

MDIA5011

DfcZygg]cbU``A YX]U`DfUWfWyg. '7 fYUhjb[ž'Di V`]g\]b['UbX Di V`]Wjg]b['8][]hU``>ci fbU`]ga

HYfa 'Hk c''# '&\$&\$

7ci fgY[·]Cj Yfj]Yk

5ggYgga Ybh

Gh XYbhk cf_jg UggYggYX VUgYX cb ei U jm Uhh Y ha Y cZgi Va Jgg]cb cb m Gi VgYei Ybh ja dfcj Ya Ybhg hc ghcf]Yg^Uf]g]b['Zfca 'h\Y`cddcfh b]mhc'k cf_'k]h\'h\Y`8][]hU``9X]hcf'fBYk gk cfh\mza UmfYgi `h']b'di V`]WUh]cbž \ck Yj Yf'h\Y'cf][]bU``a Uf_'Uk UfXYX'hc'U```gi Va]gg]cbg'ghUbXg"'H\Y'8][]hU``9X]hcf'a Um'UXj]gY'cb'ghcfm XYj Y`cda YbhVi hi]gʻbchfYgdcbg]V`YʻZcfʻa Uf_]b[ʻUgg][ba Ybhg"ʻ\b`U```a UhhYfgʻcZUggYgga Ybhh\Y`XYV][g]cbg cZh\Y'WcifgY'WcbjYbcf'UfY'ZbU'"5``'Ugg][baYbhg'aighVY'giVa]hhYX'Ug'K CF8'XcWg'fbc'D8: gŁ"'Cb'h\Y ZfghdU[Y'U`k Umg'dfcj]XY'mci f'gh XYbhbi a VYf'UbX'Ybfc`a YbhbUa Y'fZfghbUa Y'Zc``ck YX'Vm'ZJa]`m bua Yłżugik Y``ugiWci fgY / ugg][ba Ybhbi a VYfžgYa]buf [fci diXumubXiha Yžh\Yighcfmgi [YbfYifcd]b]cbž dfcZjYžYhWžUbX`Ub`UVWV fUhY`k cfX`Wci bhZcf`mci f`gi Va]gg]cb"'8c'bch]bWi XY`mci f`dYfgcbU`ž'WUgg`cf]bhYfj]Yk YY XYhU]`g cf fYZYfYbWY ``]ghg`]b h\]g k cfX Wci bh' C b h\Y Z|bU` dU[Y cZmci f gi Va]gg]cb dfcj]XY h\Y bUa Yg`UbX`WcbhUWhXYhU]`g`cZU```]bhYfj]Yk YYg`d`i g`]bhYfj]Yk `d`UWYžXUhYž'h]a Y`UbX`k \Yh\Yf'h\Y`]bhYfj]Yk k UgʻWcbXi Wh/X`]b!dYfgcbžcf'VmHY`Yd\cbYžYa U]`žk YVWXUh#gcWJU`a YX]U`cf'G_mdY"'I b`Ygg'mci '\Uj Y`mci f hi hcffgidYfa]gg]cbi]bik f]h]b[žU```]bhYfj]Yk gia i ghVY WcbXi WhYXi]bi5i ghfu`]u'ubXia i ghVY fYWcfXYX fga Ufh d\cbY`Ui X]c`fYWcfX]b[g`UbX`k YVWkUhirfUbgWf]drg`UfY`UWWYdrUV`YŁ"`5```]bhYfj]Yk YY`ei chYg`a i gh'VY UWW fUllY`mfYbXYfYX]b 9b[]g\" +bhYfj]Yk fYWcfX]b[gA | GHVY fYlU]bYX Zcf UggYgga Ybhdi fdcgYgi bh 8 YWYa VYf" %ghcZYUWX "UWUXYa]WmYUf" +b h\]g Wci fgYžh\Y gci fWYg cZU``ZUWg UbX ei chYg a i ghVY Vf]YZm a Ybh]cbYX K + + = B h Y ghcfmfZcf Yl Ua d Yž l b]j Yfg]mcZA Y Vci fbY fYgYUfW. Yfg gUmžcf "5 &\$% fYdcfh Vmh\Yʻ=bgh|h hYʻcZ5\Wci bhUbhqʻgU|X"žcf"H\Yʻ5hhcfbYm; YbYfU`UXa]hhYX"YhVVL": i```W|hUh|cb`cZU`` ghUhYa YbhgʻUbXʻZUWhgʻa i ghiVYʻdfcj]XYXʻY]h\YfʻVmYa VYXX]b[ʻh\Yʻgci fWYʻl F@ʻ]bʻh\YʻhYl hik \YfYʻh\Y fYZYfYbWY`cWW fgžcf`]b`U`fYZYfYbWY``]ghicb`h\Y`Z]bU``dU[Y`cZmci f`gi Va]gg]cb"`±bZcfa Uh]cb`cVhU]bYX`j]U mci f`]bh/fj]Yk g`bYYX`bchVY`WJhYX`]b`fYZYfYbWY``]ghg`Vi hA I GH`VY`UWW`fUhY`mfYdcfhYX`]b`X]fYWhUbX#cf |bX|fYWreichYg^]b^h\Y^HYI hcZmcifghcfmUbX#cf^j |XYc^UbX^UiX]c^ai^ha YX|U^W]dg'': cf^gi Va |gg|cbg WcblU]b]b['a i `h]a YX]U'cb`mU'Z ```hYI 'hfUbgWf]dhcZh\Y'ghcfma i ghU`gc'VY'gi Va]lhYX"'Gi Va]gg]cbg'h\Uh'UfY df]a Uf]`ma i `h]a YX]U'a i ghiVY'dfYWYXYX'Vm'U'%\$\$!%) \$'k cfX'hYI h``YUX"

