

6`]hnYfa Y`Xi b[...Gc.k]fX.\Yi hY.]b J]YbYbVi f[...cbhfc``]Yfh°

6`]hnYf!H]ddgʻZØfʻ; cg`UfʻUaʻ%* "\$* "&\$&). '5_hi Y``YʻGhUb X cfhYž HYa dc`]a]hgʻi b XʻHc`YfUb nUV n \emptyset [YʻZ \emptyset fʻg]W\YfYgʻ: U\fYb"



 $\label{eq:Karther} \text{K }]Y \text{'}g]Y \text{'}h \text{'}Yg \text{'}Y][\text{Ybh'}]W \text{'}a \text{]}h \text{'}XYb \text{'}Hc \text{'}Yf \text{UbnYb'}VY] \text{'}6 \text{'}]h \text{n}Yfb \text{'}Ui \text{ }g3 \text{'} \pm b \text{'}A \text{'}A$

8 Yi hgWX`UbX`k]fX`VY]; YgWX k]bX][_Y]hYb`V]g`%\$\$`_a #\`Y]b`5Vni [
j cb`'`_a #\`VYfØW_g]WXh][h"`6Y]`\`O\YfYb; YgWX k]bX][_Y]hYb`g]bX
Yg`'`DfcnYbh`XYg`[Ya YggYbYb`K Yfhg"`8]YgY`\DZcfa Uh]cbYb
ghUa a Yb`YVYbZU``g`Ui g`XYa `6Yf]WXh`XYg`5857\Z`XYf`XUfUi Z
\]bk Y]gh\Z`XUgg`X]YgY`Hc`YfUbnUVnØ[Y`i bUV\\Ab[]['j cb
hUhg\AWX`]WXYb`A Yggi b[YbUi][_Y]hYb`Ub[Yk YbXYh`k YfXYb"`8Ug`]gh
k]WXh]['ni `k]ggYb\Z`i a `]a `I a [Ub[`a]h
; YgWX k]bX][_Y]hqa Yggi b[Yb`[i h'j cfVYfY]hYh`ni `gY]b"

FY[Y`b'i bX'Hc`YfUbnYb

 $BYVYb`XYb`U``[YaY]bYb`Hc`YfUbnYb`\Uh`XYf`5857`UiW\ gdYn]Z]gWXY`#bZcfaUh]cbYb`ØVYf`acV]`Y`, VYfkUWXib[ggmghYaYk]Y`DfcJ]8U"`<]Yf`VYhfÀ[h`XYf`5Vni[`V]g`%$$`_a#\`gc[Uf`)`_a#\ibX`ØVYf`%$$`_a#\`)`DfcnYbh"`KYbb`aUb`c\bY`ibVYX]b[hYAYgggmghYaY`V`]hn[YgWXU`hYh`k]fXž`aigg`X]Y`; YgWXk]bX][_Y]h <math>\emptyset$ VYf`Y]bYb``Àb[YfYb'5VghUbX'jcb'(\$\$`V]g`)\$\$`AYhYfb`[YaYggYbkYfXYb"

8 c W. 'k i gghYh']\fž'XUgg'Yg'Ui W. 'I bhYfgW.]YXY']b'XYb'@ÀbXYfb

[]Vh3'\D'^2 ghYffY]W. '[Y'hYb'VY]'@UgYfa Yggi b[Yb'À\b']W.Y

Hc`YfUbnYb'k]Y'VY]'i bgž'k À\fYbX']b'UbXYfYb'@ÀbXYfb'k]Y'XYf

GW.k Y]n'hY]'k Y]gY'bcW. '[fc» nØ[][YfY'5VnØ[Y'Ub[k YbXYh

k YfXYb"'9]b', VYfV`]W_ØVYf'X]Y'Hc`YfUbnYb']b'Y]b][Yb

Yi fcdÀ]gW.Yb'@ÀbXYfb'nY][h'6Y]'GdYYXa Yggi b[Yb']b': fUb_fY]W.

