



**ARTS2785**

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Gi a a UfmicZ\hY'7ci fgY

H\Y`YUfmiK YbhYh`Wbhi fmiK Ug`U`WUhgfcD\]WUbx`fUbgZcfa Uhj Y`dYf]cX`]b`tk YbhYh!Wbhi fmi9i fcdYUb  
\]gfcfm`h\Y`:]fghk`cF`X`K`Uf`WUfU`mgYX`]bhYbgY`XYa`c[ fUd\]Mz]XYc`c[ ]WU`z`UbX`YWc`bca`]Wh`fa`c]`"Mci  
k`]"ZcW`g`c`b`h\Y`fY`Uh]cbg\]d`VYtk`YYb`gcW]c!YWc`bca`]WU]gYg`UbX`h\Y`XYj`Y`cda`YbhcZfUX]WU`bYk`dc`]h]WU`  
a`cj`Ya`Ybhtg`fY"[`"6`c`g`Yj`]ga`z`GhU`]b]ga`z`ZUgW]ga`UbX`B`Uh]cbU`GcW]U`]ga`E`h`UhidcgYX`Ybcfa`ci`g`h`fYUhg`hc  
bUgW`bhi]VYfU`XYa`c`WUW]Yg`"Mci`k`]"`U`gc`Yi`d`cfY`gca`Y`cZ\hY`fYa`Uf`UV`Y`UffUmicZW`hi`fU`UbX`gcW]U`  
]bbcj`Uh]cbg`h`UhZck`YfYX`]b`h`]g`hi`a`i`h`ci`g`dYf]cX`fj`]gi`U`Ufmgz`]h`fUhi`fY`z`h\Y`UfY`z`W]bYa`U`z`gcW]U`h\Y`c`fmz`  
gYi`i`U`]miUbX`[`YbXYfE`"

7ci fgY`@YUfb]b[ `Ci hWca Yg

%`UbU`mgY`a`U`cf`dc`]h]WU`z`gcW]U`z`W`hi`fU`UbX`YWc`bca`]WXYj`Y`cda`Ybhtg`UbX`]ggi`Yg`]b`9i`fcdY  
VYtk`YYb`%-`%(`UbX`%-`())  
&"`Yj`U`i`Uh`h`h\Y`g][`b]Z]WU`bW`c`Z\h`YgY`XYj`Y`cda`Ybhtg`UbX`]ggi`Yg`UbX`d`UW`h`hYa`]b`Wc`bhi`h`  
'`"a`U`\_Y`g`W]c`Uf`mUf[`i`a`Ybhtg`i`g]b[`]bXYdYbXYbhm`c`WU`h`X`UbX`W`YX]V`Y`Yj`]XYbW`"  
(`Yi`d`U]b`fY`Yj`UbhiUgdYW]g`c`Z`9i`fcdYUb`dc`]h]WU`z`W`hi`fY`UbX`#`c`f`gcW]U`m`VYtk`YYb`%-`%(`UbX`%-`())  
)"`Wc`a`a`i`b]WU`h`]XYUg`Ua`cb[`ghdY`Yfg`#`b[`U[`Y`]b`X]gW`gg]cbg`#`YVU`h`g`"

