



ARTS3874

7 i `h` fY `UbX` < i a Ub `F`] [\ hg

HYfa `Hk c` `#` `&\$&%`

7ci fgY`Cj Yfj JYk

GHJZZ`7cbHJW`8YHJ]`g

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B Ua Y	9a Uj`	5j Uj`UVj]m	@cWjhcb	D\cbY
? Ujfu`7 UbYHY	_"WbYHY4 i bgk "YXi "Ui	B 5	B 5	B 5

GWXcc``7cbHJW`bZcfa Uhjcb

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A cfj Yb`6fck b`7 &\$

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d\cbY. '\$&-' ,)`% \$+

7ci fgY'8YHJ`g

7fYX]hDc]bng`*`

Gi a a UfmicZ`h`Y'7ci fgY

H\]g`Wci fgY`YI d`cfYg`h`Y`f]gY`cZ\i a Ub`f][` \hg`X]gWci fgY`UbX`]hg`fY`Uhc]bg\]d`hc`ch`Y`f`X]gWci fgY`g`cb`
gi`ZY`f]b[` `UbX`gcW]U`↑`gh]W`" `#iZ`W`gY`g`cb`h`Y`YI`dY`f]Y`bW`c`Zj`]W]a`g`cZ\i a Ub`f][` \hg`UVi`gY`UbX`h`Y`dc`]h]Wg`
cZa`Y`Ub]b[`" `Gh`XY`bng`k`]`Y`b[`U[`Y`]b`W]h]ei`Y`g`cZ`Uk`Ug`U`fY`Xi`W]cb]gh`X]gWci fgY`cb`h`Y`gcW]U`Vm`YI`d`cf]b[`
h`Y`fY`Uhc]bg\]dg`VY`k`Y`Y`b`i`a`Ub`f][` \hg`UbX`W`h`i`fU`X]ZY`fY`bW`g`gi`W`Ug`[`Y`b`X`Y`f`z`Y`h`b]W]m`z`fY`][`]cb`UbX`
]bX][`Y`bci`g`W`h`i`fY`g`" `H`Y`Ya`VcX]Y`X`gY`Z`gcW]U`]b`h`fY`dY`b`X`Y`b`W`i`UbX`h`Y`U`f`W]h]Y`W`i`fY`cZ`gcW]U`]b`g`h]h`h]cbg`
U`fY`h`Y`V`U`W`X`f`cd`h`f`ci`[` \`k` \]W`h`Y`W`ci` fgY`YI`d`cfYg`h`Y`h`bg]cbg`VY`k`Y`Y`b`i`b]j`Y`fgU`UbX`fY`U`h]j`]gh`
i`b`X`Y`f`g`h]b`X]b[`g`cZ\i a Ub`f][` \hg`UbX`h`Y`f`fY`U`]n`U`h]cb`" `Gh`XY`bng`k`]`VY`]b`f`c`Xi`W`X`h`c`h`Y`Z`b`X`U`a`Y`b`h]U`g`cZ`
i`a`Ub`f][` \hg`z`h`Y`[`c`V`U`i`a`Ub`f][` \hg`a`U`W]b`Y`f`m`z`UbX`h`Y`Y`h`]Wg`cZ\i a Ub]h]f]U`b]b`h`Y`f`j`Y`b`h]cb`z`UbX`k`]`
W`cbg]X`Y`f` \`ck`gcW]c`c`]g`h]UbX`Ub`h`f`cd`c`c`]g`h] \`U`j`Y`g`h`X]Y`X`UbX`k`f]h`Y`b`U`V`ci`h`i`a`Ub`f][` \hg`"

7ci fgY`@YUfb]b[` `Ci`h`W`a`Y`g

%`5`dd`m`i`U`_`b`ck`Y`X[`Y`cZ\i a Ub`f][` \hg`h`c`j`U`f]ci`g`c`W]z`b`U`h]cb`U`UbX`h`f`U`b`g`b`U`h]cb`U`W`c`b`h`YI`h`g`
&`7`ca`d`U`f`Y`i`b]j`Y`fgU`]g`h]j`" `fY`U`h]j`]g`h]d`c`g]h]c`b`g`c`b`W`h`i`fY`
'`" `9I`d`U]b`h`Y`W`c`b`h`g`h`X`h`Y`c`f]Y`g`cZ\i a Ub`f][` \hg`
(`" `9I`d`U]b`h`Y`V`U`g]g`Z`c`f`]b`X]j`]X`i`U`d`f`c`h`W]c`b`

