



ARTS1453

✪hfcXi Wc fm7 \]bYgY `Zcf'6UW_[fci bX'GdYU_Yfg'6

HYfa `H\fyY`##`&\$&\$

7 ci fgY`Cj Yfj]Yk

GHJZZ`7cbHJW`8YHJ]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cW]h]cb	D\cbY
DUb`K Ub[DUb`k Ub[4 i bgk "YXi "Ui	6mUddc]bħa Ybh	@&žF `&(* A cfj Yb`6fck b	\$&`-' ,) &' (-

@YW`i fYfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cW]h]cb	D\cbY
DUb`K Ub[DUb`k Ub[4 i bgk "YXi "Ui	6mUddc]bħa Ybh	@&žF `&(*ž A cfj Yb`6fck b	\$&`-' ,) &' (-

Hi ħcfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cW]h]cb	D\cbY
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@cW]h]cb. `GW`cc``C Z]W]žA cfj Yb`6fck b`6i]X]b[ž@Yj Y``ž&ž) ,

C dYb]b[`<ci fg. `A cbXUm! `: f]XUmž`- Ua `!`) da

D\cbY. `ž*%&`-' ,) `*% , %

: U! . ž*%&`-' ,) `; , +\$)

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

7ci fgY'8YHJ]`g

7fYX]hDc]bHg`*`

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

H\]g'7\]bYgY`Ub[i U[Y`Wci fgY]g`XYg][bYX`Zc'f'7\]bYgY`VUW_[fci bX`gdYU`Yfg`k \c`\Uj Y`UWci]fYX`gci bX`_bck`YX[Y`Zca`h`Y`dfYj]ci g`]bfcXi`Wc`fm`Wci fgY`5F`HG%() &`cf`k \c`dcggYgg`Wca`dUfUV`Y`dfcZ`WY`bWm]b`7\]bYgY`"7`cb]bi]b[`h`Y`dfY`W`X]b[`k`cf`_`z`h`Y`dfY`g`Y`bh`Wci fgY`Z`f`h`Y`f`X`Yj`Y`cdg`mci`f`Zci`f`Ub[i U[Y`g_]`g`f]`Y`"]g`h`b]b[`z`gdYU_]b[`z`fYUX]b[`UbX`k`f]h]b[`E`]b`Ub`]b`h`[fU`h`X`a`UbbYF`" `h]b`f`c`X`i`W`g`mci`h`c`UddfcI]a`U`h`m`') \$`j`c`W`U`V`i`U`f`m`k`c`f`X`g`z`U`cb[`k`]h`h`Y`U`gg`c`W`U`h`X`g`c`W`]c`W`h`f`U`UbX`]b[i]g`h]W`U`k`U`f`Y`b`Y`g`g`]b`X`U`m`h`c`!`X`U`m`h`c`d]V`g`z`gi`W`X`U`g`h`U_]b[`U`V`ci`h`h`Y`k`Y`U`h`Y`f`z`g`Y`Y]b[`U`X`c`W`c`f`z`f`Y`b`h]b[`U`d`U`W`h`c`"]j`Y`UbX`dfY`d`U`f]b[`Z`c`f`f`U`j`Y`"

7ci fgY`@YUfb]b[`Ci h`Wca`Yg

%`I`b`X`Y`f`g`h`U`b`X`U`b`X`i`g`Y`U`dd`f`c`I`]a`U`h`m`') \$`Y`g`g`Y`b`h]U`j`c`W`U`V`i`U`f`m]h`Y`a`g`"
&"`5`d`d`m`h`h`Y`Z`c`i`f`U`b[i U[Y`g_]`g`]b`7\]bYgY`f]`Y`"]g`h`b]b[`z`gdYU_]b[`z`fYUX]b[`UbX`k`f]h]b[`E`U`h`i`d`d`Y`f`
]b`f`c`X`i`W`c`f`m`Y`j`Y`z`h`U_]b[`]b`h`c`U`W`W`c`i`b`h`g`h`X`Y`b`h`g`f`h`Y`f]h]U[Y`V`U`W_[fci bX`"
'`" `7`c`a`a`i`b]W`U`h`Y`Z`W`Y`b`h`m]b`7\]bYgY`c`b`h`c`d]V`g`gi`W`X`U`g`h`U_]b[`U`V`ci`h`h`Y`k`Y`U`h`Y`f`z`g`Y`Y]b[`U`X`c`W`c`f`
U`b`X`d`f`Y`d`U`f]b[`Z`c`f`f`U`j`Y`z`]b`V`c`h`c`f`U`UbX`k`f]h]b`Z`c`f`a`g`z`]b`U`"]b[i]g`h]W`U`m`U`b`X`g`c`W`]c`W`h`f`U`m`
U`dd`f`c`d`f]U`h`Y`a`U`bbYF`"
("`5`d`d`m]b`X`Y`d`Y`b`X`Y`b`h`Y`U`f]b[`g`h]U`h`[]Y`g`h`c`]b`W`Y`U`g`Y`7\]bYgY`d`f`c`Z`W`Y`b`W`m]V`Y`m`c`b`X`h`h`Y`W`U`g`g`f`c`c`a`"

