



ARTS1750

±blfcXi Wjcb hc 8Yj Y`cda YbhGh X]Yg

HYfa 'C bY''##'&\$%

7ci fgY⁻Cj Yfj]Yk

[']GhJZ'7cbhJWh'8YhJ]`g'

'7cbj Ybcfg'

B Ua Y	9a U]`	5j U]`UV]`] m	@cWUh]cb	D∖cbY
5bhcbmNk]	U"nk]4 i bgk "YXi "Ui	K YXbYgXUm	; &) ž'A cfj Yb	Ž*%(&' *-*(
		%%\%)! [™] &\%)	6fck b 6i] X]b[- \$

'Hi hcfg'

B Ua Y	9a U]`	5j U]`UV]`]m	@cWJhjcb	D∖cbY
F YbY Dfcj]g	, -0	K YXbYgXUm h hcf]U`g`UbX`Vm Uddc]bha Ybh		
?U]fU'NcY'7UbYhY	_"WUbYhY4 i bgk"YXi"Ui	Hi YgXUmh hcf]U` UbX'VmUffUb[Ya Ybh		

GWXcc``7cbHJWhʻ±bZcfa Uh]cb

GWXcc``cZGcWJU``GWJYbWYg

Fcca '%) -

A cfj Yb 6fck b 7 &\$

Ya U]`. 'gcgg4 i bgk "YXi "Ui

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

7ci fgY 8YHJ] g

7 fYX]hDc]bhg**

Gi a a UfmcZh\Y 7ci fgY

@YUfb]b[ci hWca Yg'k]``VY'UXXfYggYX'h\fci [\'@YWhi fYgž'Hi hcf]U`gž'5ggYgga Ybhg'UbX'cbY!cb!cbY7cbgi `hUh]cb'flUhYf']g'j c`i bhUfmz"

- @YWi fYg`UfY`XYg][bYX`Ug`U`glfi Wi fYX`Ybj]fcba Ybhitc`gYhci hUbX`Wcaai b]WUhY`XYhU]`YX`WcfY Wci fgY`WcbhYbhUbX`dfYgYbhX]ZZYfYbhdYfgdYWij Yg`cb`h\Y`Wci fgY`a UhYf]U`"
- Hi hcf]U`g`dfcj]XY`U`Zcfi a `]b`k \]WX`ghi XYbhg`WUb`YI d`cfY`UbX`WXU``Yb[Y`h\Y]f`cd]b]cbg`UbX XYj Y`cd`bYk i bXYfgHUbX]b[g"`

5ggYgga Ybh

5ggYgga YbhHUg_g

5ggYgga Ybh'tUg_	K Y][\h	8iY'8UHY	Gh XYbh@YUfb]b[Ci hWca Yg 5ggYggYX
?Ymi7cbWYdhg`HYghi	(\$1	\$, #\$' #&\$% `\$).\$\$`DA	% <u>#</u>
FYZYW¶jY'YggUm	&\$I	\$%\$(#&\$%-`\$).\$\$`DA	&Ž Ž(
7 f]h]WU``YggUmi	(\$1	&*#\$(#&\$%-`\$).\$\$`DA	%Ž Ž(

5ggYgga Ybh8YHJ]`g

5ggYgga Ybh%?Ym7cbWdhg HYgh

GhUfhXUhY. Bch5dd`]WUV`Y

8 YHU]`g. '5 ggYgga Ybh8 YgWf]dh]cb. '`Ghi XYbhg`k]``i bXYfhU_Y`U`ei]n`cb`A ccX`Y`Ufci bX`_YmWcbWldhg X]gWlggYX`]b`h\Y`Wci fgY"`H\Y`ei]n`Wb`VY`Wca d`YhYX`UhUbmh]a Y`Xi f]b[`U`cbY`k YY_`dYf]cX"`H\Y`ei]n`k]``]bWl XY`a i `hd`Y`W\c]Wl`UbX`g\cfhUbgk Yf`ei Yg]hcbg": YYXVUW_`DfcWlgg. '`Ghi XYbhg`k]``fYWl]j Y`ZYYXVUW_]bgHUbhmUbX`h\fci [\'Ub'UbU`mg]g`cZWc\cfhUbgk Yfg`UbX`fYgi `hg`]b`h\Y`YWhi fY"

