har name the could easily be shot of and har name her could use the undermast her earned on her the investor of the expectation works on her the lossed of the layer of enveryment indicators her existence on a station associty with the loss and of cound in the final balance and of cound in the final balance and of cound

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Was the part sists once a culnery desight?

bie matter for carbon dating. The surprising last results suggested that sloths survived fail longer than the other huge restrict and mammals from the loa ages. In fact they waits and around 5000 years and

Since herned that ground assiste and turners coupled to cave at different kmail—the ground alone same first. How harmers then ground alone again that he findings assenses questions. For available. Since have questions. For available Since how questions that most held the ground softwar yet survival software to the first ground software that board in a hardest joan. Bar can investig application for this ground softwares for 6 200 were.

The boy Juncering granular lattice were selective registrations of the selection of the benchur registrations of the selection of the benchur registration of the selection of the bourt benchur registration of the selection of the selection Bouth American events of the selection of the selection Bouth American particular selection at the Bouth American particular selection at the selection of the selection of the selection Bouth American particular selection at excerning to in 1978 study to these bounds excercing to in 1978 study to these bounds and additional particular selection of SOCI years and additional particular selection at the selection and additional particular selection and social and additional particular selection and social particular and additional particular selection and social particular and additional particular selection and social particular and additional selection selection and additional additional additional selection and selection and additional additional selection and selection and additional additional selection and additional selection additional additional selection and additional selection additional additional selection and additional selection and additional additional selection and additional selection and additional additional selection and additional selection and additional additional selection additional selection and additional additional selection and additional additional additional additional additional selection additional selection additional additional additional additional selection additional additionadditionadditional additional additional ad

The hypothesis of domastication has ame basis in the operativence of the ground sloth and man in the care awys airms Weta of the Mucount of Natural Heating in Virus ale Mar Chiel The intrusts meaning up to now is some addressive proof such as the remains of a coard

No analysiows what the original dispoveners of the gave really found. Today the Cosina dat Madden toda like is gopheris. nets so many holes have been dag in it by advertures geologies, and been dag in it by advertures geologies, and been appeared to the been rapped of the colling.

A lot of lategrees came, gabbed rings and left aways a park ranger who guides vestors to the came. What's needed now a a complation of this many fings the have been written about the cave. In this meanitime, the strange heldery of the gast goard skith remains a mystery BO

SECRET CIPHERS SOLVED

ARTIFICIAL

By Peter J. Ognibene

Aur years app Ormin terraided a mere kind cosa that mill wain the crack (Curbonakable Cosar: September 1980). Today the Curbonalable occar lise shatamed me by the CA but by methematicas and computer septems using headhere as emptie as an ch-te-shalt Apple II metammeters

And the fact that researchers have challed this report has generated now pfort about the resource of banks and othe relations using relatively unspenializated codes to using relatively unspenializated

Muthor between or at the stage University, the comparison of the stage of Universe of Univ

The Harriss Difficuences is non-based on antibiotistical cultural is non-based problem during to conclusion to an antiticatical respective and the second second second train informatical more As there developed antibility of the second second second second train information more as a size in the method respective As the second second second train to the second second second second second train the second second second second second to be second second second second second to be second second second second second train the second second second second second training second second second second second second second second training second second second second second second second second training second training second se

This other "unbreakable" code crited in the 1880 article was the RSA cipher devel oped by Ronald Rivest of the Massachusetts Institute of Technology in cooperation with Shame and Ademan There scheme capitalized on exmerting mathematicans tave known for cantures. It is releavely using to determine if a large number is period but difficult to thesis is large composition number in a prime factores. (A permit number is a prime factores (A permit number is the product of two or more normal per extension.)

The salidy of the PBA scheme to quote over was based on the pressent that "not even the largest computers can factor the product of two numbers with more than 50 depts." That is no kinger the case

A My-digi number is kind of travel row for the big machines, says Gustavue J Services reverger of the antihomace department as Sandar Naiovel Laboretores in New Memo Using a Clay 15 supersompulor, Birmanis and he stati can now treak my 50 digit composes number in Supple anexemptulos

Though the study of prime numbers was once considered pure mathematics, the advent of the RSA public-key system has given Simmons and others eold pract-



Vulnerable data Protective coder lie statered

cul interview will be conserved. Install-in parallel there note: Whit invite been dong in lacturing have function that is any Birrorine. If this manay defined, parallel interview by a number parallel base status in the system. Here tables descaturing their system Here Borner and Additiona lacguered that an Borner and Additiona lacguered that an Borner and Additional laces and parallel based and and and and and and and Borner and Additional laces and based and and and and and and based and and and and and and based and and and and and and provides a mange of obsty against future developments

Socyeers later it is clear that 80 digits also hat encugh Baring an unbesteen computational breaktinicagh 200 digit keys almoutd remain secure for guids some time

But considering the progress of the pethour years researchers are more cautoous beeling about tablering codes unbreakable. And the progress has resed bandern about the reliability unsepticalcolled codes used by tends.

Currently many banks continues to use only stoplent personation in their day transtent of billions of datases. The big banks to the best of my knowledge attributes to any soothetbade spectres for discloruse any soothetbade spectres for discloruse and dataskins, lasgis Patie Schweizer a constrongeschie connuctant

There is a pool reason to believe that there is lacoury of one kind or another happening based on that insufficiant protoction and his barrier response to it appears to bo to dery it a washing a sitter than to put in systems that will ours it? This table protocol source a protocol

NEW WATES HARD AND SOFT

A new gatewintern of tay acco computers to program to use the state of the set of the program to use of the set of the set of the time model, called the General the control of the development of the Assistant Schwardure In generalized the Assistant Schwardure In generalistic In general FILM

THE ARTS

By Mitch Tuchman

 last to open (See "Dune" page 94 for photos of acenos from the movie) Why has Lynch veteran of a sincle

when price shard in reading to a three memory and the start of the start of the and there when any data with the the start again the time the start of the the start again the start of the the start again the start of the the start again the hadron start again the hadron start again the the start again the the start again the the start again the performance and the tart again the the start again the the tart again the the the tart again the

In the book heres a being there's information, there are characterist here are brances models. And world, When I read the book if went through my lifer and cannot us a schering fair. There there was Dano telling me to cut if short on Them there was the and has reached. Someone clarit understand the and someone clarit understand the. It book a very end a hell to adapt the rayel, but there it was "

When Upticf has been guided by the model and by this of hings to come in the first two sequels. Chickness and an annual the base down an device in an annual the second to these devices in row assess the transaction that devices in row assess the transaction that devices in row as the baset. We device the row and process when in fusion when the second process when the baset, which we have the process the transactions in the second to the second second methods and the second of methods when anothers.

It is to inverse theight statute or instance empression the potentially investigation relationship between the young date (had Awadau (bload Dio) and he motion' abasea a Bone Geusen which Buch an instrumenasis, abone in he mout was containly not unpushed with daty he Codepar approach seems more in the dat of the sensal ways chrose a discontais charantian is does a muget through the heating's ways Propering with Societ 1 instrument Heater (heater of unit according to Lumph-Heater (heater of unit according to Lumph-Heater (heater of unit according to Lumph-

In the bibmanwark termina of Jadobow hear project activation has fogation inwood takes papers are included on the unsubject states incremental table Jacobowsky turned to throng writer reported allocations and the state of the state and the states in the state of the state and the states in the state of the state and the states in the state of the state increasing include tables. The state of the terminal table states in the state of the terminal table states in the state of the terminal table states. The state of the terminal table states in the states of the terminal tables and the states of the states of the terminal tables of the states of the states of the states of the terminal tables of the states of the states of the states of the terminal tables of the states o

These and other Dave hopinuts was using the next as a point of departure What they would pick up and expend says (unch they would be town expend as these in this book. They would just use a and go off onto some strange thing and laws so runs behind

Sill offers tred to include everything which Lynch calls an impossibility. "Nou have to find the parts that can be left out without being unfaithful to the book communications as



Durn's Linch Take as amount of unknowing in a film where you re going into a new world 46 Ophil

CONTINUUM

AIR-CONDITIONED UNDERWEAR

we have a subcline relearing to a choices dheald must welking for a sate of an eccesion as societing summer of your receal understanding have a societing and welking for a sate of an eccesion and under your form write a covertain which help you aread the high cost of goods within a covertain which help you aread the high cost of goods within a covertain and to the down down are covering hear and the data societies as all of the above down are or covering hear produced them and of the above down are covering hear produced them and of the above down are covering hear.

The second secon

The baters of Nation's we also spont a good deel of the working on the solidar in Marcin baters and a spont of the forder in those, the tab has developed the incole-kitchen field trake, a sort of movable tassi with a stars tables of wheels the server 12 mon V drames. Its many fastmers affect which decises as taken best bougging more and chicken a lis king. And once if found out bit stockers used for the second whether of home microse has to be stocked and work of the second whether of home microse. Sovelaged on inclusioners pills that can plan writer into cherry, lakende werr har the encourse of values nationary assorter has to be the lacoblexical make anking field and the plant and the per tool of the serve of variatio, theopolene and structures pills per tool of the serve of variatio, theopolene and structures pills per tool of the serve of variation of the server and structures pills per tool of the serve of variation of the server and structures pills per tool of the serve of variation of the server and structures pills per tool of the server of variation of the server and the server per read laworks of them is server and the server of the server barries of the server of the server of the server of the server per read laworks of them is server of the server of the server the server of the server of the server of the server of the server the server of the server of the server of the server of the server the server of the server of

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Deprove all the evolution to the contrary fand Seniator Positives operation, the Amyr PADL lab is any print public a clove manifest sport data threa helped develop and obscurpt useful productive data. Seniate conditioned and an effect of the Seniation and that as many as 20 potential data in the average approximation and the terms of the American Contract American aspect to the Charge and the Seniation and the American compared to the American Seniation and the American compared to the American Seniation and the American contraly so and the Charge and Markage and Seniation and American contraly so and the Charge and Markage and Seniation and American contraly so and the Charge and Markage and Seniation and American contraly so and the Charge and Markage and Seniation and American contraly so and the Charge and Markage and Seniation and American contraly so and the Charge and Markage and Seniation and American contraly so and the Charge and the American contral so and the American contral so and the Charge and the American contral so and the American contral so and the Charge and the American contral so and the American contral so and the Charge and the American contral so and the American contral so and the Charge and the American contral so and the American contral so

CONTINUUM

CANCER COOKER

Boctore at the University of Memorialist have announced plans to start interfing some censer patients by "locking" beir matighant humore with a machine territer to a gaint machines each

According to Dr. Seymour Levels, chief of therapea/bo maskalogy at Loviers/ty Hos plate in Minneepols, the acceptmental indiction is Japanese-built and has proved that it can attrifk some compensate lumons

" If it works as well as we hope " says Limit! "It may be able to add five to ten percent to file oute rate

About 50 medical contenaccess the ration have exagensat cancer bet until now none of the machines could persente machines that two inclose into the body. This new mechines own get atmost any lend of an our asystems in the body.

The patient lies on a table with a bay hoop, a transmiang antenna, around the area of the body that is to get the 45-sendo hox technicit. The machine focuses da India waves on the tumor and heats it to approximately 1007E

The treppercy case is different flow in a microserve cuents, but the principle as the axima. According to Di-Chang Song a member of the research team. The treatment makes the patient facilities hes been "running a couple of mikes".

Not only colyear get a loting action on the tumor light the triad. Accounting to Lowit: but the heat also makes the colectrous colla that do survivo more vulness bio to drugs and X-ray-type treatments — Tam Kovich

To something kills one hardner i housend yakar. Ne brain normanised hugely disproportinante la titta work 4 war cahler upon to ob the potentiar mentals capacity the potentiar mentals capacity in Antania and a somethic la distance and potentiary and means and physician and pet Basmethic to could on the forgats Auch of this and proporties of incurso it and incurso and in cursors and the forgats Auch of this and proporties and incursors and the source of the incursors and and the source of the incursors and the source of the sou

-Lower Murstand



The concer applier. A 45 minute treatment / cats the former to about 1007F consultance weakening if often Ailling it.



Crownel incapes any projected on the prior's private view

INFRARED HELME

X-ray vision is still the perceptive of Supermini built with the right halmst inflared vision is available to even the wimplest libbanders of truth satisfies and the description way.

Hughes Architt Company has act developed such a system for makery helicopters and enail planes. It uses data foor sylvered sconners to project images of the inclused on the plate sylver

The 99 pound Haytee right vesse system (Haytee right vesse system for problems of Hayn anexisty in the dark. To fly using nangelocal instances, plots have to new shores only up to a babase where anony radie capa tack theremoves to fly ow encough so the output of the terrain thirds the space they are dispersively capacity of the terrain thirds in light networking rights, when there hailings in the only.

Even on the buildest rights, however, objects em thermal radiation in the form of infrared electromagnatic www.s "Our system allows pilota to thy ton to twenty-five leet off the ground lif night, giving petitures that look like daytme, " says programs manager (1) Reuberi

HNVS similared leyest are located in the anoratia nose the data they record are organized by a monoprocessor and ted wis an optical system.

The plastic vision of the plastic hearing: make by a space halographic process, adds as a leng, producing whet resentations a blackhardwhet mean the plat harm ran heads, among the period harm ran heads, among the mean ran heads, among the mean rank the sees in whitewart he instrument pare because the whor is bartiparted howeldabl bort?

With NVS have commercal approximent? It could but according to Residen. It wont "Commercial applicatorial don't have a reol requarement to operate et inglit. he explores "and as a result they wont wont to pay for i -- Lope hwatch

"Speak what you think tooky in words as hard as carloon balls, and tonnarow speak what tonnorow thinks in hard words again: though it con tradicts overything you said tooky."

-Autor Waldo Emerson

"Every temptrow has two hundres. We can take hold of it with the hundle of schooly or the hundle of faith."

-H W Descriv

"Daylight will reappear tomorrow"

AL CAME



disers were aluches reveal a new twest to isocholary

ALCOHOLISM AND SLOW ALPHA WAVES

A charrelian rease shudy herr Demmerk has provided minor evidences that alcoholtion as alcohol to be conrestored to the controversy that a procleaposition to electricitiem can be revealed by than were

In the cerry Soventees studies of solutions of colophed children in Doomsan, showed that children in Doomsan, showed that coholog call fathers wave those biological fathers wave four times more likely to biocomis paster more than born for start borys what is republicly and fathers were not a loch julies.

And the new study con ducted by a team led by Jan Wanks of New York Lawarnity's School of Medicane has now revealed of Interaces not not state the state of some of alcohalces Volkelast Isem gave ournant jusce isotet with half gran does of alcohal is 72 young Damie men, 44 of whom had bean atmitted by psychiatric and dinasal neords are some level door allowed by the bloodblowed that the bloodalcohol content of the two groups was "almost identical

Yet, when the subjects break waters were measured the sons of alcoholics showed all significantly more pronounced all significantly more transmission along of last alpha energy—dia wall as a measurably greater fromase in takey alpha energy—than did the sons

The tests indicate that serve of alcondoce and physio balacted than control we balacted than control we report that the test of the physiol test of the physiol test of the physiol test of the physiol test of the test of test of

Laterays break the word separt to Neo-web X, the un known quartisity, and spurt, a day working under pres sum ?

-Edwins Mounspatien

SCREAMING GRASS

In rooms give swarts intersome consider the foolimps of the grass. Nation Shriver, coolescinator of the Pruitmen Network in Tacoma Park Marjanic cose Mosiing, in her vow as cruci amputation for plants are schort being Every being has consciousness, and thereion call feel pen." Unlike animals or insocts, sinsiver points out, grass a powerlies to move or cry out when attacked by a newer. The question is not can it speak?" the says, "bu can it speak?" the says, "bu

Moving may even no different form outing har tubrar doopnit powde oxygen to the whole headpoint anto several works of the two is several works of the two headpoint of the two headpoint of the two headpoint of the two dostrops saping treas, toods, onclease and bum biotees turkerites, and doobdents syster to humans apprentiate

Brivent's groups which has benited for each years to comwhice process for across their movems, obligations an univerpail ordinarios in Alarch. Office and an university of the across the Finalancia Network is agrind that if real Amendments included the real Amendment included the real Amendment included the rules Simon Simon and applicing to be of the included the rules Simon Simon included the heads and be transit affect the basis and be transit affect the basis and the transit affect the size of the included the rules of the inclustory theory of the inclustory of the inclustory theory of the inclustory theory of the inclustory theory of the inclustory of The servery is, by the class of the server is a server of the stear, the server is a server of charge provide the server is a server of charge provide the server is a server of the server is a server is a server of the server is a server is a server of the server is a server is a server of the server is a server is a server of the server is a server is a server of the server is a server is a server of the server is a server is a server is the server is th

-Anthony Liversidge



Think of the carnage that's going on in the acene. Mowing a own save one Fusterian is rothing loss than empotetion



reasonances and a cost which were formed into English or ordered from it a cost which were formed into English

BRONZE-AGE SOPHISTICATES

Pobue northern Durge crost 000 o C Wandering libes of Construences bar basers, skalhray, prikajnaj and burnig ther way across the centrient, burnping ananother about kie human periodic while they awart the ovelking gracoss of the Greeke and Remans

If there sources to the main of the motal table Boroski and A Homad Markan Boroski and A Homad

Excavaling at Autoon and

Haderborder in Bosten Bella and his test found ample evolution of a complex instruction of a complex instruction of a complex instruction of a second second content error second second instruction of a second second down proteins and test of down proteins and second instruction of a second second down proteins and second instruction of a second second down proteins and down and down and down proteins and down and down and down proteins and down and do

Buil the most approximate and a minimum from the provincing safety many first and the safety approximate and approximate and approximate and approximate a

CANCER VIDEO GAME

A new computer video gime called Killer T-Cell is bang played by hundhads of concer patents in the hope if will help them conquer hier disease

The game ontails searching out and destroying the multyling concert cells, using the kiter T cell (a white Mood cell before in a leaf madceted by kiter cancer cells if the player white, the game pronounces thim curst libit if he koes, he has a refigure and mad cells equin

There evidence suggests first if may be possible for people with cancel to get their minute systems back on track by means of waveuatern seescess, in which you imagine your Tools devising generative result. The pagest the state of the pagest set of the system of the tes games member that if the games member that if the gamest member that th

Stubiohold, a carrow esearcher at the University of Texas, in Houston, actually rivertext the Killer T-Cell pame to educate chicken about cancer. But the game also became popular with visualization therapiets and cancer patients, he replains, and it is now used in a number of hospitals.

So far Buitblehald has sold more han 400 Kiler T Gall computer programs The game can be played on any of the Apple II somes computers. Joint And Soon be available for the Commocomputers To onder Killer T-Cell, send 320 and your address to Killer T-Cell, M.D. Anderson Hought, Box 6 (972) Detrime Avenue, Hourton, Taxea 7700

"The money " Stubbleheld says, "goes to cancer research "-Eno Mishara

"Questione are never molecreat. Answers sometimes

--- Occay Wildle

"There are children playing in the street who could solve some of my top problems in physics, backwell they have modes of sensory parospton that lisar long ago —J. Rubert Departmentary



Darry Ash a twolve-year-old bone-cancer patient being traded at M.D. Anderson Houseful Juans have to play Killer T-Call

48 CMM



Equalitivan Molanie Smith versiduees Minchash Eve revulus after ve birth Anennean sport horses may run as high as \$500,000

A HORSE IS BORN

To equestriver Melane Smith the statistic was indeonable European-breed honses had donersised Obyen plo compation to such a degree that only one American hone that were were a model in shoe arrough American in host model to bolays fund means of bolays partent included host model to bolays competitive

Simith took her comparent to wind an capacity and the comparent St. Jerms owner of a Comnecticut hoster instruming teority called Wradhush Farm St. Ameres in tail ware its BB Pokati character of the avannin roosson's lab at Colorado Stere University. The rosult of the collaboration is the American sport hoste, a cross between European jumpers and American tacking theroughtherds.

But there is more involved here then a simple crossbreed. First, Pickett is lab an horough bred mares with semen from tour champion Buropeon jumping horses Buropeon jumping horses were then nervowed and implement. In recordent more, who brought the banks to breaking make free to proclad two len fields a year stated of one if they wont to canny find they wont to canny find any distribution. The field they wont to canny the state the may di-lames the state to commercial home broading anywhee

So far the equina assembly line has produced seven live foals. They're beautiful betwee "says St. Jernes "and we have very high expectations for them."

We one can forted us the

 Inscription on the base of the monument in Base In Luce Gerahette

Porteps the best thing about its Auture is that it only comes one day as a time !

THE GREAT UNDERWATER

Lest year President Roagen added nextry 4 billion acres to the United States Not smoo Thomas Jethanson made the Louisener Australia in this and the nextre and the school of a provident to pen theory was, however, one big difference. All the real addet the President acquired is understate.