`]Y[h'X]Y'Hc`YfUbn'VY]') '_a #\'i bhYf'%\$\$'_a #\'i bX') 'DfcnYbh'ØVYf

%\$\$'_a #\"8]YgY'\DZcfa Uh]cbYb'V]YhYh'Y]bY'[i hY'; fi bX`U[Yž'i a

ni 'j YfghY\Ybž'k Ug'Y]bYa 'VY]'Y]bYf'?cbhfc``Y'a Ò[`]W.Yfk Y]gY

V`Ø\h'i bX'k]Y'a Ub'g]W.'Ua 'VYghYb'j Yf\À'h"

A Y\f'XUni 'Z]bXYh'a Ub'Ui Z'Vi gg[Y'X_UhU'c["cf["

HUW c!Hc`YfUbnYb

9]b'k Y]hYfYf'b]W\h'ni 'i bhYfgW\\AhnYbXYf'Di b_h'g]bX'X]Y'HUW\c!
Hc`YfUbnYb']b': U\fnYi [Yb"'J]Y`Y'HUW\cg'g]bX'b]W\h'[YY]W\hž'i bX
X]Y'5Vk Y]W\\i b[Yb'_\ObbYb'V]g'ni '%\$'DfcnYbh'd`i g'('_a #\
VYhfU[Yb"'8]Y'A Yggi b[Yb'XYg'5857'Ub'' \$\$'5i hcg'Yf[UVYbž'XUgg
j]Y`Y': U\fnYi [Y'j cb'X]YgYb'5Vk Y]W\i b[Yb'VYhfc\ZZYb'g]bX"'8Ug

]ghˈb]Wkhˈbi fˈgdUbbYbXž·gcbXYfb'_Ubb'Ui Wk [UbnˈgWk Òbˈ]bg'; Y`X [Y\Ybž'k Ybb'a Ubˈb]WkhˈUi ZdUggh"

6YgcbXYfg'k]Wkh][']gh'Ygž'Y]b'[i hYg'<ÀbXWkYb']a 'GhfU» Ybj Yf_Y\fni '\UVYbž'i a 'b]Wkh']b'X]Y'6fYXci]``Y'ni '[YfUhYb"'K Yf'g]Wk'ØVYf6i»[Y`XVYgWkY]XY'VYgWk YfYb'a ÒWkhYž'_Ubb'Ui Z'X]YIbhYfghØhni b['XYg'5857'nÀ\`Yb"'Gc'V`Y]Vh'a Ub'Ui Wk'VY]ibUb[YbY\a Yb', VYffUgWki b[Yb'[i h']bZcfa]Yfh'i bX'fYWkhnY]h][Ui Z'XYa '@Ui ZYbXYb"

9]b'[ihYf'<]bk Y]g'ni a 'GW\`i gg.'@Uggh'Yi W\'b]W\h'Yfk]gW\Yb''9g nU\`h'g]W\'Ui gž'X]Y'; YgW\k]bX][_Y]h']a '5i [Y'ni 'VY\U`hYb'i bX'X]Y JYf_Y\fgj cfgW\f]ZhYb'Y]bni \U`hYb"'8Yf'\Yi hY'ghUhhZ]bXYbXY 6`]hnYf']b'J]YbYbVi f[']gh'Y]b'[ihYf'FYa]bXYfž'XUgg'YXYf'j cb'i bg Ui Z'XYf'<ih'gY]b'gc``hY"'6`Y]Vh'XfUb'i bX'ZU\fh'g]W\Yf'

8 Y hU]`g	
Cfh	?U]gYfghfU»Yž", *-\$J]YbYbVif[ž
	8 Yi hgWX`Ub X
EiY``Yb	• k k k "bYk g"XY
	• k k k "UXUWXY
	k k k "Vi gg[Y`X_UhU`c["cf[

6 Ygi WX Yb 'G]Y 'i bg 'Ui Z. 'X]Y!bUWX f]WX hYb "Wca