Hi fb]hjb gYhjb[. H\]g]g bchU Hi fb]hjb Ugg][ba Ybh

5ggYgga Ybh& FYZYWNjj Y YggUm

GhUfhXUhY. Bch5dd`]WUV`Y

@Yb[h\., \$\$ k cfXg

8 YHJ]`g. '5 ggYgga YbhXYgWf]dh]cb. 'Ghi XYbhg`k]```k f]hY`U`g\cfhfYZYWf]j Y`YggUmf], \$\$`k cfXgŁ'hc`YbUV`Y`YUf`m ZYYXVUW_cb`k f]h]b['UbX`fYgYUfW\`g_]``g"`H\Y`Wc\cfhk]```U```Ubgk Yf`h\Y`gUa Y`ei Yg]hcb'': YYXVUW_dfcWYgg. 'Ghi XYbhg`k]```fYWY]j Y`]bX]j]Xi U``k f]hhYb`ZYYXVUW_ž'U'bi a Yf]WU``[fUXYž'UbX`Wc\cfhiZYYXVUW_i]b `YWfi fYg#i hcf]U`g"`

 $\label{eq:higher} \textbf{Hi fb]hjb'gYhjb[.'H\]g'Ugg][ba Ybh']g'gi Va]hhYX'h\fci [\''Hi fb]hjb'UbX'ghi XYbhg'WUb'gYY'Hi fb]hjb'g]a]`Uf]hm fYdcfhg''$

5ggYgga Ybh' . '7f]h]WU` 'YggUm

GhUfhXUhY. Bch5dd`\WVY

@Yb[h\. %) \$ k cfXg fa UI %) \$\$ k cfXgŁ

8YHJ]`g. `Ghi XYbhg`k]```Uf[i Y`U'dcg]h]cb`]b`U'Wf]h]WU``YggUmcb`U`_Ym]ggi Y`]b`]bhYfbUh]cbU``XYj Y`cda Ybh gi ddcfhYX'VmUWUXYa]WfYUX]b[g`f%\\$\$\$'\c'%\) \$\$`k cfXgŁ'U]a YX'UhXYj Y`cd]b['Wf]h]WU``fYZYWh]cb`UbX Yj]XYbWY!VUgYX'Uf[i a Ybhg'': YYXVUW_DfcVWgg. `Ghi XYbhg`k]```fYWY]j Y`\bi X]j]Xi U``k f]hHYb`ZYYXVUW_Z'U bi a Yf]WU`[fUXYZ'UbX'Wc\cfh\ZYYXVUW_]b``YWhi fY\hi \cf]U`g"H\]g;]g;\h\Y`\Z]bU``UggYgga Ybh]hYa 'Zcf'h\Y'Wci fgY"

Hi fb]hjb gYhjb[. 'H\]g Ugg][ba Ybh]g gi Va]hh/X h\fci [\'Hi fb]hjb UbX gh XYbhg Wbb gYY Hi fb]hjb g]a]`Uf]hm

fYdcfhg"