5ggYgga Ybh'HUg_g

| 5ggYgga Ybh'tUg_ | K Y][\h | 8iY'8UHY | Gh XYbh@YUfb]b[Ci hWca Ygʻ5ggYggYX |
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| 7 cbh/bh7 fYUh]cb HUg_'% | ' \$ı | \$) #\$, #&\$&\$`%&.\$\$`DA | %ž&Ž |
| 7 cbh/bh7 fYUh]cb 'HUg_'&' | ()। | %\$#\$+#&\$&\$`\$).\$\$`DA | %ž&Ž |
| ±b!WUggʻUggYgga YbhiHUg_gʻ | &) ı | %\$#\$, #&\$&\$`%&.\$\$`DA | 1 |

5ggYgga Ybh'8YhJ]`g

5ggYgga Ybh% 7cbhYbh7fYUh]cb HUg_%

GhUfhXUhY. Bch5dd`]WUV`Y

@Yb[h\.') \$\$!, \$\$ k cfXg

8YW]`g.

 $D@95G9BCH9!= 3.888H<9.CF89F.C: 5GG=BA9BHG.\%5B8.&K=@69GK=H7<98"H\] a YUbg.h\Uh7cbHYbh7fYUh]cb.HUg_.&k]``VY.h\Y.Z[fgh]hYa.cZUggYggaYbh]b.h\Y.Wci.fgY"$

5 a i `hjd`Uhzcfa 'ci fbU`]ga 'dfYgYbhUhjcb'cZU') \$\$!, \$\$ k cfX'bYk g`ghcfmUbX']a U[Yg`cf'UVWca dUbmjb[

 $j \] XYC""D@ G"U" \& \$\$! k \ cfX" X]gW \ gg] cb""Ghcfma \ UmVY"] b"UbmfYWc[b]gYX" cifbU"]gh]W[YbfY"!"h\Y"[YbfY" A I GH'69"BCA <math>= \$5H98$ "cb"h\Y"gi Va]gg]cb"Wcj Yf"g\YYhUbX"h\Y"ghcfma i ghWcbZcfa "hc"h\Y"ghUhYX"[YbfY" B I GH'69"BCA = \$5H98"cb"h\Y"ghUhYX"[YbfY" B I GH'69"BCA = \$5H98"ch"h\Y"ghUhYX"[YbfY" B I GH'69"BCA = \$5H98"ch

BCH9. H9LH 'UbX'A I @H \neq A 98 =5 'UfY 'YggYbf]U`'Y'Ya Ybfg"'A Uf_g''UfY 'U``cffYX'Zcf''fYgYUfW\'UbX'k f]f]b[ei U`]fmfY[UfX`Yqg'cZa YX]U'd`UfZcfa i gYX

Gi Va]gg]cb bchYg.GYY [YbYfU`UggYgga Ybh]bZcfa Uh]cb

 $\label{thm:limit} \begin{tabular}{ll} Hi & fb \end{tabular} $$ Hi & fb \end{tabular} $$ h' \end{tabular} $$ I' Hi & fb \end{tabular} $$ h' \end{tabular}$

5ggYgga Ybh& 7cbhYbh7fYUh]cb HUg_&

GhUfh'XUhY.

@Yb[h...%) \$\$!&\$\$\$*k cfXq

8YHJ]`g.