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

h`h`g`"Ub[i U[Y`Wci fgY`z`mci`k`]"`V`Y`f`Y`ei`]f`Y`X`h`c`U`h`Y`b`X`"Y`W`h`f`Y`g`U`b`X`h`h`c`f]U`g`Y`U`W`k`Y`Y`_"`H`h`Y`"Y`W`h`f`Y`g`k`]"`
W`c`j`Y`f`b`Y`k`]`c`W`U`V`i`U`f`m`z`[fU`a`a`U`h]W`"d`c]b`h`g`U`b`X`W`h`f`U`"]h`f`U`W`h`W`b`h`Y`X`c`b`h`h`Y`k`Y`Y`_"m`h`c`d]V`g`"H`h`Y`
h`h`c`f]U`g`k`]"`V`Y`X`Y`X]W`U`h`Y`X`h`c`Y`b`U`b`W]b[`mci`f`"]g`h`b]b[`z`gdYU_]b[`z`fYUX]b[`UbX`k`f]h]b[`g_]`g`" `h`c`f`X`Y`f`h`c`
c`V`h]b`U`g`U`h]g`Z`U`W`c`f`m`Y`U`f]b[`f`Y`gi`h`z`mci`k`]"`V`Y`Y`I`d`Y`W`h`X`h`c`g`d`Y`b`X`" ` \`ci`fg`ci`h`g]X`Y`c`Z`h`Y`W`U`g`g`f`c`c`a`h`c`
f`Y`j`Y`k`Y`U`W`"Y`g`g`c`b`U`b`X`W`c`a`d`Y`h`h`h`Y`k`c`f`_`V`c`c`_`Y`I`Y`f`W]g`Y`g`Y`U`W`k`Y`Y`_"`

5g`Z`c`f`d`f`U`W`]W`h`U`W`X]b[`z`V`c`h`h`h`Y`g`h`i`W`h`f`U`"a`Y`h`c`X`U`b`X`W`c`a`a`i`b]W`U`h]Y`a`Y`h`c`X`k`]"`V`Y`U`dd`Y`X`]b`h`Y`
W`c`i`fgY`" `h`Y`U`W`"Y`g`g`c`b`z`mci`k`]"`i`gi`U`m`V`Y`[]b`k`]h`j`c`W`U`V`i`U`f`m`U`b`X`g`h`i`W`h`f`U`"d`f`U`W`]W`z`Z`c`k`Y`X`V`m`h]U`g`!
V`U`g`Y`X`"Y`U`f]b[`U`W`h]]h]Y`g`"5g`h`h`Y`W`c`f`h]g`V`U`W_[fci bX`Ub[i U[Y`"Y`U`f`b`Y`f`g`z`U`gi`V`g`h`U`b]U`"U`a`ci`b`h`c`Z`W`U`g`g`
k`]"`V`Y`W`c`b`X`i`W`h`X`]b`7\]bYgY`"H`h`Y`h`U`W`X]b[`g`h]U`Z`k`]"`U`X`g`h`h`Y`U`a`ci`b`h`c`Z`9`b[]g`U`b`X`7\]bYgY`i`g`Y`X`
U`W`W`c`f`X]b[`h`c`mci`f`Z`Y`X`V`U`W`U`b`X`b`Y`Y`X`g`"

5ggYgga Ybh

8YHU]YX`]bghfi W]cbg`Zc`YUWX`UggYgga YbhiUg_k]`VY`i d`cUXYX`hc`A ccX`Y`"F YZf`hc`UggYgga YbhVf]YZ`

5ggYgga YbhiUg_g`

5ggYgga YbhiUg_	K Y][\h	8i Y`8UH`	Gh XYbh@YUfb]b[Ci hWta Yg`5ggYggYX
F c`Y`d`Um	&\$	k YY_`(`	%ž&ž ž{
h!WUgg`Wta dcg]hcb`	&)	k YY_`+`	%ž&ž ž{
F YUX`U`ci X`	%)	k YY_`%\$`	

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

5ggYgga Ybh' . 'F YUX'U'ci X

GHUfhXUHY . 'k YY_ '%\$

8YHU]`g.

Gh XYbfg'UFY'[]j Yb'' 'a]bi h'g'hc'fYUX'U'7 \]bYgY'dUggU[Y'fUddfcI ""') \$'7 \]bYgY'WXUfUWYfgL'H\Y'hUg_
YI Ua]bYg'ghi XYbfg''UV]']mhc'fYVc[b]gY'hY''YUfbh7 \]bYgY'WXUfUWYfgZ'hLY]f'']h'fUWm'Yj Y''UbX'cfU'
Wc'a a i b]WU]cb'g_]`g"

Gh XYbfg'k]`VY'[]j Yb']bgfUbhcfU'ZYXVUW_Zcf'hY'UggYgga Ybh'

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

5ggYgga Ybh(. :]bU'9I Ua

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@Yb[h. '&\ci fg

8YHU]`g.