5 hm/b XUb WY F Yei]fYa Ybhg

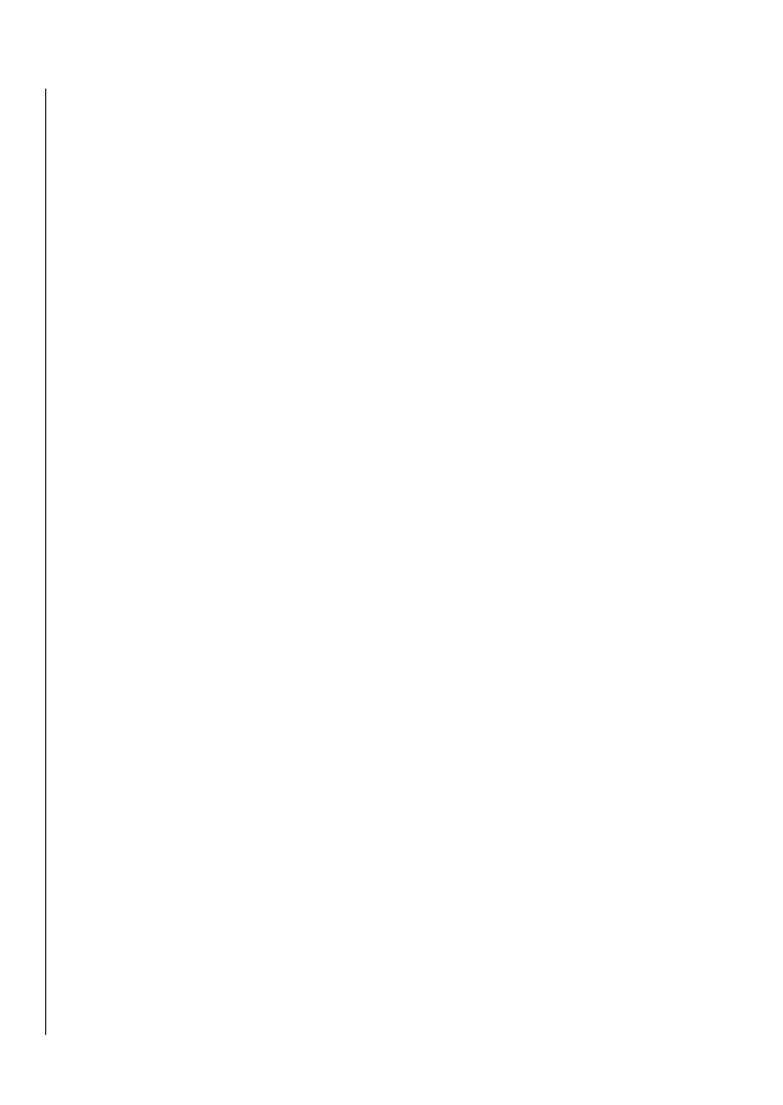
 $\hbox{Ghi XYbhg'UfY'ghfcb[`mYbWci fU[YX'hc'UhhYbX'U```WUggYg'UbX'fYj]Yk ``YWhi fY'fYWcfX]b[g''] }$

7ci fgY'GWXYXi `Y

J]Yk 'WUgg'hja YhUV'Y

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8 UHY	HmdY	7 cbhYbh
K YY_'%'%': YVfi Ufm!'&(: YVfi Ufm		
	!	



FYgci fWfg

DfYgWf]VYX F Ygci fWYg

 $H\g``TcifgY`\Ug`cbY`WcfY`hYI hg`UbX`U`gYWcbXž`\][\\mfYWca a YbXYXž'hYI h''6ch\`UfY`Uj U]`UV`Y`]b`h\YIBGK `6cc_`GhcfYž``]VfUfmUbX`h\Y`Z]fgh]g`U`gc`Uj U]`UV`Y`cb`]bY''`K Y`k]```fYUX`bY]h\Yf`cZh\YgY`Vcc_g`]b h\Y]f`Ybh]fYhmUbX`k]```U`gc`dfcj]XY`ch\Yf`fYUX]b[g`hc`mci `ffci fbU``Ufh]WYgžVcc_X`W\UdhYfgž'V`c[gŁ`hc$

