7ci fgY'Cj Yfj]Yk

GHJZZ7cbHJWh8YHJ]`g`

'7cbj Ybcfg'

B Ua Y	9a U]`	5j U]`UV]`] m	@cWUh]cb	D\cbY
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GWkcc`7cbhJWh =bZcfa Uhlcb

GW.cc`cZ9Xi WUhjcb 5fhg`UbX`GcWjU``GWjYbWYg

@Yj Y``%ž'>c\b'; ccXgY```6i]`X]b['fl &\$Ł

H. 'Ž * %'f&Ł'-',) '%-++

9. YXi WUhcb4 i bgk "YXi "Ui

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5 http://bxubww.F.Yei]fYa Ybhq

5XX]h]cbU`GWXcc`cZ'9Xi WUh]cb'UhhYbXUbWY'fYei]fYa Ybhq

#i]gYl dYWYX'h\UhUbmghi XYbhYbfc``YX']b'Ub'98GH'Wci fgY'k]h\Y'GW\cc``cZ9Xi WUhjcb'k]``a U_Y'U Wca a]ha Ybhhc'h\Y]f``YUfb]b['UbX'UhYbX'U```WUggYg']b'Z ```k\YfY'WcbhYbh]g'XY`]j YfYX']b'U'ZJWY!hc!ZJWY a cXY'Yl WYdh]b'WjfW a ghUbWYg'k\YfY'UVgYbW']g'Xi Y'hc']``bYggža]gUXj Ybhi fY'cf'i bZcfYgYYb WjfW a ghUbWYg'VYmcbX'h\Y'ghi XYbhg'Wcbhfc`'''5'a]b]a i a 'UhhYbXUbWY'fYei]fYa YbhcZ, \$i ']g'fYei]fYX'Zcf YUW\'Wci fgY'''-\D'WftU]b'WjfW a ghUbWYgž'U'ghi XYbha Uma]gg'i d'hc'&\$i 'cZU'Wci fgY'k]h\ci h\Zcfa U` U'Udd']WUhjcb'UbX'i d'hc'' 'i 'cZU'Wci fgY'k]h\'Zcfa U``XcW a YbhUhjcb'fgYbhj]U'Ya U]`'hc 'Wci fgY'Wcbj Ybcfb'dfcj]X]b['U``h\Y'fYei]fYa Ybhg'XYhU]YX'VY`ck 'UfY'a Yh'''Ghi XYbhg'bcha YYhjb['h\Y'UhhYbXUbW'fYei]fYa Ybhg'ci h]bYX'UVcj Y'k]```VY'Uk UfXYX'Ub'I bgUhjgZUWcfm: U]`'fl : b'Zcf'h\UhWci fgY'fY[UfX`Ygg'cZ h\Y]f'dYfZcfa UbW']b'h\Y'UggYgga YbhhUg_g'cf'ch\Yf'fYei]fYa Ybhg'Zcf'h\Y'Wci fgY''

: cfiZ fh\Yfi]bZcfa Uhjcbicbi9Xi WUhjcbiWci fgYiUhhYbXUbWYifYei]fYa YbhgžidiYUgYifYZYfihcih\YifYgdYWhji Y 98GHiA ccXiYia cXi `Yfgt"

5 WUXYa 1W = b Zcfa Uhlcb.

5```qhi XYbhg`a i gha U_Y`U`j U`]X`UhhYa dh'UhU```UggYgga Ybhg`]b`cfXYf`hc`dUgg`h\Y`Wci fgY"