5 "cb[Zcfa 'fZYUh fYŁ'%) \$\$!&\$\$\$ k cfX 'ghcfmž'cf'dcXWUghž'cf'j]XYc"

Gi Va]gg]cb bchYg.GYY [YbYfU`UggYgga Ybh]bZcfa Uh]cb

5ggYgga Ybh' . #o!WUgg UggYgga YbhHJg_g

GhUfhXUhY. Bch5dd`]WUV`Y

@Yb[h\."\$\$\$"k cfXg

8 YW] g.

K YY_`m'>ci fbU`]ga 'dfUWf]VW 'lUg_gžYei]j U`Ybhhc'' \$\$\$'k cfXg

5XX]h]cbU`XYhU]`g.

K YY_`mdfY!WUgg`UbX#cf`]b!WUgg`gi Va]gg]cbg`UfY`Wca di `gcfm]b`h\]g`Wci fgY"'±0`5gg][ba Ybh' ž'U'%\$i dYbU`hmk]```VY`]a dcgYX`Zcf`YUW\`UbX`Yj Yfma]gg]b['dcfhZc`]c`gi Va]gg]cb"

±b'U'g]b[`Y'k cfX'XcW a Ybhgi Va]hh\Y'Zc``ck]b[...

%"H\Y'cf][]bU''i bYX]hYX'hYI hcZmci f'H<F99'69GH']b!\WUgg'UbX#cf'\ca Yk cf_'gi Va]gg]cbg'h\]g hYfa 'f] \$\$!\%\$\$\$'k cfXqŁ

&"'5'Z'```]ghcZU``ai`h]aYX]U'fYWcfX]b[g'cf'j]giU`]gUh]cbg'mci'\UjY'giVa]hhYX'hc'@WieiadfZk'h\]g'hYfa

]bWi X]b['U'Vf]YZXYgWf]dh]cb']bWi X]b['Ui X]c#]XYc'W]d'Xi fUh]cbg'fa UI]a i a '%\$\$'k cfXg'dYf']hYa '`]ghYXŁ

' "'H\Y'Z ``'HYI h`cZU``'ch\Yf']b!WUgg'UbX'\ca Yk cf_`gi Va]gg]cbg'h\]g'HYfa "'8C'BCH'F9GI 6A ≠H5GG9GGA9BH'CB9'CF'HK C'5G'D5FH'C: 'MCIF'DCFH: C@€'GI 6A €G€B

Gi Va]gg]cb bchYg.GYY [YbYfU`UggYgga Ybh']bZcfa Uh]cb

 $\label{eq:higher} \mbox{Hi fb]h]b'gYh]b[.'H\]g'gg][ba Ybh]g'gi Va]hhYX'h\fci [\'Hi fb]h]b'UbX'gh XYbhg'Xc'bchgYY'Hi fb]h]b g]a]'Uf]hmfYdcfhg''$

5 https://bxubwww.Fyei]fYaYbhg

Ghi XYbhgʻUfYʻghfcb[`miYbWci fU[YX'hcʻUhhYbX'U```WUggYgʻUbX'fYj]Yk '`YWhi fY`fYWcfX]b[g"