HYUW]b[` `G`h`f`U`h`Y`[`]Y`g`

5g`U`h`]f`X`m`Y`U`f`W`ci` fgY`z`h`Y`h`Y`U`W]b[` `g`h`f`U`h`Y`[` m`f`Y`]Y`g`c`b`Ub`]b`h`Y`bg]j`Y`" `!`ci`f`g`Ya`]b`U`f`h`c`U`c`k`X`Y`Y`d`
X]g`W`g`g]cb`UbX`YI`W`U`b[`Y`"

5ggYgga Ybh

5ggYgga YbhHUg_g

5ggYgga YbhHUg_	K Y][\h	8i Y'8UH	Gh XYbh@YUfb]b[Ci hWta Yg'5ggYggYX
F YgYUfW '9ggUm	()	\$&#\$, #&\$&%\$) . \$\$ 'DA	%ž' ž(
7 cbWdhXYj Y'cda Ybhk f]h]b[- 'V'c['dcgfg'	(\$	' \$#\$+&\$&%	%ž' ž(
F YZYWj Y'ghUHa Ybh	%	\$&#\$, #&\$&%\$) . \$\$ 'DA	&ž' ž(

5ggYgga Ybh8YHU]`g

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GhUfhXUH. Bch5dd]WVY

@Yb[h. &ž) \$\$'k cfXg

8YHU]`g.

H\Y'fYgYUfW 'YggUm]g &) \$\$'k cfXg UbX'gi Va]hYX']b U'Z]bU' dcfhZ']c" H\Y'Z]bU' dcfhZ']c]bW XYg h\Y YggUmžcbY V'c['dcghUbX h\Y'fYZYWj Y'ghUHa Ybh'

Gh XYbh' fYgYUfW 'UbX'k f]h' 'cb' U' hcd]W]b' XYdh' h'Uh'fYZYWg' Wci fgY' Wcbh'bhUbX'XYj Y'cd' h\Y]f'ck b gdYWU']gYX' fYZfYbWg' Ug' Yj]XYbW' cZž f\Yf'fYgYUfW "" Gh XYbh' a i ghXYa cbghUf' U' WYUf' Uf[i a Ybh']'i ghUf']hk]h' Yj]XYbW' fYZfYbWgž' WUgY' gh' X]YgE/ UbX' hU' Y' i d' U' W]h]W' 'dcg]h]cb' 'cb' h\Y' hcd]W X]gW' ggYX' "5ggYggYX' k]' VY' _bck' YX[Y' cZ\ i a Ub' f][\h' UbX' h\Y]f' Wcbh'ghUf]cb']b' j' Uf]ci g' Wcbh' h' hž' UV]]hm h' k cf' _W' "UVcfUf] Y'nžXYa cbghUf' X' h' fci [\ Yb[U[Ya Ybhk]h' V'c['dcgfg' UbX' XYj Y'cd]b['cZfYgYUfW g_]`g" K f]h' b' ZYXVUW_ d'fcj]XYX' &k YY_g' UZf'f'gi Va]gg]cb"

5ggYgga Ybh&. 7cbWdhXYj Y'cda Ybhk f]h]b[' V'c['dcgfg

GhUfhXUH. Bch5dd]WVY

@Yb[h. (\$\$'k cfXg'k YY_mYbhf]Yg

8YHU]`g.

