

7 ci fgY Cj Yfj]Yk

GHJZ7cbHJWh8YHJ]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`] m	@cWUh]cb	D\cbY
9a a U [.] 5" [.] >UbY	Ya a U"^UbY4 i bgk "YXi "Ui	6mUddc]bha Ybh		

GWXcc``7cbHJWhʻ±bZcfa Uh]cb

GVXcc``cZhXY`5fhg`UbX`AYX]U

Fcca " &ž'@Yj Y`" ž'FcVYfhK YVghYf'6i]`X]b[fl %(Ł

D\cbY.'f\$&Ł'-',)'(,)*

9a U]`. 'gUa 4 i bgk "YXi "Ui

K YVg]hY. k k k "Ufhg"i bgk "YXi "Ui #gUa

5W_bck `YX[Ya YbhcZ7ci bhfm

 $\label{eq:localized-loca$

 $\label{eq:continuous} \begin{array}{ll} \text{$\stackrel{\cdot\cdot}{\to}$ U[Y'WciftYgmicZh\Y'CZh\Y'Dfc'J]WY!7\lubWY``cf'$$$ bX][Ybcig']$$ Ybcig'ghfUhY[m] $$ $$ U[Y'WciftYgmicZh\Y'CZh\Y'Dfc'J]WY!7$$ $$ U[Y'WciftYgmicZh\Y'CZh\Y'Dfc'J]WY!7$$ $$ U[Y'WciftYgmicZh\Y'CZh\Y'Dfc'J]WY!7$$ $$ U[Y'WciftYgmicZh\Y'CZh\Y'Dfc'J]WY!7$$ $$ U[Y'WciftYgmicZh\Y'CZh\Y'Dfc'J]WY!7$$ $$ U[Y'WciftYgmicZh\X'Ch'Zh\Y'Dfc'J]WY!7$$ $$ U[Y'WciftYgmicZh\X'Ch'Zh\Y'Dfc'J]WY!7$$ $$ U[Y'WciftYgmicZh\X'Ch'Zh\X$

7ci fgY 8YW] g

I b]hg cZ7 fYX]h * *

Gi a a UfmcZh\Y 7ci fgY

: cf`a cfY`]bZcfa Uf]cbžj]g]hi\thdg.#k k k "Uffg"i bgk "YXi "Ui #gUa #ghi Xmli g#bhYfbg\]dg": cf`UbmYbei]f]Ygž d`YUqY`Ya U]``f\Y`K =@T b]hUh: 5GG!K =@4 i bgk "YXi "Ui

Hc VY Y`][]V`Y`Zcf`f\]g Wci fgYžmci a i gh\Uj Y`Ua]b]a i a 'K 5A 'cZ*) "

7ci fgY @YUfb]b['Ci hWca Yg

% \Uj Y`[U]bYX`YI dYf]YbWY`cZ]bXi glfmdfc\WfggYg`UbX`dfU\WfJ\Wfg & UbX`Y dfc[fUa `hc`fYU`!k cfX`\bhYI hg \\ "\Uj Y`Yb\Ub\WfX`h\Y]f`\WdU\\\\mZcf`]bXYdYbXYbhYb[U[Ya Ybhk]h\\]bXi glfmdfcj]XYfq

HYUWX]b[GhfUhY[]Yg

H\]g'Wci fgY'\Ug'bc'Zcfa U`'hYUW\]b['Wca dcbYbh'''

5ggYgga Ybh

H\]grigi VYWi]gri b[fUXYXrgcrUrdUggr]grXYdYbXYbhicbrGUh]gZJWcfmifGMŁcfrI bgUh]gZJWcfmifI @Ł]bra YYh]b[h\YrWci fgYrfYei]fYa Ybhg"5brGM[fUXYrk]``bchUZYWimci frk Y][\hYXrUj YfU[Yra Uf_rfk 5A ŁYi h'Urreff fUXYrZcfrh\]grWci fgYžmci rk]``bYYXrhc.

- %" 7 ca d`YhY Uh`YUgh'%\$\$ \ci fq'cZmci f']bhYfbq\]d"
- &" 7 ca d`YhY`fUbX`gi Va]hhc`h\Y`: UW`hmK @ib]hz`U`H]a Yg\YYhg\ck]b['h\Y`\ci fg`mci 'k cf_YX`Xi f]b[mci f`]bhYfbq\]d
- ' " 7 ca d'YhY 'Ū'Gh XYbh: YYXVUW: cfa "
- ("5g_imci figi dYfj]gcfihciWta diYhYiUi<cghi: YYXVUW_i: cfa "
-) " 7 ca d`YhY`UbX`gi Va]hmci f`K cf_'9j]XYbWY`fXYa cbghfUh]b['U`gYf]ci g`UhhYa dhihc`Ubgk Yf`h\Y`hUg_ fYei]fYa YbhgŁ"
- *" 7 ca d`YhY`UbX`gi Va]hmci f`7 f]h]WU``F YZYWh]cb`fXYa cbghfUh]b['U`gYf]ci g`UhhYa dhhc`Ubgk Yf`h\Y`hUg_ fYei]fYa YbhgŁ"`