: cf`YggYbh]U``ghi XYbh`]bZcfa Uh]cb`fY`Uh]b[`hc.`fYei Yghg`Zcf`Yl hYbg]cb/fYj]Yk `cZa Uf_g/cWW dUh]cbU``\YU`h\UbX`gUZYhm'Yl Ua]bUh]cb`dfcWXi fYg/gdYV]U``Wcbg]XYfUh]cb`]b`h\Y`Yj YbhcZ]``bYgg`cf`a]gUXj Ybhi fY/ghi XYbhYei]hmUbX`X]gUV]`]hm'UbX`ch\Yf`YggYbh]U``UWUXYa]W]bZcfa Uh]cbž gYY`\hdg.#k k k "Ufhg"i bgk "YXi "Ui #W ffYbhghi XYbhg#JWUXYa]W]bZcfa Uh]cb#dfchcWc`g![i]XY`]bYg#

7ci fgY 8YHJ] g

7 fYX]hDc]bhg * *

Gi a a UfmcZh\Y 7ci fgY

#i]g']a dcfhlbhih\UhiYXi Wlhcfg'i bXYfghlbX'UbX'UddfYVjJUhY']bX]j]Xi U``X]ZZYfYbWrg']b`\ck 'ghi XYbhg``YUfb`UbX XYj Y`cd'UdhJhi XYg'Zcf``YUfb]b["'#b'h\]g'Wci fgY'mci 'k]```VY']blfcXi WrX'hc'gca Y'cZh\Y'YggYbhJU``h\Ycf]Yg'cZ]bX]j]Xi U``X]ZZYfYbWrg'fY`UhYX'hc'`YUfb]b["'#b'h\]g'Wci fgY'mci 'k]```YUfb'UVci ha U'cf'h\Ycf]Yg'cZ]bX]j]Xi U``X]ZZYfYbWrg'JbhYfUWrik]h\'YXi WUhJcbU``dfcWrggYg'UbX'ci hWca Yg"'GdYWJZW hcd]Wg'h\Uhimci 'k]```YUfb'Uvci hi]b'h\]g'Wci fgY']bWr XY'ghi X]Yg'cZ\i a Ub']bhY``][YbWrzdYfgcbU']mrzgY`Z VY`]YZgz']bhYfYghzj U'i Ygz'UbX'a cfU']mr'Mci 'k]``YI d`cfY'UbX'YI Ua]bY'W ffYbhh\YcfYhJWU'`dYfgdYWhj Yg']b h\YgY'UfYUgz'UbX'k]``VY'UV'Y'hc'XYj Y`cd'U'gYbgY'cZh\Y']bhYfXYdYbXYbWr'cZX]ZZYfYbhUgdYWhg'cZh\]b[UbX'VY']Yj]b["'Nci 'k]``U`gc``YUfb'\ck 'h\Y'h\Ycf]Yg'UbX'fYgYUfW 'a Um\Y'd'fYU'!']ZY'Udd`]WUhJcbg'hc WUqqfcca 'hYUW\]b['UbX'`YUfb]b["'``

5 hith Y WcbWi g]cb cZth]g Wci fgY th Y ghi XYbhik]``VY UV Y the

- %" 9 I d`U]b`k \UhiUgdYWmg`cZ]bX]j]Xi U``X]ZZYfYbWfg`\Uj Y`VYYb`cZ]a dcfhUbWf`hc`YXi WUh]cb`UbX hYUWX]b[
- $\& ``5ddfYV]UHY`fY`UHj_Y`gHYb[h_g`UbX``]a_]HUHjCbg`cZX]ZYfYbhh_Ycf]Yg`cZ]bX]j_]Xi_U``X]ZYfYbWYg'' \\$
- ' " Gi a a Uf]gY 'UbX fYdcfhcb'a U'cf'h\Ycf]Yg'cZ]bX]j]Xi U``X]ZYfYbW'g"
- ("8]gWggfYU'!`]ZY'YI Uad`YgfY`UhYX`hc'h\Y'h\Ycf]Yg`cZ]bX]j]Xi U``X]ZZYfYbWYg"
-) " 9I d`U]b`\ck 'h\Y'h\YcfYh]WU``UgdYWg`cZ]bX]j]Xi U``X]ZYfYbWfg`a UmVY`Udd`]YX'hc'h\Y'fYU`!`]ZY WcbhYl hg`cZhYUW\]b['UbX``YUfb]b["

