

## 8fUa U'bUW\'?ØW\YbVfUbX.'?`c»!: f]hn \]`Zh': Ua ]`]Y'Ui g'H\Øf]b[Yb°

6fUbX']b'H\@f]b[Yb.'?`c»!: f]hn'i bhYfgh@hnh': Ua ]`]Y'bUW ?@WXYbVfUbX"'GdYbXYbU\_h]cb'i bX'6YbYZ]nj YfUbghU`hi b[ [Yd`Ubh"



I bhYff\cbž'K UfhVi f[\_fY]gž'H\Øf]b[Ybž'8Yi hgW\`UbX'!'9]b j Yf\YYfYbXYf'6fUbX']b'I bhYff\cbž'H\Øf]b[Ybž'\Uh'X]Y'6Yk c\bYf <Y`[U'fl\*,  $\pm$ i bX'9[cb'B''fl\* -  $\pm$ i]b'Y]bY'gWkfYW\_`]WkY'G]hi Uh]cb [YVfUWkh''5a '%) "' $\pm$ b]'&\$&) '\_Ua 'Yg']b']\fYa ': UWkkYf\_\Ui g'ni Y]bYf'\_UhUghfcd\U`Yb'9I d`cg]cbž'U`g'K UggYf'Ui g'Y]bYa '?`c>hcdZ ]b'\Y]>Yg': Yhh'gdf]hnhY'''8 Ug'FYgi `hUh'k Uf'Y]b'? ØWkYbVfUbXž'XYf XUg'[YgUa hY'Ni\Ui gY'XYf'À'hYfYb'8 Ua Y'i bX']\fYg'A UbbYg'ni j cf j c``ghÀbX]['nYfghÒfhY'''8]YgYg'hfU[]gWkY'9fY][b]g'\Uh'b]Wkh'bi f']\fY 9I ]ghYbnž'gcbXYfb'Ui Wk']\f'gYY`]gWkYg'K c\`VYZ]bXYb'ghUf\_ VY`UghYhž'XYbb'X]Y': Ua ]`]Y'ghY\h'bi b'j cf'XYa 'J Yf'i gh']\fYg Ni \Ui gYg'i bX'VYbÒh][h'Xf]b[YbX'<]`ZYž'VYf]WkhYb'X]Y'?c``Y[Yb j cb'H\Øf]b[Yb&("

#b 'gc `Wk 'gWk k YfYb 'NY]hYb 'nY][ Yb 'g]Wk 'YXc Wk 'c Zh'X]Y 'VYghYb
GY]hYb 'XYf'; Ya Y]bgWk UZh": f]hn 'K U[ bYfž'VYggYf'VY\_Ubbh'U`g' ?`c»!
: f]hn ž'gdfUb[ 'gc Zcfh']bg' < UbXY`b"'9f'Vch'Ubž'Ub'Y]bYf
6YbYZ]nj YfUbghU`hi b[ 'a ]h'XYa 'A chhc' ?`c» ']b '?cbnYfh 'c\bY
; U[ Y'hY]`ni bY\a Yb"'8]YgY'J YfUbghU`hi b[ 'gc`''b]Wk h'bi f'ZØf'[ fc» Y
I bhYf\U`hi b[ 'gcf[ Ybž'gcbXYfb'Ui Wk'; Y`X'ZØf'X]Y'; YgWk ÀX][ hYb
gUa a Y`b"'5i Wk'XUg'GWk`U[ YfgWk `cgg']b '9]gZY`X'nY][ hY'g]Wk
gc`]XUf]gWk"'8]Y'6YhfY]VYf'\UVYb']\fY'I bhYfghØhni b[ 'Ub[ YVchYb
i bX'`UggYb'XUg'; Y`ÀbXY'gck ]Y'X]Y'; UghghÀhhY'\_cghYb`cg'bi hnYbž
i a 'XYf'VYhfcZZYbYb': Ua ]`]Y'ni '\Y`ZYb"</pre>