With the declaration of an Exclusive Economic Zone (Elizz), Resignin provisimed the United States fuell exarces sovereign rights in living and ronlining resources, over all waters within 200 reutical miles of American stores ______

According to the Generatia Accounting Office. Microcurving The Accounting Office. Microcurving Some Atheway allows nations of the See Treaty allows nations to establish TE23: In 4L Under National Vietnamics and the According Teacher and the According of the National Vietnamics National Vietnamics National Vietnamics International International International International International International Inter-

The land beneath the sease contains a well treasure offect. Cobat-rich seamounts and menganees nobles independent of foreign aspectors for many strategic minerals. There might even be enough of and gas to the us frash the grap of OPEC

Much ot the EEZ has never been studied by marine scientists. Before minars vonture into the deco ceologists must explore the transfer. As a result, we may learn more about submarrie canyons, volcance vents, and plate tectorics

-Peter J Ognicene

FERTILITY ORAFTS

A joint British-American research team has turned intertile most into fertile anirisals using a dramatic tochnique, brain transplantation

Protecting at Peak Tech Citr's Mourt Sines Medical Center, the group pecked law formate more who had tailed to develop normal sexual andones because of a delicency in a hormone lenom as Griffel (gonedotopen-splakaem hormone)

They here indirections of Articles of mutual cutations of Articles of ducing calls from the brains of normal mouse futures of the the brain of the biswally deficient formed and the appenend Cria Dr Mann Globon reports. We saw no evalutions of normal ovel bon But once the moo where maked sawn of them became program—II in a single, with one such in detected normal litters of buy to bio page such ...

Globon is hestant to predut any explosion of this work to the treatment of human intertility. "Theos's been great progress in using hormone injections to treat infertility." Globon notes, "and "hafts much less chiefer."

"Out mean interest," she says, "is showing that grafts of brain cells can become functorial in whys we can control "—Sil Lawron



CONTINUUM

AT TACKING THE MULTIPHASIC

Mark musi or skust "I know who is responsible for my topulates "11 like mechani ica megazines 111 sometings have strange thoughts."

Tables are offeed of Mal Sold aluterands on the Manneosis Multiphaeur Ferennel (river and Mark), here mast works under under positionen al een in teo under Malante al een in teo under Malante al een in teo under Malante and al promotionen al experimental and an antipactorenal and al en antipactorenal

The MMPT was developed in the late Threfere by Barkin IP Haltwawy And John C MyChaley, who gave outertones to mental pallents at the Unwaretity of Minnasota hospital and then to Thormal' hospital and then to Thormal hospital and then to Thormal to the set of the to the set of the to t

When Caligon gave the last to a random sample of 1.400 of locky's Minnesolass. Twy social higher than their 1940 ocurranparts....closer to pathologyon each of the twi percorairues Colligen balances hanges in modern social abtudes, and the has seed the data to develop a new set of MMPI norms.

But what if the higher scores reflect Eightes angut a non-nei ni monto i deliticoli dell'especti VI controllari ni essanadascienzi the MANT ni essanadascienzi the MANT essanadascienzi the MANT essanadascienzi the MANT nei sea scorella particum could un essanada della successiva e della contro parte essanada nei sea la conseguito e meta control parte essanada nei sea la conseguito e meta control parte e parte MANT della control parte e parte e della control parte e control parte della control parte d

"Later to the revolution infants by at the hour of britsbe find destin struggles in the final tour--ared then decisare wholler what begins and ends in the way can be interced to be enjoyment " ---Seren Kreetegaard

I dhink scriance works the way a bightrope walker works by not looking at its field. As soon as it looks at its feet. It realizes it is operating.

-Acres Outerc



A feelous troeffelse test is corning under scrutiny



Or Wolfer at work. A new spenasion this rations has arread plands in the neck allevates the pair brought on by emphysisms

OPERATION

Emphysican a site and there been book towers to notify and solver book towers and solver towers and the solver and the expression of the solver towers towers towers and the solver and the solver called bisteries and the solver the solver the solver towers towers towers to be toget the call books of the the operation 3 the solver and possibility the call books book to the towers towers to the towers the tower to the towers the towers to the towers the towers to the towers towers

The probabilities is considpred so confineerisal first West Hollywood's Benjaman White is the only subgeon in the country who performs if Many lang specialisis containd that the canotid bodies are responsible for morebeing blood levels of caryges and canboo cleards and that the removal of these glands can make the employ sema patient uneware that he is short of oxygen

Writer who has successbilly performed 1.400 of these operations, counters toy ofting a single body of research showing that oxygen-and cafforn the brain, monitering handlons in a carned on primarily in the brain, of this the removal of the carotic bodies presents no disarger to the patient.

The real match of the white "has been dealers and the white "has Medican and his white "has has Medican and white has an and the paration of the second of the paration of the second of the paration of the second to paration of the second the paration of the second paration of the sec

I HAD TOO MUCH TO DREAM LAST NIGHT

Among the most logitary of interflik linears is endogenous deparation. These who suffer it lind ther lives reduced. They move test set loss officer and the reason may be that they desern two moth.

When integs was feet solidal, some seemale frikaget haf syku departed propertie disease on FIEM (space are movement) along owneget robust on the symptoms of autocaptiones. The disordered through so is shown of the timery along and provide the system of the provide the system of the disordered moving the provide the disordered moving the disordered moving the shown of the timery along the shown of shown of

Woger resc turned the abendon to encodencus benefation: Over an easy foo devices of the second term actuation of the second term actuation undergoing REM stopp depression and of metal of the depression actually rmproved the stable of metal of the depression actually rmproved the stable of metal of the depression actually rmproved the stable of metal of the depression actually rmproved the stable of metal of the depression actually actually the server three-bend there weeks the ochange

Veget reasoned that in depressives the mochanisms in this brain that mediate pleasure seeking, appendix, moder behavior, and other activities might be exceed and active during disearing. and placture during when and active during when



reacting from trans areas

Jepsenves, if Voget in cytri, to diserving their wolving and avery Supporting the bas aspir Voget, is endence ted depressives have REMleep shortmakes. Their fairm are unable to which t EM elsep normally REMlesp depression which reproved the depressiver restrict teach, smpty prosoled that missing inclusion

"The man who has never made a mistake will never make anything else "

PACEMAKER FOR CHILDREN

One child in 20,050 s. dilottod with supreventinulas lischydercla, an abnormally fast heart rate (of up to 300 beets permisse) thet causes dehtmin waimers and conteimes sudden selfi. This concision occurs when a short circuit in the beats deforced system. arupts the onlid's normal indiac rhythm

But now in local, part and part handback (holiven how part) handback (holiven how part) handback (holiven how part) handback (holiven) for coll handback (holiven) ha

The pacteriality is inclanted only attain molecale lises, peckens cardiologist. Anhua Cassion says, "It have infter mystess as often as necessary which books be anywhice team source he depletes. General is in month he depletes. General is an interface of the pacemaker team at lises. Children Hospital, in Hospital, which exitted the schildren

port, Taxas is the developer of the antiachycarcia pacomaleer which is not to be confused with conventional pacemakins that quicken a too slow heartbeat. This newest version of the pacemaket, a company topkes person notes, is also two Twole smaller in size ____Fro Mistoan ____Fro Mistoan _____Fro Mistoan _____Fro Mistoan ______

"Though boys throw stores at leags in sport, the leags do not dre in sport but in

-Greek proverb

"The struggle for knowledge tas a plossure in if Mo that of wreating with a tine woman "

-Lord Halfar

SPACE BALLS

One billion try perfect apheres minufectured abcerd the space shuffles are now up for sale by the federal poverment

The billion balls, whose tool weight is about half an ourse, are the test commercel product middle in space They alhout prove useful to research organizations, whose scientists will use the microscoppic spheres to help calibrate and hocus electron processions.



The institution of the province of the set of provincies, which part of up the institution of a sive site of the province of

CONTINUUM

No larger than one milliont of an inch in champtor, the latex spheres were manufactured in apaceal reactors aboard five space-shuttle missions

According to Richard Hagem, division of NASME Intergravity exercise diversor. Tabling like These aphrese has ever been exelable on Barth follow reary indutios that can use them in their laboratory work. Every habital, warry drug company almost every may reservit organization that uses a microscope with have a new use for those ophrese

Hatpenn seve that the lates sphares cannot be made on Barth in the suce the abcentiones wert. They always turn out to be oldstopped and langry for the simple neason that gravity dauges the material to settle to the balloon.

But in weightess space

nothing autilies to the bottom bocause hear is no battom ortop. Scoressis at the National Bunasu of Bandardards bund almost every one of the spheres to be not only period but alian the same sate. The burder will avoid the field in spheres into approminally 1000 packages and set them for \$200 to \$200 packages.

--- Tom Kovach

posit of projudice laid down in the mind before the age of eighteen 1

-Albert Direstein

"There is a crack in every thing God has made."

Way I die Nie is dog rather than hurry, by a single soond, a centence that isn't

-Gostwe Flexbert



Laker spheres, highly magnited in space, there is no up or down so the billion this balls of drift gut mushapen or keepy



hevoosly unappetiging bull America loads on steer meat, but pervoltage zaos may esske bulls tender onough for our tastes.

ELECTRIC BULL MEAT

Back in 1749, Borgamin Franklin discovered that he could tenderize turkey meat simply by zepping 4 with intertocity

Now an anexist accentiat at the University of Newada of Peno is using a modern vision of the aams acchinique to holp make beef production both cheaper and posebly healthesi

Tom Progleco administered low voltage electronic current low voltage electronic current low voltage electronic low de low de low de low low

But the real secret. Proglob asserts, a using the bachnique on bulls instead of elsens, which el present as the industry standard for beef production. "What really manated us." Proglob asys, "to that people wat learner meal nowedays benique and headth concerne Well, young buils have about twenty to twenty-five percent loss full than steams have at the same weight "

In the paid the position has been the relative loculrese of built meet. But by using electrical current, that most do be mode as tender as stere beet. Since built pair most of their growth energy into the position of their missi, they are about 10 percent chapter per occurd to ether

"Whenever you fail, pick something up "

"Under tension, a chain will break at its weakest link. That reuch is productable. What is difficult is to identify the weakest link botton it breaks."Gregory Bateson

"Just as important as having ideas is getting nd of them" —France Crick

50 DMN3



SOUL IN THE SOFTWARE

BY P HOBAN

Some computer scientists are trying to immortalize the essence of human personalities

PHOTOGRAPH BY LEE MCELFRESH

Sperings trave a new load for trivening with workains obbasie. Like boergineers onealing new ife forms with 2004, computer soanceae new long on a second second second second accede new long of unbiggered. Research as progressing an correctative second second second ments that memo is among hypology. But her merces-inditing load on the deducative interest and in the restation-and being merces-inditing load on the deducative merces-inditing load on the deducative human species/ the labit's being.

These bioceases is considere foreettes or straturation is compared to below the second to the second of the second of the second biological second of the second of the second program control is a second of the second of the program control is a second of the second of the program control is a second of the second of the program control is a second of the second of the program control is a second of the second of the program control is a second of the second of the program control is a second of the second of the program control is a second of the second of the program control is a program control is a second of the program of the program control is a second of the program control is a program control is a second of the program control is a program control is a second of the program control is a program control is a second of the program control recity into the brain, where it would receive its computing instructions from the surrounding webware-(brain cells) and concerably callive in heat

Such lacehology could ultimately help us realize one of our clices deems. In a pM copplicat prevent immediatily which be a lacehology particular to the second the would design our successors. Emaysound sachingstos registric new but so of spece taxelin the Nertees Confusive clices will get in the same sand of acceptability.

Depraty supervangtument tought proesses of coursel is all any and-mai affair We simply don't intee insugh about how the need works," says MIT a Marvin Minsky one of the teal's proneins. "We don't have insuch inservisione about innovelobe

Instactly Masky and other infituali relagionce (A.1) terminant behavior. I a Nethinky asky to capture creatively and emotion in a computer enrich allog background answe they say a fair mass challinging. The genral balant and cubrate of the combines are hard and packet and denotions are that need packets uncombined there entowers that need packets uncombined there entowers inversions and the mass of the back to that need packets uncombined there entowers inversions and the mass of the back to the mass of the set of the set of the back to the packet of the set of the set of the set of the inversions and the set of the set of the set of the inversions and the set of the set of the inversions and the set of the set of the inversions and the set of the set of the inversions and the set of the set of the inversions and inversi

Masky in fact rejects the metaphonical T that resides in most people's heads in siaual ho sides the transmit mode to complex organization conforming frundmails of individual agents valids appeal of the transmit of the design of most in the protein strategies and outy of most in the protein strategies and the strategies and an interpreter to mixed hose needs undertified. There is integradintioned a under allow complexity the complex others to have its goals realised. There is in the other to have its goals realised that is most other to have its goals realised. There is into other to have its goals realised that is most communication below that the complexity of well (or some other common language) is used to consult to survised.

"It's like an ant colony," says Mintky, "It you are lucky the agent to which you gove a problem will know which other agent to turn on to get the problem solved."

Merely/concept may make application of the larvan media basis made default temcess but also gave A1 exelections and applications assessed to haught made day mounthers are assessed as the second second second second media applications and applications and applications made anothers and applications and applications and an application second applications and an application second applications and an applications and applications of the problem schemes which of specialities to mendicate applications for exponent.

I know of several companies that have established internal projects to produce expart programs of some of their key person-



The Defan Hay pass as of the workbox has been have been as a set of the workbox in Hordy at Yoshita Bacchard Registroad in Hordy at Yoshita Bacchard Registroad workbox for the Backwork Registroad (1997) workbox for weak particular to the State workbox for the State State State State work State State State State State State work State State State State State State work State State State State State work State State State State State State State work State State State State State work State State State State State State work State State State State State State work State State State State State State State work State State State State State State State work State State State State State State State State work State State State State State State State State State work State Sta

The auty expert systems date back to the Soften. Denokal², a Stanford University chemelry program, was one of the first. Buday them are several hundred, expert were ferror in uso. They include the room faintain Arrospector in electronic goologist that has already discouncil some net memorit hund, and MPCIN is Stanford system that data means blood and memoriality acknown.

Recently knowledge engineers have tacked more ecoloris projects modeling the mind of David Smith, one of the works few emaining experts on desail engines. His knowledge has been encoded into a self. wire program caleo jeta which sances to dealed alcare, to common tracks/broking and is keep prefly althout carring up with allocare prefly althout carring up with things to hal the programmas could near perform not use that would make things heater in wate second models before and could neer table transfer that before and heater in wate second models before that heater in wate second models before that heater in water second models and is Now No about the program accurrently semicable.

Another should program resultively to one of the particle of Dr. Regiment house one of the work's formation of experts in the diagnosis of has become to excitation the service of has become to excitation that has our race of given is Hilbs getterns surgitationals of the severity years of the wald like to ensure that Anoward prevention and housed throughout his preventions carrier trans source has one intered (at

Tartity years ago feature acadotase had to with air incipicipadia en and/or to issue the legacy of his expertise. Today his is working with computer ispentiate hom hitle University to computer solution is posterior University to computer isolation in posterior University to computer isolation in the incideal isolation is before the isolatest

To automatic Vesnor's archives knowl edge impreem will encode his libraryfitosisands of slides documenting pake her lanes...onto a taor veteodisk. But what will hisk breakhe ite wild Vesner is legacy in her not poblets to his directive danosatic



methodology a subtle amalgam of analysi call empirical and intuitive skills

Auit how as Naiseer's adoption of Linka the oligit being studied into biot and table. The implies beam on unifor promoting to consociate's new "The period long and a patientical's radie through a microscope and gives me a ditribution of the studies. The full are which side is without looking at a The has been effect. If they are the studies are elemently accurate balance papers of the side. These fault in the among all a discourse.

Dr. Jacome Sibert manager of the pape etc. called VF on reference webby Net net—hopes that a pactoal precisive webbs medwith the spaces. But A1 recent of the harden was the the basis a enertrowally harden was the the basis are neutronal balant. But legation before the the the balant. But legation before the the balant balant hards they knew their eacenaneith team whet they knew there accent balant balant balant hards and the space balant balant balant hards and balant accent to an ecosphant to a nucle An expect system as the ecosphant to a nucle An expect system.

Despite the citicuty though vicewidge importent has always goals content call plane With the bad year toostal content to the second of the second of the second minor With the bad year toostal do the minoral docksets—off the their particular years for to tablement of the time second part of the second of the second of the second minorage to gather minoral docksets. And consumer will be large antered minorage to gather minoragement docksets. And consumers will be placed docksets.

But for meny mass market applications A1 may be a lot lease sustable then surplat forms of artificial personality—software programe that smulate such trafts as humor obmpassion and convertational sells.

As it forms out it doesn't reakly lake has many smarths to be memchane it also an encode to be memchane it also an encode the solution in an encode the solution is an encode the solution of the phenomenon is LUCA Congratily programmed by computer selected Lobes EUCA wereobscient of this release before EUCA contained, and an encode the solution is contained, and an encode the solution contained, and an encode the solution contained, and an encode the solution is solutions.

Human "My morriny took my teckly bear away from me EC/24 "Tell me more about your parents"

As Westenbaum points act ELIZA knows notining of teddy bears or family problems But it class have enough natarak-tergoage capacity and understanding of a typical

psychiatric 'script' to pick up on key words supplied by the human (much like a real-life psychotherapist). Today *ELIZA* has been shrufk to periodic comovier non and is pactors for the IBM PC and compatibles how the Artical indegrade. Remarkship does the Artical indegrades Remarkship does Steve Guardia. There are games and FLIZA solid of them in which the compaties tables on the relief of particult. But ICEA contains returning that could nearly be critical to phic layer CLIZA, hing many between the phick called of the critical and exemption to the critical

Some prophy moreover believe that sophysicated artificial personalities—complate with animated graphics—will eventually become as commonplace as video game characters or animated carbons.

Were going to have penaltitiky 4 where products far Justice penalter of Antiopentary Sciences fac or Nemeralies That the starying Emissivity and a relation in Byother starying Emissivity far and the stary of the him C-proy could base on the role of tensors and the stary stary could base on the role of tensors and the stary start of the start of the start and the start of the start of the start down in property the start of the start base of the start of the start of the start base of the start of the start of the start base of the start of the start of the start base of the start of the start of the start base of the start of the start of the start of the start base of the start of the start of the start of the start base of the start of the start

To capture a skeletal gimple of a future populated with such analocal personalities one need look no further then SKDP which stands for super knowledge information processing minifigurios. SKIPT was de signed by Timethy Latay. The Selets courline-bit to be where physically-lata or international base on the where physical lateration on the BBH PC SOPE signal lateration on Signal PC SOPE signal lateration on Signal PC SOPE signal lateration of the program here determined in a lateration or physical code where and leaving using the program here determined as the source of program a physical lateration of the physical lateration of the size of the physical lateration of the size of the size of the physical lateration of the size of the size of the physical lateration of the size of the size of the physical lateration of the size of the size

Correction rector Robin Williams for intence experimental with SVRP and cenadad a French schoolign tenned Dove Del you know you've got yoursattla Pansan who is pait heetwe? Latery asked him. Thought she was schoom. Williams reclaid

Broce taken the totange SKR Mich in Broce a pupping called Personality Data set-specific and the provide the set set-specific and the set of the set SKR Mich and Include and the set SKR Mich and generating auto more formality and the generating automatic and and the set of the generating automatic and the set of the provide set of the set of the set of the provide set of the set of

Large before that such invalide DOPS demensive produce convention of editions and elevents with produce of editions butthe resolutions patientations. Like Mores was advanced presentation with the preseniones with the second second second second intervent eleventrue and the presentation of the second second second second intervent second second second second intervent second second

It is a long way from the AT table at MT to the randomization of Transfry Leavy Build one week technology is the table in a long wide new of human bifflects beginning with cava at software can be seen is furnarily most report more—one that is afready preserving ing the asserce of man multiple in adjust to magnetic body.



FICTION

Six political fables by Robert Silverberg, Barry N. Malzberg, Marta Randall, Jim Aikin, Iseac Asimov, and Norman Spinrad

HAIL TO THE CHIEF

A month or so before the spring greader. sal election, the public-affairs terminal in aid him he was going to be one of the cannever given much thought to becoming meet some interesting people. They sect president. Sure somebody had to be the Weshington restaurants were gute line. presiders, but the computers had three especially the French ones. He invest hundred eighty million onzens to choose French tood. As president, he'd have plenty

aller tweety as yours as a cardinal rache-Maybe if was time for a charge. He was a but there had to be more to life than that from. Even with electrons being held twice of opportunity for fancy ching-state ban-

the last ten or titleon years the odds against ontion order! with the so sleep that no one in his right mind spectrouch time woo. But once the aston-

Miller found himself adapting ricely to the stes President Miler? admit he was feeling



worry him at all. The computers had been foreign-colicy deci-



PAINTING BY RENE MAGRITTE

make speeches meet with delecations of volent, dedicate a lew dame and bridges. bils into law 'Why not?' Sure," Miler said

The next day he received a thick sheat of spaeches. They let him have only two hours.

"My follow Americans," he said "it is sme to get this nation moving again! Destiny rity such as nately has been ours before And so on and so forth. Miler carried it off beautifully. Within a week he was estabharn especially the computers that were dates were such a word burch. The ran-

So Miller made a clean sweep of the elecweek later he went to Weetengton for a meeting with his predecessor who structed

At a grant morehon held at the White elected members of the Senate and House of Representatives and the incoming Suheld the next alternoon, and the partying

He signed wherever he was supposed to said delivered mainty speeches for the state drater for platoons of visiting digntones every Friday in June he want over shas for two territic weeks in Furgoe, casacles, museum tours tes at Duckinghem Palace, driners prepared by the linest chels.