5ggYgga Ybh'hUg_	K Y][\h	8iY'8UHY	7 ci fgY @YUfb]b[Ci HWca Yg 5ggYggYX
%"·K cf_'9j]XYbW) \$1	%#%#&\$&%`\$).\$\$`DA	%ž''
&"'7f]h]WU`FYZYWh]cb) \$1	% #%#&\$&%`\$).\$\$`DA	%ž [*] &

5ggYgga Ybh% K cf_9j]XYbW

5ggYgga Ybh`Yb[h\.`A]b]aiaicZ&) \$'k cfXg'fbf'fci[\Yei]j U`YbhZcf'bcb!hYl HVUgYX'gi Va]gg]cbgŁ'Vi ha Uma U_Y'i d'acfY'cZh\Y'%) \$\$'hc'&) \$\$'k cfXg'fYei]fYX'Zcf'Vch\'Ugg][baYbhg']b'h\]g'Wci fgY 8i Y'XUhY.'% #%#&\$&%'\$).\$\$'DA

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

FYgci fWfg

DfYgWf]VYX F Ygci fWYg

D`YUgY`k cf_'h\fci [\`h\Y`cbVcUfX]b[`_]hmci fî`Z]bX`cb`A ccX`Y`VYZcfY`Wca a YbW]b[`mci f`]bhYfbg\]d"`C h\Yf\Y`dZ``fYgci fWYg`WUb`VY`Zci bX`cb`h\Y`Wci fgY`A ccX`Y`g]hY"`

7ci fgY 9j U`i Uh]cb UbX 8Yj Y`cda Ybh

K Y`fYgdcbX`hc`ZYYXVUW_fYWY]j YX`j]U`X]fYWhYa U]``hc`h\Y`7 ci fgY`7 cbj Ybcf`UbX`h\Y`K ≠ØI b]hžUbX]bZcfa Uh]cb`dfcj]XYX`]b`h\Y`gh XYbh'UbX`\cghZYXVUW_Zcfa g"`

KY'\cdY'mci Yb'cm'mci f']bhYfbg\]d°

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

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

Image: Ybwei bhyfu'dfcv'ya k \yb'uhhya dhjb['hc'gi va]hmci f'Ugg][ba Ybhh\fci [\ 'Hi fb]h]bž'd'YUgY

Hy'Yd\cby'9| hy'fbu''Gi ddcfhcb'-',) '' ' ' %cf'Ya U]''h\Ya 'cb'Y! hy'fbu'hy'hgi ddcfh4 i bgk "YXi "Ui "''Gi ddcfh
\ci fg'UfY', .\$\$Ua '-'%\$.\$\$da 'cb'k YY_XUmg'UbX'-.\$\$Ua '-').\$\$da 'cb'k YY_YbXg'fl *) 'XUmg'U'mYUft"'=Z'mci
UfY'i bUV'Y'hc'gi va]hmci f'Ugg][ba YbhXi Y'hc'U'ZJi 'hk]h\ 'Hi fb]h]b'mci 'a Um'Udd'mZcf'Ub'Y! hy'bg]cbž'Vi hmci
a i ghfYhJ]b'mci f'h]W_Yhbi a VYf'Zfca '9! hy'fbU''Gi ddcfhfU'cb['k]h\ 'Ubmch\Yf'fy'Yj UbhXcW a Ybhgt'hc
]bWi XY'Ug'Yj]XYbW' 'hc'gi ddcfhmci f'Y! hy'bg]cb'Udd']WUh]cb"'=Zmci 'Ya U]''9! hy'fbU''Gi ddcfhmci 'k]'`
Ui hca Uh]WJ'`mfYW']j Y'U'h]W_Yhbi a VYfZ'Vi h]Zmci 'hY'Yd\cbY'mci 'k]``bYYX'hc'gdYW]Z]WJ'`mUg_'Zcf'cbY''
Hi fb]h]b'U'gc'dfcj]XYg'i dXUhy'g'cb'h\Y]f'gmghYa 'ghUh' g'cb'Hk]hyf''

