

; Yf]Wk hgd fcnYgg']b`HfUi bghY]b.  
; Yk U`hZU``']b`F cgYb\Y]a Yf  
: `ØWk h`]b[ gi bhYf\_i bZh

DfcnYgg']b`HfUi bghY]b. ' ' !Å\ f][ Yf`k ]fX`k Y[ Yb`j Yfgi Wk hYb  
A cfXYg`Ub`gY]bYf': fUi `']b`F cgYb\Y]a Yf  
: `ØWk h`]b[ gi bhYf\_i bZhUb[ Y\_`U[ h"

⇒ a `]bi Uf`X]YgYg`]Å\ fYg`YfY][ bYhY`g]Wk `]b`Y]bYf`F cgYb\Y]a Yf  
: `ØWk h`]b[ gi bhYf\_i bZh`Y]b`J cfZU``žXYf`Yhnhj cf`XYa `@UbX[ Yf]Wk h  
HfUi bghY]b`j Yf\UbXY`h`k ]fX"9]b`' ' !Å\ f][ Yf`hØf\_]gWk Yf  
GhUUhgVØf[ Yf`]gh`k Y[ Yb`j Yfgi Wk hYb`A cfXYg`Ub`gY]bYf`9\YZfUi  
Ub[ Y\_`U[ h"8Yf`DfcnYgg`\Uh`Ua `&\$"5i [ i gh&\$&( `VY[ cbbYb`i bX  
gc``ØVYf`a Y\ fYfY`HU[ Y`\]bk Y[ `Zcfh[ YZØ\fh`k YfXYb"8Yf`A Ubb  
`YVh`Yfgh`gY]h`nk Y]`A cbUhYb`a ]h`gY]bYf': Ua `]Y`]b`XYf`i bhYf\_i bZh`  
8Yf`J cfZU``žXYf`gck c\`9]Zfgi Wk h`U`g`Ui Wk `fY][ ]Øgy  
6Yk Y[ [ fØbXY`U`g`nYbhfU`Y`H\Ya Yb`VY]b\U`hYhž`k ]fZh`VYXYi hYbXY  
: fU[ Yb`ØVYf`X]Y`< YfUi gZcfXYfi b[ Yb`Ui Z`X]Y`A ][ fUbhYb`]b  
8Yi hgWk`UbX`\Åi Z][ `\_cbZfcbh]Yfh`gY\Yb"

8]Y`5b\_`U[ Y`Ui hYh`Ui Zj Yfgi Wk hYb`A cfX`gck ]Y`[ YZÅ\ f`]Wk Y  
?ØfdYfj Yf`Yhni b[ "8Yf`< ]bhYf[ fi bX`XYg`J YfVfYWk Ybg`]gh  
YfgWk fYW\_YbX. 8Yf`9\Ya Ubb`gc``gY]bY': fUi `Ub[ Y[ f]ZYb`\UVYbž  
bUWkXYa `Yf`g]Y`a ]h`Y]bYa `UbXYfYb`A Ubb`]b`J YfV]bXi b[ `VfUWk hY"  
8Yf`5b[ Y\_`U[ hYžXYf`XUfUi Z]b`Y]b`?ØWk Yba YggYf`\_Ui ZhYžghUWk  
XfY]a U`Ui ZgY]bY': fUi `Y]bžVYj cf`Y]b`a i h][ Yf`NYi [ Y  
]bhYfj Yb]YfhY`i bX`\b`ghcddhY"8Yf'; Yk U`hU`h`YfY][ bYhY`g]Wk ž`U`g  
X]Y': Ua `]Y`cZYbVUf`]b`Y]bYf`Ub[ YgdUbbhYb`i bX`i bg]Wk YfYb  
@YVYbgg]hi Uh]cb`ghYW\_hY"