N33, roly Miler foit sad when it was all over was an elder statesman a nice pension a steady steam of sturnakets and haloners

So he want chearfully back to Grand Forka sasing money for the Sid Miller Presidential Library

One of those little benefits of orthomest decided to adopt the modern American system of election by lotieny and want here regret is that he doesn't pare much for Japstuce But he hopes the French will be the next people to go in for letting the gamrailers out the covernment Miller which he only too happy to provide them with advice

TO MARK THE TIMES WE HAD

determinate age and location it is denly to

ACTOR I shall do such throa--- i know not

- DIFIECTOR No coop
- subed firsh should than mill resolve it
- DIFFETOR Down! work Dutin
- ACTOR(Angrily) Our revels now are ended and these our players-

Sometimas I think the king likes it best when I wear my clown suit with the red built nose and the big, floppy shoes, even though the king never shows what he likes.9

DIRECTOR Say thanks a lot We'l be in

- tear Ask not what your country can do for DIRECTOR (Thrughtlab) Do you do more
- ACTOR Oh yes Lots more We will land a I thought 1d give my brother a little legal
- with (Pause) Ch. all notit. What the hell will got it a try iGora officiane reluter Preadental seal lowered at backshop]
- ACTOR US, before we start the shouldn't
- DIRECTOR Later later

- DIRECTOR (Serouly) Screw the union do you want the lob or don't you?
- ACTOR (After a pean, relactantly) | wart

Ine job (Puts on lop har livers care) We all went the job liwas trained in plassics.

- DIRECTOR Then shut up and ch the inh
- ACTOR But sat a moment (Selence AC TOR starts offstage to pursue DIRECTOR. stage Field appt hermony her vio place. Dame diagonality
- OFFSTAGE FEMALE VOICE Read/?
- OFFSTAGE MALE VOICE. Boady as I even
- OFFISTAGE FEMALE VOICE All right them (Pause) You can't say the cey of Defas
- ACTOR God damn it I should have known and shot blackost)-Bavy N Middlerg

THANK YOU MR HALFAX

ready to begin. Voting is one of the privileges of our great society and one which should be exercised with care. Pro-

address and your party alliation for cornperson with our polino lists. Your yold will

- Address of primary readence

InstaVole has been programmed to assure that your deepest concerns will be reare free to do so if you wish. When you are mady to begin, please press the remover

Thenk you Mr Heldax

Have you endowed the recent information

Do you always use the senses when inputting information transmissions?

verbal assists to information transmission?

Thank you Mr Halfen

Recert information transmittions have State Do you believe the quality of life there

Record information transmissions have

Recert information transmissions have State contributes the equivalent of a month's ciclense. Do you believe this figure to be high or unduly low?

Thank you Mr. Haidan

Your maternal parent recently disertiancheed Did you always know her to be a The Hardy-Patiman Act requires that randerforming individuals and other social maladipto to sequestered in preference to the measures previously used. Do you teel that all noncontoming individuals should be sequestered?

Sequestration currently consumes 15.43 percent of the federal budget. Do you beleve this figure to be too high or too low?

Do you seal that a simpler solution to the problem of noncontoming individuals would sate the burden placed on the federal budget?

Thank you Mr Halitax

You recently parchased a VitraLok for your prenary residence. How often does crime occur in your neighborhoxi?

Current Isw-enforcement attempts to control ormol must remain within the provisions of the Albrecht–Pittison Physicy Act. Do you feel these provisions to be sufficient or too stringertly drawn?

The Handy-Pattman Act requires that assistant and other social malacepts be se questioned on preference to the measures previously used. Do you leal that all cremnals should be sequestimed?

Sequestation of criminals currently consumes 12.5 percent of the factanic budget Do you believe this figure to be too high or too low?

Do you kel that a simpler solution to the problem of onme would ease the burden placed on the ledenil budget?

Thattis you, Mr. Habitax

Your ballot responses have been transmitted to the man pating alaston. Excitors exualls will be announced on the michigely information transmission, along with the alastetiss of the winness and cambidates. If you with to see a copy of your beliet chocks prease press the restructuse builton and a copy will be maked to you after the dector means are announced.

We appreciate your vote of confidence in this country and your approval of a simpler indicion to gar precisione.

And once again, thank you, Mr Halitax

DANCE FOR THE KING.

Therefore that devices the the large larger if which capes are larger and consort and the decision of the larger and larger and consort and the mean metals of tables in a science mass of the larger and larger and larger and larger and larger and rough below of hear gray allows, which have any distribution of the larger and larger and and the new mode of science and larger and and the larger and larger and the larger and any distribution of the larger and and the larger and larger and the larger and any distribution of the larger and larger and the larger and the larger and any distribution of the larger and the larger mode and distribution the larger and the proper provide and any distribution of the larger mode and distribution of the larger and the proper provide and any distribution of the larger mode and distribution of the larger and the larger mode and distribution of the larger and the larger mode and distribution of the larger and the larger mode and distribution of the larger and the larger mode and distribution of the larger and the larger mode and distribution of the larger and the larger mode and distribution of the larger and the larger mode and distribution of the larger and the larger and

Tonight is a special occasion tonight is the is ONN

annersky disker se begas berg her I samet say disker i Nes bodyt her snoel door reventer beng bougt her berg snythere site attant i wat her all istore i bang hera i fit exit store tom with the gast issue interest with site of the data the site of pace. If we have refered there Way they have as wat snyther her at the pace is we have refered there Way they have as wat snyth hera to be an an o often takens only here that each equirate with takens only here that each equirate with these as to doors.

There are no vertices in the toors effer the left is never way begin is a usings the same There is no way to measure fin-Men i way toonghi i an being atothiny whenever likelike danceg to the left of alwaystronghi fike on any-ensuing atothiny there is always a way of dealing to the left alwaystronghi fike an any ensuing a tothiny of however long we have been fuent therem a very long time although i have racking to compare it to Built of not always went the

He smilled at his associate and, full of self-assifaction, leaned his chair back against the wall, for it was his expertate that had made pottechnicality possible ?

clown suit only on special occasions

Constructions (check up the wings to get of the check up the check up the wings to get of the check up the check up the check up the Meter I and check then is can be up at The Meter I and check then is can be up the the check up the check up the check up the set of the set of the check up the set of the set of the set of the check up the set of the set

Since fivel dance for the king longit il must pation my clean suit if all dear on the floor to puil on the baggy polek did toucest and the big foppy shoes. If set the pully droopy box he around my nock and stack the rod bulb rose on my nock ill mass my hair up so it is wild and smear chalky white on my face. Now I am ready

But betwan iden beign to darce a straceging interpretation of the series of the series happenet balance At set id on know strating is it is only a new running that has never happenet balance At set id on the series of the being at just balance and the series of the being at just balance and the series of the being at the speak of the flow the series and strange if the speak on the flow the series dates at the series of the flow the being at the speak of the flow the series and the series of the series at the series of the se

He possis and team to underlated the work have they empacted they within only work to have they empacted they within only work to have any other action to be with only each other whether as a low here with only each other whether as a low the ought to this to make them to be add and the streemust be repartired to make after all the streemust be imported. The work on to an all way but all imported. The work on the here the ought all the streemust be imported as any basis of a mountain the mount of the make the of a mountain when the work out the mount of a mountain when the work out of the the work of the streemust be control the work of a mountain the streemust whether the streemust be control the work of a mountain the streemust work of the streemust the streemust be the streemust be control the work of a mountain the streemust the streemust be and the streemust be the streem

I an clear to the leng my Soppy shoes topping if i can here better meybel i can updentiand the words build they make notiing to me. I fail to my knees in front of hm. "Mind are you seying?" I cay. "Fail me what you are seving".

The loce gits as and o may well botz was well my taken to the imposed built of the loce of

After a long time the king is completely gone toff seems to here exhests of he voce tanth but perhaps it sorting my can bucch go too before, i walk slowly toward the throne watch before at 1 can walk secous base to hoor wates the long's test wate they left no mark. The long come

The rates is emptier with the king gone only me and the huge empty throne wit. I sender where the king see grants to i wonder if he will be happy there. Maybe he will be happer here than here maybe not as happy Will harable anybody threa to dance to her? Will be gread to there as the goole to mer or only at elevant starring of the floor?

CONTRELECTION PROC. 12.





Science-fiction fimmakers project the hopes and fears of their own societies into a cinematic vision of future civilizations By FREDERIK POHL, STANLEY KRAMER, AND PHLLP STRICK



What purpose will survival serve if not for the construction of elaborate oftes to show how far we've come from savagery?

Rockets that numble and built in the vacnum of space. Choice gris who denote in redung more than things could unknown on human surface. Faster-families spacecraft Paced with such doktous embersterments from actualities, how one involve could scoonge-tacton moviemakers with being able to taxeful the base?

Pertopi, the sease, that lobor suggest the reveal participant a more valuable humhean securing viewers to reconsider the persent. Based on white we known one what hean dwarms are possible? How do we have backedon twindue if where is the start of the backedon twindue if where is the start of the backedon twindue if where is the start of the backedon twindue if where is the start of the backedon twindue if where is the start of the backedon twindue if where is the start of the backedon twindue is about the subgest for start of the s

Due have writer have clone more liker water the motions. They are wolf-defined of our calledges tests was accessed to a case calculars tests was accessed to a case calculars tests was accessed to presentational accessed acc

FREDERK POHL

Arrong the many local that closes an isdiversal to scondo status. In providence in provide high-matching and status in the status of provide high-matching and status in the scondo biological status and firm, however, integrar and matching to have which and scondo biological status which and the comparison in high of the scondo biol matching and the scondo biol status which and comparison in high of the scondo biol matching and the scondo biol status and the comparison of the scondo biol matching and and and and scondo biol status and the target and provide and the scondo biol the scondo biol status and the target and provide and the scondo biol the scondo biol status and the target and provide and the scondo biol the scondo biol scondo biol the scondo biol scondo biol the scondo biol s





so much listen as clam-documentante. The form a rate in welfam occurso fiction and own react in specin-chartor lime. Unit doos real there have and than a firmmaker will at claum to shrink hard about the weak of a common and, when he has come to service and accurters, will assemble his comes and accurd he vision on cellulat Thus are born the serunon factor elam-doca.

Each a barry-sbourcetary reads some son of others induces a Convention way and the source and the source and bands carry induces a provide the train to car each be and, where necessary adopted by the first deministration of the source and the source and the adopted by the first deministration of the source and the source and adopted by the first deministration of the source and the source and complication first is source where the function and the source where the source address and the sour

I am a little embanassed to have used the

rative in one, a man from the year 1900 (the preserved in suspanded aramation for had 1090, he discovers a world in which food in compressed into prils people have numsparsy and couples desrous of howing a child amply data a coin into a beby-vending whom Don Leak 1 The man from the pastcalled Single 0 because he has no proper assigned number-is played by a popular Swecksh-chilect voudewile correction El comically to the novelbasi he encounters and to such humorously for "the good old clave" crossed lovers The boy is J-21, played by John Gampk, and he wants very much to many the oil You can t biame him because the girl is played by the trenthingly beautiful Meumen O'Suliven, nineteen years old and her What gets in their way is that J-21 (vasing clone anything important enough to be el-Man have to do that Women, being passive

DOATENUES CHURNOE 154

15 CMNI

Carefully oracted acts and special effects (one orability to such cleare of fains as The Empire States Back (type right and oracted) (typ) the ward the Works (indete column, above) and 2001 A Specie Cayware (invested) (octors)

By marrying the real to the absurd, artist Doug Webb has re-created the world in his own mage



BY JANE BOSVELD



In mapping came from the benight botween weiking and been allows. They reports no ben't make the start of the properties of the start of the about of the start of the start of the start of the about one start of the start of the start of the start of the about one start of the start of the start of the start of the about one start of the start of the start of the start of the memory before the starts of the start of t





We're taking more from our environment than we're putting back 9



In the lock through backets had an angehad to sole to what then in myskel the explore. Then i those cay whi amps to the thory to any any the sole of the thory to draw any the theory parting stribbs the speed poster in a significant of the speed poster and sole in a significant of the speed obliggings which go not be stribted on the speed poster. If the speed the speed poster is an adverted to the speed obliggings which go not be stribted on the speed poster. If the speed the speed to the speed before them who strates are speed before them who strates are speed before them the speed poster be speed before them the speed be speed be speed before them the speed be speed be speed before them them the speed be speed before them them the speed be speed before them them the speed be speed be speed before them the speed be speed be speed be speed before them the speed be speed be speed be speed before them them the speed be speed be speed be speed be speed before them them the speed be speed be speed be speed be speed be speed before them the speed be speed be speed be speed be speed be speed be speed by the speed b I never get an image from the dream state itself but from that threshold just before I fail askep.



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THE EXPANDING UNIVERSE OF FINANCIAL SERVICES BY PHIL ZINKEWICES BY PHIL ZINKEWICES

enamine the tim sense how years ago? Remain ber the follbargers; the Buck Rogen-type sointel leader which allowed us to bear the works of fantagy where mer walked on other places and other one and anyons — except the potters toppon the roatm of anyons — except the potters toppon

We ident know it then, but we weraft certaining make belavie works or bang above to gamper and hoot bening type halight zoner two were really locking in the future in the beday. Our own real tills winablegran when the text men entered outer space and contract with operations with lates such as information with in space?. This men walk on the moon? The text shutter high cases off?

Built the future opticides will be mare excerning it never inducting involution is inhibited underways, in our bio in any sease is comewer will seed factorist in outer space, we will see produces innuficialized in three factories, and will beauful tome regeneration in modulai control cenducted in the weight beauful tome regeneration in the factories and the context of the set of the set of the three sets of the sets of the set of the set of the set of the three sets of the set of the set of the set of the set of the three sets of the set of the set of the set of the set of the three sets of the sets of the set of the set of the set of the three sets of the set of the set of the set of the set of the three sets of the set of the set of the set of the set of the three sets of the set of the set of the set of the set of the three sets of the sets of the set of the set of the set of the three sets of the sets of the set of the set of the set of the three sets of the set of the set of the set of the set of the sets of the three sets of the sets of the sets of the set of the sets of the three sets of the text of the sets of the text of the sets of the text of the sets of the text of the sets of the text of the sets of the se

We have all ideal of the occursels game which have made marked committees to the individualities of other space for adaption of the providualities of the optimization of gent have sum of money in the space because the status of the status of walks are departed in the market and the status of walks are departed in the market and the term topoget advancement walking obtimized and the money of the space of the status of the term topoget advancement walking obtimized and the money of the status of the space of the status of the stat and exhatmesteal communities populated by as many as 10,000 propie will be commonplace

Bot where will the morray come runn? Not all visconsetes who bot to the index region of the unercon where the number of the second second second second second second second and other spectratic de comencies to distant the index protect data and the second second second second second and data and the second second

In fact, were it not for one particular segment of the financial services community—insumros—our group of the polerital fac outer space development today might be as limited as it was back in the days of the Buck Ropers service

Insures have been providing insection for the space program, mostly settle listanches for more tem here's years, and because of the growing number of communications analysiss there has been a manufacture more easily insectively and temporary of the settle settle settle settle settle settle temporary and the settle settle settle settle settle temporary and the settle settle settle settle temporary and temporary temporaries and temporary temporary and temporary temporaries and temporary temporary temporary temporaries and temporary temporary and temporary temporaries and temporary te

Instance balance balance time wear instrumental in the early dispet of the apara program in putting together the necessary insuance converges to permit survive to take photo Amorg the most store in terms of planteeing space insurance protection ware Mainh & Michannes Johnson & Higges and Corona & Black which new baats a special and celero & Black Impande. Inc.

In years to come, the manance industry will be asked to get beyond the users boards of promy-branege coverage-...In beyond the users boards of promy-branege coverage-...In other source with the based of promy-branege coverage...In this data hards howings and associates comproved to the manane interbasem will be asked to publy addressed take or additional one, type will France instant instance will be asked to publy the wide of the vertice capital. The insurance industry is charging? asy to "bank honory, economia for the New Yerk-based insurance that the New Yerk-based based of the New Yerk and the New Yerk honory on the Insury of speak of nak - it. The pool expenses of the many pay for the cost of the few Yerks in the neutrality incluse the based of money to mail base resource in the hope that one many two the base and one of money to mail base resource in the hope that one many two will pay for the four when the of the intrutions of the hope that one many two the based of the based.

That poses the quastion is the lensate servers second the Arimskin ecconomy up to method planes need demands¹⁰. The argument as yes in the Lindicate services have been second on and powheng demtercines were the basis with the unlike anything we know havely vestil ago or arything we know havely vestil ago of a set of the base of the set of the arything we know havely ago and a set of arything we know havely be and arything we are arrow havely be any havely be any havely arything we are arrow havely be any havely be any havely arything we are arrow havely be any havely be any havely arything we are arrow havely be any h

We tand to their of innexial services invariants—burg insurince excurting —as unrangent/wardshores, service paid used offered are compay annials and that parrors we call with an storad and shift wown to that coordiny of speech. We deplet with these restrictions we must not backular we are obtaine and mean-memory by the pospeat of manipulate eq. a musial and di

However, these are dynamic changes unfolding in the financial services sector of the U.B. according

Consider the charges which have cocurse if the feasibility which for the protoce was difficult and the second strong protoce was difficult and the second strong the maketing marked of Dated strong the was more – wanted the creat shaft time. who wall on house in mark class and the second strong the second strong the second strong the second could be also also determined the bonds to all who is the polyce versus and the second collaboration. Second shaft the strong to obtain a private planet the strong to obtain a private planet planet second a second to all of the second strong the strong to obtain a private planet planet.

Acto insurance was often invertible from Acto insurance was often invertible from the man who eared the light stans atound the comer and if the policy contract of leaved an odor of mussels and scrod, the coverages wee just as good as those in the policy available from the man who openaled the real estate agency down the street.

As far barrierg, the procedure was emplicity itself thu deposited your sounds, collected your interest and withdraw what was precised when emergencies increas This



feiler behind the window was known by his or her first name. (Namen had progressed a little faster in barking.)

Torsy subst aperts free all tor class pands, except for ontain parts of the coasty where bayes live in social or parts. That fracting bank takes a supply department of the social substantiation of department of the social substantiation of department of the social substantiation of parts and the liver machine to group and how the liver machine to group and the social mathematical and the social substantiation of the social substantiation of parts and the social substantiation an

The securities industry each test under goins registrate industry. Test years of the second second second second second registrate industry of second second second with the second particles are second to applications of the particle from the life industrian industry particles from the life industrian industry particles from the life industrian industry particles from the life industriant industry test industriant industriant industry test industriant industriant industry test industriant industriant industriant indications and the second second second second test indication in the industriant indication indication in the indication of the life and distance are set indications in the formation of the indication of the life memory and the formation in the indication is and in the indication of the indication of the life memory indication of the life indication of the life memory indication of the life indication of the life memory indicating the life indication of the life memory indication of the life indication of the life memory indication of the life indication of the life memory indication of the life indication of the life memory indication of the life indication of the l

Proficienting plane for employees, which have come of or the financial serwees sector, here also given the average consumer access to the wearment community. Thirdy years ago, an employee werned about takey noneees and poaccurity today, in addition, that employee will read usion market records to third out how the company is doing sechary the will affect the time sourced position.

All of this has come about because of a number of 3acloss First, there are the changing characteritics of todays consumer which has led to a demand for new initial of products and services. Second, because of the demand for more sophishcaled products and envices. Internati service industries have logue to crose bound any heat with inverse becomes more involved in leading activities and offering heading activities and offering to be address of the second second second basis and second products up to be come more involved in material heading to the second method in a second second basis and second second second second comes more involved in the second to be have materials with their products and services.

Theyear 2000 will find us in the model of a penetic of adharchmary growth and expansan in financial service', says Robor Di rólpatíck charmen and president and chel executive afface of CBNA. Wrichwide 't: will be characterized by an unprecedented unmeer of sagnificatiatal providers offering low-cost, high quality population and services.

The competitive pursuit of such pixelucts and services has already begun IIb being driven by the regict development of new technologies that are forcing change in the industry's structure, peducts and destruction services.

and to the same action large financial serweak compares we provide a wry broad break in the present of the same finanbreak in the present of the same finanbreak in the same of investment of the break in the same of the same same present break and any same same robust in specks product or geographic here during with the same reak in the same here howers broads to reverse of the industry will be as near as the same there howers broads the same of the industry will be as near as the same the same break product or geographic the industry will be as near as the same the same break product or geographic the industry will be as near as the same the same break product or geographic the same

Mr Kilpatrick also commented on those who question the benefits of full Imancial another.

Lakey the groundwell of vey reads charge in the innersal services industry has been sengressed by those official for a new through the evolutionary supposed. This is significant, was amply climits at Mot is enclosing an instance, is significant of the intervent Bits sensitivity of our enclones excessing the sensitivity of our enclones encloses the sensitivity of the sensitivity in encloses. The sensitivity of the sensitivity is enclosed and the sensitivity of the enclosed and the sensitivity of the industrial Revolution or the Tisse for Been's read W Kelsenck.

The financial sector of our economy is gening us by provide a multiskie of ptodlacta via sophisticated delivery systems intraded tomelas purchesing econes for the consumer. Already is maker tange of ptoduch and services can be seen. Benist and insurance comparies are becoming more like dispertiment allows and now sochhologias are bringing what they have to offer closer to home.