HYUW]b[ `GhfUH[ ]Yg`

H\Y`YUfb]b[ `UbX`h`YUW]b[ `ghfUH[ `m]g`XYg][`bYX`hc`XY`]j`Yf`U`Wc`i`fgY`h`UhYbWc`i`fU[`Yg`gh`XYbhYb[`U[`Ya`Ybh  
k`]h`h\Y`Z]Y`Xg`c`Z`9i`fcdYUb`G`h`X]Yg`UbX`9i`fcdYUb`<`]gfcfmUbX`XYj`Y`cdg`h\Y]f`W]h]WU`UbX`fYgYUfW]`g\_]`g  
h`fci`[`\`a`i`h]d`Y`a`cXYg`c`Z`h`YUW]b[ `UbX`UggYgga`Ybh`H\YfY`]g`U`tk`c!\`ci`f`YW]i`fY`z`U`cbY!\`ci`f  
`YW]i`fY`#`g`Ya`]bUfz`UbX`U`cbY!\`ci`f`h`hc`f]U`d`Yf`k`YY`\_"`9UW]k`YY`\_`U`gdYW]Z]WXYj`Y`cda`Ybhc`f]ggi`Y`k`]`VY`h\Y  
ZcW`g`c`Z\hY`YW]i`fY`z`h\Y`fYUX]b[ `g`UbX`h`hc`f]U`X]gW`gg]cb`"

H\Y`YY`YW`%`W`k`XYj`Y`cda`Ybhtg`UbX`]g]m`Y`g]b`9i`fcdY`fcdgfc`"

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Hi hc`f]U`F YgdcbgYg`	&\$!	Bch5dd`]WUV`Y	&ž( ž)
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: ]bU`F YgYUfW`9ggUm	) \$!	%`#\$( #&\$&%`%) - `DA	%ž`&ž' ž(

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GHUfhXUH`. Bch5dd`]WUV`Y

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8YHU]`g.

Gh XYbh`gi Va ]hZci`f`hi hc`f]U`F YgdcbgYg`Xi`f]b[ `h`Y`h`Y`fa`ž`Y`U`W`U`dd`""`\$\$`k`cfXg`d`i`g`ei`Y`gh]cbg`"H`Y`f`Y`gdcbgYg`k`j`V`Y`V`U`g`Y`X`c`b`ei`Y`gh]cbg`h`U`h`U`f`Y`"]b`\_`Y`X`h`c`h`Y`a`U]b`f`Y`U`X]b[`g`Z`c`f`h`Y`k`Y`Y`\_"

Gh XYbh`k`j`V`Y`W`j`Y`Z`Y`X`V`U`W`\_`j`]U`U`f`i`V`f]W`U`b`X`g`c`f`h]b`X`j`]Xi`U`W`c`a`a`Y`bh`g`c`b`h`Y`f`Z`f`gh`f`Y`gdcbgY`ž`Vi`h`c`b`m`a`U`f`\_`g`c`b`h`Y`Z`c`k`]b[ `h`f`Y`Y`f`Y`gdcbgYg`"

5XX]h]cbU`XYHU]`g.

H`Y`k`Y`Y`\_`m`h`hc`f]U`F YgdcbgYg`k`j`V`Y`ei`]f`Y`gh`XYbh`h`c`Y`b[`U[`Y`W`f]h]W`U`m`k`]h`f`Y`U`X]b[`g`U`b`X`h`c`X]g`d`U`m`h`Y`f`c`k`b`U`b`X`Y`b`W`c`i`f`U[`Y`h`Y`f`W`U`g`g`a`U`h`Y`g`f`i`U`b`U`m]h]W`U`g`\_`]`g`"

Gi Va ]gg]cb`bc`h`Y`g.`Gh XYbh`k`j`V`gi Va ]h`h`Y`f`k`Y`Y`\_`m`f`Y`gdcbgYg`j`]U`A`cc`X`Y`"H`Y`X`Y`U`X`]b`Y`]g`c`b`H`i`f`g`X`U`m`U`h`%`&`da`f`b`c`c`b`E`h`Y`X`U`m`V`Y`Z`c`f`Y`h`Y`h`hc`f]U`"

Hi fb]h]b`g`Y`h]b[ .`H`\]g`U`gg][`ba`Y`bh]g`gi Va ]h`Y`X`h`f`ci`[`\`Hi`fb]h]b`U`b`X`gh`XYbh`W`U`b`g`Y`Y`Hi`fb]h]b`g]a`]U`f]m`f`Y`d`c`f`g`"

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GHUfhXUH`. &, #\$( #&\$&%`\$-`.\$`\$`5A

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8YHU]`g.

