

## 8 fUa Uh]gW\ Yg'8 YfVm'8 fU[cbg'VYnk]b[Yb J]\_]b[g'a]h'%+.%(']a'FY[Yb'

5a '- "' \* b] '&\$ &) '[ Yk ]bbYb 'X]Y '8 Ubi VY '8 fU[ cbg ']a '8 YfVm [ Y[ Yb 'X]Y 'J ]YbbU 'J ]\_]b[ g 'a ]h '%+. %( 'i bX 'nY][ Yb 'ghUf\_Y @Y]ghi b[ Yb ']b 'XYf 'nk Y]hYb '< U`VnY]h"



8 c b Ui ZY`X ž'² ghYffY]WX '! '5 a '- "' \* b]' & \$ & ) 'k i fXY']a '8 c b Ui ZY`X Y]b 'gd Ubb Yb XYg '8 Yf Vm'nk ]gWX Yb 'XYb '8 Ubi VY '8 fU[ c b g'i b X 'XYb J]Yb b U'J]\_]b[ g'Ui g[ YhfU[ Yb ž'X Ug 'XYb : Ubg 'Y]b Y'd UW\_Yb XY'G\ck Vch" 8 ]Y 'D Ufh]Y 'VY[ Ubb 'a ]h'Y]b Yf'J Yfn O[ Yfi b[ 'j c b 'Y]b Y]b\U`V Ghi b XYb ž'U`g 'XYf'FY[ Yb 'X Ug 'Gd]Y`ZY`X']b 'A ]h'Y]XYb gWX UZh 'nc [ "'8]Y J]\_]b[ g'[ Yk Ubb Yb 'XYb '7 c]b 'Hc gg 'i b X 'Yb hg WX ]Y XYb 'g]WX ž']b 'XYf nk Y]hYb' < À 'ZhY'X]Y 'C ZZYbg]j Y 'ni 'ZØ\fYb ž'k Ug 'ZØf'Y]b][ Y]b hYfYgg UbhY'K Yb Xi b[ Yb 'gcf[ hY"'Hfchn 'XYf'k ]Xf][ Yb K YhhYfVYX]b[ i b[ Yb 'k Uf 'X Ug 'GhUX]cb'[ i h'[ YZØ`h'i b X 'X]Y Gh]a a i b[ 'k Uf 'Ub[ Ygd Ubbh"

 $\pm$  'XYf'YfghYb' < U`VnY]h'k UfYb'ØVYffUgW\YbX'VY]XY'8YZYbg]j fY]\YbXca ]bUbh"'8Ug'YfghY'J]YfhY`'VfUW\hY'\_Y]bYb'Di b\_hž'XU'VY]XY

 $HYUa g'GWk k ]Yf][\_Y]hYb `\ UhhYbžg]W `Xi fWk ni gYhnYb" `9]b $$ \ YfUi gfU[YbXYf'DUgg'j cb '5Ufcb'9``]g'Ui Z'8Ybb]g'A Uf\_cj ]W$ f]W `]Y$ `nk Uf'X]Y'J ]_]b[g'Ua `Ni [ž'XcWk 'XYf'8f]j Y'YbXYhY'c\bY': ]fgh 8ck b"'K Å\fYbXXYggYb'_cbbhYb'X]Y'8fU[cbg'bUWk 'Y]bYa gWk `YWk hYb'GbUd'XYf'J ]_]b[g'i bX'Y]bYf'GhfUZY'_Y]bYb'Bi hnYb n]Y\Ybž'i bX'Y]b': ]Y`X[cU`j Yfgi Wk'j cb'8f"'A ]Wk UY`GWk UWk Yfa Umf []b['XUbYVYb"'I a gc'VYa Yf_Ybgk YfhYf'k Uf'XYf'YfghY'Hci Wk Xck b XYf'J ]_]b[g'Xi fWk'A cf]hn'F]YX]b[Yf']b'XYf'%$.) $`A ]bi hY`XYg nk Y]hYb'Ei UfhYfgž'k Ug'XYb'Gd]Y`ghUbX'Ui Z'$.+Yf\O\hY''?i fn'j cf XYf'<U`VnY]h_b]YhYb'X]Y'J ]_]b[g'UVž'i a 'XYb'5i g[Ub['XYg J]YfhY`g'ni 'g]Wk Yfb"$ 

## 8]YKYbUWXXYf< UVnY]h

 $8 ]Y `nk Y]hY `< U`VnY]h`VfUWX hY `Y]bYb `[ Ubn`UbXYfYb`GWX k i b[ `]bg Gd]Y`" `8 ]Y `8 fU[ cbg`_Ua Yb`YbhgWX`cggYb`Ui g`XYf`? UV]bY`i bX Yfn]Y`hYb`gc Zcfh`Y]b`: ]Y`X`; cU`ž`XUg`XYb`F<math>\emptyset$ W\_ghUbX`Ui Z`' . + j Yf\_ $\emptyset$ fnhY" `=a `Xf]hhYb`E i UfhYf`[ Y`Ub[ `XYb`8 fU[ cbg`Xi fWX 6Yfb\UfX`F i gWXYf`]b`XYf`%\$.) \$`A ]bi hY`XYf`YfghY`Hc i WXXck bž`k Ug X]Y`:  $\emptyset$ \fi b[ `Ui Z`%\$. + `VfUWX hY" =a `j ]YfhYb`J ]YfhY``Yf\O\hYb`X]Y 8 fU[ cbg`XYb`8 fi W\_ `i bX`@` \_Ug`GWX fUa a `Yfn]Y`hY`]b`XYf`' . %( A ]bi hY`XYb`nk Y]hYb`Hc i WXXck b`Z\Øf`gY]b`HYUa ž`k Y`WXYg`X]Y K Y]WXYb`Ui Z`%+. + `ghY``hY'"

