

9bhXYW_Yb^G]Y^X]Y^ZUa]`]YbZfYi bX`]W\Yb^; fY]nY]hdUf_g^]b <YggYb^^5hhfU_h]cbYbž^DfY]gY^i bX^2 ZZbi b[gnY]hYb^ZØf^&\$&)]a ^, VYfV`]W_"



K Y\f\Y]a ž'8 Yi hgWk`Ub X'! \display < YggYb'[Y\h'Yg'b]Wkh']a a Yf'i a XYb'i `h]a Uh]j Yb'5XfYbU`]b_]W_ž'k Ybb'Yg'i a :: fY]nY]hdUf_g'[Y\h' GhUhhXYggYb'V]YhYb'nU\`fY]WkY'H\Ya YbdUf_g'i bX'5hhfU_h]cbYb ZUa]`]YbZfYi bX`]WkY'I bhYf\U`hi b[ž'X]Y'Y]b'VYgcbXYfYg 5i [Yba Yf_'Ui Z'X]Y'?`Y]bghYb'`Y[Yb''Gc'Z]bXYb'g]Wk']b'XYf'FY[]cb ['Y]Wk'j]Yf': fY]nY]hdUf_gž'X]Y'[Ubn'c\bY <cWk[YgWkk]bX][_Y]hgZU\f[YgWkÀZhY'Ui g_ca a Yb'i bX'XYbbcWk a]h'Y]bYa 'Vi bhYb'Dfc[fUa a 'ZØf'; fc>'i bX'?`Y]b'Ui Zk UfhYb'''@Ui h'\YggYbgWk Ui "XY'\UVYb'g]Wk'X]Y'6Ygi WkYfnU\`Yb']b'X]YgYb DUf_g'bUWk'XYb'7cfcbU!@cW_Xck bg'VYY]bXfi W_YbX'Yf\c`h'i bX hY]`g'gc[Uf'XUg'J cf!DUbXYa]Yb]j YUi 'ØVYfhfcZZYb''

I bhYf'XYb'VY_UbbhYghYb'DUf_g']gh'XYf': $fY]nY]hdUf_'ecW$ a Ø\`Yž

XYf')) '\(\frac{1}{2}\) \(\frac{1}{2}\) \(\fra

: Ua]`]YbZfYibX`]WXY'5Wh]cb']a 'HUibig! KibXYf`UbX

B]Wkhik Y]hiybhZyfbhži]biGWk`Ub[YbVUXži`cW_hiXUgʻHUi bi g!

K i bXYf`UbXžik ci: Ua]`]YbiX]Yi`Ab[ghYi5WkhYfVU\bi<YggYbgʻf) \$\$

A YhYfŁi bXiY]bYigdY_hU_i `AfYi< OWkgh[YgWkk]bX][_Y]hij cbi()

_a #\i[Yb]Y\rightarrow Ybi_ObbYb''=a ij Yf[Ub[YbYbi*U\fikifXYi\]YfiX]Y

6Ygi WkYfnU\ij cbi&-\$"\$\$\$\Ui Z') \$\$"\$\$\$ij YfXcddYihžik UgʻZØfiXYb

DUf_iY]biXYi hi]WkYgʻNY]WkYbiZØfiXYbi9a dZUb[iXYfi6Ygi WkYfi]gh''

BYi i]ghiXUgʻ: Ua]i]YbiUVmf]bh\ia]hi?iYhhYfa O[i]Wk_Y]hYbžik YiWkYg

X]Yi5hhfU_hJj]hAhiXYgʻDUf_gʻik Y]hYfighY][Yfh''8Yfi9]bhf]hhiVYiAi Zh

g]WkiUi Z'i iz) \$i9i fciZØfi9fk UWkgYbYigck]Yi?]bXYfiUVi%' %iWa

? OfdYf[fO\rightarrow Y''?]bXYfink]gWkYbi%\$\$ibXi% \$iWainU\iYbi&-z)\$

9i fczik A\fYbXiX]Yi?iY]bghYbii bhYfi%\$\$iWai_cghYbicgig]bX''5i Wk

\]Yfi\UhiXYfiDUf_ihA[i]Wkij cbi%\$iV]gi%, il\fiV]gini a i&"iBcj Ya VYf
[YOZZbYh''

8 Yf '9f`YVb]gd Uf_'N]Y[Yb\U[Yb'k UfhYh'YVYbZU``g'a]h
ZUbhUgh]gW\Yb'BYi\Y]hYb'UiZ''9]b'\Dxccfgd]Y`d`Uhn'k i fXY'_Øfn`]W\
YfÒZZbYhži bX'XYf'9]bhf]hhgdfY]g'VYhfÀ[h'%*'9i fc'ZØf'U``Yž'X]Y'XfY]
\UX\fY'cXYf'À`hYf'g]bX'''; YÒZZbYh']gh'XYf'DUf_'hÀ[`]W\'j cb'%\$'V]g'%,
I\f'V]g'ni a '%+"'5i [i ghž'XUbUW\'[]Vh'Yg'Y]b[YgW\fÀb_hY