Gh XYbh`k`j`V`U`j`Y`h`k`c`c`i`f`g`h`c`W`c`a`d`Y`h`U`b`c`b]b`Y`c`d`Y`b`V`cc`\_`U`gg][`ba`Y`bh]b`h`Y`Z`c`fa`c`Z`U`b`Y`gg`Um

ei YgHjcb" H\Ymk ]" VY`YI dYWYX`hc`k f]hY`Uddfcl ]a UHY`mVYhk YYb`%\$\$\$`UbX`%) \$k cfXg"

: YXXVUW`j]b`hY`Zcfa`cZg\cfhk f]hYb`Wta a YbHg"

5XX]h]cbU`XYHJ]`g.

h]gfi W]cbg`k ]" VY`dcghYX`cb`a ccX`Y"

Gi Va ]gg]cb`bcH]g. %\$\$\$!%) \$k cfXg`VUgYX`cb`"YWi fYg`UbX`hi hc]U`g" G\cfhZYXVUW`j ]U`a ccX`Y"

Hi fb]h]b`gYH]b[ . H\]g`Ugg][ ba Ybh]g`gi Va ]hYX`h`fci [ \`Hi fb]h]b`UbX`ghi XYbHg`WUb`gYY`Hi fb]h]b`g]a ]Uf]m fYdcfHg"

5ggYgga Ybh' . : ]bU`F YgYUfW`9ggUm

GhUfhXUHY . Bch5dd`]WUV`Y

@Yb[ h. `&\$\$\$!&~) \$k cfXg

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: ]bU`fYgYUfW`YggUm f&\$\$\$`hc`&~) \$k cfXg`" Gh XYbHg`UfY`YI dYWYX`hc`i gY`Uhi`YUghi, `ei U`]migi fW`g" H\Ymk ]" gi Va ]h`hY`YggUmj ]U`Hi fb]h]b"

H\Y`Ugg][ ba Ybhk ]" VY`a Uf`YX`cb`]bY`k ]h`ZYXVUW`j ]U`U`fi Vf]WUbX`Wta a YbHg`]b`Hi fb]h]b"

5XX]h]cbU`XYHJ]`g.

Gh XYbHg`k f]hY`Ub`YggUm fW`" &\$\$\$!&~) \$k cfXg`VUgYX`cb`]bXYdYbXYbh fYgYUfW`" Gh XYbHg`fYW`j Y ZYXVUW`j ]U`]bX] ]Xi U`Wta a YbHg`UbX`fi Vf]Wk ]h.]b`h`fY`k YY`g`UZh`f`hY`XYUX`]bY"

Hi fb]h]b`gYH]b[ . H\]g`Ugg][ ba Ybh]g`gi Va ]hYX`h`fci [ \`Hi fb]h]b`UbX`ghi XYbHg`WUb`gYY`Hi fb]h]b`g]a ]Uf]m fYdcfHg"

5 hYbXUbW F Yei ]fYa Ybhg

Gh XYbhg UfY gfhcb [ mYbWci fU[ YX hc UthYbX U WUggYg UbX fYj ]Yk YWfi fY fYWcfX]b[ g"