Gh XYbh' k]' k f]h' U' k YY_mYbhf'f'k YY_g' & h' %\$E' fYgdcbX]b[' h' fYUX]b[g' UbX' W]h]W' Yb[U[Ya Ybh \ i a Ub' f][\h']ggi Yg" K YY_mYbhf]Yg' UfY' fYe']fYX' f('\$\$'k cfXg' YUW' k YY_ž' Gh XYbh' UfY' Y' d' YW' X' h' Yb[U[Y' k]h' UbX' W' a a Ybhcb' h\Y' d'cgfg' cZchYf' gh' XYbh']b' XYj Y'cd]b[' _bck' YX[Y' cZ\ i a Ub' f][\h' X]gW'ci fgYg' UbX' gdYWU' WUgY' gh' X]Yg"

WUgg' ZYXVUW_ k]' VY' [] Yb']b' K YY_ ' UbX' k f]h' b' ZYXVUW_ 'cb' h\Y' ei U']h' mcZdcgfg']b' K YY_) " Gh XYbh' k]' X %o %o

5ggYgga Ybh' . FYZYWj Y'ghUHa Ybh

GHUfhXUH. Bch5dd`WUV`Y

@Yb[h. *\$\$`k cfXg

8YHU]`g.

H\Y`fYZYWj Y'ghUHa Ybh]g`*\$\$`k cfXg`UbX`gi Va]hYX`]b`U`Z]bU`dcfhZ`]c`"H\]g`hUg`_[Yrg`gh XYbth`hc`h]b`_ UVci hfYgYUfW`dfcWggYgZ`Zcf`YI Ua d`Yz`Zcf`hY`dfcXi W]cb`cZ`hY`a Uhf]U`g`h`UhUfY`X]gW`ggYX`]b`h]g Wci fgY`"Gh XYbth`Wca dcgY`U`fYZYWj Y'ghUHa Ybhcb`WU`Yb[Yg`cZUW`gg`hc`Ya d]f]W`XUH`]b`h]g`gdUW` UbX`ck`hc`dcgY`]a dUW`Z`"W]hei Yg`"H\Y`hUg`_U`gc`fYei]fYg`gh XYbth`hc`fYZYW`icb`_bck`YX[Y`Vi`]X]b[cj Yf`hY`fU`Y`W`c`fmcZ`hY`Wci fgYz`]bWi X]b[`Yb[U[Ya Ybhk]h`hY`k YY`_midcgh`cZ`gh XYbth`]b`hY`Wci fgY` 5ggYgga Ybhk]`VY`U[U]bgh`hY`UV`]mhc`dcgY`W]hei Yg`cZ`W`cb`hY`gh`X`hY`cf]Yg`cZ`i a Ub`f][`h`g`UbX`hY` XYa cbgfU]cb`cZ`Ub`i bXYfg`UbX]b[`cZ`hY`fYgYUfW`dfcWgg`"Gh XYbth`k]`fYW`] Y`k`f]hY`b`ZYXVUW`_& k YY`_g`U`Z`Y`f`gi Va]gg]cb

