;]f`g`8 Y ZY b X `H\ Ya gY`j Yg`Zfca `A c`YghY f Uh`Ga]h\j]``Y`@U_Y`7 Y`Y V f Uh]cb°

5 fYWbhi]bW]XYbhiUhiGa]h\j]``Y`@U_Y`]bj c`j YXihk cimci b[[]f`gik \c'VfUj Y`miXYZYbXYXih\Ya gY`j YgiU[U]bghiUb UhhYa dhYXia c`YghUh]cbiXi f]b[iU:cifh\cZi≯`miWY`YVfUh]cb"



Ga]h\j]``Y`@U_Yž'7`Um'7ci bhmž'l b]hYX`GhUhYg'!`Cb'\imi\m'(h\ž'UZYgh]jY'\c`]XUm'WY`YVfUh]cb'Uh'Ga]h\j]``Y`@U_Y'hi fbYX']bhc'Ub][\ha UfY'Zcf'hk c'mci b['[]f`g'gk]a a]b['Uh'h\Y'@]hh`Y'D`UhhY'Gk]a6YUW\"'5g'h\Ym'Yb^cmYX'h\Y]f'gi a aYf'XUmž'&*!mYUf!c`X'7Uf`cg7`]aUWc!; UfW]U'UddfcUW\YX'h\Yaž'gdUf_]b['U'ei]W_'gYf]Yg'cZ\Uffck]b['YjYbhg"'5WWcfX]b['hc'K 75Lž'\Y'VY[Ub'Ug_]b['h\Y'[]f`gdYfgcbU`'eiYgh]cbgž'k\]W\'ibXYfghUbXUV`m'fU]gYX'h\Y]f'U`Ufag"

5 hhYa dh]b['hc'X]ghUbWY'h\Ya gY`j Yg'Zfca '7`]a UWc!; UfW]Už'h\Y []f`g'gccb'Zci bX'h\Ya gY`j Yg']b'U'a i W\'a cfY'gYf]ci g'g]hi Uh]cb" H\Ym'k YfY'[fcdYXž'UbX'\Y'UhhYa dhYX'hc'fYa cj Y'h\Y]f'gk]a gi]h Vchhca g"': cfhi bUhY`mž'h\Y'[]f`g'gi a a cbYX']a a YbgY'Wci fU[Y'UbX a UbU[YX'hc'ZYbX'cZZ'h\Y]f'UhhUW_Yf'Vm'_]W_]b['\]a 'VYhk YYb'h\Y

 $Y[g""H\Ym"ei]W_`m"fYdcfhYX"h\Y"]bW]XYbh"hc"h\Y]f"dUfYbhg"bYUfVmžYbgif]b["h\Uh"\Y`d"k Ug"cb"h\Y"k Um"$

5 Ei]W_FYgdcbgY

K]h\ 'YI hfU'XYdi h]Yg'dfYgYbh'Uh'Ga]h\j]``Y'@U_Y'Xi Y'hc'h\Y\\\ \c`]XUm'ZYgh]j]h]Ygž']h'k Ugb h'`cb['VYZcfY'h\Y'g]hi Uh]cb'YgWU`UhYX"

DUfYbhg'U`YfhYX'U'bYUfVm'XYdi hmž'UbX'h\Ub_g'hc'h\Y'[]f`g

XYhU]`YX'XYgWf]dh]cbž``Uk 'YbZcfWYa Ybh'k Ug'UV`Y'hc'`cWUhY'UbX

UffYgh'7`]a UWc!; UfW]U'Ug'\Y'YI]hYX'h\Y'`U_Y'''< Y g'W' ffYbh`m']b

W' ghcXm'ZUW]b['hk c'ZY`cbm'W\]`X'a c`YghUh]cb'W\Uf[Ygž'k]h\'U'VcbX

gYh'Uh'` +) ž\$\$\$"'DfcgYW' hcfg'\Uj Y'Yj Yb'fYei YghYX'Ub']bWfYUgY']b

h\]g'VcbXž'Ya d\Ug]n]b['h\Y'gYf]ci gbYgg'cZ'h\Y'cZZYbgY'''<]g'bYI h

Wci fh'UddYUfUbWY']g'gYh'Zcf'H\i fgXUmž'UbX'h\Y'Wca a i b]hm']g
i bXci VhYX`m'cb'\][\'U`Yfh"