Raiph Nadar wail known consumer so favat wote in a newsletter of the Netonal Insurance Consumer: Organization, that consumers own more than a trillion and a hall dollars in payings and loan deposits mutual limits and other financial instaution
In the past dozen years, we have seen the emergence of the two-variant floateholds as typical of higher income brackets. This trend has continued and bean in cases of in the tracibility of 2 percent of 25 to 54 years of women were in the litter familie

Basiya corsume is bettereducided train the paid of theolemon monostrucities and the paid of the terminal terminal control constants of the New Terminal end constants of the New Terminal terminal terminal particle and the terminal termi

Moreovers the Hudson Kudy holds Consumers and any more indexed in the long term and any more indexed in the long term and any more willing to plan asked to advoce a grader control when party approach of any any object to the party approach of any object to the party approach of any object to the party approach of any object to the second of the second object to any object to the second object to any object to the second object to the second object to the present the conduct phene in minimal

In addition – and this may be one of the most imposite elements in thems of took ing at today's new consumer – bocalas of the everyprice of the two camers house hold and bocalase more single women are in the workforce, hence it every any boc ings workforce, hence it every new prorest advices. In another the binning previous, and yet another for invisiment advice.

THE BLENDING OF INSTITUTIONS

The consumer of the future will every service that clean in a conditional way with multiple needs, put and use order bate access to asserts more easily teachrates servicement, allow for backy transfer of lunds to higher yielding deposits, mipowe mood being. For future access, and a to approximate the service and a to approximate the service and and a to approximate the service and and a total service the service and and and a total service and a service an

Thirty years ago the services offered by the three major tinancial services industrias - baries insures, and securities firms - were basic and clear cut





Doty the financial services scene is a grant data (literar land, financial utabo) samuta as boken doten witiba a whole new works uny erest from now Artencan (bates) to service in the samo financial work as one enterprise with soft offices and elevation of an ancher to bind procitication of an ancher to bind procimasching with one ancher to bind procitication of an ancher to bind procitication of an ancher to bind procitication of an ancher to bind procitication and add to have coherene to sentiacion of

Furthermore, the inang consumer demanditor assist access to multiple hand of services products has resulted in confrict and harmal within the financial services confinancy. The bathe innex are distanlized loagenet of that community waters to "transit out" into other financial products while at the same time prevent the other time external to particular assembling

For example, many signests of the maximum industry, both on the Ha and property causily sales have been weging a war for years to prevent barks from making makes has maximate insures transitions on the other hand have maked iso other francial sempane. assis

CKIAk kerevanjak, hav, introgijn jaor entale with Skeptantims, redshibited cestis vennig tor U.S. commencial meter site Jahn Nerroek eronity annunotit a nave financial ventosis programs in vikitoli in social financial ventosis programs in vikitoli in social cancel financial torona in the upper ancome brackets. Dir Jahn Goszatine worsocial contrastros of the Peika add Istastand Management Society that new financial products in the resultion industries processions of the denixed torona industry processions.

Backs are moring at insurant and ascurities time full force in a reposition of its person strategy. Lincoln National Corp., Fort Wayne, has marged its stratage planrang perduct development, sales management and client services departments.

In short, while there is a great doal of debate between industry sectors as to who should do what for the consumer all as examp up to do as much as possible. Can temporate concurrent have access to all these pretorial services? Can the consume exercise control over all howe sences? In the opman of the frauroal emission should the financial emission induced and the service of the strength of production of the first select to product these revocations. In service of control, the enswer here tes in tochnology

TECHNOLOGY

"The inexation is electronical, partly in computers and becommunications has openeds wat potential for improvement in the efficiency of consumer frameal services, mote the American Express-openand communications systems mode possand communications systems mode possend husbane. Study Moters and communication for each gravitier mode possationance payments and obviouries and temperat systems. Intersections balances memory systems. Intersections balances memory systems.

Prograd service institutions use new technologies as amains of solucing costs of providing sorvices a) because they lead to expension of manests and permit economatic classitis and o) because they anable, a more economic silved letaclase they anable, a more economic silved letaclase of pool ucts which leads to induced prices

Dr. Seen Moorwy of the Insurance Information Institute, author of the alcontentened Plan 2005, reformed to one way computer purchasing will benefit financial servers constitution

Tight rouge insures their is norms of problems - thermostical packages, as bittypicality and the thermostical packages of the problems of the thermostical packages and thermostical packages and the thermostical and channel that consumer with a sufficiency of charges of neuroscience apporting of the other set of neuroscience and the sub to be device who the to be used to be able to device who the to be able to device the the sub-topic of the device who the topic of the able to device the the topic of the topic of the device topic of the topic of the topic of the device of the topic of the device of the topic of the topic of the topic of the device of the topic of the topic of the topic of the device of the topic of the topic of the topic of the device of the topic of the topic of the topic of the device of the topic of the topic of the topic of the device of the topic of the topic of the topic of the device of the topic of the topic of the topic of the device of the topic of the topic of the topic of the device of the topic of the topic of the topic of the device of the topic of the topic of the topic of the device of the topic of the topic of the topic of the device of the topic of the topic of the topic of the device of the topic of the topic of the topic of the device of the topic of the topic of the topic of the topic of the device of the topic of the topic of the topic of the topic of the device of the topic of the topic of the topic of the device of topic of the topic of the topic of the topic of the device of the topic of the topic of the topic of the topic of the device of topic of the topic of the topic of the topic of the device of topic of the topic of the topic of the topic of the device of topic of the device of topic of the topic of the topi

A detailed poperty-causely database to consumers outcamp internation or auto home, entral personal lebels, commercial roles and other torse of popertycausally neutrance, is being offered by the Independent Insurance Agents of America.

The database is on the CompuSeve Consumer Information Systems subsorbed to by more than 110,000 users

The estimation of two database speoficially contains general insurance information, cell containment suggétions du aixed information by state whole approprige, retensi for more specific information as well as response to user quantitions and able within a memory of 24 hours and new developments, position a studiant

board with restricted access by user

Richard D. Teubrei, immediate posiprescient of the independent insultation Agants of America, such that the new Bischonic Management Information Serwork (EMIS) is the inst home, such personal and business insurance database

Botor Mikernitid, were vice paralleft in change of detection, binking balanci and the start of the start of the start of the balancies of the start of the start of the the start of the start of the start of the the start of the start of the start of the and construction start of the start of t

Chemical is just one of the benks making made just this kind of technological inerophy Mr. Willowshite maintains that Chemicals PRONTO Home Banking and Information Systems is performing the benk well to take advantage of the electronic meducion just doe in the beginning alleger.

Furthermore, as frances wends toolneedy eveloper become more integrated, before table to interact with one another tary well offer to communic the opportunity tain paragorized and here correction interretacts are every black that the occurrent of transacts are record of the tabue, will be able to did home and other opportunity tames compate babled generations, thereast before the process and year.

We are that formative pages right new from Maxic an examising performed in advetising at Ben Jone State University, example lefting of a new concept called values. Meway declarate a communication, promiser way declarate a communication, promiser advertagers a department private the state works of a statement of years they are state works of a statement of years they are statement of the a complexity of statements of the a spress of chooses, called "memory" on the access.

The direct separate consumer of the future may be the individual who are in from of the computer to keep up with the stock manket, be entortained, send a report to his boos 2000 missias away—all with the touch of a trigge and whoch learing his char," writes Mr Mack.

A Booz-Allyn study estimates that by the mid 1990s, as many as 30 million U.S. households will be equipped for widectes, and that it will generate between \$8 to \$10 billion in odvertising svenues. CONTRACTOR SUPPLY PARTIES



THE NEW BUSINESS ENTREPRENEUR

But what of the developments in the financial annoces industry as they affect business entrependum? Where does the owner of asimal or medium saved business 14 who this financial services phantaemacous?

Doe way is via nee bai altitigementi autabia tion financia services sotter Barie an ainedy chieng an torsiality and an ainedy chieng an torsiality participation of the comparison participation of the anticipation of the baries baseds development built of the baries baseds development built of the the baries and the comparison baries baseds development built of the the baries and the comparison baries baries and the comparison baries baries and the comparison baries and the comparison of the the the baries of the comparison of the the baries of the comparison of the the management of the the comparison of the the the comparison of the comparison of the co

and the processing of the transient operations operating the transient operations operating the transient operation of the transient operation operation

¹⁰ For parts, which been spring that geneinments shared paradia gravital gravital gravital cloaket of information to consumers and that consumer graves affecting out or perpriets on how to say file inscurance, how to get ho besit interest fram basis and its tarth. But I baives that we will soon so the similar of anterpringurs who will make morely by parading consumer information enviroamental the point of all

The importance of this may set is of an important can be able to access the Consider the last that the baby-focum perlation. That prevention is moving into the indele-ege category in the rest set wave. The set of the topolitical - coupled with the expected diminishing numbers of topolitical periodally give, impolate to the determ of periodally give, impolate to the determ of their own.

With the multiplicity of choices open to buyers of francial services, there will be a recid for specialists — specialists who will be able to ad the consumpring of detraine no which services are to his or her best advantage. Of course these new entrepresure will also have to be well-werood in the handling of corrocitiens

This brings us to the emergence of another type of small business entrepreneur – the small computer manufacture with the expertise to device systems which will make grants stand at attention

Lass April Obbarik invited some of the most influential names in the information business. — International Business Ma chime Corp. Apple Computer Int. — so basif is asimo executive on dovelopments in the computer area. However, a small New York concernencialed Institutional NetWorks, Inc. was also prosent and its preserce among these maps players was fell.

In 1985, the term hard solar of 14 5 million is sake and in one load or nearly 14 million Bit as Cabacity and part if hard something the Cabacity and other fendendi Service instatutors need. That something was a fear cat assessment and other means that allows banks instants and other mital allows banks instants and other mital allows banks instants and other mital allows banks instants and other millions. In the allows banks instants and other millions in allows banks and all other the count in the tables.

RISK

And now we return to the enormous possibilities which the instroad services world offers to potential business vertures in outer space.

This list time only prefermining operations in agroup the intercommunications now a \$10 bittom-system baceness. Switchies communication \$10 bittom-system baceness. Switchies communication paids the second state of a proven by between 20 percent and 30 percent and maily. These is no final baceness proving the same time the small baceness proving the same time the same baceness proving the same time time to baceness proving the same time time to baceness proving the same time time time to baceness and the same time time time to baceness said vertices.

At this semial mosting of the American Association for the Advencement of Scierosheid anive this yeak, francial against advised would be space entropretions not to expect any mmodule bonarius. Many of the SSD enterpress might full they were detected and the analytic be analytic any ensuing income to keep them going in the oncial statem.

However, Philip E. Outbertson, an official of the National Aeronautics and Spece Administration, said the agency had "high hopes, for webspread orbital commerce in the need decade the so.

White there are the "fault of torecrossis thermodal averages university" They are the thermodal terms who there the baseph to exemption the index 5 safety consumer domains for more spontestand products of persons may also the calculated of more thermode thermode of the safety of the capacitation of the safety of the safety to the basepoint terms to denser These pools to the basepoint terms to denser These pools and services the twee immediate access to what is a tablead, and they are beyond the experiment.



a bit embasisesed about the whole busiress-confirm that they do leet before after theraporter touch. A few report subty de-

"Have you ever wetched the sun shring on water, creating sparkies of light?" one patient asks. "You get that kind of feeling."

Neight in Value digit the Instance Income on Adjust of the Instance Income Instance Income Instance Instance Instance Instance Income Instance Inst

No crisins yet tradit to test the theory has a heater can after electromagnatic fields surrounding a patient's body. The cells and organetic fields, and low-level decorring magnetic tercey is known to influence cellular growth precesses in two ways. Eacting can prove the precesses in two ways. Eacting can crisit service them and service heating are exposure to a magnetic field that pulsates fielder than the saint's can speed up DNA replication and cell division of growing cells cancencias and normal. Most scientists see no way one human could affect diactisanagneos processes in another

People have all sorts of larisopes about it says Alscandar Mazine professor of biophysics at Pooleeheller Linversey, but at the time there is no basis at all for such conclusions. There are no known electromagnatic effects between people that we've been able to delive. The hinds are too timy

Riscer Beckler an orthophild support from the Lapter Workal Green in Syncuse. New York and an experimenter on electronal system to biological organisms, electronal system to biological organisms, electronal system to biological organisms, electronal system to biological processing that there may walk to biological and says. As to whether a handler could impair form some of whether a handler could impair form and therein this mail a second biological processing therein the second in second biological protoward biological processing and the energy of the second biological prosent and second biol therein a focus and an en an ocardin biol therein and accurate and the second biological prosent and could be researched.

There is another possibility suggests feecher. The haster produces the placeto effect.² Produced brief can cause neel baclogical charges is that the patient not only least before calcyclovely but he actually gets before before calcyclovely but he actually gets before before calcyclovely but he actually gets before for a Known point out hard they have developed in maken way to induce the placetos effect. Then across a valuable they covery But beyond that most of her students are confident some kind of physical energy interchange is myolyed as well.

Practituries of inergenute hours are prepend to the possibility that when highly controlled and closely observed the proordure may not have the effects they preduct. But when if the should happen they do not seem prepared to conclude that their faith in it a unaptified.

What is not dispressible to me, asyscomin, to the live in introduction to potent from a position of california and carrier rg, something position of california and the effective believe that if it were foculd to be effective threapositic board carrier and the effective introduction board carrier and the board of another effective card to be expected by a more technical position card to be expected and the board of the board of a effective that card to be expected by a more technical position of the other of the board of adjustment that card the appendix of the board of adjustment that the board of the board of the cardinal sector of the board of the board of adjustment that the board of the board of the more senset every than a pair of the time hands a

I and that Kingel 4 Katalos don Loswer dong in the over 4 donated at 19 of train many of them do not able to a source as partimes of them do not able to a donate the do only able to explore a donate the do participation of nonling at a runs and base models and most assume the risk of sources and the source of the source of the domation of the source of the source of the domation of the source of the source of the domation of the source of the source of the domation of the source of the source of the domation of the source of the source of the domation of the source of the source of the domation of the source of the source of the domation of the source of the source of the domation of the source of









No longer restrained by tradition, the woman of the future needs only a





all an hour from now all 6 as it for descript fields of Wart Hort will approp to abortion. While the other cadres are selecting in Distriction Barriacka, caldet Arm Cobb, age benrychtere. Inter a Aready spontad uphil some five miles. The pumpe here messagial Highly hegher and higher in the 90 weather. Until I can leal my calles byttemp like bare atmrgs. I cault gat. But all Wait Pent we go uphil and mon sweather. Inter in the uphil and mon sweather. Inter in the selection of the selection of the selection uphil and mon sweather. Inter inter and selection of the selection of

Using the distribution of the set of the set

doent mean i'm a winp At West Point, the human species is reaching a new stage in its evolution

BY BARBARA ROWES

For 173 years the backing American military apodemy had network as the broekeds ground for takwait men. Buttin a tradecial departure from its masculine tradetion. The academy in the leaf low years has also being omment of waven Threadain being compared have begun to other tareaturing proof of women's physical apodebies.

Not only are these capabilities for greater han ever backet Il locarity is some nappears, they may exceed those of their main caded counterparts. What may be emerging at Wast Pent in the woman of anomous etchics cade on all the innate resources of the tensis of the species, along with in anning of atmgths consentermost as macubine.

In sports, men are arready performing near their physical positilises and Arno With perfosisor of psychology of ball balls. Unversity, in Marcos Indexes and an expert in sports performance. Worman as y ast safet the of 2004 will be a tough nut, and head the of 2004 will be a tough nut, and head read it screy badf woring become for pools as it as of their bear with men.

Det receively, intermeter on the limiterical potenties in more physicity and physical potenties in the sector of the sector parameter of the sector of the sector of the parameter of the sector of the sector of the book neurophysics count a frequent the book neurophysics count a frequent the the extra sector of the sector of the sector the extra sector of the sector of the the book neurophysics is address of the the book neurophysics is address of the the book neurophysics is address of the the sector neurophysics of the sector of the sector address was deterine and spreaced prior.

The has been sessioned for iso long that nonand women wore physiologically different, and lisewate that performances were different that there was very tittle inference in dentaling research to document the scienficienty: explains Dr. Robert Dauma, clinicities of research and evaluation all Web Port.

Then in 1973 some rumbings in Congress stocut equal right-matched the ears of West Point officials. At a general staff meeting, the commandant asked about the surrent from WestIngton.

"Be a surver capsan piped up the name is that women are coming to the academy is seemed uterly propositionus. Just the incught of women trying to make it shough the most reports physical training in the outer's am the mon regima with tauther

"West Point had long been regarded as the test of a wair man," says Harbert Potcher a 1984 West Point graculate. "There was no way gris were going to pull their wesh?"

No procedent isotated for the high-ritersity physical training of women. While the law that would require this servers adoated meas to admit women was still pending. Colorel James Anderson, intercional of the permitted of physical education. Isometoid a scientific effort to come up with some data on terratis performance.

In early 1975 he administered the physical aptitude examination (PAE), a previous tee for main caceles, to 3 OCD women, agait seventeen through liventy two, at high schools, colleges and in the enlisted ranks of the MH

a anny bayes The PAL consists of here in a basebast here as 300 years and put and both the standing long years and put based both the standing long years and put pering. Note that needs as poport of the women in the sign group could not be pering. Years the both a PAE could not a both any standing long the both and pering women when both a PAE could here at the test hundred test means here a both being bet the women in conclusion that the women group to have to add the could be and the test the women in conclusion that and women going to have to add the young men and women going to have to add the young men and women going to have to add the young men and women going to have to add the young men and women going to have to add the young women and the young women to be add the young women and the young women to be add the young women and the young women to be add the young women and the young women to be add the young women and the young women to be add the young women and the young women to be add the young women and the young women to be add the young women and the y

Law yet too nade been benchmen in this gent of equality is called for women to most the same requirements for admission refertion, and gaskasion their minis do But tonause of such limitings. The law was modiried. The starbalacids or entry to the encodenry were adjusted to sitive for the physiological attenances: between males and families.

What may be emerging at West Point is the woman of tomorrow able to call on all the innate resources of the temale, along with an array of strengths charactenzed as masculare.

West Port saw its role as wolkid to quarriery scontiscally row the templet physical solities compared with the moles, and to clevislap a curriculum their endouraged lemate cables to achieve ther full poternal. Tell we had to provide them with an opportunity to prove themates. I step Anderson: Up to this port they had never had a lighting characte.

Boundary to be less trans- cales and the second part of the second part of the second part of the second part being the same paraset as the new with a the second part of the part cales of the second part of the second part of the second part of the second part of the part cales. The second part of the part cales. The second part of th

tanse training for women. It combines judo karate and beying skills.

This grip is in levels back age in the grow here is obtained that with mark matchine. In level to the three we send - if obtained to the three sends that the send of the three sends and compare cased is most of the other three, three were, marks and shreek were tabled as cased in the loss as to grie the tends to be immersive. We want the service send them freque who were a to allow the tends the other tends to the service and the other tends of the service service the other tends of the service service the other tends of the service service the obtained backmann of mail. Here were back obtained backmann of mail. Here were back of tends on the service service service the obtained backmann of mail. Here were back of the service service the service data to

The make cases a who generally reserted the women and labeled the experiment Project Zero predicted that By the and of six months, the lamates would be left.

One right before a forced mirror, recalls Head Strycula who all four liest organniches and 54 pounds was one of the smallost codes. Fore of the sensitivity of the strattom and arrowinder. Mourte not going to make the forced marcin lamontow. I select why not and he pat said, 'I dent fluel, that young going formaken!

Temberg in her size three combit burns die chalenged hem Sei has windig I am geng to make it. He smidd coolly them asked if size wenned to be a hel-Auge sundee on it. Der agneet The following night winn sibe chaged her sching body home hom he forced mixeth, the hel-Auge sunfies web wethen.

Dopile ther votent efforts there were some feets the women samply could not pertain is the squad competitions," torys Cobb, whoever had the most women on their commutativity for the most women could be room usually lost the rolling risks?

Cacal Dave Birman admiss that the head problems keeping up. The Hit lawway had to put out two is much physically to drag behind the men. No matter how that I stud. I could never do as well White is a ama to unring it assemed that they came equipped with the better bodies.

Werk Anderson Previousli III's women in asson Dr. Staffel worked diagraphic behind the scenas-determining the physicig coldisative staffel worked diagraphic distances between make and formate ondats. With a nandom opposite of 30 metadiad dia temposite colds in so paratikangly qualited and quantited the physiciganic differences between the some. Each of the subject underween the some. Each of the subject underween the some table of the subject of the some table of the some of the subject of the some of the some of the some and accel operative of the some of the some of the some operative of the some of the some of the some operative of the some of the some of the some operative of the some of the some of the some operative of the some of the some of the some operative of the some of the some of the some operative of the some of the some of the some operative of the some of the some of the some operative of the some of the some of the some operative of the some of the some of the some of the some operative of the some of the some of the some of the some operative of the some of the some of the some of the some operative of the some of the some of the some of the some operative of the some of the some of the some of the some operative of the some of the some of the some operative of the some of the some of the some of the some operative operative of the some of the some of the some operative of the some of the some of the some of the some operative of the some of the some of the some of the some operative of the some of the s

The preimmany rocals of the study were published in Ocabier 1976 II had proved that the physical difference between the sexes was not a matter of pure speculation but a first based on belongeral servicitation tactors. For the nod seven years Staufter would continue to collect data on the physisibility of thereing a seven years and the physisibility of thereing a seven years and the physisibility of the rocal seven years and the physisibility of thereing a seven years and the physisibility of the rocal seven years and the physisibility of the rocal seven years and the physi-

"Thad anficipated that there would be differences in upper-body strangth between men and women's says Sauffer, but I was supplied and am sall surprised that they are us groots as they are II you look at strongth women have about one half the strength in the upper body and one that the strength in the upper body and one that the solution that abelity to perform upper body work in a thirty second period is about one tith that of the male.