7ci fgY'GWXYXi `Y

J]Yk 'WUgg'ha YhUV'Y

H]a YtUV`Y

| 8 UhY | HmdY | 7 cbhYbh |
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| K YY_"\$."&) "A Umi!"&- | < ca Yk cf_ | 6YZcfY Wca]b['hc WUgg fYUX'' |
| A Um | | @WieiadfZkieUgddWifFab 8[hWDS`]WWefad[Wekkk"bYkgkcfh\m"cf["Ui |
| | | ? c`cXnmž>"'f&\$% Ł"'9][\h'9`Ya Ybhg'cZU'BYk g'Ghcfm UbX' <ck 'hc'6i]`x']h''bdsuf[u[`y5a`hwdyw="" uw<br=""><agd 'mcf'fci="" hyx[yždd"'%('!&+"<="" s{e_žbyk="" th=""></agd></ck> |
| K YY_'% '%'>i bY'!') '>i bY | Hi H@UV | |
| | | 6YZcfY`Wca]b[`hc`WUgg`fYUX`` |
| | | @WieiadfZkieUgddWifFab 8[hWDS`]WWefad[Wekkk"bYkgkcfh\m'cf["Ui |
| | | ?c`cXnmž>"'f&\$%' Ł"'9][\h'9`YaYbhg'cZU'BYkg'Ghcfm UbX' <ck'hc'6i]`x']h"'bdsuf[u[`y5a`hwdyw'uw <agd s1[e_žbyk'mcffcihyx[yždd"'%('!&+"<="" td=""></agd></ck'hc'6i]`x']h"'bdsuf[u[`y5a`hwdyw'uw |
| | | 6f]b['lc'7`Ugg |
| | | @]ghih.Y`Zjj Y`a U]b`]ggi Ygž'ffYbXg`UbX`dc`]f]WU``UbX W`hi fU``Yj Ybhg`UbX`XYj Y`cda Ybhih.Uh]bhYfYghcf WcbWfb`mci "`6f]b['h\fYY`fl Ł'Wcd]Yg`cZmci f``]ghhc WUgg`]b`K YY_'%'Zcf`ghcfmXYj Y`cda Ybh' |
| | | ±bhfcXiWh]cb. KY`WcaY'hc`BYkgkcfh\m |
| | | H\]g k YY_k Y]bfcXi W ghi XYbhg hc I BGK fig W hh]b[YX[Y cb`]bY di V`]WUh]cb @W ei adfZk UbX mci f fc Y Ug ghUZfYdcfhYfg" K Y fYj]Yk fYVW bhdi V`]WUh]cbgž ci f 7 \UfhYf cZ9X]hcf]U`' +bhY[f]mž UbX hU_Y U hci f cZh\Y 7 cbhYbhA UbU[Ya YbhGmghYa "Ghi XYbhg k]``[Yh U ZYY`Zcf Yei]da Ybhcdh]cbgž]bWi X]b[ci f A cV] Y >ci fbU`]ga '_]hg h\UhU`ck mci hc hi fb mci f d\cbY]bhc U VfcUXWUghei U`]mma i 'h]a YX]U fYWcfX]b[XYj]W" 5ggYgga Ybhcdh]cbg UfYYI d`U]bYXžUbX k Y]bffcXi WYgca Y k cfh\k \]Y a YX]U gci fWg Zfca 5i ghfU`]U UbX h\Y k cfX" |