F Ygci fWg

DfYgWfjVYX`F Ygci fWg`

F Ygci fWg`UfY`Uj Uj`UV`Y`cb`A ccX`Y

F YWca a YbXYX`F Ygci fWg

F Ygci fWg`UfY`Uj Uj`UV`Y`cb`A ccX`Y

7ci fgY`9j U`i Uhcb`UbX`8Yj Y`cda Ybh

F Ygci fWg`UfY`Uj Uj`UV`Y`cb`A ccX`Y

Gi Va]gg]cb`cZ5ggYgga YbhiHUg_g

Hi fb]h]b`Gi Va]gg]cb

Ʒmci`YbWci bHYf`U`dfcV`Ya`k` \Yb`UH`Ya` dh]b[`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybhi`h`fci`[`\`Hi`fb]h]b`z`d`Y`Ug`Y`
HY`Yd`cb`Y`9I`HY`fb`U`Gi`ddc`fh`cb`-`,`,)`````%cf`Ya`Uj`h`Ya`cb`YI`HY`fb`U`HY`hgi`ddc`fh`4`i`bgk`"YXi`"Ui`""`Gi`ddc`fh`
`l`ci`fg`UfY`,`.\$\$Ua`-`-%\$.\$\$da`cb`k`YY`XUmg`UbX`-`.\$\$Ua`-`).\$\$da`cb`k`YY`YbXg`fI`*)`XUmg`U`mY`UfI`"Ʒmci`
UfY`i`bUV`Y`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybhi`Xi`Y`hc`U`Zi`h`k`]h`Hi`fb]h]b`mci`a`Um`Udd`m`Zc`f`Ub`YI`HY`bg]cb`z`Vi`hmc`i`
a`i`gh`fY`h]b`mci`f`h]W`Y`hbi`a`VY`f`Z`ca`9I`HY`fb`U`Gi`ddc`fh`f`U`cb[`k`]h`Ub`mci`h`Y`f`fY`Yj`Ub`h`Xc`W`a`Y`b`hg`L`hc`
]b`Wi`XY`Ug`Yj`]X`Y`b`W`hc`gi`ddc`fh`mci`f`YI`HY`bg]cb`Udd`]W`h]cb`"Ʒmci`Ya`Uj`9I`HY`fb`U`Gi`ddc`fh`mci`k`]`
Ui`hc`a`U`h]W`m`f`Y`W`j`Y`U`h]W`Y`hbi`a`VY`f`z`Vi`h]Z`mci`HY`Yd`cb`Y`mci`k`]`b`Y`Y`X`hc`gd`Y`W`Z]W`m`Ug`_`Zc`f`cb`Y`"
Hi`fb]h]b`U`gc`d`fcj`]X`Y`gi`d`X`U`h`g`cb`h`Y]f`g`mg`h`Ya`g`h`U`h`g`cb`Hk`]h`Y`f`"

;`Yb`Y`f`U`m`z`Ugg`Y`gga`Yb`hi`Ug`_`g`a`i`gh`V`Y`gi`Va`]h`Y`X`Y`Y`W`f`cb]W`m`j`]U`Y`]h`Y`f`Hi`fb]h]b`cf`U`A`cc`X`Y`
Ugg][`ba`Yb`h`i`h`]b`g`h`U`b`W`g`k`Y`f`Y`h`g`]g`b`ch`d`c`g`g]V`Y`z`]h`k`]`V`Y`g`h`U`h`X`cb`mci`f`W`ci`fg`Y`g`A`cc`X`Y`g`]h`k`]h`
U`h`Y`fb`U`h]`Y`gi`Va`]gg]cb`X`Y`h]g`"

:`cf`]b`Z`fa`U`h]cb`cb`l`ck`hc`gi`Va`]h`Ugg][`ba`Yb`hg`cb`]b`Y`j`]U`A`cc`X`Y`.`h`h`d`g`#`gh`X`Y`b`h`i`bgk`"YXi`"Ui`#`ck`!
gi`Va`]h`Ugg][`ba`Yb`h`a`cc`X`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`U`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
-

5 WUXYa]WbZcfa Uh]cb

: cfYggYbh]U`gh XYbh]bZcfa Uh]cb fY`Uh]b[`tc.

- fYei Yghg`Zcf`YI H`bg]cb/
- `UhY`gi Va]gg]cbg`[i]XY`]bYg/
- fYj]Yk `cZa Uf_g/
- I BGK `<YU`h`UbX`GUZYfmdc`]WYg/
- YI Ua]bUh]cb`dfcW`Xi fYg/
- gdYW]U`W`bg]XYfUh]cb`]b`hY`Yj Ybhcz]`bYgg`cf`a]gUXj Ybh fY/
- gh XYbhYei]mUbX`X]gUV`]m/
- UbX`c`hYf`YggYbh]U`UWUXYa]W]bZcfa Uh]cbz`gYY

[\ftdg.#k k k "Uftg"i bgk "YXI "Ui #W ffYbhgh XYbh\]UWUXYa \]W\]bZcfa Uh\]cb#dfchW`g`\[i \]XY`\]bYg#](#)

⇒ a U[Y`7 fYX]h

GmbYf[]Yg`]b`Gci bX`&\$%*`

7F ⇒ CG

7F ⇒ CG`Dfcj]XYf`7cXY.`\$\$\$- , ;

5W_bck`YX[Ya Ybhcz`7ci b]fm

K Y`UW_bck`YX[Y`hY`6YXY[U`dYcd`Y`k`c`UfY`hY`fUX]h]cbU`W`ghcX]Ubg`cZ`hY`UbXg`cb`k` \]W`I`BGK
? Ybg]b[hcb`W]a`di`g`]g`cW]hYX"