2 ZZbi b[gnY]hYb''8]Y'DfY]gYf\Ò\i b['j cb'%ž)\$'9i fc']b'XYb'`YhnhYb
nk Y]'\UX\fYb'gd]Y[Y`h'X]Y'[Ygh]Y[YbYb'?cghYb'ZØf'@Ò\bY'i bX
9bYf[]Y'k]XYf"

8 Ug 6 YghY 'Ui g GhY]bUi 'i bX K]``]b[Yb

 $8 \ Yf' \ 9f'YVb]gd \ Uf_'GhY]b \ Ui''n]Y\ h'a \]h'Yfk \ UfhYhYb''' \ $"$$$ 6 \ Ygi \ WX \ Yfb' Ub'i b X' ØV \ YfnYi [h'a]h'gY]b \ Yf'Y]bn][Yb \ Gca a \ Yffc \ XY'VU\b'i b h Yf' \ XYb'\ Ygg]g \ WX \ h' f Y]nY]hd \ Uf_g"'Ni \ XYa []Vh'Yg'X]Y'_'Y]bgh Y'5 \ WX \ h YfVU\b' < Ygg Ybg Z'X]Y'a]h']\ f Yb' & $'A Yh Yfb \ GWX]Yb Yb' \ Ab[Y'VYgcb \ XYfg' \ ZØf' \ X]Y' \ Øb[YfYb' 6 Ygi \ WX \ Yf' [YY][b Yh]gh'' \ 8 Yf' 9]b \ hf]hh'']Y[h'VY]' & ''' 9i fc' \ ZØf' U''Y' \ ØV Yf' \ $$ 'Wa ? \ Ofd Yf[f\ \ \ \ Y'' 5 i \ WX'\]Yf'k]f X'j cb' - 'V]g' \ %, 'I \ f Z'V]g'ni a '\%- " \ C_hc \ V Yf' [Y \ O \ Z'b Yh Z' U'' \ Yf X]b[g']gh' X]Ybgh U[g'Fi\ Yh U["$

: Øf B Uhi f`]YV\UVYf V]YhYh XYf K]`X! i b X : fY]nY]hd Uf_ K]``]b[Yb]a B Uhi fd Uf_ 8]Ya Y`gYY nU\`fY]WXY 5 hhf U_h]cbYb ž X]Y j cf U``Ya '?]b XYf V]g '%\$ '\$J\ fY 'ZUgn]b]YfYb "A]h Y]b Ya '9]b hf]hhgd fY]g j cb '%('9i fc 'ZØf'?]b XYf]a '5`hYf j cb '('V]g '%('\$J\ fYb ii b X '%* '9i fc ZØf '9fk UWX gYbY k À\ fYb X 'XYf 'Gca a YfgU]gcb ž _ObbYb : Ua]`]Yb Xcfh Y]b Yb 'g WX ObYb 'HU['j YfVf]b[Yb " 8]Y 'Gca a YfOZZbi b[gnY]hYb g]b X j cb '- V]g '&\$ 'I \f'i b X ']b 'XYf 'K]b hYfgU]gcb j cb '%\$ 'V]g '%* 'I \f"

8]Y'\Ygg]gW\Yb': fY]nY]hdUf_g'VYk Y]gYb'Y]ba U``a Y\fž'XUgg
BUW\\U`h][_Y]h'i bX': Ua]`]Ybi bhYf\U`hi b['Yb[
ni gUa a Yb[Y\OfYb"'; YfUXY'ZØf': Ua]`]Yb'a]h'_`Y]bYb'?]bXYfb'g]bX
X]YgY'DUf_g'X]Y']XYU`Y'K U\`ž'i a 'i bj Yf[Ygg`]W\Y'HU[Y'ni
j YfVf]b[Yb"'K Y]hYfY'8YhU]`g'ni 'XYb'DUf_g'g]bX'Ui Z'
ZUa]`]YbfY]gYZ]YVYf"XY'i bX'UVYbhYi YfZfY]nY]h"XY'ni 'Z]bXYb"

8 Y hU]`g	
Cfh	KY\f\Y]až8YihgWX`UbX
EiY``Yb	• k k k "\YggYbgW\Ui "XY
	k k k "ZUa]`]YbfY]gYZ]YVYf"XY
	UVYbhYi YfZfY]nY]h"XY

6 Ygi W Yb 'G | Y i bg 'Ui Z 'b U [! \ Ygg Yb "X Y