## $GdYbXYbU_h]cb^*Z\emptysetf^*X]Y^*: Ua ]^]Y$

I a 'X]Y'VYhfcZZYbY': Ua ]`]Y'k Y]hYf'ni 'i bhYfghØhnYbž'\Uh'XYf GWk ]Y[Yfgc\b'j cb'< Y`[U'i bX'9[cb'Y]bY'GdYbXYbU\_h]cb'Ui Z; c: i bXA Y ']bg'@YVYb'[Yfi ZYb"'8]YgY'D`UhhZcfa 'Yfa Ò[`]Wkh'Yg XYb'A YbgWkYbž']\fYb'6Y]hfU['ni '`Y]ghYb'i bX'gca ]h'X]fY\_h'ni \Y`ZYb"'8]Y'; Ya Y]bgWkUZh'nY][h'Y]ba U``a Y\fž'XUgg'g]Y ni gUa a Yb\À`hž'k Ybb'Yg'XUfUi Z'Ub\_ca a hž'i bX''YXYf'9i fc'nÀ\`h]b'X]YgYf'gWkk]Yf][Yb'NY]h"

## 6fUbXi fgUWXYb ]b < Ui g\U`hYb

@Y]XYf`g]bX`?@W\YbVfÀbXY`\_Y]bY`GY`hYb\Y]h"`8Ug`6i bXYgUa h`ZØf 6fUbXgW\i hn`\Uh`\YfUi g[YZ\bXYbž`XUgg`: Y\`j Yf\U`hYb`]b`XYf ?@W\Y`Y]bYf`XYf`\Ài Z][ghYb`; fØbXY`ZØf`XYfUfh][Y`JcfZÀ``Y`]gh"`C Zh YbhghY\Yb`6fÀbXY`Xi fW\`j Yf[YggYbY`GdY]gYb`cXYf`b]W\h Ui g[YgW\U`hYhY`<YfXd`UhhYbž`VYf]W\hYh'<mark>8 Yi hgW\Y GW\UXYbg\]`ZY</mark>"` GW\Ui h`VY]a `?cW\Yb`]a a Yf`Ui Z`Yi fYb`<YfX° ž gc`X]Y`Y]bXf]b[`]W\Y`5i ZZcfXYfi b[`XYf`9I dYfhYb"

9]b'k Y]hYfYf'H]dd']gh'X]Y'f]W\h][Y'<UbX\UVi b['j cb'?'\overline{\text{obs}} \text{obs}]\text{obs}]\text{obs} \text{obs} \text{obs}

8 Yf'6fUbX']b'H\Øf]b[Yb'\Uh'b]W\h'bif'X]Y'VYhfcZZYbY': Ua ]`]Y
[YhfcZZYbž'gcbXYfb'gW\ÀfZh'Ui W\'i bgYf'6Yk i gghgY]b'ZØf'XUg
H\Ya U'6fUbXgW\i hn"'9g'`]Y[h'Ub'i bg'U``Ybž'VYggYf'Ui Z'i bgYfY
I a [YVi b['ni 'UW\hYb'i bX'f]g\_UbhY'G]hi Uh]cbYb'ni 'j Yfa Y]XYb"'\dag{b}
XYf'; Ya Y]bgW\UZh'nY][Yb'k]f'Gh\Af\_Y'i bX'\Y`ZYb'ni gUa a Yb"'?`c»!
: f]hn'i bX'XUg'GW\`U[YfgW\`cgg'gYhnYb'XUa]h'Y]b'NY]W\Yb'XYf
< cZZbi b['i bX'Gc`]XUf]h\Ah"

8 YhU]`g	
Cfh	l bhYff\cbžK UfhVif[_fY]gžH\Øf]b[Ybž
	8 Ying W.`Ub X
EiY``Yb	• k k k "h\i Yf]b[ Yb&( "XY
	YUh"XY
	<ul><li>XYi hgW\XY!gW\XYbg\]`ZY"XY</li></ul>

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