



ARTS3450

5Xj UbWX`7 \]bYgY`5

HYfa `Cby` `#`&\$%-

7ci fgY`Cj Yfj]Yk

`GHUZZ7cbhUW`i8YHJ`g`

`7cbj Ybcfg`

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`@YW`i fYfg`

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`Hi hcfg`

B Ua Y	9a U]`	5j U]UV]`]m	@W]h]cb	D\cbY
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GWXcc``7cbhUW`i`bZcfa Uh]cb

GWXcc``cZ<i a Ub]h]Yg`UbX`@Ub[i U[Yg

@W]h]cb. GWXcc``C Z]WZA cfj Yb`6fck b`6i]X]b[ž@Yj Y``&ž&),

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9a U]`. [\U`4 i bgk "YXi "Ui](#)

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HYgh%	&\$i	K YY_) `hi hcf]U`f&#\$' #&\$%- cf`&#\$' #&\$%- ƒ"	%ž&ž ž(
; fci d`F YgYUfW`Dfc`YWŸg`	(\$i	HfUbg`Uh]cb`]g`Xi Y`]b`k YY_`& f\$` #` #` #&\$%- ƒžk YY_`(f%+`#` #` #&\$%- ƒžk YY_`* f1`%#` #` #&\$%- ƒžUbX`k YY_`; f%(`#(`#&\$%- ƒ/; fci d` DfYgYbhUh]cb`]g`Xi Y`]b`k YY_` , `f%#`#(`#&\$%- `cf` %&#(`#&\$%- ƒžk YY_`- f%`#(`#&\$%- ƒ`cf`k YY_`%\$ f&*`#(`#&\$%- ƒ/F YgYUfW` DUdYf`]g`Xi Y`cbY`k YY_`UžYf` mci f`[fci d`dfYgYbhUh]cb"	%ž&ž ž)
7i `hi fU`7ca dcbYbh	&\$i	E i]n`cbY`]b`YWh`fY`k YY_`) f&#`#` #` #&\$%- ƒ/E i]n`&`]b` `YWh`fY`k YY_`%% f1`\$#(`#&\$%- ƒ"	(
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fi Vf]Wž`UbX`]b!WUgg`X]gW`gg]cb"

Hi fb]h]b`gYH]b[. `H\]g`]g`bchU`Hi fb]h]b`Ugg][ba Ybh

5ggYgga Ybh&` ; fci d`F YgYUfW`Dfc`YWŸg`

GHUfhXUHŸ. `Bch5dd`]WUV`Y`

8YHJ]`g. `Gh XYbhg`Wta d`YH`rk`c`[fci d`dfc`YWŸg. `%ƒHfUbg`Uh]cb`f%\$i ƒžUbX`&ƒF YgYUfW``cb`hY]f`WcgYb`
hcd]Wžk`\\W`]W`XYg`U`fYgYUfW`dUdYf`gi Va]H]X`cb!]bY`f%) i ƒžUg`k`Y`Ug`U`[fci d`dfYgYbhUh]cb`f%) i ƒ`
H`Y`WUgg`dfYgYbhUh]cb`f1`a`]bi`h`g`dYf`dYfg`cbƒ]g`UggYggYX`cb`]bX]]Xi U`VUg]gžk`\\Y`h`Y`fYgYUfW`dUdYf`
f%) \$!&\$\$\$`W`UfUWŸfgƒ`fYWŸ]j Yg`cbY`a`Uf`_": YXVUW`_j]U`fi Vf]WUbx`]b!WUgg`X]gW`gg]cb"

5ggYgga Ybh' .`7i `hi fU`7ca dcbYbh

GhUfhXUHy. 'Bch5dd`]WUV`Y

8YhU]`g. 'Gh XYbHg`UfY' [] Yb`tk c`]b!WUgg`ei]nnYg`fi \$`a]bi h`g`YUWX`E": YYXVUW`_j]U`fi Vf]WUbX`]b!WUgg X]gW`gg]cb"

Hi fb]h]b`gYh]b [. H\]g`]g`bchU`Hi fb]h]b`Ugg][ba Ybh

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8YhU]`g. '7 ca dfY\Ybg]j Y`h`gh`f%) ` \ci fgE`cZ`h`Y`UghZ`k`W`Udh`fg`g]bW`HYgh%"`Gh XYbHg`fYW`]j Y`U`a Uf_ UbX`WUb`W`bgi `h`h`Y`h`UWX]b [`g]UZZ`Z`f`Z`f`h`Y`f`ZYXVUW`_H\]g`]g`h`Y`Z]bU`UggYgga YbhZ`f`U`h`Y`b`X`U`b`W`di`fdcgY"

