



# ARTS3874

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HYfa `Hk c ` # ` & \$ %

7ci fgY`Cj Yfj JYk

GHJZZ`7cbHJW`8YHJ]`g

7cbj Ybcfg

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

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



# 5ggYgga Ybh

## 5ggYgga YbhHUg\_g

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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' fYZfYbW'gž'WUgY'gh X]YgE/UbX' hU\_Y' i d'U'W]h]W' d'cg]h]cb'cb h\Y' hcd]W X]gW'ggYX""5ggYggYX'k ]''VY'\_bck 'YX[ Y'cZ\i a Ub'f][ \hg'UbX'h\Y]f'Wcbh'ghU]cb' ]b'j Uf]ci g'Wcbh'f' hž'UV']hm h'k cf'\_W'UVcfU]h' 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'\_dfcj ]YX'&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][ \hg']ggi Yg""K YY'\_mYbhf]Yg'UfY'fYei ]fYX'f( '\$\$'k cfXg'YUW'k YY'\_E" Gh XYbh'UfY'YI dYW'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][ \hg X]gW'ci fgYg'UbX'gdYWU'WUWUgY'gh X]Yg"

WUgg'ZYXVUW'\_k ]''VY[ ]j Yb' ]b'K YY\_' 'UbX'k f]h'b'ZYXVUW'\_cb'h\Y'ei U']hmcZdcgfg' ]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'ghi XYbth'hc'h]b\_  
UVci hfYgYUfW`dfcWggYgZ`cf`YI Ua d`Yz`Zcf`hY`dfcXi W]cb`cZ`hY`a Uhf]U`g`h`U`h`U`f`Y`X]gW`ggYX`]b`h]g  
W`i`fgY`"Gh`XYbth`W`a`dcgY`U`fYZYWj Y'ghUHa Ybhcb`W`U`Yb[ Yg`cZ`U`W`W`gg`hc`Ya`d]f]W`X`U`H`]b`h]g`gd`U`W`  
UbX`\ck`hc`dcgY`]a`d`U`W`Z``W`]`h`ei`Yg`"H\Y`hUg`\_`U`gc`f`Y`ei`]fYg`ghi`XYbth'hc`fYZYW`icb`\_`bck`YX[ Y`Vi`]X]b[  
cj`Yf`h`Y`f`U`Y`W`c`f`m`c`Z`h`Y`W`i`fgYz`]b`W`i`X]b[ `Yb[ U[ Ya`Ybhk`]h`h`Y`k`YY`\_`m`d`c`g`h`c`Z`g`h`XYbth`]b`h`Y`W`i`fgY`"  
5ggYgga Ybhk`]"`VY`U[ U]bgh`h`Y`UV`]`m`h`c`d`c`g`Y`W`]`h`ei`Yg`c`Z`W`c`b`h`Y`g`h`X`h`Y`c`f`]`Y`g`c`Z`i`a`U`b`f`[ `h`g`\_`U`b`X`h`Y`  
XYa`cb`g`f`U`h`c`b`c`Z`U`b`i`b`X`Y`f`g`h`U`b`X]b[ `c`Z`h`Y`f`Y`g`Y`U`f`W`d`f`c`W`gg`"Gh`XYbth`k`]"`f`Y`W`]`Y`k`f`]`h`Y`b`Z`Y`X`V`U`W`\_`&  
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

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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]b`z`d`YUgY`  
HY`Yd\cbY`9I`HYfbU`Gi`ddcfhcb`-`,`)`"``"``%cf`Ya`U]`h`Ya`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`f1`\*)`XUmg`U`mY`Uf2`≠mci`  
UfY`i`bUV`Y`hc`gi`Va`]hmc`i`f`Ugg][`ba`YbhiXi`Y`hc`U`Zi`h`k`]h`Hi`fb]h]b`mci`a`UmUdd`m`Zc`f`Ub`YI`HYbg]cb`z`Vi`hmc`i`  
a`i`ghfYhU]b`mci`f`h]W`Yhbi`a`VYf`Zca`9I`HYfbU`Gi`ddcfhU`cb[`k`]h`Ubmic`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`U]`9I`HYfbU`Gi`ddcfhmc`i`k`]`  
Ui`hca`U]W]`mifYW]j`Y`U`h]W`Yhbi`a`VYf`z`Vi`h]Zmci`HY`Yd\cbY`mci`k`]`bYYX`hc`gdYW]Z]W]`mUg`\_`Zc`f`cbY`  
Hi`fb]h]b`U`gc`dfcj`]XYg`i`dXUH`g`cb`h`Y]f`gmgh`Ya`ig`hU`h`g`cb`Hk`]hYf`"

;`YbYfU`mz`UggYgga`YbhiHUg\_g`a`i`ghVY`gi`Va`]hYX`Y`YWfcb]W]`mj`]U`Y]h`Yf`Hi`fb]h]b`cf`U`A`ccX`Y`  
Ugg][`ba`Ybhi`h`]bghU`bVW`g`k`\YfY`h`g`]g`bchidcgg]V`Yz`]hk`]`VY`ghU`h`X`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`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`GUZfmdc`]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"