Throughout the first year. Anderson watchardthoconfirmation of the search to watchardthoconfirmation of the search to landing at the battom of the ropes with team theoring at the battom of the ropes with team theoring and the battom of the ropes with team the ropes with the team of the ropes with team the search of the ropes would probably influence these performance.

They serred to have the most discuss in any task that acquired litting their own body weight—chirologi ropes mounting the high shall partorning weighing electronics on the horizontal bars, "remarks Borrier Bennett report of unner class weight class."

Says Alma Cablo sheepshity. Thad a hard irms over canying my rick for long periods of time. All Lookid listrik of was What is the matter with me?

Women fared befor in the lower locky enencess. I was pleasarily surprised to Indithat as to log strength, power and work capacity women could achieve about two finds of what men could do issue Staufur.

In the eyes of the male cadels, the temale cadels most sensus deliciency was ther in ability to hear the three to ten mile road maches while survey on laterator. To the taccel road months in laways that a hard time layering up. Crising Gayagas who is a data inger to truck flamitatel animal. To run, then get back not be brack walking post. Then if developing again to back up and sait walking sigan. I sur occidn laway and sait walking sigan. I sur occidn to any with the guide coartions of the male cacities. I don't instea why. Maytes they have longer thank.

Although some females like Singutus compliate time aven in it water me, and a second some some some some some to henge in hene. There hegt processings of the begin in hene. There hegt processings of adottom he lamite calacte suffered an control summer of provide some some some some some control summer calacteristics and the some some some result of the some in the some term solution in the some of the some term solution is some in the matter and the some in the matter and the some in the some result of the some in the some result of the some in the matter and the some and the som

Nermally the inscrete incurred dich insurt fromtisuma but from poging or uniming over a period of time, which can cause harrine crachin in the Scene Again, physiology was to bitizene torr the fact that is percent of the women were afficited with problems, com pared with 0 b percent of the main. Woman have loss borne dentity.

In early 1977 allar the six month grace period. Anderson approached the acadrime bong The startsketage projective tell costs and take and classification with the physical costs and take and classification with the physical costs and physica

We tried to statistically equal performance difficulties between the men and the women by assigning comparable grades to the same percentage of top performers says Stat/list

Theopyloc be years a number of order care programs way abrend the example, barrely to paroant of the worsen, compared with the procedul than worsen, compared with the procedul than worsen, compared with the procedul than worsen to the nucleor a backaness of three overhild worsen and with the worsen of three overhild worsen and that the terminal works in the only abred the female cadets to do a beianomal able for

But the double standard "old not be well with the male cadds. They lot documnesses agained "As long as the women could succeed on the basis of there were in Methies the male cadets would be out have reserved. The women were being given as unlike advertiges parts to seep spit here. (The accolemy a) causas the make statistic harasaing here excitant one codet

Less and understammed transver visite permission of the second second second second entry to plannel and second second second second second second second second second constances as designed and second second pages and second pages and second s

But from the begunning. Anderson had been determined to hand the centures of patentialism for a new go-for-trapproach. He weitched the tende cadets in take's in the gym as they had to dimit the ropes. A few of his instruction for the robust index should be instructed from the robustment bootaste.

in a world of shrinking standards, our quality comes in writing.



of immad upper-body strength but Anderson directed his topps to push them even herden i instead of placing a hand on these shouldes and being them eventything wait going to be all inplic instructions were load to grann bei being and to obler the series surgebon they would to a mark. Well by eacen

During the post seven years: the misory latch has all blocked a market change in the response of the women. Though they right be all hed up in knots inteder larger Some Bornett, who came to the includency in 1980, I sectors if even have some a formate cause head cheen in later. The control formate base

Last year against all physiological ocks: a woman scampered to the top of the ropeularg only ten fixeds. Until then the women had compensated for the weakness in their upper booles and hands by using their logs as a leverage system.

But she was just a little powerhouse i says thermail locarrang. Others will undoublecily follow this cadet

Anderson warns however that West Peaks elited on the women is screweight inned. We can expect to start out cheir lenging gris when they are sobred man. To demonstrate a significant amount to demonstrate a significant ampowerment, physiological development wit protectly lake at least Physicals. In sign

But here are already gimmers of progtask for assessing when nod women enter the accelerity they can bolyweit han (5) percent of the push-when nod work is here on the arms and shouldars, septama Minfront. We just conclusion there the same degree of althrough in our upper bodyee as the mentification of the program of the second of the same second in model events we push got drawn on the ground and dol from, step Trend.

By the arrie the female cadets are sent to arborne school: had years who the program they are expected to do between 300 and 400 puels upt a day as pert of harmag for amping out of a plane 41 1200 set.

Thistocity believed we could maken it is calls Colta: This sequentitive were all heavyour around just wanting for us to breas. Unow heavy were breking that we were too weak to deny it off. She alld oriol the ground in freed othermand started pumping up and down up and down up and down. It made me mad I could have gone on Server Nothing could dop mill the too sumsharthy.

Subtrainly it was the make captas who were playing catching. When I loads due of the correr of my eye. I could handly believe whet issue awang. The familie calculate even thang, ing in there: says calcit. Cher Wilson: Twice an another public play that if offent think I could concenter public-play But and long as high could beep going: there was no way a befimpering quic calcular.

Throughout the years Weat Point offesals have collected enough data to formulate a new law discompatiative physiology. It econrety continues to encourage women to perform at top levels, awy Stauter. Think the difference between men and women in such

THE WORLD'S FINEST VODKA. ON ICE.



popular sports as running will probably harrow result to three percent in terms of performance times

But the differential will next disappear entroly. Even with the most intense comparable transmig the capacities of the basis are not going to be the same. The explains ruling out the diselegement of a unservise dard in the adheers of the future.

Barted his naula inform the terrates general percentage of body for. For the hey nause as far as physical performance goos states Saular in a data mart all force annot invo growty. As the percentage of body to derosses it as physical call encoust twoon mon and women demonships but not approxibly.

And while a foreables muscles do get lingue through intense exercise thisy mixer develop to the same degrade tas a males. Not only doas a male have more muscle fibers to begin with but his teatrabational level often where the baddap of microle hibits.

But what really sets the anxies apart in many activities, says Scautar, is then energin. This not taking about static strength but about dynamics—the ability to lift your body move your own body or objects.

There are areas however in which is make on average may soon prove superior the lower parentiage dimatcles in here up per badiac—which works against frem in climbing room—and the lower carfer of careful press to be ocher advertages when doing strugs. It appears they are doing esteenedy well in this exercise" eavy Ander son. Its an area in which I forecast that women will surplus men at the academy in the next them.

Furthermore than passar parcentage of body list may assist female athletes termming long detances by creating a gnatter amount of badyancy.

Hay, says cadet Herbert Heicher laughing "now are they going to give us the mading handbaap?

As the female cadets prove themalass by poling ther own weight at the academy, the male cadets have begun to accept them

Probably the most heartening display of carransidere at West Point is demonstrated in the air lateriater run loags Staulter. They want the same underministry and staulter the language www. Ly with the same service care and complain about the earre types of mission points. It is document around a point the society.

With the addresson of women to Wate Proof the rene have also larged in Boo new challenges in maning. In the porting of 1981, an anotacid close was added to the camoulars are neinstree. The first day. Roote bornes downet: I' waited in any of the maninoladits gar up and stered alwans with safet orbit They inclused have need on the maninolem they not added alwans with safet only the said of the hour hey could hardly drag the back on of the norm.

During the past three years the males have demonstrated three are the weeker set.



when a comesto like/bill by exproses. Nevertheless a growing number of makes are enroling in the class.

And the name social ty committee is working to cease an iterating must amorophere as Benotic calls it where differtopics no long-hold "working will sitting the best traising hold working will be any and seriality—amorphic load macroential serial serial type in the sourt macroential serial serial type in the sourt macroential serial serial type in the sourt macroential serial serial combining them. The says That way men an avartanithate them ther deposed when it appropriate.

Casad Mark Cannon treds that the new winners at Weet New New Social Social The men emotionally. "Socials: The not a ISSN image main that 1 or y like is to long my fingernais clean. It is using "Social technology, comply that space and the social mealerce, where all social transit beings with multitive as a social transit being with multiliation and region as pretential as where outmants and region as pretential as where revenue where is usable for DBM server.

And asson inconferms their. Werne trying to create an emisierment in which both men and women calls match their indexedual call packase for physical work. We have spend at least, the least to be functional deveryly yoom working with men in this area. Now we are trying to see up a mosail ter developing women to reach their physical capacity. Call mission and we stimulated capacity call mission and we stimulated capacity. Call where the stimulated capacity call where the stimulated capacity call mission and we stimulated capacity. All where the stimulated capacity and we stimulated capacity.

Baotis cestralegi at Anno Willia contends their men well bandet from halong on such temala traats as compassion. There ad or women bocoming mero laka men it would be better i men showd more of which have been traathomaty considered. Ternate should be serve.

builting path to this distant table of shywain and social where the distant table of the calify the werren tab. Altits QOE, while we remerge a macroscitum. When well-instead should be also a strain table of the should be also a strain table of the should be also also also also also also social path table. The should be summer see audits, and all there in Mee Cable yields, and all there in Mee

Series of the graps were real mail at mail Arm gave, provide because i oude outrue and outputs herm. They seemed to take it parsanaly and it we noticed they don't fixed me like the other grafs. They don't differ to here me care have packages. They meet add me care have packages in they meet add we are higher than them costemership but draw and table agait mice on take them outhere to a two beam of the fixed mean ofhere to a two beam of the fixed mean.

But what am I supposed to du? I can be something that I m ind. They can I expect me to three a race on the hope of getting is date. She states out into the distance for a fleering moment. It's always hard on the first members of a new bored COC



FICTION

When things got hot, they put the law and their lives on ice



BY BEN BOWA

The first day of the trial, the coursroom had been as hercic as a silewasen studio, what with hor camera crows and all there lights, durates of reporters, all the roma gravitors. Buil after regist pain gravitors. Buil after regist months handly any credowns were there when Don Camme Londoado had he herer lattock.

The cross of July card to the whole News England region device a the England region device of the backbarrin laws here gapping, apright noises in the making of his backbarrin laws incredelity projured testimeny, strugglet out of his char, then collingsed access the table on front of him, scattering the noise and depadmen methy led out by his quarlet of lawyon, as his also the foor lise a suck of wei regulation

PAINTING BY MICHEL HENRICOT

The runor immediately sprang up that his beother-m-law's testmony, in which he dewho had become immensely wealthy manaly this vergeance of the Lord upon the old man This is probably not true. The heart attack most oginty grossly overweight and given to smoking homote little rum-soaked Italian

The most gifted and expensive physicare in the Western world were from th to have feared, he relaxed on the seventh cal team, no single one of them wishing to take the responsibility of making the anperfectly takened silk suits who waited outade in the hospital's comdors, ealing pizzas conversing it whispered metares of Italian

But Dan Carmina did not die before issui uid introgen. Perhaps he truly did fear God If there was any chance that he could survive doath, he was willing to spend the money and take the rek.

"What is this cryo cryology or what must be bel they call 67 stored Armin Marchetti He was not anony Staatling was his normal mode of conversation, except

They from him in that sault," Marchett seed." Not he was a Popercie

new broad of university-granted legal talenta. that was slowly conwrity turning the Mob much more profitable putsuits of computer come and templophysic transies. These mak-----in toxic waste disposal Frantfaine wiki to be made in renotice Let the Latinos cut state after another legislate gambling. Del Vecchig knew fre wave of the future. More

Machetti was one of the last surveying pid-Baid built like a souat title freelug with a gistering, narrow eyed builtrt head stuck. he coved men with his fists. Now he used but the thought that the Don might someday

in Newport, gazing out at the lovely see waters were dotted by clozens of while salts

taxing an his lounge char, oging the arts in banoculars. He was not obliveous to the fact that the great sobber berons of the nerverals nearby The thought pleased him. But today he was worned about this scientific meacles

Tream is the old Don dead or sett he? Del Vecchio lean and dapper maisharply cut, double-breasted wory blazer and darkblue slacks assured Marchets "He's legally, medically, and really dead

Marcheth sympled subsocially 'Then why

With great patience. Del Vecchio explaned that while the old man was clinically leved fish perinaps in some far-distant future it mucht be possible to cure the heart problem that caused the deals Su Don Carmane had himself trazen primarvad in liquid

> 6 Perhans ha truly did feat God. If there was any chance that he could survive death he was willing to spend the money and take the risk ?

natiogen at the temperature of minus three hundred forty-six degrees Faltrenheit

At that temperature their Vecchio said the old men's body would be perfectly pro-

And if the scentests over find a way to fix. what killed here they can have him out and

Matchell sourced in the surright Tip inbeautes totally gone now

"Maybe he said slowly, "somebody hood defect / sa books

bosss reluctance to return the New England empre to a newly ansen Don Comme

great tag loophole in the situation

Notock knows how to defead a cost preaking up the body cells. Try to defrust

Marcheta laughed a hearty loud bloodchillion mar. 'Then I careta the old man will be twoe as dead?" He laughed until tears. streamed down his cheelos

Angelo Marchet) Despite Del Vecchos other meaned advoir that he get into the and legalized casino dembing. Marchetti ment were constantly improving their technames and newtably thry caught up with him. Matchets the never thought to have himself styled. Clon Angelo") was brought to evasion and-most embernesing of alendengering the public health by implooany diaposing of toxic wastes. One of the to buy through a dummy corporation had notan caucht durroing chemical studge into

Thirty pounds heaver than he had been once again sation the pallo behind his mansee. Best to on the flavshores breach her net been used at survey Matchett/s evesight was not what it once was nor was has interest in scantily diad young women He whate in size fifty two plaid battering trunks

Banding over his boss a prostrate blublean and tren but there were a few trees in his face now that might have been welden. spent almost all his time under the sun either

We've tried everything from change of verse to trabery' Del Vecchio said North

"How about putting some pressure on the wmosses?" Marcheta growled "Knock off

Del Vecchio shook his head. "Most of the witherane against you are computer reccopies of them beacles

Marcheta pooned up at his brown: "Theores cotts be something you can do I ant con

A test of automse filesbed in Del Vecchio s dock many for a moreout, but Marcheth power saw it hidden behind the lowyer's stylish shocked him was that the old man wild apturily getting desperate anough to make lasting out in blind anger, destroying avery

Give them the card to keep on top of all the rest.

A Caron Plasticard

It is as small as a create eard, but it is nakey an exception acculator. Par lect for having along when using a credit car

to touch. And an 8-digit display and a memory to help check all the fources.

Better skill it runs on light. Any light. So you can t it answhere.

The Caron RashCard in white, silver or gold it's one card that makes a perfect offi

CanonFlashCard

What? Whit is it?

"What the hell is it? Marcheth belowed

Freezing '

What?"

Hine yourself frozen

Ato you puts? Last Liteart?

Del Vecchio allowed a sight smile to orase his Los "No but you could be "

Actually the plan had been forming in his most lense Bort Committle simemation in the glasming startions stell trais filled with lay util mitogen Even them. Del Vecolvo had thought back to his college days when, as majoli young undergraduate their lat been a data on the school's bring seem. He reimentioned that there was start rules of procedule in bit ferroing atmost like the law itself of procedure in sortment over!

It was possible for a fancer to score a hit on his opponent, but have the score frown out because he had not followed the proper procedure

"Out of timpli his temenifiered his lencing coach screaming at him. "You can it just state your opponent enhancer his hist you teel like if You've got to estatish his proper right of way the proper timing. You're out of time Def Vecchiol."

He reaked that Marcheth was glowering at him. Whataya mean Loould be dead?

With a patient sigh. Del Vecchio explaned. We ve gotien your case poetponed thice times because of medical excuses. Dr. Bruneli hes trethed that you've got heart and liver problems."

Fac lot of good that's done. Marchelli grunbled

Yeah but suppose Brunell makes out a death certificate for you isays you dieci of a heart attack, just like old Don Carminii

And they put somebody else into the ground while I take a vacation in the old country? Matchetics face brightened a to:

No that want work. The law-enforcement agencies are too smart for that. You'd be spotted and sant back here.

Then what

We make you clinically dead Brunch pives you an importion

And kills me³⁷ Marchells coernd

Del Viscoho put his handa up as if to delend himself. Wait Hear me out 3buil be chrically dead. Well freeze you for a while Then well bring you back, and you'l be as good as ever!

Marchelt scowled "How do I know I can trust you to bring me back?

For God stake Angelo youre been live a latter to me ever second my nail father clied fou can trust mel Besides you can amange for a dozen different grys to see to it this youre newwal. And a dozen more to knock, me dif if the laten was force.

Nah made

You won't only be directly doad." Del Veccho ponted out. "You'll be legally dead. Any and all charges against you will be wood out. Whan you come back, legally you il be sintexperson Justike a beby?

"Yeah?" The old man broke into a barlung randicaper lauch

"Sure And just to make sure well keep you freem long enough so that the statute of limitations runs out on all the charges against you. You'l come out of that heavan fee and clear?"

Nerchritis laugher grev louder hoarter But then is abruptly stopped. "Hey wat Dicht you tel me that nobody knows how to defrost is corpes?" It hey try to their me cut of het me all over acam?"

Thes all changed in the past as months bell theorins and "Some bright lost down at Johns Hoppins thaved out Some more and rabitity. Then a couple of weeks ago a term at Pappenane brought back times people, to mon and a woman i hear they're going to fister Wait Denry and being time back pethy soon?

"And what about Don Carmine?" asked Marcheto

The lawyer strugged "That's up to you Wilhout an instant's hestation. Marchetti

Del Vecchio had very intention of honorigina comminant lo Maschatti He roally del The freques stapped del tambié beer like a father to the younger man, pay in his way through college and aven law school after. Del Vecchios father had been out down in the line of ubury one man mght on the diset outside a wavehouse hal of Japanese steeps and fellewaper set.

But one barg list to another as the years rolled along DD Weccho Frainy manners and tativitid to raise a tensity. More and more of the Mote basesses cares under two horests and the makes is propage tables if this ever berent. The organization may owner borrise to sort foots and other togethate togethate to a well as states (field). Weller owne was let a borro complementer. Weller owne was use grave was instead by pace order and us well as states (field).

Crin after another Marcheth's louenants, came to depend on him. Del Veccho never distransitiol any fing as asshare, and amsarrasing as an out of totaly loaring this hand, or other annown protections. But the louenants—assne of them handly but, in animueyed thugs, others more lean shrink, and inciden—all is to be lowers, now way on the other that to invive Matcheth from his cysoer, dwatter wasch bin in shrink morale.

So Marchetta slopt. And Del Vecchio saw his empte crow more prospenses

But rearing legistrate barries and base mease does not make on necessarily honest. De Vecchnis barries alter match tagby migdate barries, and sometheres collected much higher instead than permitted by law on more occasions: the interest lass collected any after based demonstrations at torce. There was also some soles these balance and bard angle Commission and Bard emission (inter a Noc enrol and Bard emission) into a Noc enrol and Bard emission de verget of bardingship

Or the PocketPrinter to put it all down in black and white.

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BY BRIAN MCKERNAN

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Decisions Each of the books 48 chaptes a involuced by aquistion from one of terrary higgs particular from one of terrary higgs particular (with table to the finitess this, a server what might of the finitess this, a server what might of tables parts and target a non-weak the tables parts and target a non-weak the help into the tables of the help into the tables of the help into the tables of the histories of Dure do not purchase the boost of the tables of the accounted yo to reference tables of the interview.

Intercer manufagual The is it problem in the adaptation of any post-amme abyoe novel to the acrosen Sees Lynch. Wai wigot toms of inter-vocase You can get lot of information from Them. The masky Paul and assess who have ment vocase. You hear them therebox I we learned to low that

The technique was particularly useful in adapting Pauli character. Paul has to grow and Frank sometimes gove him power too soon. Lynchiseys. Although he has to head power to be special he also needs room to grow So often the inner voces you hear in the Tim represent doubts or maybal the weighing of possibilities. Sometimes Paulis predicting overtis or sometimes has registering someoner—scrap him up.

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Thick is trip to taky with Dino one time and in Venice ine bacight must back about the cayls architecture. That back and this this to Venice influenced the topic of the fell how were points of departure. Glob Penine for instance, is totally different from while Li is in the back.

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There's a lot of the book that sin the flux lime. Lynch concludes : But unless you so down and do an analysis of what e left out the estimated in the dow appears to be there when proceed mad the books they remember or this in things, and those things are defiration things and those things are defined.



