

5b[f]ZZY'Ui Z'9]bgUhn_fÀZhY']b'6Yf`]b.'9]b <]`ZYfi Z'Ui g'XYf'GhUXh°

±b '6Yf`]b 'bY\a Yb '5b[f]ZZY 'Ui Z'Dc`]nY]'i bX '9]bgUhn_fÀZhY 'ni "9]b '6]gW\cZi bX 'A i g`]a Y 'ZcfXYfb 'Gc`]XUf]hÀh'[Y[Yb'; Yk U`h"



9]b'6Y]gd]Y`]gh'XYf'Dc`]nY]VYUa hY'? UfghYb'@cYghž'XYf']b'Y]bYa \$\darkap hYfj]Yk'\@VYf'gY]bY'9f`YVb]ggY'gdf]W\\h''K\\A\fYbX'gY]bYf `Ub[\A\f][\Yb'H\A\h][_Y]h'VY]'XYf'Dc`]nY]'6Yf`]b'\Uh'Yf']b'fi bX'\%"\$\$\$ 9]bgÀhnYbžiXUfi bhYfiUi WkiU`gʻHYUa ZØ\fYfiXYgʻG9?žinU\`fY]WkY 5b[f]ZZY a]hYf`YVh"'9]b'Y]bgWkbY]XYbXYgʻ9f`YVb]gʻk UfiY]b'5b[f]ZZ k À\fYbX'Y]bYfʻZf]YX`]WkYb'8Ya cbghfUh]cb']b'GWkÒbYVYf[žiVY] XYa ']\b'Y]bY'; `UgZ`UgWkY'[YhfcZZYb'i bX'Y]bY'D`Uhnk i bXY j Yfi fgUWkh'\Uh"'Gc`WkY'J cfZÀ``Y'g]bX'ZØf'X]Y'9]bgUhn_fÀZhY'_Y]bY GY`hYb\Y]h/'\Ài Z]['gY\Yb'g]Y'g]Wk'DÒVY`Y]Yb'i bX'j YfVU`Yb Dfcj c_Uh]cbYb'[Y[YbØVYf"

JcfVYfY]hi b['i bX'GWXi `i b['XYf 9]bgUhn_fÀZhY

5b[Yg]Wk hg XYf ghY][Yb XYb 5[[fYgg]cbYb \ Uh X]Y Dc `]nY] 6Yf `]b
Y]b ii a ZUb[fY]Wk Yg 5i gV] Xi b[gdfc[fUa a ZØf]\fYb BUWk ki Wk g
Ybhk]W_Y`h" =b]bg[YgUa h %, GYa]bUfhU[Yb k YfXYb Ub[Y\Yb XY
Dc `]n]ghYb Ui Z XYb I a [Ub[ia]h _f]h]gWk Yb G]hi Uh]cbYb
j cfVYfY]hYh" 8]Yg ii a ZUggh XfY] j Yfd Z]Wk hYb XY

J Yf\U`hYbghfU]b]b[ggYa]bUfYž X]Y ?ca a i b]_Uh]cbž
?cbZ]_hVYk À `h][i b[ii b X GhfYgga UbU[Ya Ybh h\ Ya Uh]g]YfYb "8 Ug
N]Y ` X]YgYf GWki `i b[Yb]gh Ygž X]Y ?ca a i b]_Uh]cbgZh\][_Y]h ni
ghÀf_Yb i b X XYb 6YUa hYb ni '\Y`ZYbž GhfUhY[]Yb ni f
?cbZ]_h`Ogi b[ii b X GhfYggVYk À `h][i b['ni 'Ybhk]W_Y`b "Ni gÀhn`]Wk
ghY\Yb VY] VY `UghYb XYb '9]bgÀhnYb 'HYUa g 'XYg 6Yf`]bYf
?f]qYb X]YbghYq ii b X ']bhYfbY 'DgmWk c`c[Yb ni f 'J YfZØ[i b["