| | | #b!WUgg'DcfhZc`]c'Gi Va]gg]cb' 'DG%fV\$\$!&\$\$ k cfXgŁ''Ghi XYbhg'dU]f'i d'hc'k f]hY'h\Y]f'a YX]U'V]cg UbX'i d'cUX'h\Y]f'\YUXg\chg'hc @W ei adZk |
|---------------------------------|-------------|--|
| K YY_'&.`, `>i bY'!`%& >i bY | < ca Yk cf_ | FYUXž`]ghYb'cf'j]Yk.' 5i ghfU`]Ub'df]bhžfUX]c'UbX'hY`Yj]g]cb'bYk g'UbX W ffYbh'UZU]fg'dfc[fUa g'UbX'dcXWUghg'UVci h']ggi Yg UbX'Yj Ybhg'h\Uh']bhYfYghmci |
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| | | mci f'%) \$\$ 'k cfX'Z'Uhi fY 'ghcfm'[c]b['hc 'VY 'UVci h3' &" K \Uhid 'Uhzcfa 'k] '``mci 'df]cf]h]gY 'fhYl hz dcXWUghz j cXWUghz a i 'h]a YX]UL3'' "'-\(\frac{1}{2}\) k\]W 'bYk g'[YbfY'k]' mci f'ghcfm'VY 'Wca dcgYX'fzcf'Yl Ua d'YzbYk g'Z'Uhi fYz lfYbXz']bj Ygh][Uh]j Yz']ggi Y!VUgYX'ZYUhi fYz la a Yfg]cbz'dfcZ]'YL3' ("'K \UhiXc'mci '\cdY'mci f ghcfm'k]'`gUmcf'Xc'h\Uhi\Ugb'hVYYb'gU]X'cf'XcbY VYZcfY 'Vmch\Yfg3'K \UhibYk ']bZcfa Uh]cb'cf dYfgdYW]j Yg'Wci 'X'mci f'ghcfmdfcj]XY3') "'K \c'Xc mci '\cdY'hc']bHYfj]Yk 'Zcf'mci f'ghcfm3'6Y'dfUW]WU' UVci hmci f'Wkc]W"'9 Ugmhc'UWWgg'dYcd'Y'UfY a cfY'`]_Y'mhc'XY']j Yf'h\Ub'\][\'dfcZ]Y'Z[i fYg"'K \cUfY'mci 'WYfhU]b'mci 'WUb'a YYh]b'h\Y'Wca]b['k YY_3" *"'K \UhiUfY'h\Y'a cgh]bHYfYg]b['cfg][b]Z]WUbh'c'WUh]cbg'fY'Yj Ubhhc'mci f'ghcfm3"'K]``mci VY'dYfa]hHYX'hc'd\chc[fUd\'cf'j]XYc'h\YfY3'+"'8 c mci 'bYYX'hc'ei chY'mci f']bhYfj]Yk YYgz'cf'UfY'mci gdYU_]b['hc'h\Ya cb'U'VUW_[fci bX'cf''cZZh\Y fYWcfX''VUg]g", "'K]``mci 'hY'`h\Y'ghcfm]b'%ghdYfgcb cf'' fX'dYfgcb3'91 d'U]b'k\m' |
|-----------------------------------|-------------|--|
| K YY_'' .'%) '>i bY'!'%- >i bY | Hi H@UV | bhYfj]Yk]b['ghfUhY[]Yg b! WUgg '5 Wfj]m 'bhYfj]Yk]b['k cf_g\cd b! WUgg 'Dcfh7c`]c 'gi Va]gg]cb! 'DG' 'f&\$\$!' \$\$ k cfXgŁ '5 ZhYf 'Wcbgi 'h]b[']b! WUgg 'k]h\ 'mci f 'h hcfgž gi Va]hmci f``]ghcZ&\$ 'ei Ygh]cbg 'hc 'Ybgi fY 'mci f 'ghcfm \Ug ']a dUWh |
| | < ca Yk cf_ | @]ghYb hc Un`YUghik c]bZcfa Uhj Y dcXWUghg" 7 \ccgY cbY cZmci f'ck b ZUj ci f]hYgž]Zmci `\Uj Y cbYžch\Yfk]gY 'W\ccgY 'Vch\ Zfca 'h\Y Zc``ck]b[``]gh cZ5i ghfu`]U'g a cghXck b`cUXYX" 6Y dfYdUfYX hc X]gW gg]b 'WUgg k \Uhih\YgY 'dcXWUghg 'WUb 'hYUW\ i g UVci hcb`]bY 'ci fbU`]ga " H\Y'9`Yj Ybh\ž; YbYfUh]cb 6YhcchUž <ck '5="" '8c="" 'mci="" \hž@yhfij="" ``<="" g`yyd="" hb][="" hgywhgž:="" hu`_'uvci="" i="" td=""></ck> |
| | | Ghcfmž@UghDcXWUghcb h\Y`@YZhž`Ghi ZZMci G\ci `X`? bck žH\Y`8U]`mžJ]WV`9I hfYa Yg`GYUgcb &ž5i ghfU`]U`]b`h\Y`K cf`X" FYUX. `? Ug]b[YfžA "žF]W\UfXgcbžB"% 'HUbbYfžG" f&\$%&L"`FYgYUfW\]b['h\Y`Ghcfm'': YUhi fY`K f]hjb[HY``]b['h\Y`Ghcfm''A Y`Vci fbY.`CI Dždd"&\$'!'', |
| | | 6f]b['hc 'WUgg. 'A U_Y'U'`]ghcZh\Y'&\$'a cgh]a dcfhUbhei Ygh]cbg'mci 'bYYX'hc 'Ug_'Zcf'mci f'Z]fgh UggYgga YbhHUg_'hc'\Uj Y']a dUWh'6f]b['h\fYY'df]bH ci hg'cZmci f``]ghhc'WUgg" |