 $H\]g']b\ W]XYb\ h'\][\ \ hg'h\ Y'\ dYfg]ghYb\ h']ggi\ Y'\ cZ'W\]'X'\ gUZYhmž'\ U \\ Wc\ b\ W'\ fb'\ fYZYWhYX']b'\ Vfc\ UXYf'XUhU'UWfcgg'h\ Y'\ b]hYX'\ GhUhYg'''H\ Y \\ B\ Uh]c\ b\ U``7\]'X'\ 5\ Vi\ gY'\ Ub\ X'\ B\ Y[\ YWh'\ 8\ UhU'\ GmghYa 'fB 75B8G\ 2''Ug \\ XYhU]'YX'\ cb'h\ Y'\ 5\ 7: 'k\ Y\ g]hY\ z'\ Wc``Y\ Whg'j\]hU`'ghUh]gh]\ Wg'\ fY[\ UfX]b[\ WX]`X'UVi\ gY'\ Ub\ X'\ bY[\ Y\ Wh'\ Zfca 'U``') $'ghUhYgz'h\ Y'8]ghf]\ Wh'\ cZ \\ 7\ c`i\ a\ V]Uz'\ Ub\ X'\ Di\ Yfhc'\ F]\ Wc''' H\ YgY'YZZcfhg'\ U]a\ 'hc'\ dfcj\]XY'\ U\ WY\ UfYf'\ d]\ Wh'\ fY'\ cZ'\ h\ Y'\ UVi\ gY'`\ Ub\ Xg\ WU\ dYz'\ fU]g]b[\ 'Uk\ UfY\ b\ Ygg'\ Ub\ X\ U]X]b[\ 'dfYj\ Yb\ h]cb'\ YZZcfhg''\ U$

I b X Y f g h U b X] b [h Y 6] [Y f D] W h i f Y

GhUh]gh]WgʻZfca 'B 7 5 B 8 GʻfYj YU``U`Ufa]b['hfYbXgʻh\Uhi bXYfgWcfYh\Y']a dcfhUbWYcZh\]gʻ]bW]XYbh"'H\Y'j c`i bhUfm'XUhU'Wc``YWh]cbfYa]bXgʻi gʻ\ck 'Wf]h]WU``]hi]gʻZcfʻWca a i b]h]YgʻhcʻfYa U]bʻj][]`UbhUbXʻgi ddcfh]j Y"'9UWXʻghUhYʻgi Va]hgʻXUhUʻUbbi U``mžʻfYZYWh]b['h\YYYI dYf]YbWYgʻcZ'Wci bh`YggʻWX]`XfYb"'H\]gʻmYUfžʻh\YʻfYdcfh]b[dYf]cX'fi bgʻZfca 'C WhcVYfʻ%ʻhcʻGYdhYa VYfʻ' \$žʻdfcj]X]b['j]hU`]bg][\hgʻ]bhcʻh\Y`WXU``Yb[YgʻWX]`XfYb'ZUWYʻUWfcggʻh\YʻbUh]cb"

 $\label{thm:cbh} 5g'k Y'fYZYWh'cb'h\]g'fYWYbh']bW]XYbh'Uh'Ga]h\] ``Y'@U_Yž']h g'WYUf h\Uh'k \]`Y'a ca Ybhg'a YUbh'Zcf'WY`YVfUh]cb'WUb'ei]W_`m'hi fb'hc XUb[Yfž'h\Y'VfUj Yfm'cZ'h\YgY'[]f`g'gYfj Yg'Ug'Ub']bgd]fUh]cb'''H\Ym$

bchicb`miXYZYbXYXih\Ya gY`j YgʻVi hiU`gcihcc_iXYW]g]j YiUWh]cbih\UhiYXihciUbiUffYghžig\]b]b[iUii][\hicbih\YiWcbh]bi UiibYYXiZcf Wcaaib]hmiUk UfYbYggiUbXij][]`UbWYifY[UfX]b[ih\YigUZYhmicZicif WX]`XfYb"

±0 'U'k cf`X'k \YfY'k Y'cZhYb 'ZYY`'gUZY'Xi f]b['ZYgh]j Y'cWWUg]cbgž']h']g Wfi W]U``hc'fYa Ya VYf'h\Uh'j][]`UbWY'fYa U]bg'ci f'VYgh'XYZYbgY" @Yhg'Wcbh]bi Y'hc'YbWci fU[Y'ci f'WX]`XfYb'hc'gdYU_'i d'UbX'dfchYWh h\Ya gY`j Yg'k \YbYj Yf'h\Ym'ZYY``i bWca ZcfhUV`Y'cf'h\fYUhYbYX"

8 Y hU]`g	
Cfh	Ga]h\j]``Y`@U_Yž'7`Um'7cibhmž'lb]hYX'GhUhYg
EiY``Yb	• kkk"kWUI"Wca
	• UWZ"[cj

6Ygi WXYb G]Y i bg Ui Z. a Y]b!k]Yb bYh