 $8]Y `F Y U`]h Ah`nY][h``Y X c W ž`X U g g`h f c h n``U``Y f`J c f V Y f Y]hi b [Y b`X]Y \\ 9]b g U h n_f A Z h Y`]b`X Y f`G]`j Y g h Y f b U W h`& $ & (#& $ &)`V Y g c b X Y f g`\ U f h [Y h f c Z Z Y b`k i f X Y b'' K]Y`b!hj` V Y f] W h Y h ž`[U V`Y g`]b`X] Y g Y f`B U W h n U \`f Y] W Y`5 b [f] Z Z Y`U i Z`D c`]n] g h Y b`i b X`: Y i Y f k Y \f`Y i h Y`]b`6 Y f`]b`U h h U W_] Y f h ž k i f X Y b'') * `D c`]n] g h Y b`i b X`* - `: Y i Y f k Y \f`Y i h Y`]b`6 Y f`]b`U h h U W_] Y f h ž k c V Y]`(+'9] b g U h n_f A Z h Y`X Y f`D c`] n Y]``i b X`%)`: Y i Y f k Y \f`Y i h Y j Y f`Y h h h`k i f X Y b'' \delta b Y b g Y b U h c f]b`\delta f]g`G d f U b [Y f`f G D 8 \delta V Y h c b h Y ž X U g g`X] Y g Y`J c f Z A``Y`Y] b`B U W X Y b _Y b`X Y f`; Y g Y``g W U Z h`Y f Z c f X Y f`] W a U W Y b''$

Gc`]XUf]hÀh'a]h'XYb'9]bgUhn_fÀZhYb

 $\label{lambda} I a \ 'Y]b \ 'NY]WX Yb \ '[\ Y[\ Yb \ 'X]Y \ '; \ Yk \ U`h'ni \ 'gYhnYb 'i \ bX 'X]Y \ 'Gc `]XUf]hAh$

a]h:XYb:9]bgUhn_fàZhYb:ni:VYhcbYbž:ZUbX:]b:XYf:Gh":A Uf]Yb_]fWXY
]b:A]hhY:Y]bY:J YfUbghU`hi b[:ghUhhž:Ub:XYf:J YfhfYhYf:X]j YfgYf
FY`][]cbYb:hY]`bU\a Yb":8Yf:Yj Ub[Y`]gWXY:6]gWXcZ:7\f]gh]Ub
GhÀV`Y]b:i bX:XYf:=a Ua :9bXYf:£Yh]b:gdfUWXYb:g]WX:ZØf:Y]bY
GhÀf_i b[:XYf:>i [YbXUfVY]h:]b:XYb:7ca a i b]h]Yg:Ui g:i bX
ZcfXYfhYb:XUni:Ui Zž:b]WXh:\]bhYf:XYb:FUbXU`]YfYbXYb:ni:ghY\Yb"
: fUb_!DYhYf:6]hhYfž:_Uh\c`]gWXYf:Dc`]nY]gYY`gcf[Yf:i bX
A]hj YfUbghU`hYf:XYf:J YfUbghU`hi b[ž:i bhYfghf]WXž:XUgg:XUg;; YVYh
Y]b:ghUf_Yg:NY]WXYb:XYf:Gc`]XUf]hÀh:a]h:XYb:9]bgUhn_fÀZhYb:gY]"

CVk c\``V]g\Yf'_Y]bY'6YhfcZZYbYb'XYf'G]`j YghYfj cfZÀ``Y'<]`ZY'VY]
6]hhYf'[Ygi W\h'\UVYbž'V`Y]Vh'UVni k UfhYbž'cV'i bX'k Ubb
; YgdfÀW\gVYXUfZ'YbhghY\h''8]Y'U_hi Y``Yb'9bhk]\W_`i b[Yb
j YfXYi h`]W\Ybž'XUgg'X]Y'H\Ya Uh]_'XYg'5b[f]ZZg'Ui Z'9]bgUhn_fÀZhY
]b'6Yf`]b'Y]bYb'`Ub[Yb'5hYa 'VYbÒh][h'i bX'gck c\``X]Y
; YgY``gW\UZh'U`g'Ui W\X]Y'6Y\ÒfXYb'[YZcfXYfh'g]bXž'[Ya Y]bgUa
[Y[Yb'X]YgY'; Yk U`h'j cfni [Y\Yb"

8 Y hU]`g	
Cfh	GWX ÒbYVYf[ž'6Yf`]bž'8Yi hgWX`UbX
Ei Y``Yb	• k k k "VYf`]b!`]j Y"XY
	• k k k "b!hj "XY

6Ygi WXYb G]Y i bg Ui Z. b!U["bYh