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After 30 years at the cutting edge of electronic surveillance, this former CIA director and master of espionage has exchanged spy wers for computer wars, covert intelligence for artificial intelligence covert intelligence for artificial intelligence

INTERVIEW

BOBBY RAY INMAN

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PHOTOGRAPH BY ZIGY KALUZNY

the adulation may have begun to hurt inman. According to one report, Senator Bclin promptly official to go on record calling firman a no-good son officialit both horses and if that would help the admirable bootson priv-

Committed to cover action overseas, linman repetited spying as a looi of domestic poince. When the Reegen admentituden weat sying to spy on Amminican at home as well as to oreset new haveo adhead to untestit the CA," as Netional Security Advaian Richard Alein put it. "Iman was the man who publicly appointed the pain

In 1926, ditter more thermoushcades servers in American Software Management dest, however terrain subserving methyland and application of the Carrier Tenso Institution of the Carrier Tenson of the States Tenson of the Carrier Tenson of the States These in 1963, just as subserving the more of the Carronolaum of the Carrier States These in 1963, just as subserving memory to phasite the Nation of the Carron memory to phasite the Nation of the Carron means generation of the Carron methyler the Acconees on the matter and Carron methyler. The American workness is called WCC that the Management and Carron methyler the Intertor of the Carron and Carron methyler.

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Graduating from the University of Tesas with a degree inductivy Internet find became a substructure that genus has Navy. He to have been a substructure to the substructure Keppur Marcel 1973. The outpools of marker keppur Marcel 1973. The outpools of marker was a known university to genus and marker was a known internet. The substructure to explicit US relevances as uppeaked the offeating the substructure of the puzzles marker of the substructure of the substructure called an endcabled genus in that is planted to Series the header of the tables. By the substructure to the substructure of the substructure behavior to the tables.

"Everyone also in the community was calling it one way' recalls an admiral in a later report. Bobby was the only one to call an everyone to call the only one to call the only t it another. Bobby was the one who was right 11

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Invitants converced that intelligence gathering is necessary for the survival of democrate governments. Information is oursaft to making decreares. "Antoles saying I'm a master soy are garbage livelineir run a chardeterie openation. But I an an aveuser of what they proclude." I'm told. The warrhogton 'Thos' I the valence for a more than warrhogton. Thos' I the valence for a more than an ave-

In analysis you look at scraps of endence, you work up a you work up a you puzzle of information You pursue bits and pieces until, like a reporter, you suddenly get the whole story ?

the puzzle to be solved. Inman is a historian of the instant

But he has maganga about some olimdeviares operations. The immodification and an experiment that including the olicitation softwares. In the generation that there is a software of the software of the a claring software of the software of the software of the a claring software of the software of the software of the a claring software of the software of the software of the claring software of the software of the software of the papers in size software of the software of the software worked in size papers of the software of the software of the interpretation is automatic the software of the software

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And even before in 1580, when he was all director of the NSA Immen had shorely urged mathematicase in in cryptography to search—code making and breaking in accept a system of valuritary regulation in clusting presubtration conservity. Market some measurements and them compared

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The battle web Japan and with two fluopain efforts (Esnin a Common Nerket program and Alvey, a British project) is for the work merkets of the Lakee. The Japanese goals have aller and have defined the prolem What would carry the market perhaps changing the world in the process is the fithoperation computer.

First, there had been the vacuum table machines of the Fortes, next the instation based machines, then integrated circuits, and fourth, taday a densety packed compoter chips. With each jurgal computing power has advanced exponentially.

The fifts generators will be a machine that takes instructions and requests in plan English or Japaneee is smart encodri to make interences and expert judgments in some speciatios and is term to thousands of times more powerful than the machines of locky.

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It is not y to design machinal to do the auronating But say the Japanese and there American competitions is visial because the notice of competition and competition of the compatient information and process involvedge in relativity and process in the process of the set of the parts depinding of the relativity of the set of the process of the set of

tional forms of the computer industry but to establish a knowledge industry in which knowledge isself will be a satisfie commodity like food and of. Knowledge cell' is to become the new weath of nations'

Fifth generation computers promee to oneste avait anny of new products and air worse. Researchers magne that there will be libraries or even electronic newspapers clever enough to find the desend information through chied communication.

Correction tables will no longe to mere line of qualitors and some simple-menal graphics. Expert spitters in inpit yee realme ch-the-typic datasets in program in inny altisers atuation from how to reading your patience auto to gradering. In burnness unsery from South the Cathwinn page applications auto any weat how become complete wert. "We dent command the path signation and with pathers wert load the outlage up that the to reader to be and the states the load atta outcome merities." M MOC in Austin Texas by Philip J. Hits, national staff writer at The Washington Post

Densi: Can we lak about current oversi? You seem to have escaped the CLA at just the right moment. Wouldn't you say it's been unleasized with the ening of the barbor in Nicaragua and other ventures?

Bright, make there bar any way can bas to date an any track of control event-action classified. From a historical paragocities and the second second second second second ered using covert action—whether here mishausable, about a little via the any artiflag registration is not here years that control hausable, about a With you have all come to the action of the second second second from departure, and they self, don't want to use over faces.

GRAME But is covert action a useful tool? Do dirty tacks and secret wars work, or do they all heatly fair?

Inman. I feel that in diplomacy to success

 Einstead of abing creative things with my own mmd, I ultimately neached the point where I became more interested in how the intelligence was going to be used.³

Lify replamant within force or covart action you must gain a broad conservice at home hait to right user! Arrait you cannot been an accordinativel hold: The poley an nouble. Our best accesses rested on topertisan agreement on atoma security matters. *Owner* What are some ut the best sucowers of UTE patry?

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Immer Clearly here are some critical aivide to be studed—lemaity of weapons type terms surveability of the space platforms. The greatest problem the one that galvanaise my attantion is the increatile difficulty of delevations decomprehensal and teaching Inscarred of objects in proceeds Webge and Thick advices incomparison method in a solutions advices incomparison method in the solution of the solution of the solution of a solution of the solution of the solution of a solution of the solution method avers. Consel the the work is an incomposite method avers. The solution of the solu

For instantly adjurate suggree from the other side. Incorp. Is some lived of unsetsment in these devices closes not distributions mo. Further them is a long track necestral of huld commercalization of technology that this lond of inservicit has created. And you chan get into the argument. Too we have the advantage or close algorithm. - when they duri that a it defenses industry? An anomarcous amount it dependence in channes or diverses.

But whet have we done to ourselve? "Over the last two donesies were vertred out the annual two donesies were vertred out the annual two donesies were only and competitive backing and other measures to competitive backing and other measures to adverted the cycle of measure is of even whether done on the set of the other one material the cycle of measures to develop a setting from the or a verse to here to manues. Bo were great up as on the cycle of measures and were not manues.

Own: The timeter of sectimology to the Buy rest has been embed of determined. Bores an gae that the more table and security barress are thread in the encycle table object the United States can preserve rising. Dhow control that a more related below would encycle the velocity because a steepy apply of bargs technology aspit the Sovet incortine to develop ther can: What is any point of wave in the?

Finana III 1971 Welen wet located all Storen Trochem II Support Sould len years before the tradeot by Neu years. And III 111 Tei page to hank years were This strenge of tax were an enable were years. This strenge of tax tradeot by Neu years. This strenge of tax tradeot sould be an enable of the strenge of tradeot sould be an enabled to an interior strenge of the strenge of the strenge based to any these cannot do at a b for years medical to finande the messated to be overlap medical to finande to an a methy sould be overlap of the overlap of the sould be overlap. The strenge of the strenge of the sould be overlap in the strenge of the sould be overlap. The strenge of the source of the source of the strenge of the source of the source of the strenge of the source of the source of the strenge of the source of the source of the strenge of the source of the source of the strenge of the source of the source of the strenge of the source of the source of the strenge of the source of the source of the strenge of the source of the source of the strenge of the source o

Other You sound like Dale Ceson who says that accompliatment is really the way to avoid problems of technology tender (Dason line to posed of the Netoceal Accodency of Sciences) that conscluded that the basit way to prevent the Sowels from grabbing US technology way not to make research accret of technology way not to make research accret



Chouse Regal * II: Years Old, Wardiniske * Blanded Scorch Wheeley * 80 Proof 0: 1994 General Wiree & Sports On , N Y Any starship that used this braking system would leave long, het trails in space

AUTIMATTER

Where the E_T + insuly, smare in our stellar neighborhood how, will we know they retee? One way, cag peas need Princeton Drevensity physicilat Asseman byton in to post for the stell made tomot as the specification.

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UFO UPDATE

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To lars no such skill marks have stream up partiets the count the solar stronmers: who will not SETI (Solarsh for Excelances and instigrands) have not been locking for time tought expect time to be enrorised on a declarated solar for the mersa "way Dyson" if a list event time great SETI been able on update a function of a declarate state and the solar strong solar state and the Data strong solar state and the Data strong solar state and the Data strong solar state and and the solar state and and the solar state solar state and the sol

Figs the jack of evidence for and marks made Dyson persenate about intersplan travel by enrother spectram¹. Noti the sightest Thereprise. Therefore, quantitiesly that there are other appears weathing space. There no evidence for if built therein powhere against either. The mail intersection that groups and the sector is a spectra and evidence and the physical meetans. Is to take deviding whys of meetan team the sector 1. JAN (1.400050).

No one has yet proved that an Alwan drug system is in fact, possible, Dyson adds But it ought to be a simple problem for a graduate structm for a graduate structm for a someone will take it up before more form

According to Obsen any satisfue phase used this bruke-op spatem veckel selection of the tem veckel selection of the phasms in address of the tem the selection marks and these in their weeks sevel out sag natisfue could be debedred by ranke teleactions of the teletion of the teletion of the according the teletion AP-vector drug these a supprising y marks

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Though medical subtenties deministed the boots years ago, monosis in blood types i det becoming Jagons latitude feet the sample Red Drose has doubled the sumble doubled the sumble doubled the sumble doubled doubled doubled the sumbled boots are

A Japanese matchmaking service requests that chents list their blood types, and a Japanese polynomial/use expands lacked hypers among hyperball Barrysey Roodinucyses, of Barrysey Roodinucyses, of Chibod hyper activation of the Barrysey Roodinucyses, of Chibod hyper activation werener in angularities regularized on the control of the Assamb Annual Annual Annual Mathematical Annual Annual Mathematical Annual Annual Mathematical Annual Assamb Annual Annual Mathematical Assamb Annual Annual Mathematical Assamb Annual Annual Mathematical Assamb Annual Ann

Shorty Date

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When Dade County Flor da sutias Howard Geosa heads the story his facual/k Patts was captaining why hand to barn down his get hands house in 1865, whe roading todeval assist but then X rays missaked a botts advaped object in his strate the

Greine erstend exprenetcy, sogery BL in the operating soon at Marris - Jackson Memoras Florendi surgeon Dataldo Donna—on the advice of tracklogal Edward Russish—erstuald to operate boxis the ready at the objects operating the the objects operating the objects of the objects operating the operating the objects operating the operating the objects operating the operating the objects operating the operating the objects oper

Dativisio attorney Roy Geber says he will be an expense bookway feet for surgery he was the an expense of the surgery he was promised And North Hes tables on the social Work we have both motionations and we have a specific tradegy to one of a pendid badd, stays microsoftmotoget badd ways microsoftmotoget badd ways microsoftmotoget badd ways microsoftmotoget badd was pendid to the second at the second specific tradeget of the second specifi

But Petitis lormer attorney, kofty Harnania akuptical "The man has a wwd Imagination, she says, "Tab hard to tal where walky, ands and imagination takes over Rufo MacGalgot and Tabi Asapshutz

"The flight of acuts to the moon was no more metaphor."

-Oanal Boorant

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We can an inable scale as accurate on their deathback the area Lorens in a globary had the area Lorens in a globary or in the area to the or in the area of the or in the area of the pharmacological Remain of paymany and backenhai and scenario at USLRs School of Medicane waters to valid to report amate haitoward to report amate haitowards to report amate haitowards to report amate hai-

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In yet another case, an registeen-yean-old college student Nidnacped by two men feit, numb all over my body (), was almost But obstriments body who geng members takin holdspi by a hisi gang bad he hripped out, and kell his body. Then he faxiad toward he deling, he reports and witched himself bained basiter and bained without safterin area bained.

These reports, says Sileph indexes that we share some kind of common wing One person will call it a surgers are show po white another calls it is window to come in other calls it is window to come in other bases with the memory according to the terms a common tread.

Asked whether such lisits onations serve any function Second says. "Perhaps

There may be a before of these forestates here for these forestates here horors may reprive the mean forest may only here needs where the horors only needs by wellence. On the other hand, they might strophing pathological about them. They repair of a normal nervous system response. Just states, and cryy.

Nover groat a stranger in the night, for he may be





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Seven a labour on their tail with an EDBA coderect hair greatming phrome laker. And unmaintenzity procession motal because. Her mann it Many mitoresels, and three motal because is demonstration the benathed of California southers: Engine Bealety whose boles beamford. Seven heart assumed a formation heart assumed a formation of seven mail tail.

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Maryline is use to de new contraventy of non-university in the second se

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AUTIMATTER



BIGPOPT THREAT

When Assale, California, readent Mark Roline authey post of the post office has spring the announced a free-month huming expedition. His quark? Bajdod, the tegendary appriman said to notem the bleep forests of the Pacific Northwest

But Refer a Internom-Ino clab Belgedon rither than clabilitie anti-Unicupit more than 100 threatening phone tals. Some anonymous calers said they would more tee with Refer a expectation deer with Refer a expectation deer with Refer a expectation offers phoned to say that if Keller killed Bigbot, they would kill hem

"Bome bow human up in Wathington called and suid I too out wird try to will Bigtost hey will goat me. And there have been a couple of calls saying it was get hold of you you're dead " notes Keller is long-time student of Bigtoot lore "built don't see hew they re going to keep took of me."

Access police sengean us Device conterns that Keller reported numerous threater ing letters. We looked into ing annu. Here, but working carries of a Mervin gone withan resident can go at this point with the investigation."

How is Never a mission to long Biglood going? While here have been no reports of Kebars signing — mach ess shooting — a Bigloot gother He wasn't in the wide of the Paofic Northwesh hough suit indovenous Euroka. Garloma, where he are converted areated

"He had a rife with a right vision scope on it reports county deputy Rich Walton Set Look tem in

Sherry Bake

Everyone spees a new solmore dowlappy where periodizity with had not seen been composed that there been composed that there was relationed to an any in the apphased constant, and a distortion, in the nonteasity originary psychological in the aphased to an an an an approximation of the Scientific Amarcian that it will be the head to where the science advances and the science advances advan

-Scientific American 392

RESUSCITATED RIVAL

Norman House suffered a horman following galfbadden autgery several years ego to he deoided to sue his surgeons. Fontmand Szabo (below at kri) and Ala Al-Mashat (below at right) of Berwick, Penneghanse

But as Houck's a stromeyconn Annold Creatian texcons table last year an unexcase table last year an unexopeted lives of fast formed the nationade out White latting the jury that the doctors acted fast owne diligence and good judgment. Chaten collaged

The detendants infinedlaty raced to he side Ai-Mashel provided candiac massage and Szeloo adminstered sowen multised of mouth to mouth resuspitation unit Dreman came to

He suffered entries cancella immedia i his color walan t good in fact it turned out ho was clinically dead

We taid him to be down and rest until the ambulance amved," adds Al Maetail



After a slay in the hospital he eventually recovered from the heart attack."

The sidge of course disclared a matrial and the case was refred earlier this year. This time, however chaman was not the opposing attorney, and the doctors wase acquitted.

W lot of people indicated that it wouldn't be right for me to oppose the two doctors who saved my life. Crisman explains, "and I really had to agree."

We don't think the incident of the first link influenced the second that it was a fair decision," Al-Mashel comments: "But a kickly for Crisman that he was sung such good doctors in the first place — Sharry Baker

unimous infinite. Intellectual we stand on an islet in the

meter or an immediate obtain of inexploability. Our business in every generation is to reclaim a http://monitolica. add to the oversit and solicity of our possessions."

-Inornes merry husing





Pertops they will understand him when the period speake. I wind il understaad when the period when his space if a la stall thing net to understand when a long speake when derstand when a long speake when the will even come thing a muser of --ance the long went away have must be other places the long went away have must be other places the lang went to have haid a place to go to The can't be the only place them as the only place them as

I clene up one of the clevel says of the three and set on the set on keys denging continue output starring cut on the value merely like the says. Here, we can set on the value merely and with the web table noise and flappy interorem again. First Limits I will table of my cleans said tables are says for the value intervations says and there are says. The value is of control and datace assays from your ways to control and tables are says the same tables of the limits of the value of the same tables of the limits of the same tables of the same provide the value of the same tables of the same ta

THE TEN SECOND ELECTION

In order tim seconds, with all Amescation of the world in both-weating the outter of the world in both-weating the outled caropades of their results, which weating patiented guide, at the output west and their patiented guide, at the output west and the output world the output was and output output of the output was the output both weating the patient the output output both weating the patient of the output was based of the patient of the memory for output of the outp

R hard taken ten assocrate

Darie Withtake, who was proving gray in the Pottechnizatiliervize, watched it all from the direction officer with descriment. Electors had been growing steality more poltechnical each year, but her was the first predidential election to be hully pottechnic cell-complete-colown to the wast level. You lock three leavery breats, and I was one:

When I think, such Whetake, 'of what a used to take Gandonites can be two peens and third the ar web doubse tak and vertea polyton, conned the public, raised take are polyton, conned the public, and the public peetsers, nouved both herancel and putical debts that fortwar comperensed the integrity. And now all intro seconds.'

He ambed at this isopcode Upprived Pitchstein and, released and full of set-satisfaction, leaned his chair book against the wall for it was his expertise more than aryone else's, that had mede the last step to full polise hinsafty possible.

Somuch the botter, Hotvation said somberly. "The computers record public reaclion in their distinct already over the years record the public words and acts of the cancidates.

And the computers aren't fooled by dou ble-talk or emotional appeals

Suppliedly not So they know what the election results in their districts will be with out anyone actually needing to vote and 12 CMM without the vote being seawed by clehonesty it works in theory."

It works in practice. Len it's worked in local and state electrons for years, and now the event in a newsfard.

By a very narrow electoral margin." Bo?"

If you look, Gene, you't hind that lithous were a swerg shalls. If a electroni vole heat gons to "tainon hard have been elected Hopigood's popular imagin was'smail, and I Cook County had charged a thousand key votes, Hopigood would have lost illinois and the electron."

-867

'So Molntyre's in charge of the Cook County-computers and he size alightly grimoked the programming of several comcesses to make touble for un *

Whittaker frowned "Have you any reason for saying frat?

There have been some suspectous results in Cook County before "

 Paine used
Inis fedoral matching funds to throw parties.
He promised that by the first Tuesday in
Novimber he would have gotten drank with every available voter.

You've never come to me with this. Have you been able to prove tampening?"

No I haven't which is why I dean't come to you. But now he might be able to show we have a tarted preadential electron

Whittaker lowned in thought, then seed, We'l have to resultaise Mcintyre as soon as possible but for now-

For now?

We'll let the results spind of course. What the hall—Hapgood or Tanner—if a the computers that make the decisions anyhow and we're in charge of them "---basic Awray.

THE MAN WHO

In 1968, Gaerae Wallison delha elegia acti to the binetic forthright second mark get himmellina pescent of bei vale, in 1980 John vale no contience and in 1984 John vale no contience and in 1984 John Johnan get nom men pecche lo vale ha rone of the above. Soi takint seem so imrone of the above. Soi takint seem so japashak when somerone innight excluded to un to Prescient on a patterni dialocated to abolehen dhe eb

If elected i will not serve " promised Bradford Bartholomow Paine, from the Wino White House, a skid row feebaa that had been the write methods is for the peet levels, instead of the years and a second second second instead of the years ratio a second second based of the years of the years and a second second based of the years of the years of the years of the Caluma the to the years of the years of the years of new level the years of the years and the second second second second second second the years of the years of the years of the second second second second second second the years of the years of the years of the they years of the years of the years of the head of the years of the years of the years of the head of the years of the years of the years of the head of the years of the years of the years of the head of the years of the years of the years of the head of the years of the head of the years o

Here al last was a presciential conclusion intune with the American spiril To the herror of Republicans and Democrats alike Bradford Barthplemew Piene and his Party perty becan to ise awithin the octa

Pane used his hederal matching funds to have enormous druhein parties where all lends of popular parties have a point of the cause, thus turning his campaign into a increay-making proposition. He promised that by the first Tuscidy in November, he would have gatter druh in person with every perilater were.

It diarted as a pixel but the clowes the bemporate and Plepublications put up when't even turner give way to the begrowing of the pame-time presidential eaction. Bladford Bartholenew Plane was running at the top of the pole.

W least if you're going to have to vote for a burn now you can vote for a burn who admits he's a burn? Pane decland in ha election eve statement as he posed, barhrig in an alley for the network cameraie.

When the electron-clay results rolled in across the country, the incredible began to assume the intiviable, as the Party party pound votes into the poling stations on an opean of federally subsidiared bocce

The drines are on the house? declared the President-Elect in his inauguration speech. Then new on, the government of the United States will be back in the gutter where it belongs?

The cherman of the Presiduari of the buperme Savet all too keerly award of the unpredictable nature of such instituted leadership from his own bitter experiance, immediately decided that his only course was to use for palace.