 $8 \ ]Y'J \ ]\_]b[ \ g^*]Y \ Yb'g]W \ 'YXcW \ 'b]W h Yb ha i h][ Yb'i b X'Ubhk cfhYhYb a ]h'Y]bYa 'Hci W Xck b'j cb'6Yb'Ua ]b'Gd]Y Yf']b'XYf'%. ($'A]bi hYž XYf'XYb'Gd]Y `ghUb X'Ui Z'%+.%('j Yf_ØfnhY''' <math>\Rightarrow$  'XYb' `YhnhYb''\* + GY\_i b XYb 'Yb hgW ]Y XYb'g]W 'X]Y'8 fU[ cbgž'X]Y'NY]h'WYj Yf Ui g`Ui ZYb'ni '`UggYbž'i b X'g]W YfhYb'g]W 'gca ]h'XYb'G]Y[''': fYX 5 fa ghfcb[  $\check{z}' < YUX''7cUW X'XYf'8 fU[ cbgž'`cVhY'X]Y'VYY]bXfi W_YbXY JYfhY]X][i b[ g`Y]ghi b[ 'gY]bYg'HYUa g'i b X'X]Y': cfhgW f]hhY'XYf C ZZYbg]j Y']b'XYf'nk Y]hYb' < À'ZhY'''5i Z'XYf'UbXYfYb'GY]hY'[ YghUb X 6Yb'Ua ]b'GcVch_Už'7cUW XYf'J ]_]b[ gž'Y]b']b_cbg]ghYbhYg'Gd]Y`gY]bYf'A UbbgW UZhž'VYhcbhY'YXcW ž'XUgg'X]Y'GU]gcb'bcW 'b]W h i cfVY]'gY]"$ 

HfUi a ghUfh']b'X]Y'bYi Y'GU]gcb

8]Y'8Ubi VY'8fU[cbg'nY][Yb'gca]hž'XUgg'g]Y'hfchn'XYf
< YfUi gZcfXYfi b[Yb'a]h'Y]bYa '6UW\_i d!Ei UfhYfVUW\_ž'@\_\_Ug
GWXfUa a ž'XYf'5`YI UbXYf'FY]gWX`'j YfhfUhž']b'XYf'@U[Y'g]bXž
[fc»Ufh][Y'@Y]ghi b[Yb'ni 'Vf]b[Yb''6Y]XY'7cUWXYg'k UfYb'g]WX
Y]b][ž'XUgg'X]Y'8YZYbg]j Yb'XYb'Hcb''Ub[UVYbž'k Ug'g]WX'Ui WX']b
XYb'GhUh]gh]\_Yb'XYf'DUfh]Y'k]XYfgd]Y[Y'hY''5Xj UbW'X': cchVU``
5bU`mh]Wg'\_ObbhYb'X]YgY'Gd]Y`k Y]gY']b'Ni \_i bZh'YXcWX'j YfÅbXYfbž
XU'g]Y'9]bV']W\_Y']b'X]Y'GhfUhY[]Y'XYf'; Y[bYf'i bX'X]Y'@Y]ghi b['XYf
Y][YbYb'Gd]Y`Yf'V]YhYb'\_ObbhYb'''Hcc`g'k]Y'; DG!HfUW\_]b['i bX
J]XYcUbU`mgYb'V]YhYb'HYUa g'UV'gcZcfh'bYi Y'A O[`]WX\_Y]hYb'XYf
Gd]Y'j cfVYfY]hi b['i bX'DYfZcfa UbWY!Cdh]a]Yfi b['zX]Y'ni f
JYfVYggYfi b['XYf'HU\_h]\_'i bX'XYf'Gd]Y`Yf`Y]ghi b['VY]hfU[Yb
\_ObbYb''

8]YgY'gdUbbYbXYb'9bhk]W\_`i b[Yb'i bX'X]Y'JYfÀbXYfi b[Yb']b'XYf
Gd]Y`UbU`mgY'nY][Ybž'k]Y'g]W\'XYf': cchVU``'b]W\h'bi f']b'XYf
ÒghYffY]W\]gW\Yb'@][Už'gcbXYfb'[`cVU`'ZØf'X]Y'Ni\_i bZh'fØghYh'''\d
Y]bYf'GU]gcb'j c``Yf', VYffUgW\i b[Yb'V`Y]Vh'UVni k UfhYbž'k]Y'g]W\
X]Y'VY]XYb'HYUa g']b'XYb'bÀW\ghYb'6Y[Y[bi b[Yb'VY\Ui dhYb k YfXYb"

: Øf'k Y]hYfY'8YhU]`g'ni 'X]YgYa 'Ui ZfY[YbXYb': cchVU``UVYbX \_ObbYb'G]Y'X]Y'6Yf]WkhY'XYf'8Ubi VY'8fU[cbg'i bX'XYf'5: 7 J]YbbU'J]\_]b[g'bUWk`YgYb"'Ni XYa 'V]YhYh'7UhUdi `h ]bhYfYggUbhY'9]bV`]W\_Y']b'X]Y'Bi hni b['a cXYfbYf': cchVU``! 5bU`mh] "

8 Y hU]`g	
Cfh	8 c b U i ZY`X ž <sup>·2</sup> ghY ffY ] W l
EiY``Yb	• k k k "XZn&%"Uh
	<ul><li>ZcchVU``!Ui ghf]U"Wca</li></ul>
	• k k k "WUhUdi`h"Wca

## 6 Ygi WX Yb 'G]Y 'i bg 'Ui Z. 'a Y]b!k ]Yb "bYh