A ch]j Uh]cb`i bX`a Ø[ `]Wk Y`< ]bhYf[ fØbXY

Nk ]gWYb`XYb`NY]Yb`XYg`DfcnYggYg`cZZYbVUFYb`g]W`h]YZfY  
[ YgY`gWUZh]WY`i bX`\_i`hi fY`Y`?cbZ]\_hY`"8]Y`9]Zfgi W`h`XYg  
A UbbYg`\_ObbhY`U`g`Y]b`5i gXfi W`\_XYf`J Yfnk Y]Zi b[ `i bX  
I bg]WYf`Y]h]b`Y]bYf`bYi Yb`I a [ YVi b[ `[ YXYi hYh`k YfXYb`"Hfchn  
XYf`gh`AbX][ Yb`DfcV`Ya Y`]b`gY]bYf`<Y]a Uh`k ]Y`dc`]h]gWY  
J YfZc`[ i b[ `i bX`Y]bY`\_UhUghfcd`U`Y`k ]fhgWUZh]WY`@U[ Y`ž`gWY]bh  
XYf`A Ubb`]b`8Yi hgW`UbX`\_Y]bY`DYfgdY`\_hj Y`[ YZ`bXYb`ni`"UVYb`  
8]Y`H0f`\_Y]ž`Ui g`XYf`Yf`ghUa a hž`gh`Y]bYg`XYf`<Ui dh`AbXYfž`Ui g  
XYbYb`5gm`VYk YfVYf`bUW`8Yi hgW`UbX`\_ca a Yb`"8]Y`; f0bXY`Z0f  
X]Y`:`i W`h]g]bX`cZh[ Ydf`A[ hj cb`Ui hcf]h`fYb`HYbXYbnYb`i bX  
Yi hfYa Yf`k ]fhgWUZh]WYf`Bch"

A ]hh`Yfk Y]`Y`g]bX`h0f`\_]gWY`5gm`VYk YfVYf`"Äi Z][ `a ]h`Y]bYf  
5bYf`\_Ybbi b[ gei chY`j cb`Yhk U`%)`DfcnYbh`\_cbZfcbh]Yfh`"8]YgY  
b]YXf][ Y`E i chY`\_ObbhY`ni g`Ähn`]WYb`8fi W`\_YfnYi [ Yb`i bX`ni  
Y]bYa`; YZ0`"XYf`<cZbi b[ g`cg][ \_Y]h`Z0`fYb`"Gck c`"X]Y  
cdZfYbXY`; fUi`U`g`Ui W`\_XYf`A Ubb`g]bX`]b`Y]b`[ f0» YfYg  
[ YgY`gWUZh]WYg; YZ0[ Y`Y]b[ YgdUbbhž`XUg`cZh]j cb`GdUbbi b[ Yb  
i bX`?cbZ]\_hYb`[ Ydf`A[ h`]gh"

## F YU\_h]cbYb`i bX`XYf`J Yf`Ui Z`XYg`DfcnYggYg

K ]Y`XYf`; U`"k Y]hYf`j Yf`UbXY`h`k ]fXž`V`Y]Vh`UVni k UfhYb`"8Yf  
DfcnYgg`]gh`Ui Z`XfY]`J Yf`UbX`i b[ ghU[ Y`Ub[ YgYhnhž`X]Y`]b`XYb  
\_ca a YbXYb`K cWYb`ghUhh]bXYb`k YfXYb`"9g`]ghi b`\_Ufž`k ]Y`X]Y  
J YfhY]X][ i b[ `Ui Z`X]Y`gW`k Yfk ]Y[ YbXYb`J cfk 0fZY`fYU[ ]YfYb`k ]fX  
i bX`k Y`WY`k Y]hYfYb`6Yk Y]gY`j cf[ Y`Y[ h`k YfXYb`\_ObbhYb`"8]Y  
i fgdf0b[ `]WYb`; YgWY`b]ggY`ghY`"Yb`b]W`h`bi f`Y]bY`]bX]j ]Xi Y`Y  
HfU[ 0X]Y`XUfž`gcbXYfb`k YfZYb`Ui W`\_Y]b`@]W`h`Ui Z`X]Y`[ f0» YfYb  
<YfUi gZcfXYfi b[ Ybž`XYbYb`A ][ fUbhYb`]b`8Yi hgW`UbX`"Äi Z][  
[ Y[ Yb0VYfghY`Yb"

CV[ `Y]W`g]W`bcW`j ]Y`Y`8YhU]`g]a`@Ui ZY`XYg`DfcnYggYg  
Ybhk ]W`\_Y`b`\_ObbYbž`\_ObbhY`X]YgYf`; U`"Y]bY`gW`k Yfk ]Y[ YbXY  
8]g`\_i gg]cb`0VYf`; Yk U`h]b`; Ua ]]Y`i bX`XYf`F c`"Y`j cb`\_i`hi fY`Yb  
8]ZZYfYbnYb`]b`?cbZ]\_hYb`Ubghc» Yb`"9g`V`Y]Vh`UVni k UfhYbž`k Y`WY  
; c`[ Yfi b[ Yb`Ui g`X]YgYa`; U`"j cb`; Yf]W`hYbž`Dc`]h]\_i bX`XYf  
; YgY`gWUZh]bg[ YgUa h`[ Ync[ Yb`k YfXYb"