HYUWX]b['GhfUhY[]Yq'

HYUWX]b['ghfUhY[]Yg. '\dank)g'Wci fgY'mci 'k]``Zcfa 'U'[fci d'fk]h\'&'cf'('a Ya VYfgŁ'UbX'a YYhhc']bj Ygh][UhYUbX'X]gW gg'hc[Yh\Yf'k\Uhmci '\Uj Y'`YUfbYX'UbX'\ck ']h'WUb'VY'fY`UhYX'hc'mci f'dfUWf)W'''F YgYUfW\'\Ug g\ck b'h\UhdYYf![fci dg'WUb'VY'i h]`]gYX'Ug'Ub'YZZYWf] Y'a Yh\cX'cZhYUW\]b['UbX'`YUfb]b['fY''["ž'F mUbž &\$\$\$Ł"'

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- < ck 'i gYZ ``k]``]hVY'hc '`YUfb'UVci h'h\]g'hcd]WZcf'mci f'Z hi fY'gh Xmcf'k cf_3
- Mci 'WUb'Vf]b[']b'mci f'`]ZY'YI dYf]YbWYg'UbX'dYcd`Y'h\Uh'mci '_bck "

<code>DUdYf'</code>Zcfa Uh'g]b[`Y!gdUWXXž7U']Vf]'Zcbh'mdYž'Zcbh'g]nY'%\@

 $\label{thm:continuous} \begin{tabular}{ll} Hi fb]h]b"gYh]b"[."H\]g"Ugg][ba Ybh]g"gi Va]hhYX"h\fci [\Thi fb]h]b"UbX"ghi XYbhg"WUb"gYY"Hi fb]h]b"g]a]"Uf]hm fYdcfhg" \end{tabular}$

5ggYgga Ybh& 7f]h]WU``]hYfUhi fY'fYj]Yk

GhUfhXUhY. Bch5dd`]WUV`Y

8YHJ]`g.

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

 $Gh\ XYbhg\ UfY\ YI\ dYWMYX\ hc\ di\ hih\ Y]f\ bUa\ Yg\ UbX\ gh\ XYbhbi\ a\ VYfg\ cb\ Yj\ YfmdU[\ Y\ cZh\ Y]f\ Ugg][\ ba\ Ybhg\ bug\ Ybhg\ bug\ Yhhg\ Yhhg\ bug\ Yhhg\ Yhhg\ bug\ Yhhg\ bug\ Yhhg\ bug\ Yhhg\ bug\ Yhhg\ bug\ Yhhg\ Yhhg\ bug\ Yhhg\ Yhhg\ bug\ Yhhg\ Yhhg\$

Hi fb]h]b Gi Va]gg]cb

Zmci 'YbWci bhYf'U'dfcV'Ya 'k \Yb'UhhYa dh]b['hc'gi Va]hmci f'Ugg][ba Ybhh\fci [\'Hi fb]h]bžd'YUgY hY'Yd\cbY'9| hYfbU''Gi ddcfhcb'-',)'''' %cf'Ya U]''h\Ya 'cb'<u>Yl hYfbU'hY`hgi ddcfh4 i bgk "YXi "Ui</u>"'Gi ddcfh ł `G][b]Z]\WbhmUZZY\Wimci f`dYfZcfa Ub\Wr`]b`UggYggUV`Y`k cf_ž`VY`]h'U`Zcfa U``YbX!cZgYa YghYf`Yl Ua]bUh]cbž`U \WUgg`hYghž`U``UVcfUhcfmhYghž`U`gYa]bUf`dfYgYbhUh]cb`cf`Ubmch\Yf`Zcfa 'cZUggYgga Ybh'

5 WUXYa]W<cbYghmUbX D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b['h\Y`k cfXg`cf`]XYUg`cZch\Yfg`UbX`dfYgYbh]b['h\Ya `Ug`mci f`ck b"'=hWJb'hU_Y`a Ubm Zcfa gžZfca `XY`]VYfUhY`W\YUh]b['hc`UWW]XYbhU`mWcdm]b['Zfca `U`gci fWY'k]h\ci hUW_bck `YX[Ya Ybh'

IBGK [fcidg'd'U[]Uf]ga]bhc'h\Y'Zc``ck]b[WUhY[cf]Yg.