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|------------------------|---------------|--|
| K_YY_^(.^&&^>i_bY^!^&* | < ca Yk cf_ | F YUX |
| >i bY | | ? Ug]b[YfžA "žF]W\UfXgcbžB"/``HUbbYfžG"`f&\$\&\" 8YjY`cd]b[`K f]h]b[`HYW\b]ei Yg"`8\V\\$fgdWI \d[f[`Y FW^{`Y fZWE fackžA Y`Vci fbY.`C I Dž'dd"`, %I`-+" |
| | | DfY!WUgg gi Va]gg]cb DG (fl \$\$ k cfXgŁ l d`cUX U`X][YghcZa UhYf]U`g mci 'a Umi gY]b mci f'%) \$\$ k cfX ZYUhi fY.a UhYf]U`Wci `X`]bWi XY`VYghei chYg Zca 'mci f`]bhYfj]Yk gžj]XYc cf XYgWf]dh]j Y'dUggU[Yg fYdcfhYX`Vmmci 'Zca 'j Uf]ci g``cWJh]cbg/mci f'fY! hY``]b['cZ_YmYj Ybhg`]b h\Y`]j Yg cZmci f]bhYfj]Yk YYg UbX'ch\YfgžYggYbhJU``ZJWkg UbX'ch\Yf VUW_[fci bX'a UhYf]U``bYYXYX'hc WcbhYl hi U`]gY`mci f ZYUhi fY"Hfmk f]h]b['Ug'a i W\'Ug'mci 'Wb'cZh\Y'ghcfm VUgYX'cb'k\Uhmci 'U`fYUXm\Uj YžVY[]bb]b['k]h\'U Wca dY``]b[``YUX'dUfU[fUd\" |
| | | 6f]b['hc 'WUgg. 'H\fYY'fl E'Wcd]Yg'cZmci f'dfY!WUgg gi Va]gg]cb"=Zmci k]g\ 'mci a UmUXX'U'Vf]YZ YI d'UbUh]cb'cZk \m'mci 'h\]b_'mci f'ghcfmXYgYfj Yg UhhYbh]cb" K \Uhg'bYk žj U'i UV'Y'cf'dfcj cWJh]j Y UVci h]hž'UbX'k \UhbYk 'Yj]XYbW' gi ddcfhg'mci f'`]bY cZUf[i a Ybhž'UbU'mg]g'cf'YI d'UbUh]cb"'< ck 'XcYg'h\]g ghcfmcZYf'cddcfh b]hjYg'Zcf'mci 'hc [YbYfUhY a i 'h]a YX]U'a UhYf]U'gž[fUd\g'UbX'hUV'Ygž'XUhU j]gi U`]nUh]cbgž'YhW'=Zdfc[fYgg'\Ug'VYYb'g'ck ž]XYbhJZm]a dcfhUbh[Udg']b'mci f'ghcfmUbX'\ck 'mci dfcdcgY'hc'Z]``h\Ya 'cb'h]a Y" |
| | Hi h@UV | K f]h]b['UbX'YX]h]b['i g]b['7cbhYbh'A UbU[Ya Ybh GmghYa g' |
| | | ±b!WUggʻUW¶j]mmʻKf]n]b[ʻZcfʻ@W'eiadfZkʻig]b[\YUX`]bYgžghUbX!Z]fghgžVcXmWcdmžUbX`UXX]b[d\chcgʻUbX'j]XYcgʻcbʻh\Yʻ7AG" |
| K YY_")."&-">i bY"!"" | n < ca Yk cf_ | F 958 |
| | | 6i ``ž'5"'fl&\$%\$Ł"'fGi V!YX]h]b[ž'GYUfWX'9b[]bY Cdh]a]gUh]cb'UbX'DfccZFYUX]b[f'iAi`h]aYX]U >cifbU`]ga'5'DfUWf]WU`;i]XY"'BYk'Mcf FcihYX[Yždd"'+%](\$&" |
| | Hi M@UV | 9X]h]b['bYk g']b'h\Y'Cb`]bY'9bj]fcba Ybh |
| | | Gi V!YX]h]b[ž'dfccZfYUX]b['UbX'gYUfVX!Yb[]bYcdh]a]gUh]cb'fGC9Ł |
| | | -B·7@5GG'9L9F7-G9G'!'GiV!YX]h]b['YIYfW]gYg']b BYkgkcfh\m'HU_Y'fUk'Wcdm'Zfca'U'ghcfmgiVa]hhYX hc'BYkgkcfh\mfk\]W\'kUg'`UhYf'YX]hYX'UbX |

| | di V`]g\YXŁ'UbX`]a dfcj Y`bUffUhj Y``]b_g`UbX`Zck " K f]hY`mci f`ck b`\YUX`]bY`UbX`ghUbX! Z]fghYHU_Y`U Wca a Ybhd]YWY`h\Uhk Ugʻgi Va]hhYX`hc`BYk gk cfh\m UbX`W h`]h`]b`\U`Z'``5dd`m'h\YgY`hYW\b]ei Ygʻhc`mci f ck b`ghcfmVYZcfY`gi Va]gg]cb"` B`7@5GG`DCFH: C@€`GI 6A €G€B!`DG)`fl\$\$ k cfXgŁ`Gi Va]hmci f`YX]h' |
|------------------------------|---|
| K YY_'*.'*'>i `m! '%\$'>i `m | P 958 ' ? c c xnmz >" f&\$% E" 7 cbj Yf[YbW' >ci fbU]ga " 7 \udhYf + z '7 \udhi f]b['7 cbhYl h\udx HcbY'" B Yk 'Mcf_ 'F ci hYX[Yz'dd" -)! % " ; Yc[\Y[Ub'A "/ '? 'Ugg'8 " f&\$\$+EDcXWUgh Gc'i hjcbg" 7 \udhYf' (zfb'Ubb]b['Mci f'DcXWUghf'i 6Yf]b. 'Gdf]b[Yf'DcXWUghGc'i hjcbgz'dd" & + !!) ' " DF 9! 7 @5GG'DC F H: C @ C 'GI 6A |
| | |