9]b`6`]W\_`Ui Z`[ YgY`gWUZh`]WY

< YfUi gZcfXYfi b[ Yb

8]Y`DfcV`Ya YžX]Y`\]Yf`ni`HU[ Y`hfYhYbžg]bX`b]W`h`bi`f`9]bnY`ZÄ`Y`  
G]Y`fYZY\_h]YfYb`Y]b`\_ca`d`YI`Yg`Ni`gUa`a`Ybgd]Y`Ui`g`gcn]U`Yb  
Ÿb[ ghYbž`\_i`hi`fY`Yb`A`]ggj`Yfgh`AbXb]ggYb`i`bX`XYa`dYfg`Öb`]W`Yb  
GhfYggž`XYf`a`]h`A`][`fUh]cb`j`YfVi`bXYb`]gh`8]YgY`5gdY`\_hY`a`ØggYb  
Yfbgh[ Ybca`a`Yb`k`YfXYbž`i`a`Y]bY`Zf]YX`]W`Y`i`bX`]bhY[ fUh]j`Y  
; YgY`gWUZh`ZÖfXYfb`ni`\_`ÖbbYb"

⇒a`?`cbhYI`h`XYg`DfcnYggYg`i`a`j`Yfgi`W`hYb`A`cfX`]b`XYf  
F`cgYb`\Y]a`Yf`:`ØW`h`]b[ gi`bhYf`\_i`bZ`hgh`\h`Ui`W`X]Y`6YXYi`hi`b[  
j`cb`ZUa`\_]U`Yb`i`bX`\_i`hi`fY`Yb`8`mbUa`\_]Yb`]b`XYf  
Ni`k`UbXYfi`b[ g[ YgY`gWUZh`ni`f`8]g`\_i`gg]cb`" `≠`j`]Y`Yb`:`Ä`Yb  
\_`ÖbbYb`9]Z]fgi`W`h`i`bX`X]Y`5b[ ghj`cf`XYa`\_j`Yf`i`gh`XYg`ZUa`\_]Ä`fYb  
GhUhi`g`]b`Y]bYf`bYi`Yb`l`a`[ YVi`b[ `ni`GdUbbi`b[ Yb`i`bX`?`cbZ]\_`hYb  
ZÖ`fYb`"; YfUXY`]b`:`ØW`h`]b[ gi`bhYf`\_ØbZ`hYbž`k`c`A`YbgW`Yb`Ui`g  
i`bhYfgW`]YX`]W`Yb`\_i`hi`fY`Yb`<]bhYf[ fØbXYb`Ui`Z]bUbXYfhfYZZYbž  
\_`ÖbbYb`gc`W`Y`?`cbZ]\_`hY`YI`dcbYbh]Y`ni`bY`a`Yb`"8]YgY  
g]hi`Uh]j`Yb`<YfUi`gZcfXYfi`b[ Yb`g]bX`b]W`h`bi`f`]bX]j`]Xi`Y`ž`gcbXYfb  
Ui`W`[ YgY`gWUZh`]W`fY`Yj`Ubhž`XU`g]Y`Ui`Z`X]Y`\_ca`d`YI`Y  
≠bhY[ fUh]cb`j`cb`A`][`fUbhYb`\]bk`Y]gYb"

Ni`XYa`gd]Y`h`X]Y`F`c`Y`XYf`gcn]U`Yb`l`bhYfgh`Øhni`b[ ggmg]Ya`Y`]b  
8Yi`hgW`UbX`Y]bY`Yb`hgW`Y]XYbXY`F`c`Y`":`ØW`h`]b[ Yž`X]Y`]b  
B`chi`bhYf`\_ØbZ`hYb`YVYbž`\UVYb`cZ`hVY[ fYbnhYb`Ni`[ Ub`[ `ni  
dgmW`c`c`[ ]gW`Yf`6YfUhi`b[ `cXYf`fYW`h`]W`Yf`l`bhYfgh`Øhni`b[ ž`k`Ug`]b  
ghfYggVY`UXYbYb`G]hi`Uh]cbYbž`k`]Y`XYf`VYgW`f]YVYbYbž`ni  
9g`\_U`Uh]cbYb`ZÖ`fYb`\_`Ubb`"@Ui`h`Y]bYf`Ghi`X]Y`XYg`6i`bXYgUa`hg`ZÖf  
A`][`fUh]cb`i`bX`:`ØW`h`]b[ Y`f`b`5A`:`Ł`g]bX`j`]Y`Y`5gm`VYk`YfVYf`a`]h  
g][`b]Z]\_`UbhYf`dgmW`cgc]U`Yf`6Y`Ughi`b[ `\_cbZ`fcb]Yfh`8]Yg`\_`ÖbbhY  
i`bhYf`UbXYfYa`X]Y`6YfY]hgW`UZh`Yf`Ö`Ybž`]b`?`cbZ]\_`hg]hi`Uh]cbYb  
i`bhYf`8fi`W`\_[ Yk`U`hgUa`ni`fYU[ ]YfYb`"K`Y]hYfY`≠Zcfa`Uh]cbYb  
Z]bXYb`G]Y`Ui`Z`XYf`65A`:`!K`YVg]hY"