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Hja YhUVY

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K YY_% %) : YVfi Ufm! %- : YVfi Ufm	@YWhi fY	hfcXi Wcfm@YWhi fY. H\Y'5 [ Y'cZ7 UhUghfcd\Yz %-%(!%- ) /  6Y`Y ¥dcei Y. '9i fcdY'6YZcfY %- %  K \mX]X'h\Y'ghUhg'XYWXY'Zcf'k Uf'j]b %- % 3
	Hi hcf]U'	hfcXi W]cb  K cfX'K Uf%'K \m3'9I dYWU]hcbg'UbX'fYU']m'  A Ud'YI YfW]gY'f%- % (ž%- %- ž%- ) Ł
K YY_&.&&: YVfi Ufm! &* : YVfi Ufm	@YWhi fY	HfUbg]hcb hc h\Y'BYk 'K cfX'≡'DYUW'UbX'h\Y'dcgh k Uf'dYUW'gYhYa Ybh'  K \Yb'X]X'h\Y'k Uf'YbX3
	Hi hcf]U'	K \Yb'X]X'K cfX'K Uf%'YbX3'Hf]i a d\'cZ@]VYfU']ga cf'fYj Yb[ Y3'
K YY_' .:%A UfW'!') A UfW'	@YWhi fY	9a VUthYX'8Ya cWUWm'h\Y'6c'g\Yj ]_F Yj c'i h]cb UbX' ]hg WcbgYei YbW'g'Zcf' ]bhYfk Uf'9i fcdY
	Hi hcf]U'	GcW]U'7 f]g]g. <ck 'X]X'h\Y'6c'g\Yj ]_fYj c'i h]cb ]bZi YbW' ]bhYfk Uf'9i fcdY3
K YY_(.; 'A UfW'! '% A UfW'	@YWhi fY	9a VUthYX'8Ya cWUWm&. '7ci bhYffYj c'i h]cbg'UW'cgg 9i fcdY"  ; i Ygh@YWhi fY. '5#DfcZ8 Uj ]X'6'UUnYfz'9Wcbca mUbX Dc' ]h]g ]b h\Y'5 [ Y'cZ7 UhUghfcd\Y
	Hi hcf]U'	7ci bhYffYj c'i h]cbg'UbX'h\Y'f]gY'cZX]WUhcfg. <ck gi W'ggZ 'k Ug'h\Y' ]bhfcXi W]cb'cZ' ]VYfU' XYa cWUWm]b h\Y'5 [ Y'cZ7 UhUghfcd\Y3
K YY_) .:%'A UfW'! '% A UfW'	@YWhi fY	H\Y'5 [ Y'cZ8 ]WUhcfg. 'BUn]ga 'UbX'GfU']b]ga
	Hi hcf]U'	CfX]bUfmdYcd'Y' ]b'hcU' ]hUf]Ub'gcW]Yh]Yg
K YY_*. '&&'A UfW'! '&* A UfW'	@YWhi fY	Bc'WUggYg'! : 'YI ]'K YY_
K YY_+. '&- 'A UfW'! '& 5df]	@YWhi fY	hYfUW]j Y'YWhi fY. 'A ]bcf]h]Yg' ]b'h\Y'5 [ Y'cZ 7 UhUghfcd\Y  : YbcW]XY. '5'BYk 'K cfX' ]b'h\Y'5 [ Y'cZ7 UhUghfcd\Y"
	Hi hcf]U'	Bc'hi hcf]U'g'! '9UghYf': f]XUm'



# F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

5``\_YmfYUX]b[ g`zcf`h`hcf]Ug`k j``VY`Uj U]UV`Y`cb`a ccX`Y`UbX`j ]U`@Y[ Ubhc"

# F YWca a YbXYX`F Ygci fWg

F YWca a YbXYX`VUW\_[ fci bX`fYUX]b[ .`A cgchZ`H`Y`fWca a YbXYX`Vcc\_g`UfY`Uj U]UV`Y`Uh`H`Y`I` BGK @]VfUfmgca Y`cb`]bY`L`cf`Uh`H`Y`I` BGK `6cc\_g`acd"

=fWca a YbX`H`Y`Z`ck`b[ `gi fj Ymg`cZYUf`mitk Ybh]YH`!Wbh fm9i fcdYUb`\\]gcfm

7 cbUb`:`]gW`Yfz`9i fcdY`VYk`YYb`8Ya cW`UWm`UbX`8]W`U`hcf`g`d.`%- \$\$!%- () `fC`I`ZcfX.`K` ]Ym`6`UW`k`Y`z` &\$%&`"