7 cdm]b[.'i g]b['h\Y'gUa Y'cf'j Yfmg]a]`Uf'k cfXg'hc'h\Y'cf][]bU`hYl h'cf']XYU'k]h\ci h'UW_bck `YX[]b['h\Y gci fW'cf'i g]b['ei chUh]cb'a Uf_g"'H\]g'U`gc'Udd`]Yg'hc']a U[Ygž'Ufh'UbX'XYg][b'dfcYWhgž'Ug'k Y``'Ug dfYgYbhUh]cbg'k \YfY'gca YcbY'dfYgYbhg'Ubch\Yf'g']XYUg'cf'k cfXg'k]h\ci h'WfYX]h'

#JUddfcdf]UhY`dUfUd\fUg]b[.'W\Ub[]b['U'ZYk'k cfXg'UbX'd\fUgYg'k\]'Y`a cghmfYhU]b]b['h\Y`cf][]bU`ghi Whi fY`UbX']bZcfa Uh]cb`k]h\ci h'UW_bck `YX[Ya Ybh''H\]g'U`gc'Udd`]Yg']b'dfYgYbhUh]cbg'k\YfY`gca YcbYdUfUd\fUgYg'Ubch\Yf'g']XYUg'cf'k cfXg'k]h\ci h'WfYX]h''#iU`gc'Udd`]Yg'hc'd]YW]b['hc[Yh\Yf'ei chYg'UbXdUfUd\fUgYg']bhc'U'bYk'k\c`Yž'k]h\ci h'fYZYfYbW]b['UbX'U'ghi XYbhg'ck b'UbU`mg]g'hc'Vf]b['h\Y'a UhYf]U`hc[Yh\Yf'

7 c``i g]cb. 'k cf_]b['k]h\ 'ch\Yfg'Vi h'dUgg]b['cZZh\Y'k cf_'Ug'U'dYfgcb'g']bX]j]Xi U``k cf_"'7 c``i g]cb'U`gc]bWi XYg'dfcj]X]b['mci f'k cf_'hc'Ubch\Yf'ghi XYbhVYZcfY'h\Y'Xi Y'XUhYžcf'Zcf'h\Y'di fdcgY'cZh\Ya d`U[]Uf]g]b['Uh'Ubmh]a Yž'dUm]b['Ubch\Yf'dYfgcb'hc'dYfZcfa 'Ub'UWUXYa]WhUg_ž'ghYU`]b['cf'UWei]f]b[Ubch\Yf'dYfgcb'g'UWUXYa]Wk cf_'UbX'Wcdm]b[']hz'cZYf]b['hc'Wca d`YhY'Ubch\Yf'dYfgcb'g'k cf_'cf'gYY_]b[dUma YbhZcf'Wca d`YhJb['UWUXYa]Wk cf_"

±bUddfcdf]UhY`W]hUh]cb.`7]h]b[ˈgci fW/gˈk \]WX`\Uj Y`bchVYYb`fYUXžk]h\ci hUW_bck`YX[]b[ˈh\Y`″gYWcbXUfm″gci fW/Zfca k \]WX`_bck`YX[Y`cZh\Ya`\Ug'VYYb`cVhU]bYX"

8 i d`]\WUh]cb`ff`gY`Zld`U[]\Uf]ga "Ł`gi Va]\h]b[`mci f`ck b`k cf_ž]b`k \c`Y`cf`]b`dUfhžk \YfY`]h`\Ug`dfYj]ci g`m VYYb`dfYdUfYX`cf`gi Va]\hYX`Zcf`Ubch\Yf`UqqYqqa Ybhcf\Wci fgY`UhI_BGK_`cf`Ubch\Yf`i b]\Yfq]\m"

7 cffYWhfYZYfYbWb[dfUWhWyg.