; YbYfU`mž'UggYgga YbhiHug_g'a i ghVY'gi Va]hhYX'Y`YVWfcb]\WJ``mij]U'Y]h\Yf'Hi fb]h]b'cf'U'A ccX`Y Ugg][ba Ybh''=b']bgHJb\W'g'k \YfY'h\]g']g'bchdcgg]V`Yž']hk]```VY'gHJhYX'cb'mci f'\\circ i fgY'g'A ccX`Y'g]hY'k]h\U`hYfbUh]j Y'gi Va]gg]cb'XYHJ]`g"

cfi]bZcfa Uhjcbicbi\ckihcigi Va]hUgg][ba Ybhgicbi]bYij]UiA ccXiY.i\hdg.#gh XYbhi bgk "YXi "Ui #\ck! gi Va]hUgg][ba Ybha ccXiY

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"'=h\Wb'hU_Y`a Ubm Zcfa qžZfca 'XY`]VYfUhY'W\YUh|b['hc`UWW]XYbhU`mWcdm]b['Zfca 'U'gci fW'k]h\ci h'UW_bck 'YX[Ya Ybh'

IBGK [fcidgdu[]Uf]ga]bhch\YZc``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 hcf']XYU'k]h\ci hUW_bck `YX[]b['h\Y gci fW'cf'i g]b['ei chUh]cb'a Uf_g"'H\]g']bWi XYg'Wcdm]b['a UhYf]U`gž']XYUg'cf'WcbW'dhg'Zfca 'U'Vcc_ž'Ufh]WYž fYdcfhcf'ch\Yf'k f]hhYb XcW a Ybhz'dfYgYbhUh]cbž'Wca dcg]h]cbž'Uffk cf_ž'XYg][bž'XfUk]b[ž'WfW]hfmž'Wca di hYf dfc[fUa 'cf'gcZk UfYž'k YVg]hYž']bhYfbYhz'ch\Yf'Y`YWfcb]WfYgci fW'z'cf'Ubch\Yf'dYfgcbfg'Ugg][ba Ybhk]h\ci h Uddfcdf]UhY'UW_bck `YX[Ya Ybh''

buddfcdf]UhY dufud\fug]b[...7\ub[]b[...12\k...k.cfXg.UbX.d\fugYg.k.\]Y a cghmfYhJ]b]b[...h\Y.cf][]bU`]bZcfa UhJcbžghfi Wh fY UbX#cfdfc[fYgg]cb.cZ]XYUg.cZh\Y.cf][]bU`k]h\ci hUW_bck `YX[Ya Ybh'.h\]g.U`gc Udd`]Yg.]b.dfYgYbhJhJcbg.k.\YfY.gca YcbY.dUfUd\fUgYg.Ubch\Yf'g.]XYUg.cf.k.cfXg.k.]h\ci hWfYX]h\UbX.hc d]YWJb[...hc[Yh\Yf.ei chYg.UbX.dUfUd\fUgYg.]bhc.U.bYk.k.\c`Yžk]h\ci h\Uddfcdf]UhY.fYZfYbWJb[...

7 c``i g]cb. K cf_]b[[kk]jhhcbhhfgfgiVidhighghg]bc[Zb\Z'hh\dfk'dg_UUbyfGd\fgd\fgd\x] j\ji]b\Xk cf_k'] c``i zf]ca'U`gc
]b\Wi XYg'dfcj]\X]b['mci f'k cf_'hc'Ubch\Yf'gh XYbhZcf'h\Y'di fdcgY'cZh\Ya 'd`U[]Uf]g]b['zdUm]b['Ubch\Yf'gh XYbhZcf'h\Y'di fdcgY'cZh\Ya 'd`U[]Uf]g]b['zdUm]b['Ubch\Yf'dYfgcb'g'U\\XYa]\Wk cf_'UbX'\&dm]b['bc'\ZYf]b['hc'\xa d`Yh\'Ubch\Yf'dYfgcb'g'k cf_'cf'gYY_]b['d\ma YbhZcf'\xa d`Yh\b['U\\XYa]\Wk cf_''

buddfcdf]uhr Wjhuhjcb. 7 jhjb['gci fwrg'k \]ww\uj Y'bchVYYb'fYUXžk jh\ci huw_bck `YX[]b['h\Y "gYwbbXufm" gci fwr Zfca 'k \]ww_bck `YX[Y'cZh\Ya \ug'VYYb'cVhJ]bYX"

7 cffYWhfYZY& W Yj \$

5 WUXYa]W + DZcfa Uhjcb

8 i Y 'hc 'Yj c'j]b['UXj]WY 'VmB GK '< YU'th žighi XYbhg'a i gh'WkYW_'Zcf'i dXUhYX']bZcfa Uh]cb 'fY[UfX]b['cb`]bY 'YUfb]b['Zcf'U``'5fhgž'8 Yg][b 'UbX'5fWk]hYWhi fY 'Wci fgYg'th]g'thYfa 'fJ]U'A ccX`Y'cf'Wci fgY']bZcfa Uh]cb dfcj]XYX"Ł

: cf`YggYbhJU``ghi XYbh`]bZcfa UhJcb`fY`UhJb['hc.