| | | a]bgŁZcfX]gW gg]cb k]th 'th Y' @W ei adfZk YX]tcf" Mci 'WJb'i gY'Dck Yf'Dc]bh'tc]`i gtfUtY']Ztci 'k]g\" B'7@5GG'DCFH: C@€'GI 6A €G€B'DG+'f1 \$\$ K CF8GŁ''Gi Va]timci f': ₽5@D]tW\'Utith\Y'YbX'cZ WUgg |
|-----------------------------------|---------------|---|
| K YY_', .'&\$'>i `m!'&('>i ` | m Hi H@UV | 8 Yg][b'mci f'Ghcfm < ck 'k Y'i gY'BZafaeZab'hc'WfYUhY'h\Y'Wc'ci f hfYUha Ybhg'h\Uha U_Y'h\Y'@W' ei adfZk VfUbX'gc UddUfYbh' B'7@5GG'57H= +M'7fYUhY'Ub']a U[Y hfYUha YbhZcf'mci f'ghcfm |
| | | -B!7@5GG'DCFH: C@€'GI 6A €G€B DG, .'Gi Va]himci f'Wc'ci f'lfYUha Ybh |
| K YY_''&+'>i `m'!'' %'>i ` | m < ca Yk cf_ | 6YZcfY'7`Ugg'FYUX]b[6cgg]cž'8"'f&\$%+L"'>ci fbU`]ga 'UbX'GcWJU`A YX]U 5i X]YbW'gž' <agd 'gdf]b[="" 'h\fyy'wcd]yg'czu'cby'du[="" 'lc="" 'wugg.="" 6f]b[="" 6yf]b.="" ;`="" [esf[a`="" a="" ba="" bdsuf[f[a`="" dys`="" e="" eau[s^?="" ef[fgf[a`="" ež="" f="" gywcbx'ugg][="" s'[e="" s`="" td="" v="" wdel="" ww[s,="" x]ybwy'fyuwx'd`ub'zcf'mci="" xfuzhgcwju`a="" y="" ybhighcfmi<="" yfž'dd"'(+'!'**"="" yx]u'ubx'ui=""></agd> |
| | Hi H@UV | ; YMb[']hf][\h'UbX'`Y[U' H\]g'k YY_'k Y'ZJWhWXYW_'ci f'k cf_'h\]g'gYa YghYf k]h\'U'j]Yk 'hc'Uj c]X]b['`Y[U'`YcdUfXmz'UbX'k cf_ \UfX'hc'a U_Y'h\Y'ghcfmfg'cdYb]b['U'gi fY'Z]fY'k]bbYf" B!7@5GG'DCFH: C@€'GI 6A €G€B'DG-'f1\$\$ k cfXgŁ''Nci f'gcW]U'`a YX]U'UbX'Ui X]YbWY'fYUWX d`Ub |
| K YY_`%\$.'' '5i[igh!'+ 5i[igh | < ca Yk cf_ | FYUX ? Ug]b[Yfž'A "ž'F]W\UfXgcbž'B"ž/ 'HUbbYfž'G" f&\$%&\"''9X]h]b['UbX'Dc`]g\]b['Mci f'K cf_"'8W\sfgdW I d[f[Y FW^{ Y fZWE fackž'A Y`Vci fbY.'C I Dž'dd"'%* (!%++" |
| | Hi M@UV | G][b]b['CZZ DfYdUf]b['mci f'dcfhzc`]c'UbX'Z]bU`]g]b['mci f'Z]bU` ghcfmigi Va]gg]cb" |

FYgci fW/g

DfYgWf]VYX F Ygci fWYg

 $D`YUgY`fYZYf`hc`A\ ccX`Yfg``]VfUfm`]b_`fh\Y`[\ fYYb`]WcbŁ'Zcf`U```]VfUfmfYUX]b[\ g''`$

Ghi XYbhgʻUfYʻYbWci fU[YX`hcʻVcffck ʻUi X]cʻfYWcfX]b[ʻ_]hgž'WJa YfUgʻUbXʻa cV]`Yʻʻci fbUʻ]ga ʻ_]hgʻʻZfca ʻh\Y I BGK ʻHYW\b]WJʻ`F Ygci fWYʻ7YbhfYʻZcfʻ]bhYfj]Yk gžYgdYWJUʻ`m]ZWcbg]XYf]b[ʻUʻdcXWJghZcfʻh\Yʻdi Vʻ]WJhjcb UbX'di Vʻ]WJmUggYgga YbhʻH]a Yʻk]``VYʻUʻ`chhYXʻ]bʻWUggʻhcʻZJa]`]Uf]gUhjcbʻk]h\`HF 7 Yei]da YbhUbX`\ck ʻhc Vcffck "``Mci `WJbʻUʻgcʻi gYʻmci fʻga Ufhd\cbYʻhcʻfYWcfXʻ]bhYfj]Yk gʻUbXʻhU_Yʻd\chcg''A cV]`Yʻʻci fbUʻ]ga '_]hg Yb\UbWJʻga Ufhd\cbYʻfYWcfX]b['UbX`ghUV]`]m'