< ]bhYf[ fi bX`i`bX`≠bhY[ fUh]cb

8]Y' ðhY[ fUh]cb'j cb'5gmVYk YfVYfb']b'8Yi hgW`UbX`]gh`Y]b  
\_ca d`YI Yg`H\Ya UžXUg`cZha U`g`a ]h<YfUi gZcfXYfi b[ Yb`i bX  
K ]XYfgh`AbXYb`j YfVi bXYb`]gh"8]Y`Dc`]h]\_` \Uh]b`XYb`YhnhYb`đ\ fYb  
j YfgW]YXYb`Y`Dfc[ fUa a Y`ni f`ðhY[ fUh]cb`Yb`hk ]W\_Y`hž  
VY]gd]Y`gk Y]gY`Xi fW`GdfUW`\_i fgY`i bX  
5fVY]hgZ`fXYfi b[ g]b]h]Uh]j Yb"8Yb`bcW`V`Y]VYb`X]Y  
GW`k ]Yf][ \_Y]hYb`VYghY`Ybž`]bgVYgcbXYfY`Z`f`DYfgcbYb`Ui g  
@`AbXYfb`a ]h`ghUf`\_i bhYfgW]YX`]W`Yb`\_i `hi fY`Yb`i bX`gc`n]U`Yb  
Bcfa Yb"@Ui h`Y]bYf`l a ZfU[ Y`XYg`8Yi hgW`Yb`ðgh]hi hg`Z`f  
Bcfa i b[ `fB`B`L`UVYb`:` `ØW`h]b[ Y`]b`8Yi hgW`UbX`c`Z  
GW`k ]Yf][ \_Y]hYbž`Ni [ Ub[ `ni a `5fVY]hga Uf`\_h`ni `Z]bXYbž`k Ug`X]Y  
ðhY[ fUh]cb`ni g`Ah`]W`YfgW`k Yfh"8]Yg`\_Ubbž`k ]Y`ja `: U`XYg  
Ub[ Y`\_U[ hYb`A`UbbYgž`ni `Y]bYa `; YZ`Ø`XYf`9bhžfYa Xi b[ `i bX  
Yf\`Ø`hYb`GdUbbi b[ Yb`]bbYf\U`V`XYf`Ua ]]Y`Z`Ø`fYb"

8UfØVYf`\]bUi g`k ]fX`X]Y`G]hi Uh]cb`]b`XYb`<Yf`\_i bZhg`AbXYfb`j cb  
5gmVYk YfVYfb`cZ`h`U`g`<]bhYf[ fi bX`Z`f`X]Y`6Y`Ub[ Y`]b  
8Yi hgW`UbX`VYhfUW`hYh"ð`XYf`H`Øf`\_Y]ž`XYfYb`dc`]h]gW`Yg`?`a U  
g]W`]b`XYb`YhnhYb`đ\ fYb`j YfgW`AfZ`h`\Uhž`\_UbbhYb`j ]Y`Y`XYf  
; YZ`ØW`hYhYb`j cf`]fYf`5VfY]gY`gc`n]U`Y`l bg]W`Yf\Y]hYb`i bX  
?cbZ`\_hY"8]Y`ðZUh]cb`\Uh]b`XYf`H`Øf`\_Y]`XfUa Uh]gW`Y`<Ø`Yb  
YffY]W`hž`k Ug`ni `Y]bYf`d`fY`\_`AfYb`k ]fhgW`UZh]W`Yb`@U[ Y`Z`Ø`fhž`X]Y  
j ]Y`Y`A`YbgW`Yb`X`Uni `nk ]b[ hž`]fYb`<Y]a Uhc`fh`ni `j Yf`UggYb"  
K ]hYfY`ðZcfa Uh]cbYb`ØVYf`X]Y`k ]fhgW`UZh]W`Yb  
<YfUi gZcfXYfi b[ Yb`]b`XYf`H`Øf`\_Y]`g]bX`Ui Z`XYf`K`Y`hV`Ub`\_!  
K`Y`V`g]hY`j YfZ`Ø[ V`Uf"

8YhU]`g

6Ygi W`Yb`G]Y`i bg`Ui Z.`b!U[ "XY