F cVYfh; Yfk Ufh`z`H`Y`J`Ubei ]g`YX.`K` \`m`H`Y`:`]fgh`K` cfX`K` Uf`:`U]`YX`hc`9`bX`z`%-`%+!%-`&` `f@cbXcb.`DYb[ i ]b`z`&\$%+`"

4Jb`?`Yfg`Uk`z`Hc`<`Y``UbX`6`UW`\_`9i fcdYz`%-`%(!%-`(-`f@cbXcb.`DYb[ i ]b`z`&\$%\*`L`"

=Ugc`\\[ \`mfYWca a YbX`H`Y`Z`ck`b[ `gi fj Ymg`cb`H`Y`k`\\c`Y`cZ`H`Y`tk`Ybh]YH`!Wbh fm

B]Wc`Ug`8`ci`a`Ub]g`fYX`z`H`Y`C`I`ZcfX`<`UbX`Vcc`\_`cZ`9i fcdYUb`<`]gcfm`%-`%(!%-`())`fC`I`ZcfX.`C`I`ZcfX`I`b]j`Yfg]m`DfYggz`&\$%\*`L`"

9f]W<cVgVUK`a`z`5[`Y`cZ`9i`h`f`Ya`Yg.`H`Y`G`\\c`f`h`Hk`Ybh]YH`7`Ybh`fm`%-`%(!%-`-%f@cbXcbz`5`VUW`gz`%-`-(`L`?`cbfUX`>`UfUi`gW`z`C`i`hcZ`H`Y`5`g`Y`g.`5`B`Yk`<`]gcfm`c`Z`9i`fcdY`]b`H`Y`Hk`Ybh]YH`7`Ybh`fm`Df]bW`hcb.`Df]bW`hcb`I`b]j`Yfg]m`DfYggz`&\$%`L`"

A`Uf`\_`A`Unck`Yfz`8`Uf`\_`7`cb]bYbh`9i fcdY`g`Hk`Ybh]YH`7`Ybh`fm`f`B`Yk`Mcf`\_`F`UbXca`<`ci`gYz`%-`-`L`F`cVYfh`C`"DU`I`hcb`-`>`i`]Y`<`Ygg`Yfz`9i fcdY`]b`H`Y`Hk`Ybh]YH`7`Ybh`fm`:`]Z`h`9`X]h`cb`f`b`cg`hcb.`K`UXgk`cf`h`z`&\$%&`L`"

A`Uf`]b`DYffmYhU`"z`Gci`fWg`cZ`9i fcdYUb`<`]gcfm`G]bW`%-`\$\$`"GYWcbX`9`X]h`cb`f`b`cg`hcb.`K`UXgk`cf`h`z`&\$%&`L`"

# 7ci fgY`9j`U`i`Uh]cb`UbX`8Yj`Y`cda`Ybh

Gh`XYb]k`k`j``\`Uj`Y`Ub`cddcfh`b]m]h`c`dfcj`]XY`ZYXVUW`\_`h`fci`[`\`H`Y`a`m9i`dYf]YbW`gi`fj`Ymg`h`Uhk`j``VY`Uj`U]UV`Y`]b`A`ccX`Y`"H`Y`"YW`i`fYf`k`j``U`gc`Wc`"YW`i]b`Z`fa`U`ZYXVUW`\_`]b`H`Y`WUggfcca`"