FZW9gSdV[S`51 YX]h]cb

FZWEkV`Wk?ad[Y: WoSV

FZW@W Kad F [We

FZWEagfZ 5Z[S?ad[YBaef

FZW5a`hWdeSf[a` YLWY``YbhfYqcifWY`Zcf'UWUXYa [WeichYg'UbX`]bhYfj [Yk 'gcifWYg"

567 B Yk gF UX]c \dot{z} 567 F UX]c B Uh]cbU``fdcXWUghgŁ'UbX'567]j]Yk 'fZfYY'ghfYUa]b['bYk g'UbX'W ffYbh UZZU]fgŁ''

@cb[Zcfa "cf['-cZYfg'U'W fUhYX'gk YYd'cZ]bhYfbUh]cbU`'ZYUhi fYg'UbX'dcXWUghg'Zfca 'dfca]bYbh hc']bXYdYbXYbhhjhYg"

.

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

G]bWY h\Y A UghY fcZ>ci fbU`]ga / 7 ca a i b]WUh]cb`WUa Y`]bhc`VY]b['UhI BGK ']b`&\$%(žghi XYbhg`\Uj Y Wbb]ghYbhmUfh]W` `UhY X`h\Y]f`ghfcb['XYg]fY`Zcf`ei U`]mhYUW\]b['fY`Yj Ubhhc`WbhYa dcfUfm'ci fbU`]gh]W dfUWh]W` 'Ug`U``Ui bW\`duX`Zcf`h\Y]f`Zi hi fY`a YX]U`WUfYYfg"' = b`&\$%- žI BGK fg``Ui bW\YX`U`Vc`X`]b]h]Uhji Y`]b fYgdcbgY`hc`ghi XYbhfg`bYYXg`]b`h\Y`Zcfa `cZU`bYk `ci hk UfX!ZJW]b[`cb`]bY`di V`]WUh]cb`@W` ei adZkł k\]W\`]g U`dUfhcZh\]g`Wci fgY"'G]bW'`]hg`]bWYdh]cbždi V`]WUh]cbgždcg]hj Y`Ya d`cma Ybhci hWca Yg`UbX`]bXi ghfm Uk UfXg`\Uj Y`hYgh]Z]YX`hc`h\Y`j U`]X]mcZci f`j]g]cb`Zcf`U```hYUW\]b[`\cgd]hU```UddfcUW\`hc``ci fbU`]ga `dfUWh]W\Vch\`]b`h\Y`a UghYffg`dfc[fUa `UbX`i bXYf[fUXi UhY`dfc[fUa g"`H\]g`a YUbg`a cfY`dcfhZc`]c`di V`]WUh]cbg`Zcf ci f`ghi XYbhgž]bWi X]b[']bhYfbUh]cbu``ghi XYbhgžUbX`\][\`dfcZ]Y`fYWc[b]h]cb`Ug`h\Y`Ubbi U``C ee[W3i SdVe XadE fgVW f <agd S`fe_ gdcbgcfYX`Vmh\Y`>ci fbU`]ga '9Xi WUh]cb'/ F YgYUfW\`5ggcW]Uh]cb`cZ5i ghfU`]U" Ghi XYbhq`]b`A 8-5) \$%%`Z]bWi X]b[']bhYfbUh]cbU``qhi XYbhq`zk \``k cf_ WcqY`mk |h\Y`BYk qk cfh\m

Gi Va]gg]cb cZ5ggYgga YbhHUg_g 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]bž'd`YUgY hY`Yd\cbY'9I hYfbU``Gi ddcfhcb'-',)'''' %cf'Ya U]`'h\Ya 'cb'YI hYfbU`hY`hgi ddcfh4 i bgk "YXi "Ui '"'Gi ddcfh

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]XYbhJ``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.

 $7 \text{ cdm}b[...i g]b[...h\Y.gUa Y.cf.j Yfmig]a] \Uf'k cfXg'hc'h\Y.cf][]bU''hYl h'cf']XYU'k]h\ci h'U\V_bck `YX[]b[...h\Y.cf][]bU''hYl h'cf']XYU'k]h'cf']$