H\Y'Z]bU'YI Ua]g'Wc'a dfY\Ybg]j Y''#iUggYggYg'ghi XYbfg'']gh'Yb]b[Z'fYUX]b['UbX'k f]h]b['g_]`g'Wc] YfYX
h.fci [\ci h'hY'h'fa "'H\]g]g'hY'Z]bU'UggYgga YbhZcf'UfhYbXUbW' di fdcgYg"

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

K YY_%. %* 'Bcj Ya VYf!	@YWh fy	@Yggcb '&\$'5h\Y'5]fdcfh'J UWVvi `Ufnž[fUa a Uf'UbX
&\$'Bcj Ya VYf		

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

- ~~hY~~[fUHx`7\]bYgYžJc`i a Y`&ž(h`9X]h]cbžHYI hVcc_`f&\$%+ŁfG]a d`]ZYX`7\]bYgY`j Yfg]cb`]g dfYgWf]VYX/mci`UfY`k Y`VŁa Y`h`i`gY`HfUX]h]cbU`cbY`h`ci [\`Ł
- ~~hY~~[fUHx`7\]bYgYžJc`i a Y`&ž(h`9X]h]cbžK cf_Vcc_`f&\$%+ŁfG]a d`]ZYX`7\]bYgY`j Yfg]cb`]g dfYgWf]VYX/mci`UfY`k Y`VŁa Y`h`i`gY`HfUX]h]cbU`cbY`h`ci [\`Ł
- ~~hY~~[fUHx`7\]bYgYžJc`i a Y`&ž(h`9X]h]cbž7\UfUWYf`K cf_Vcc_`f&\$%+ŁfC dh]cbU`Ł

H\Y`hYI hVcc_`g\UVcj Y`UfY`Uj U]UV`Y`]b`I BGK``6cc_`g\cd`UbX`5a Uncb`5I`"

F YWŁa a YbXYX`F Ygci fWg

- A cv]`Y`5ddg
 - K f]hYb`7\]bYgY`
8]Wf]cbUfm`\hŁdg.##h bYg"Udd`Y"VŁa #Uj #Udd# f]hYb!WŁ]bYgY!
X]Wf]cbUfm#X, *, (, '), - 3a hI,
f\UbXmZcf`WŁYW_]b[`glfc_`Y`cfXYfgŁ

YbWci fU[YX'hc'Z]'ci h'Y'A n9I dYf]YbW'gi fj YmfUbcba ci g'UbX'i b]] Yfg]m'k]XYE'hc'Yj U'i UH
h'Y]f'h'UW]b['UbX''YUfb]b['YI dYf]YbW'g''6c'h'cfU'UbX'k f]h'Y'b'Z'YXVUW_ Z'ca' gh' XYb'g'k]''VY'i gYX'hc
Z f'h'Yf''a d'fcj Y'h'Y'W'ci fgY''

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`UgY`
HY`Yd`cb`Y`9I`HY`fb`U`Gi`ddcfh`cb`-`,`)`"``"``%cf`Ya`Uj`h`Ya`icb`YI`HY`fb`U`HY`hgi`ddcfh`4`i`bgk`"YXi`"Ui`"Gi`ddcfh`
`lci`fg`UfY`,`.\$\$Ua`-`-%\$.\$\$da`icb`k`YY`XUmg`UbX`-`.\$\$Ua`-`).\$\$da`icb`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`ddcfh`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`]XY`b`V`hc`gi`ddcfh`mci`f`YI`HY`bg]cb`Udd`]W`h]cb`"Ʒmci`Ya`Uj`9I`HY`fb`U`Gi`ddcfh`mci`k`j`
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`j`b`Y`Y`X`hc`gd`Y`W`Z`W`m`Ug`_`Zc`f`cb`Y`"
Hi`fb]h]b`U`gc`d`fcj`]XY`gi`d`XU`h`g`cb`h`Y]f`gm`gh`Ya`g`h`U`h`g`cb`Hk`]h`Y`f`"

;`Yb`Y`f`U`m`z`Ugg`Y`gga`Yb`hi`U`g`_`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`gh`U`b`W`g`k` \Y`f`Y`h`g`]g`b`ch`d`c`gg]V`Y`z`]h`k`j`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`d`g`#`gh`XY`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]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]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'j]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 cghcZ'mci f'gh X]Yg'Uhl BGK ""

[\h'hd.##gi V'Y'W'i \]X'Yg" \]VfUfm'i bgk "YXi "Ui #' \]gY#\]Vci h' \]gY](#)