Gi Va ]gg]cb`cZ5ggYgga YbhiHUg\_g

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≠mci`YbWci`bHYf`U`dfcV`Ya`k` \Yb`UHYa`dh]b[`hc`gi`Va`]hmc`i`f`Ugg][`ba`YbhiHfci`[`\`Hi`fb]h]bzd`YUgY`  
HY`Yd\cbY`9I`HYfbU`Gi`ddcfhcb`-`,`)`"``"``%cf`Ya`Uj`hYa`icb`YI`HYfbU`HY`hgi`ddcfh4`i`bgk`"YXi`"Ui`""Gi`ddcfh`  
\ci`fg`UfY`,`.\$\$Ua`-`-%\$.\$\$da`icb`k`YY`XUmg`UbX`-`.\$\$Ua`-`).\$\$da`icb`k`YY`YbXg`fI`\*)`XUmg`U`mY`UfI`"≠mci`  
UfY`i`bUV`Y`hc`gi`Va`]hmc`i`f`Ugg][`ba`YbhiXi`Y`hc`U`ZU`ihk`]h`Hi`fb]h]b`mci`ia`UmUdd`mZc`f`Ub`YI`HYbg]cbz`Vi`hmc`i`  
a`i`ghfYhU]b`mci`f`h]W`Yhbi`a`VYf`Zca`9I`HYfbU`Gi`ddcfhfU`cb[`k`]h`Ubmc`h`Yf`fY`Yj`UbhXcW`a`Ybhtg`L`hc`  
]bWi`XY`Ug`Yj`]XYbVW`hc`gi`ddcfhmc`i`f`YI`HYbg]cb`Udd`]W]h]cb`"≠mci`Ya`Uj`9I`HYfbU`Gi`ddcfhmc`i`k`]"`  
Ui`hca`U]WU`mifYW]j`Y`U`h]W`Yhbi`a`VYfz`Vi`h]Zmci`HY`Yd\cbY`mci`k`]"`bYYX`hc`gdYW]Z]WU`mUg`Zc`f`cbY`"  
Hi`fb]h]b`U`gc`dfcj`]XYgi`dXUH`g`cb`h`Y]f`gmghYa`ig`hU`h`g`cb`Hk`]hYf`"

;`YbYfU`mz`UggYgga`YbhiHUg\_g`a`i`ghVY`gi`Va`]hYX`Y`YWfcb]WU`mj`]U`Y]h`Yf`Hi`fb]h]b`cf`U`A`ccX`Y`  
Ugg][`ba`Ybhi`h]b]bg]h]bVW`g`k`\YfY`h`lg`]g`bchidcgg]V`Yz`]hk`]"`VY`ghUHYX`cb`mci`f`Wci`fgY`g`A`ccX`Y`g]h`k`]h`  
U`HYfbU]h]`Y`gi`Va`]gg]cb`XYhU]g`"

:`cf]bZcfa`Uh]cb`cb`\ck`hc`gi`Va`]hUgg][`ba`Ybhtg`cb]bY`j`]U`A`ccX`Y`.\`hhdg`#gh`XYbhi`bgk`"YXi`"Ui`#ck`!  
gi`Va`]hUgg][`ba`Ybhta`ccX`Y`"

## 5 WUXYa ]W< cbYgmiUbX`D`U[ ]Uf]ga

D`U[ ]Uf]ga `]g`i`g]b[ `h`Y`k`c`f`X`g`c`f`]X`Y`U`g`c`Z`c`h`Y`f`g`i`U`b`X`d`f`Y`g`Y`b`h]b[ `h`Y`a` `U`g`m`c`i`f`c`k`b``#W]b`h]U`\_`Y`a`U`b`m`  
Z`c`f`a`g`Z`Z`c`a` `X`Y`]V`Y`f`U`h`Y` `W`X`Y`U`h]b[ `h`c` `U`W`W`Y`X`Y`b`h]U`m`i`W`c`d`m]b[ `Z`c`a` `U`g`c`i`f`W`k`]h`c`i`h`U`W`\_`b`c`k` `Y`X[ `Y`a` `Y`b`h`

I`B`G`K` `[`f`c`i`d`g`d`U[ ]Uf]ga `]b`h`c` `h`Y` `Z`c` `c`k`]b[ `W`U`h`Y`[`c`f]Y`g.

- i bXYfgHUbX'mci f'f][ \hg'UbX'fYgdcbg]V] ]hYg'Ug'U'gh XYbhUhl BGK
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