For as Braddood Bartholomew Parre warned in his first State of the Usion message to Congress, which has delivered diffying sithe podlom with one hand and swilling gin with the often. The most powerful miltury force or Barth is now in the hands of a chursen manage so maybe you don't were to de anythere half met peer me of

Thus was the Comptionense Nuclear Dearmanner, literaly achieved if for as brindgrad Barthelemev Pains pointed sut when he agreed it in Notocow aut before passing out, fou can inverte lid when the life ind builto will end up in the gradby pair of some citazed eleventheg like im

When the world wake up with a hundredmegation hangaver on the day after he respred --Norman Spread CO





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3. A Fach of the numbers when spelled out

Alten / Manney, Salt Lake City



IT'S IMPOSSIBLE TO PHOTOGRAPH our charcoal mellowing process. But this is a charcoal mellowing vat.

Into this vat we tamp finely ground charcoal. Then we seep our just-distilled whiskey slowly

through the charcoal to mellow its taste before aging. Once the whiskey drips into the vat. there's no way to photograph what's happening. But when you compare lack Daniel's to any other whiskey, you'll begin to get the picture.

CHARCOAL MELLOWED DROP BY DROP

Tenetopop Weskey + 90 Frust + Dottilled and Bottled by Jack David Dottillery Lem Motlew, Prop. Route 1, Lynchburg (Pop. 261) Tennessee 37252 Placed in the National Register of Historic Places by the United States Gove **MOVIE PROPHETS**

In prefy J Fornandez a last is if hard a socket is about to sake of to explore the planet Mers J 21 woknowers to politere and tooowers a counter, avintal-avin near of papele who are boin five at a time (thereto a good hear and is had beej J 24 mounts to beet with pool of success crimit, carbin to all sph browshy sity like a threaden outransfrancy forgettable interactal norm bees and in a bayed for laure.

The feat true is law, Just degraph was law parts out it 'like's in a signify moder to based to based the schwarps at right 'Leven at its, linework produces that right a schwarps and a schwarp schwarp and a schwarps and a schwarps and a schwarp and a schwarps a schwarps and a schwarps a schwarps a schwarps and a schwarps a schwarps

The need derivable I away was Thorps to Come (1930) (by then I was all of labour and no support needed a parent I is their man of the support needed a supervision of the derivable of the support of the support wohlenes. The support of the support wohlenes Thorps to Comes in the part before derivable of the support of the support support of the support

Though on Glome comparison the neurosci disk memory and second second second second second metric and second second second second second metric and second s

In the next chepter of the future history, progress goes on inumphing, as we see ovleation in the year 2005. Isol by the ar elite rebuilding seel out of the nums. Goant metics. DMM charse buttrewints hittisets to create a bubbanchmet of the final, behavior bubheritage of the banchmeteler. Fuild: The Everytown of the studies as all crysal and crimereners when serverytown is rich and speaks law they work for the IBBC. These is only one fining to chargly trauble them. The closed and dates (or TV loss if may have built a greate gapace grint bisench a boy rend a grint a greate gapace grint bisench a boy rend a grint ownmarkhult af the sepedition to the moon

So matriped or the part of a web can be beylown chooses unders Fore programs the young people and the autient, spin table of people and the people and the autient spin her own grandean than the previous matrix start people and a solution material theory of could be any people and and solution material theory people and and solution material people and any people and any people and any people and any people and the term of solution the second and the people and the second and the heppeople for the second and the heppeople for the second and the heppeople for the second and the second and the second solution the second and the heppeople for the second and the second and the second solution the second solution the second and the second solution the second solution the term of the second solution the second solution the term of the second solution the second and the second solution the second solution the second and the second solution the second solution the second and the second solution the second solution the second and the second solution the second solution the second and the second solution the second solution the second and the second solution the second solution the second solution and the second solution the second solut

Mobody seems to have to work for a living in the future. They bocce: They go to parties They go out and have adventures on Mars They devote their lives to having fun ?

But no recipique Menerge who is in the test of once of the addocnase and Edward Chaptern playing the tabler of the other. In this is an observating the state of the other. Capable containing their chicken. Chapters which thing and could be addocn the marks (West after programs "Carthiese well by the de other of the state of the marks (West after programs" Carthiese well by the de other other state state of the tweese which will be?

Since both Tange to Come and Just Imagine are clear documentaines it does from no judice to summarise their plots. It is their worldwaw that is interesting. Like most works of art that your is shapped by the world in which they were created.

For all as baggy parts correctly Jord imagine went to some touche to validate in proprieces. The movie does not start in the year 1980. Indoes now date to the tour to a propage set hell a content and year to not set hell a content and year and the most find Sty years car movie wat changes in the American way of the So the texts of they the tours in the tour to the text of the provide the text of text of the text of the text of the text of tex

Although Just Imagine was teleased after the 1929 stock-market crash the world is reNobody ecems to have to work for a longin entire Transport to Carta or Julia Hadgima Ilui, entenase the characteria in Trings of Cares tecome sectors in Linnagene Say Julin 46 palacterys. They books dhough the boots on the workshop dies on the boots of the workshop dies of the sectors at provide the transport of the Hadding down bootshop. The palace Hadding down bootshop dies of the Hadding Accession at the hadron

Of all the methodologues for forecastion the found entrophysics extrapolation is the network. I can be more a second the second second back is in more extrapolations, appeal ing as legical, it is toachivitus. The work depend more in tabigait here, the neghtaping depend on the second second second second extra private workshift for the neghtaping demotopic took an allogather gloomer were of the permangee of the werefind contains.

Thergs to Constant we wait mithin more in a loss of solido by the internet extime. No experim was spatial by the prodoor Alexandric Nations in young Hungsenvelor had congeneral the lithin tim welds that alexed Wilds to dominal an erroriuwood types was good imough to that they used any environ and welds and welds of the language welds and the they was an decision and thereas? Merching they at any and any approximation and the solid welds and any approximation thereas weld immed over to tem specialise. Though the special effects in Things to Come look preity drubby in the enalof Lucas and Spectoring they were a marvel in 1998.

If dut Imagine grow out of the outhous of herbigh trying Amman hermites, Tangia to Cover had a generic potentiation that the start of the trying of the trying hermites and the three in English of the base of it ayouth and month of an instance on the controls between 1944 and 1981, and demand webgrowen another the probability of the web to do demandered ambaility of the webb to do demandered and the webbro class.

SetH G Weils properties no untermethod hourse. White he saw in the near term was death and destruction. Indeed Work/War II came wang sait as he providenties, he were doing at the starting datase right. He know it woold be helf: as it was But, his utopain were laved in--- at channel, long/her work! beyond it is show woon that the film of deplays.

Of caccers the vacant wate integration of the type in time and class Well is water in cace by the time and class Well is water in cace hands. Waves a strate character the forget of marking? Bleaces Well is even of parts and the last hands well is even of parts and well is the hard before an entransition actually beginned. If the hard here the forget well is the transmission of the last marking and the strate is the strate last well is the strate the strate marking well and the transmission of the and the strate the strate is the and the strate the strate is the and the strate the strate the and the strate the strate the transmission of the and the strate the transmission of transmission o

Worther, or the other more were a differ entrop Welle ware a more the feasibility of the style in conclusion ware impaired lemans and provide the other ware impaired lemans and the start of the start of the start of the were ware and listing in him more Marnet and the start of the more ware and listing in him more Marnet and the start of the more of the start of the start of the start of the leman start start of the start of the start and provide the start of the start of the start of the other ware ware to be start of percentility of the other ware ware to be start of percentility of the other ware ware to be start of percentility of the other ware ware to be start of percentility of the other ware ware to be start of percentility of the other ware ware to be start of percentility of the other ware ware to be start of percentility of the other ware ware to be start of the start of the other ware ware to be start of the start of percentility of the other ware ware to be start of the star

The Everytexmolith expects guit and only a sterior upper in a lam have buy underner catio trave. The reason Theotocopylos has the privinge of skings the TV charments and lossing the motion he field us is that he is a master crastification and next the right to be haved, maying that the octimary working laft had better keeps his face what in the prosenoration supports. Work: it is a duil work? You can I braine the kick for warreng to go to the moon, or the mobility storming the space gun, Anything for a little exchement!

Reaconstraints run that all the above it has the above the second second

> The gattering mixage of utopia seemed wathin reach, a new Carnelot that could be raised to reakly if only a new chivality could be found to warrant if

rowdy after-hours self. I loved them both

The work has come a long way in hist a contrary Both has ne now taked, Just Anagete is strapper use given would be tagget on table you wont to subtents of the constant provides and the same has a strapped and the same has a strapped and a method of the same has were to method and the same has been as a strapped here assumption and the laber and this about an it thay interast body protead with the same has a strapped to the same and the same has a strapped that about the same has a strapped.

STANLEY KRAMER

In On the Beach (1958) mansed eliminated all life on Earth through the spread of nackaterive dust following in stome conflict.

At the time the general public considered the nuclear issue a highwang subject. Yet mitil did not below indicative due could travel through the atmosphere over the entre globe as we depended in the tim. As a small commentary on the ways of the world there were even many scientists back then why look issue with through Using Time. Brown and Linus Hauting for thrining that On the Besink spoke the truth When Nouris St. Helmans ash traveled as far as Europe after the 1980 eruption it costarily paration our feer that a megation spokeson—erement bet that a megation is 50 bitmen inces powerful than the assess bombs discposed on uspen during World War. II—could generate takenarize parabilitation errors possibles

The projection was adjusted from facel for protection of the second second second second second entering second second second second second second biologic networks where the second second second the first second second second second second second term from second second second second second from the second s

Based have average the outer of the object of the outer of the outer of the object was Graphy Peck and Antony Network Network and the outer of the outer outer outer outer outer of the outer outer outer outer for the outer the outer outer outer outer outer outer outer the outer have outer outer outer outer outer outer outer outer outer have outer outer outer outer outer outer have outer outer outer outer outer o

Normal the recented in incomend that a Bank Department effect at the time left me that I country photograph an atomic ator matrixe at Field I Holtor tocauce the Freene of Der Nee Banch was the workto ent file tocaths bait ways in the USD million can atomic to the second to the second State it was an ear to the end as I dile to use to divergent to the united State it was an ear to the end as I dile to be shown on the substance. Include used to Behah "Cuppy" sub-involved used to Behah "Cuppy" sub-involved topic light optications outpic

When the taim was released, we did make deep insolds into the consolutiones of the masses—but we weren't as effective as we'd have liked. Too many pipope avoided the Into boosses of in theme and outrin see it used (applice) theme on the sector sector (applice) and many time Kharmin their as a subject to camage time Kharmin their as a subject to canot (applice) the sector sector sector and in the sector sector sector sector sector sector in the sector sector sector sector sector is almost think. During the sector the sector test sector sector sector sector sector for the sector test sector sector sector for the sector sector sector test sector for the sector sector sector and sector parameters sector sector and the sector sector and the sector

When you box at an old then the fact that the second secon

At any rate. On the Beach consume up

interview. Wernows such as the Moscow premierb—one of the merey key obtains in a sense right world promote—and the data usation that followed with Russian directors, writters, posts, and others. They appreates the tim but instead that if they had made is they would have provided is solution. I would have be would have provided is solution. If would remain the tims are the outport.

We know you Annancare don't euplant, ported out a Sevet checkor at the screaming "But, you nee we don't that you often Each three we discuss the matter—even ways and mans to discert from the policy of car dain government, compare always to minds us. Who are the only paceful who ever duce dain company.

Note that was a back rare to deal withevent 25 years ap 11 is even back an today when our administration resolves the right of a trist silve and take of the pacebalay of a trianal nuclear war. At On the Baach assuming them are is of of possibility of a trianal nuclear war. At On the Baach with our government threas 20 million as pact? And write about the many debuted pact? And write about the many debuted calls.

And whelever happened to the Naramberg doctrine that funds and in Nari justhostons. This we below in thuth, justice and the value of a human being??

But there is everys in scores. What score is the flavour of the fl

I go to Chinte deach screenings to particpatio against the insolair arms most. This has given me an acovist stance during a paned whan my articritis are landering and my has talls like white stoke on most important political social and septial data of the city.

It is our detury to save this difference to any every sterils indiring the association. We must involve the indiring the association well not the three bases and induce to accept the possibility of a nucleas were. The old astises that do accept the association is the association of the association is the estattism is a steril to accept the astociation of the association of the association of the assotism that any association of the associ

PHUPSTRICK

An actual in Life magazine in 1993, given the task of revealing the probable life-style of tomorrow's obsense, showed passengers at a Linted Arthas terminal boenting a visit.





A dressed up moccasin.

If is a moocasin, but it's more, with a brass buckle and foline, you're equally ready for business, partying, or plain relevation. You'll enjoy lightweight comfort and superb soft cellsiten in one of the trimmest, most, flashbe shoes ever fastion/ed.

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Gentlemen's Dress Shoes by Foot-Joy. peoplier-driven cetif thet like high above New York. Another anal, in a 1011 issue of Judge, drive a periodstrans-tepy lever of the clode, where names wanged planal horend perioady class logation, just above the systematers. Looking up or looking driven, the some concrete enclosure marked the boundance of programs.

The trucking before of the city, eaching the set yee periods trucy of cyturistr, suggested to prince of others in 1990 the gitting means of these seamed at most when mach, a new Canado that could be the truck of the seamed at the could be booth the new checky be warred by constructed and percengant make could be the other and percengant make could be the other and percengant make could be the other of the percent seamed beam. But choose when the tay mean of the seamed at could be the mean of the seamed at the tay mean of the seamed at the seamed at the seamed beam seamed at the sea

The backet with our environment has been receptuated methods more of dearly. Then in sample receptuate methods are set of the sample receptuate and the set of the users methods. Each strategy the second contract, so a set of the second second second data, to a contracts that users where the receptuate and the second second second data is an end of the second second second taken in the particular that we and the second second second at least one the partic, that here an row no contract proceed in which and the second second second second second at least one the partic, that here an end the second second second second second the second second second second second the second the second second second second second the second secon

The avery loss formed methor offser in the manage of the Territorian average and the second second second second second second when Figs Lange dammed internet has the second second

Large weight sea aid the nagrideers maal dry, which completely dwhild the native parallely of the Union, marked a maal dry, which is the weight of the sea of the unit active the sea of the search active the adversaria to every read, and is applied gets user towards upon by the resterior of the magazines many of them too yourd at be resteriot in which the the adversaria to adversaria, the search active the search ac

Such magas wats an obsport testament to what became the obsessors of the Theines extends in primity colosis by the siancia lictor magazines that damenet for altechno on the newestands. Them the back cover of the August totherdon of Antonny Saves, for interace come the prome. The city of bomorow engineers say will and first to vesteed — giganite buildings compared

by was supported todowas to witch tathew at peak to inhard-of rate. Helooper plans, capable of marriwarray about between buildings and control anports, witches the place of the planet of supports. The place of the planet of the supplies into grant marchanize was the supplies into grant marchanize was the back the gound in the city, nate will be compared, and ance will be deminition to the all subscriptions of the subscription reaches y atmosphere of the subscription reaches y atmosphere of the subscription advatable back on control houses.

The Receptore, Large spart this fails are cetty as in 1.0 Weath mad, Sorar bortow here (Visa) when as the Montal Sorar bortow here (Visa) when as the Montal Sorar bortow here (Visa) when the second second second second second here and the second second second second second perspective central how the systamic bortown this and hange then hereit market mediate? — Jurg here and the hereit market mediate? — Jurg memeral to loak per central mediate? — Large market areas, shough with whose hereit and in the low person hereit the system could be market areas, shough with whose hereit and in the low person hereit bort allogether clean

In this is once if her mysenetic terms and the strength of the systems terms in the of the approximation terms in the set of the approximation terms. Thread the terms are strength on the systems terms in the set of the systems terms in the reduced terms are strength on the systems of terms

Tony years born the metakina of Logari's fact (bird) were all unation (bird) that Machine Data (bird) were all unations (bird) bird (bird) (bi

According to the cinema, the protected environment offers an inevitable clausinoprobet A city may be occurred in the end hanks results of the problem is not firms the Astronomed 451 (1966) or 746 (1966) (1971) allow cannot describe the before not (1971) allow cannot describe the before not contrast enforced by the covers that too build and anterpartic products of allow the number of the standard based on the standard relative substantiations. The variable allow contrast enforced by the covers that too build allow the standard based on the standard relative substantiations. The variable allow contrast enforced by the covers that too build relative substantiations in the variable of the variable and products below whith the standard based on the standard relative substantiation in the variable allow the standard based on the standard relative standard based on the standard relative products and products below whith relative products and wave and allow allow the relative products and wave and allow allow the relative products and wave and allow allow the relative products and products and relative the relative products and wave and allow allow the relative products and wave allow the relative products and the relative to the relative products and the relative to the re

have frequently recoprized the The ideal ofly contains no obzens whatever

If well have to be leveled if the human race is to be victorious. On the other hand, what purpose will survivel server if not for the construction of fresh others to demonstrate how far we've come from savagenr?

One way to see the see "right be to abase off it is capace man implificationsheadly be inform (and in fact has at the and/of Sanitay Accesses). While making setter 2007, A Contration of the setter setter and the setter of the designed and furnished line motiocontrain (official and furnished line motiocontrain suggests a containty view Authorists) and/official and immonity from Arc San under Dut accessing immonity from Dave San (1975) anward have reflected the wholy probable disinclination to keep them tudy

It is spread and the spherody supprises, the issue of the spherody supprises, the issue of the spherody supprises the backat reactings for the horse phare. The second control of the spherody supprises the sphe

at the touch of a button. Forbibletin Planet classorable the homely truth that man must conquer himself before the can begin to infirst other works.

Returning to Earl alter 2001, Katoric begin the blobs cereaping in this curve with A Cachesek Genzgein in 111. In the national of King Kerg. In earliest in antibion of Antoney Burgeola young thus Alex Cetazege (Matorius Alexandia) and a state of the state of the Alexandia were alter-shared paceas Matorian constant that alkness had the same Matorian constant that alkness had the same alter state and the state of the state of the state of the state of the matorian while alterology categories and matorian state of the state of the matorian while alterology categories states the states. A support object control in thold, as

> In this pose-packed buildings are an invitation to vice and plique against which the cleansing loroes of rature might rise and storm out in outrace

This monitater shall be the provided to the the shares been been shares been synthetic Ubb been synthetic Ubb been synthesis and the becaft at a parchain and if the outy is the high and accurate parchained the and the best probes and the best probes are solved to the synthese series of gail. But the sonaity available that the sonait the son

THE BEST GIN GROWS ON TREES.

The driest and most dekrate sun of all, in fact, comes from the tree at the left the family tree of James Burough a distifier in 7th century London Burocuth had a base philosophy of

sorrough hid a base principly. In you want a thing done right, do it yourself. Not a single distillation of his Beefeater Gin loft his distifiery till it was approved by lames himself.

He wasn't much of a delegator, but he made a beautiful gin.

His philosophy has been handed down through succeeding generations of the Burough family, who still supervise each day's run and approve each batch of Beefeate before it leaves the distillery.

The apple never falls far from the tree. For which gin dimkers to this day are profoundly grantul.

> you find a hypereflicient machine that came from Earth -Geospe from cloom in When Workds Colide (1961), and find that the new darret meyoribles a Disney carbon.

BEEFEATER*GIN

The Crown level of England,"

In the Ball Wara areas, for all the subcarter subcays of core in accore the attragate between many and technology continues to right The Ball Wara saga is climity about interferes persons meaning temporary space with incruding throat in the tempolem discretion (Limit) or bits the problem town ordeness under her right sky speetoarg, severs her speetoal symmetry of human habtabon the warm fiscenseer provided by the lights and obters of progress Net for nothing does his supreme evocation of the future the motion alog in *Cleas Encounters* of the *Thank* Mark (fart), look like a trany-tale land of spens and skysterigens as if miss, glowing, into the size.

Perhaps the poltergeists can be persuaded to leave us signer and the city will become a condition we can live with CO

From Omnia Somen Flights Somen Perinses The Future According to Science Factor Criona, a DoubledayDolptim Omn Posse Book Copyroph & 1984, Av Danky Perry

AUT AF TIMF

bing commission roused used when the the millions, yet somehow failed to show a

Once he realized that there was no way tory for himself that would and in clinical tenants, told them that he would personally declared dead. They expressed mernal grabbucia

But Del Vecchio knew perfectly well how wile and their toproge children to live in Switzstand, when most of his paraonal tor time had been cached with the promes of restructions on when and how to row to him

She arrest langedly at him throw her arms

around hip neck and kissed tert preseon

stely She said. Honey Liberty be fits eight when you get out

would shill be his current age forty-seven. But would his wife remain faithful enough to

What you're doing in court may be legal

of the tecteral chatrict attorneys who was passecuring one of the innumerable current

Wyrered? Del Vecctus shot back. What

They were adding at a small corner table



countrouse a place frequented almost exbrow at a defendent buying dimer for a prosecuting attorney Alter all prosecuting lord such an elegant restausant, candidight

If the say linds you quity, the sudge here to mpose the penalty' the distinct allomay

"Jury" Del Wescho almost spat "Those twolve olythools! I'm supposed to be tried

The detect alterney towned shahly. They are your equals. Del. What is it that melors

'My equals? Del Veccho laughed Do you really think those unemployed turns and

The attorney's flown deepened. His name was Christopher Scarpato. He had gone into the prolesson of law because his father a small shopkeeper continually in data to how to out wit the sect of the works. While Christ was working his way through law school, his fether was beaten to cleath by a pair of overly zealous collection agents. More of a plosidiar twitte Department of Justice where careful feativ public relations and passionate metmaned honest and dedicated Del Voopho

And whet makes you think they't find me guilty? asked Del Vecchio, just a trille

Scarpato Imally realized he was being They ve got no choice.