• Dufud\fug]b[žgi a a Uf]g]b[žYggUmk f]h]b["UbX"h]a Y a UbU[Ya Ybh

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- VYMYfa UbU[Ymcifh]a Y
- i bXYfgHJbX'mci f'f][\hg'UbX'fYgdcbg]V]`]h]Yg'Ug'U'ghi XYbh'Uhi BGK
 VY'Uk UfY'cZd`U[]Uf]ga ž'Wcdmf][\hž'I BGK 'Ghi XYbh'7cXY'cZ7cbXi Wh'UbX'5WWYdhJV`Y'I gY'cZ I BGK '= H'F Ygci fWfg'Dc`]Wh

FYgci fWyg

DfYgWf]VYX F Ygci fWYg

HUV`Y'cZWcbhYbhg

% **bffcXi Wjb['**bX]j]Xi U``8]ZYfYbWYg`&`DYfgcbU`]\mDUfh`%' 'DYfgcbU`]\mDUfh`=('Dgm\\\\cdU\\c`c[m)
bH```][YbWY`DUfh`='* 'bH```][YbWY`DUfh`='+'6Y\Uj]cfU``; YbYhJ\\g`, '6YmcbX`**\nabla` -'H\Ycf]\Yg`cZ<ch'*\nabla```][YbWY
- 'A ccX`UbX`A chj Uhjcb'\%\$ '7 fYUhj]\m\@YUXYfg\]d'\&\J c\WhjcbU``\nabla\fYghg'</pre>

7 ccdYfž7 "'f&\$%) Ł"; `V[h[VgS^V[XXVdVV UWe S`V bWdea `S{fk" F ci hYX[Y"

HUV`Y'cZWcbhYbhq

% *blfcXi Wljcb hc *\DX]]Xi U *\B]ZYfYbWrg DUfh = 'H\Ycf]Yg 'UbX 'Udd']Wlljcbg '& ? Y *mUbX F c [Yfg '' : fYi X 'UbX dcgh': fYi X]Ubg '('6fcUX 'h\Ycf]Yg 'cZdYfgcbU`]mm) '9a chjcbU`]bhY *`][YbWr '* 'B Uffck 'dYfgcbU`]mmlfU]lg '+
6]c`c[]WU`UbX 'gcVJU`a cXY`g 'cZdYfgcbU`]lmm, 'Glfi Wi fY 'UbX a YUgi fYa YbhcZUV]`]h]Yg'- '5V]`]mmdfcWrggYg
%\$ 'DYfgcbU`]lmmUbX 'UV]`]lmmcj Yf 'h\Y`]ZygdUb '%%'9bj]fcba YbhU`'UbX [YbYh]WXYhYfa]bUbhg 'cZdYfgcbU`]lmm'&
A ccX`UbX'a chjj Uhjcb'% '5dd`]Wlhjcbg 'cZdYfgcbU`]lmUbX'UV]`]lmhYgh]b['DUfh = 'A Yh\cXg'%('A YUgi f]b[
]bX]j]Xi U``X]ZYfYbWrg'%) 'F Y`]UV]`]lmUbX'j U`]X]lmcZdgmWkc`c[]WU`'hYghg'%* : UWcf'UbU`mg]g'%+ 'DYfZcfa]b[
UbX]bhYfdfYh]b['ZJWrcf'UbU`mgYg'% '7 cbglfi Wl]b['U'hYgh% 'DfcV'Ya g'k]h\'hYghg'&\$ '7 cbWi g]cbg

FYWca a YbXYX FYgci fW/g

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7F = 7CG

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