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≠mci`YbWci bHYf`U`dfcV`Ya`k`Yb`U`HYa`dh]b[`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybh`h`fci`[`\`Hi`fb]h]b`z`d`YUgY`
HY`Yd`cbY`9I`HYfbU`Gi`ddcfhcb`-`,`)`'`'`'`%cf`Ya`U]`h`Ya`cb`YI`HYfbU`HY`hgi`ddcfh4`i`bgk`"YXi`"Ui`"Gi`ddcfh`
`ci`fg`UfY`,`.\$\$Ua`-`%\$.\$\$da`cb`k`YY`XUmg`UbX`-`.\$\$Ua`-`).\$\$da`cb`k`YY`YbXg`fI`*)`XUmg`U`mY`UfL`≠mci`
UfY`i`bUV`Y`hc`gi`Va`]hmc`i`f`Ugg][`ba`YbhXi`Y`hc`U`ZU`hik`]h`Hi`fb]h]b`mci`a`Um`Udd`mi`Zc`f`Ub`YI`HYbg]cb`z`Vi`hmc`i`
a`i`ghfY`hU]b`mci`f`h]W`Yhbi`a`VYf`Zca`9I`HYfbU`Gi`ddcfhfU`cb[`k`]h`Ubmc`h`Yf`fY`Yj`UbhXcW`a`Yb`hgL`hc`
]bWi`XY`Ug`Yj`]XYbW`hc`gi`ddcfhmc`i`f`YI`HYbg]cb`Udd`]W]h]cb"≠mci`Ya`U]`9I`HYfbU`Gi`ddcfhmc`i`k`]"`

5 WUXYa]W<c bYghmUbX`D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b[`hY`k cfXg`cf]XYUg`cZchYfg`UbX`dfYgYbh]b[`hYa `Ug`mci f`ck b" `hWUb`hU`Y`a Ubm
Zcfa gž`Zca `XY`]VYfUHY`WXYU]b[`hc`UWV]XYbhU`mW`dm]b[`Zca `U`gci fW`k]h`ci hUW_bck`YX[Ya Ybh`

I BGK `[fci dg`d`U[]Uf]ga `]bhc`hY`Zc`ck]b[`WUHY`[cf]Yg.

7 cdm]b[.`i g]b[`hY`gUa Y`cf`j Yfmg]a]Uf`k cfXg`hc`hY`cf][]bU`hYI hcf]XYU`k]h`ci hUW_bck`YX[]b[`hY`
gci fW`cf`i g]b[`ei chU]cb`a Uf_g" `H\]g`U`gc`Udd`]Yg`hc`]a U[Ygž`UfhUbX`XYg][b`dfc`YWgž`Ug`k Y`U`g
dfYgYbhU]cbg`k \YfY`gca YcbY`dfYgYbh]g`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hW`YX]h`

hUddfcdf]UHY`dUfUd`fUg]b[.`7`U`b[]b[`U`ZYk`k cfXg`UbX`d`fUgYg`k`Y`a cghmifYU]b]b[`hY`cf][]bU`
ghfi W`i fY`UbX`#`f`dfc[fYgg]cb`cZ]XYUg`cZ`hY`cf][]bU`ž`UbX`]bZcfa U]cb`k]h`ci hUW_bck`YX[Ya Ybh`H\]g`U`gc
Udd`]Yg`]b`dfYgYbhU]cbg`k \YfY`gca YcbY`dUfUd`fUgYg`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hW`YX]h`UbX`hc
d]YW]b[`hc[Y`hYf`ei chYg`UbX`dUfUd`fUgYg`]bhc`U`bYk`k \c`Yž`k]h`ci hUddfcdf]UHY`fYZYfYbW]b["

7 c`i g]cb.`k cf_]b[`k]h`chYfg`Vi hdUgg]b[`cZ`hY`k cf_]Ug`U`dYfgcb`g`]bX]j]Xi U`k cf_]7 c`i g]cb`U`gc
]bWi XYg`dfcj]X]b[`mci f`k cf_]hc`UbchYf`gh`XYbhVYZc`fY`hY`Xi Y`XUHYž`cf`Zc`f`hY`di fdcgY`cZ`hY`a

- i bXYfghUbx'mci f'f][\hg'UbX'fYgdcbg]V]h]Yg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[]Uf]ga ž'Wc'dmf][\hž' BGK 'Gh XYbh7cXY'cZ7cbXi W'Ubx'5W'W'dhUV'Y'I gY'cZ I BGK '⇒H'F'Ygci f'W'g'Dc`]W'h
- VY'Uk UfY'cZ'Y'ghUbxUfXg'cZVY\Uj]ci f'YI dY'W'X'cZYj Yfmcby`]b'h'Y'I BGK 'W'a a i b]m
- `cW'W'h'gYfj]W'g'UbX']bZ'fa U]cb'UVci hl BGK 'UbX'I BGK '@]VfUfm

Gca Y'cZ'Y'gY'UfY'Ug'k]`VY'ZJa]]Uf'hc'mci ž'c'h'Y'fg'k]`VY'bYk " "; U]b]b['U'gc`]X'i bXYfghUbx]b['cZU`'h'Y fY'U'Y'X'UgdY'W'g'cZ9@-G9'k]`'Y'd'mci 'a U_Y'h'Y'a cghcZmci f'gh X]Yg'Uhl BGK ""

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: cfYggYbh]U`ghi XYbh]bZcfa Uhcb`fY`Uh]b[`hc.

- fYei Yghg`ZcfYI hYbg]cb/
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- YI Ua]bUh]cb`dfcVWXi fYg/
- gdYW]U`Vc]bg]XYfUh]cb`]b`hY`Yj Ybhcz]`bYgg`cf`a]gUXj Ybh fY/
- ghi XYbhYei]hmUbX`X]gUV`]`hm/
- UbX`chYfYggYbh]U`UWUXYa]W]bZcfa Uh]cbz`gYY

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⇒ U[Y`7 fYX]h