Del Vinochio s grin faded. He looked down at his plass of pasta then placed his fork on appeten Haven't been feeling so good

pled "You don't have to put on the act for

You're going to get some tame doctor to

stread he broke rito a gon. "Is there are thing rilogal about dying? Or being floasn?

You'l have to prove that."

Scarpato said. "Is an attempt to evade the law That's immoral, even if it's not file

Let the prests worry about morality. Del

You should worry about it " said Scar-

patio. You verturned into an associal menace Dat. When we were in school, you were an olaxy send of our, But now

"What if in poing to lose my soul

 Maybe you've stready lost it. Naybe you ought to be thinking about how you can ge it back."

Dal Veccho grinned at hm "Lasten Chiss Idon't give s deministicut isculti Dat i m gorig to preside i my body yeu can bet "You wont see me in sat, old buddy I m going to take is step out of ime, and whin i come back, you't ba an old main, and i is all be young

Scarpato seed nothing and Del Veccho lenew that he had selanced his fixends at lampts at conscience

Set that take have of year that Bearpaids hard avecpeed confrared DeV who have avery aspect of the plen which has heading approximation to descent an impactly. The doctors played there part to perfection have here already comnortably energy encoded in device already comtoratably energy encoded in device already comtoratably energy encoded in device already comtoratably energy encoded in device already when they held to do

Yet as he tay on the chinc table with the glassing stationer shot over hird watering bestdehmiske a most lancal whete hist was going to swallow hint in clarizona. Del Vec dato could bed his pulse taong with her the table thing he saw was the grainit guived decase makered sporceabing hist with the hippodemic sympt. Thest and higd water of water whete gui toon the tarks of legal. natogen. The readle tail sharp and cold. He remembered that platis of Danie's hell wake instan in log.

When they wake him there was a long period of confusion and discrimitation

At lets the thought something that getter wrong and they had inserve pair throunder Bat the docksrs were all ciliterent and the sorown he uses in was not the ciliter bin had strown. They keep thim in bad mode of the line except when bio having young monceme in to loton ten to gat up and wang around this some. Four these around the HM topped notine deciver tent the monement sets of the source of the HM topped topped pairs and the source of the HM.

A female nutse wheeled in his first misil and spoon lad him he was too weak to in his arms

The second day (priveek or month) Scar palo came in to wait him

"Final the sourcest. Del?"

Strangely the attorney seemed banky to have agod at all. Them was a hint of gray at his temptos, pertags a line or two in his face that had not been them before but otherwas the years had toated him very know.

Read of week. Det vectors arrowers Scarpace modeled. That is to be expocked from what the models fell me You heart is good exculation strong. Everything is dear physically.

A thought suddenly flashed into Del Ve

chois thewing mind. What are you doing in Switzerland?

The afformery's face grew somber "You're not in Swaaetiand. Del We had your vet llown back hero. You're in New York."

Wh haw ?

And you haven't been under for lifeen

Del Vesche tried to sit up in the bed but he was too work to make it. His head serk back onto the pilows the could hear his cube thudding in he ears

Titled to warn you. Scarpero sold, their right at denine in Previolence. You thought you were outsmarting the law outsmarting the people who make up the few who are the few thut you can't outwill the people for long be!

Duil of the corner of his eye. Del Vecchio eserites the rooms only window was conaread with a hoavy wire mesh, like bars on it gal cells window his chicked back a shocked basis.

Scarpato spoke queety without makes Your cute life crystrics listk forced the people to take a fresh took at things. There ve been a few new laws passed ence you had yourself leaven.

Such as?

Such as the state now has the right to arrive a frozen capple if and when a pry feals that corpse had temself increa specifically to made the law

GetVeocho felths heart ank in his chest



ials Some judges-I'm sure you know

On my God in

callihern Wore emp-

nal weve found a way to make them happy."

Station almost amled Wel. look. It you out and make you well again well

You can't do that! I got owl rights

smole day while in the liquid intropen. When psychological mibelence you will be thaved

The whole world could be completely

Del Veochio broke into uncontrollable

Scarpeto shock he head. It's done Be of it, even if I wanted to 'Your wife has found terself a boyhorid in Swizorland some

You did this to yourself Dell. Scarparo snapped "You thought you found a rece fat us were tools. Well you made a loophole, all

His eyes still flow never wake me up

freaten it only costs a about

in the world I wonth

Mistereo through tex eerolus stereo headphones. And clos to your belt

Scarpain shructored. We have no control best for you. In earlier societies you might nap and then someday will wake up in a of you are suffering from the same dysfund

That a when the condiary in Del Vocchetia francis even rol up ofe his bead, his both

waiting starriess steel cylinder where if clistere future

"You're out of time now. Del " Scarpato the glasming dever "Really out of ame 'CO

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TOSHIBA

NTERVIEW

COATINGED FROM PRICE NO.

but to keep it moving ahead so faat that the Scients will sively be behind [Do you three the Department of Defense is following the Consort panel's recommendation?

Interes Res Learn 1 dans large the set any obtained in tension of the postance tad any throm energy threads and the postance tad any throm energy threads and the postance tad any threads and the postance tad any the postance threads and the postance tad any the postance tad any the postance takes the postance takes the postance takes the postance takes more any takes the postance takes more takes the postance takes the postance takes more any takes takes the postance takes more any takes takes the postance takes the postance takes takes takes takes the postance takes more any takes takes takes takes takes takes the postance takes take

Over, is the consistent with your NSA-GM position calling for voluntary comersing in such arress of research as cryptography discharge, and possible research?

Other Think you successible in naming the sexiel i remember especially your ackiteseing this pectient at a AAAS meeting which i covered for the washingtone from

below There is the product of the Nu bound handler of Descretal cale where the the coverge in the ancie and and. Botto the coverge in the ancie and and. Botto the coverge is the second second coverements in the second second second and the second second second second may not have make any create the may not have make any create the the second second second second second may not have make any create the the second second second second second may not have make any create the the second the second seco

Center-lype panel amed at industry?

Inman I don't sea such a panel moving yet Reep rudging people. But I ve got my hands full notit now.

Onto: Has your perspective on the question

The best way to put together a professional sound system is to let professionals do it.

The professionals at Toshiba. With their incredible vistem 55.

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of voluntary self-regulation and consorship changed since you loned MCC?

Initial No Explorence has shreen that in a monoidy defined and like crystegraphy selflogitation can work with acceptable impact on individual freedoms. One of the key ressum that the process flaw worked officedefined and there as no like worked with a dealer work for acceptable to other access when there as no like of being opendimmed for acceptable that represent grad public detamining peer revew works

Onvir. What did you do after you resigned from the CIA?

Internet When I National I speert two months becomplete country with my family. This bogs to complete the two the transformed states the combinetal United States at their twee. We had in worderfault devices thought and with the booking at the United States Author and with the booking at the United States Author and the in intercent word and ward completioning their filling to comparative.

Once When you talked about relining, you start you oldn't want to go to a company that does work with the government.

Investi I didn't want to sail that is to get induality contracts from government people whose careers I have had some responsibitly for promoting

Otto: As a matter of parkaple?

Average Yes, as a matter of principle Owner. There is a good deel of that saling back and forth between governments and

the intervention of the server have had monitoring the position was an anogarit and, because i mad enough offlers that load after in the deal with the government from the outside that may also also that all any rate, takening dhar options, I centerly did not want to do meeted to feed my formly some way well, I deal meeted to feed my formly some way well, I with the second second second second second meeted to be the my formly some way well, I deal in second second second second second second meeted to be the second second second second second second to be second second

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Onw People say you guit as deputy director of the CIA for two reasons one personal, the other over disagnoiments with the director of the CIA. Is that conser?

Inman: If you go back and read the suntempt of my confirmation hearing, stuck away in here is, in froot, my calutonary statisment that I would stay, at the outpade two yoers. And both the President and Mr. Casey (CM Director Wilsem Casey) knew this at the out-



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Grew. You wanted to get out of intelli-

Bernan Viss I'd dong thet. Thad is wonderful time in the intelligence limb. It is a great hed and twold announced people to go into it but when you reach is stage where you're no foregre an analysi, and you move ell to ba a manager, then some of the ethem ellow away.

Deers' You ve mentaned this a couple of times Just what is intelligence analysis, and what is to nuclimo about 4?

Interest the book at access of evidence, you work up a grow puzzle of information you refly are clear the same sam of thing as a reporter thou pack up bits and pecces of information and pursue it until you such to one.

danly gat the whole story. There is a great similarity to purnation except that usually you are not cleating with guite the same bits and pages.

Orner You would have napatal from homeparters magazinas books and what elem's leasan You regit have intercepted learnebody's comission pathless an interlogical massage. You mgt have is phological how some photography of aurural budy ou don't have precisely when thicko deven And you would be looking for a number or a last?

irman. For something significant. Where are they going? What is the direction? What and of programs are they going to start? What lend of systems are they going to



build? Or in cress what have a lacter will have take? What is going to happan next? We can tak about it now but one of these years it will be possible to tak about that eade of the attainabilit taken hosting the case and the ultimate release of the frantages That's going to be some years. If it way indereding?

Oriver So you encled up as a manager of people restract of information?

Inmani Also, instead of doing creative things with my own mind, I ultimidaly resolved the point where I bocame more interested in two the netligence was going to be used than in the process of how it was produced. So whenever propin rates the spector of *Ver* you compliance to be the credit of certail instigeron 1.% Admission demonstration? The answer is Admission for the combination of the state of the original state of the state of the state of the original state of the state of the state of the original state of the state of the state of the original state of the state of the state of the original state of the state of the state of the original state of the state of the state of the original state of the state of the state of the memory of the state of the state of the state in the state of the state in the state of t

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Orm: What is parallel processing and how will it be important?

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Onner MOC is a group designed to solve a particularly American problem. Habalcally, what is this problem?

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Once Luking behind all this is the sense that the United States is either already behind or a sloperio bit no the apprime and



others. Has America failer behind?

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Others We are living in an information accurery and you have worked with information and technology all you lie Since the is 1664 should we worry about the way information about us iss private obtains is moving accurd or being stored?

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Los Argeles

Bizsting the Bomb

"The Art and Science of Falang 1." by Frank Kandro and Lusa Buck Living 19941 states

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Connos Backet

A Tree Gazani

This lefter is to passes the article 'Trop-Poople' by Karon Bichwarz (Barth Jane 1994). The origin they for an and heard about TooPoople were it mugh their heard about TooPoople were it mugh their rever stores on their store. These reports fold of their work heards another toors and hits during car writer stores and hits during tarmen during company.

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> Carole Clarke Los Argeles

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THE CANTERBURY SWARM

STARS

By Marcia Bartussk

red of worrying about the thesal of nuclear holocaust? Modern day astronomers are providing us with plenty of sitemitavea

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Many centuries ago says Brocher a massive comet catcling within the inner planets underwant a series of breakups One papes that usit knows the sum every 3 3 weeks a Coreal Each a manufact what the membership control of the sum and the membership control of the sum and the tagements how the paper (coreal Bischier theorems of the lawsy gradually pepper indexes of the lawsy gradually pepper up colume of tages some the membership and coloring the subsort of the gradual performs and the sum and endow up coloring the subsort of the sum and endow up coloring the subsort of the sum and and up coloring the subsort of the sum and and the subsort of the sum and the subsort of the output of the subsort of the sum and subsort of the subsort of the

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Gervase duly noted in the records that two monies sold inn that the upper horn of the new moon seetted split in two and a tame shed from it just wher sursation June 25.1128 What were they writesang? Passay eign perfurse axel in thin plantologist ack Harring work? report that a kinar creter. Genterio Bruno could mark the still of that hadth century impact The cases a size incloses and the bland relevant the energy of a matmengation nuclear bomb human size of times more potent than standard nuclear weaponny.

The earth had I frey have obtaids with another gain Carrotruly fogment on June 30. 1600 when a mysterious explosion mart the Boxy Turguka have in Borona flattered thousands of square miss of beards the replace on comet Envises beards the explosion on Comet Envises debres strong the fungation event consolition with a metace abaved of out particles left in Enclose tote

What was put lakat encounter with the swarm? Brocher believes 4 occurred in June 1975, when searcomations lief on the moon by the Apoblo astromatics started quiranny as meteorotics named on the tune suitable during a fixe-daw storm.

His supports and based on a preclamating pattern. The 1778, 1900, and 1975 events objusted at the same time of the year and the objects came from her same order ton.1 Receive practic cat. From these trade cat clues, the Boston rescarcher mode his examates of the mass size and crist of her theoretic savem.

Brice the earth and the swarm have different orbital periods they don't meet up each year. But tables every 67 years Brecher predicts thet next surmer Burth will be present within 20 million meas of the orbiting cluster a good opportunity for oppeal and infrared attractments to take serve proceptupits and coefficients infrared.

But June 2012 will be the tog balle to meek on your calefold in According to Enocher s calculations, that's when Earth in scheduliet to preschedulith a swalm. If were luckly threa commo title - where will be marked by just a few herbeite blazing through the sease as some of the warms calcins borns up on our comcophere

But the Siberen calestophe strive as a semidar of the other possibilities. Wy guoss Brocherseys is that them will be a posen-ten to a one mini-hundred chance of another Tungusta event. CO





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"WHY THIS SHORT PARKA TOOK US SO LONG." -Tin Book

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Loss obthines new nould the work owe soft to be repected Lethin which the uses offs to be method by the soft of the and hardbed in all They socie with um legned warmful at the active warms and the autor of the work of anticectoge and bee number and the work of anticectoge and been they analyzed the foreign and pact or propering for wary were used their the soft and but in which loads the diminish each age and to be new Object.

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INTELLIGENCE

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VATICAN SCIENCE



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FICTION



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THE BIG CHILL



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CLARKE'S 2010



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COMPETITION

Frankenstmit: A hot dog and a beer

Googol Baby Einsteins first word -Aller J Maunoy Sat Lake City

Hermiteen: A testory for women's baseball -Georgene Burt Fullerton, CA

-Augoria Lowingston Turse

intersect: Middle-of-the road religion

Fractoriste 16/2 -Kata Stoler, New York

Ingest Only katcing -Andrew Eide Chula Vista, CA

Female Postage due Groundhoo Sausace

Flat.fert A borowed spertment in England

Guese Trecoverties -Michele A Puscol, Barlow FL



Gallowa Premenstruel syndrome Graffy Last button on a bittoler

Hibezue: What you can if you use too much baking powder

-Richard Waker Timonium MD

Famme: Cocupation of a New England

-Shada Forseth Investor NJ

Insmuele. What God aaid to Eve after she

-- Churyl Buck Anton W

Bandlass. On the rocks Altern Stat Photouth MA

Freerool Tenured -Pat Doersing Akeanolig Vil

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loncaphere. What Columbus claimed to

Inca. An ancient culture that precoded that Islastic Thohest foorno for a runatry Gastronomy An interaction search for fossil

--- Philip Harlow, Columbus, IN

-Long Bals Lakeport CA

Gladiator Alter-clinner comment of a

Funder bender Un Geller's next act -Daugias Parson

Forerunner Anchormen in a relay race

Homogbone: Harrimet anvil. or attrup

Hoctometers. I'm using a yandatick -Data Howkos Bargar MC

Hexagram Durse delwared by Western

-Cody Strike Washington DC

Hexameter A device for measuring mage

Hyperbole Last game of the sessors for -Zmarty S Pockers Merca All

Fakir Auditory prostness -Michael J Pation Del Max CA

-Frankin Harrs Palo Alto, CA

Displamentalist & powerto mension

Incest Sibling ribaidry -Bity (son Washington DC

E stop impenetrable flap of alan in famales -Babb Harry Los Angeles

Hammarippies: Two things you can have on -Scott Press, New York

Grapmane: Medium for curtilit events

Instea Constance - Bil Burns Coaskin BA

Forenaic Montegumil's revenue -George Hawshorn Hollywood CO Dow Northern Jakasd DO



PHENOMEN/A

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GAMES

By Scot Morris

Them as a province down over the first here and the province province of the section of the section of the results of the section of the section of the results are also and the section of the results are consistent on a cancer of a section of the section of the results are consistent on a cancer of a section of the section of the results are consistent on a cancer of a section of the section of the constant of the section of the s

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Equangular species also underto the commen resounception that moths and astacted to light, in fact, the moths are using the tight to revigate. In the long history of their evolution, a bright light is right was usated the determined on Tay fact on that.



The four bugs problem. Here her do likey trave? 152 DMM

Ight and levelage 1 at a containt would imple some 1 with the net south measure along the strength time. When man come along the transforms typic the call management correlations typic the call management south and the strength. The call interplay on the time south and to fully discuss of the strength and the strength of the optication of the time south and to fully discuss the strength these is control to control control and and the strength or the spectra and control and the strength or the spectra and the second on the strength or the spectra and the term is television and spectra and the second on the spectra of the spectra and the second on the spectra of the spectra and the second on the spectra of the spectra of the spectra of the strength of the spectra of the spectra

In the four-loage puzzle, each space path stays previod to the solar of the spates a order mana deorthy lowerd 4. If the trajeweek replaced by dimension kass path each point would hanch the sources confide only after making an intente number of meria form amount it.

This panadox is that even the ourse with inferee tumming shiftings is definite finite length. This puzzle is to find that length. How lar does each bug travel before all four mod at the mether?

NAMES OF BRIDE N

Ages L, Wiemann of New York City, New end us some unusual computer georhics based on an ongrink program the had written to solve partialit curve problems like the one above. We have edgeted the Vibraient oue from the propose

Wermain solution (matching) toget the comes of a rectangle and programmed losen to waik exactly toward a 'cone' formale long. He gove the tendo versus emploi geometric paths to take and lot the compare those out the pateut paths of the four takes. Sometimes the results were converted in present phenol descript.

The whole exercise becomes a public when the ferreles path is constant and you try to rifer what that path was based on the routes taken by the four publicant

The numerical isolations along page 100eline the pursue, path of from mask bugs each of which statistic in one of the four perress: calvering at the same or obtain table lowerd a formale bug, which followed one of the fearing page from table is to middle the paths of pursues and pursued. No will neek that bags obtain middle tables

Included to which no conseptionality (kindle costin appears. That is to make this quite is the more cheatinging. After you have matched auch of the aix letters (kindle paths) for an appropriate number (make paths) that will be two nambers (make paths) after over. For each creak, data the two more) terrate paths that are mplied by the make pathers that are mplied by the make

INDER PRESSURE

Judging from two recent errors that readers have caught in our Oron coturnes we must have out deat the day that air pressure was decoused in Physics 101

The April could of the wollawing one hypotestable we described how you can put a pretext hant bookd ogg into in mense maked babbe by borning prise middle the botte and prisering the aga over the opening. The bis construction the are in the botte, we seed, and annophesic pressure custors the out middle

Our naching as was dety but our explanator: werit? The line all obschrift ensume the air inside the bottle, it heads the air, causing it to expand and therady taking some air out the next of the bottle, when the kee goes out, the air in the bottle costs and contracts exercise a relative vacuum resets, and almospheric pressure means the cost in.

With their out-of-the way, can you ligged out-how to get the opgiour of the bottlar? It you nivert the bottle and stakes it, the oggi will be supresed into the neck, decreasing doe air pressue made the bottle which will prover the opg from passing any forther through the middle.

To get the egg out you have to reverse the process of getling it in-that is find a way to make the relative as pressure inside the bottle greater than that outside. How world you do if?

Bacong in our June 1984 export on Comprehen +311 (practical adoption for presidual policitarity) was werecal at \$35 stranse taxano. Georgia, for the matrixed of assigning the sode in is two-two backform going that "Tech time a boot-two backform would signateze the lottle enrough to rate to the locative mark the matrix Tech list alide the locative the sole the matrixes.



The shear is as to not herein the residence from residence of the control and resultance of the all hereits buy What was the Min buy a partici-

actew on the cap so that there was very little



1 DON'T CALL US What does the following

2 COMPOUNDS Given these four words-

- C going richas hant liver

A Ebyle size wave





P. Double and some





- A Complete the following sequence.

letter English word and the result is a

A F HUKLMND DRS U WXY Would the Z go above or below the line?

In next month's salue, we continue the readors parly warrange of Pac-Man. Dorkey offered in previous years DO

3

LAST WORD

By Mrich Coleman

These basis and buncheds two tests of power book moving on the methy basis basis of operators working at the result of material flowships in status of Arranged Society and Data on Research Americal Status (SSRA). The scientials are instrugt methy percare in the game marking interacting methylics and demonstrate marking in the basis.

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County was addend whother there was only way transers could at least assess the authorized a prime speech and thus avoid these mission/sectors.

"Who do I addrike, Chi Dookta' No. Basels only concerns to mane you do not obland your pet and that is to Map inyot to correctioncase in its own tanguing to But for going pet transmisters in doutors it

"too row here already said consident teal may deeply offended your pet. The alread inay lost ading its inner weiting to certer the isopic." Godiff anys

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