- @YZhk]Wkž5Xf]Ub"%\$\$("K f]hjb['9ggUmg.'Gca Y'; i]XUbWY"'
 \htd.##k k k "mcf "UWi #a YX]U#dc`]hjWg#XcWia Ybhg#Ygci fWrgmcf #YUWX]b[#Ygci fWrg#9ggUm &\$K f]
 hjb[i &\$&\$\$-"dXZ

; YbXYf'8UtU'DcftU`g

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

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

_Zmci YbWci bhYf'U'dfcV`Ya 'k \Yb'UhYa dhJb['hc'gi Va]hmci f'Ugg][ba Ybhh\fci [\ 'Hi fb]hJbž'd`YUgY
hY`Yd\cbY'9| hYfbU``Gi ddcfhcb'-',) '' ' ' %cf'Ya U]`'h\Ya 'cb'Y! 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'fl *) 'XUmg'U'mYUft'' =Zmci
UfY'i bUV`Y'hc'gi Va]hmci f'Ugg][ba YbhXi Y'hc'U'ZUi 'hk]h\'Hi fb]hJb'mci 'a Um'Udd'mZcf'Ub'Y! hYbg]cbžVi hmci
a i ghfYhU]b'mci f'hJW_Yhbi a VYf'Zfca '9! hYfbU``Gi ddcfhfU'cb['k]h\'Ubmch\Yf'fY`Yj UbhXcW a Ybhgt'hc
]bWi XY'Ug'Yj]XYbW'hc'gi ddcfhmci f'Y! hYbg]cb'Udd`]WUhJcb'' =Zmci 'Ya U]`'9! hYfbU``Gi ddcfhmci 'k]``

5 WUXYa]W<cbYghmUbX D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b['h\Y`k cfXg`cf`]XYUg`cZch\Yfg`UbX`dfYgYbh]b['h\Ya `Ug`mci f`ck b"'=hWUb`hU_Y`a Ubm Zcfa gžZfca `XY`]VYfUhY`W\YUh]b['hc`UWW]XYbhU``mWcdm]b['Zfca `U`gci fW'k]h\ci hUW_bck `YX[Ya Ybh'

 $I BGK `[fci dg'd`U[]Uf]ga `]bhc'h\Y'Zc``ck]b[`WUhY[cf]Yg.$

 $7 \text{ cdm}b[...i g]b[...h\Y.gUa Y.cf.j Yfmig]a] \Uf'k cfXg'hc'h\Y.cf][]bU''hYl h'cf']XYU'k]h\ci h'U\V_bck `YX[]b[...h\Y.cf][]bU''hYl h'cf']XYU'k]h'cf']$

- i bXYfgfUbX mci f'f][\hg'UbX'fYgdcbg]V]`]hJYg'Ug'U'gh XYbhUhl BGK
- VY`Uk UfY`cZd`U[]Uf]ga ž`Wcdmf][\hz'l BGK `Gh XYbh7cXY`cZ7cbXi WhUbX`5VWWdhUV`Y`l gY`cZ I BGK `=\forall H`F Ygci f\W\g`Dc`]\m\m
- VY 'Uk UfY 'cZh\Y 'ghUbXUfXg 'cZVY\Uj]ci f'Yl dYWYX 'cZYj YfmcbY ']b 'h\Y 'l BGK 'Wca a i b]hm
- `cWUHY 'gYfj]WYg'UbX `]bZcfa UH]cb'UVci hI BGK 'UbX'I BGK '@]VfUfm

Gca Y'cZh\YgY'UfYUg'k]``VY'ZJa]`]Uf'hc'mci ž'ch\Yfg'k]``VY'bYk"'; U]b]b['U'gc`]X'i bXYfgHJbX]b['cZU``h\YfY`UhYX'UgdYWng'cZ9@+69'k]``\Y`d'mci 'a U_Y'h\Y'a cghicZmci f'ghi X]Yg'UhI BGK "'\\hd.##qi VYWfi |XYg"`]VfUfm'i bqk "YXi "Ui #\`]qY#JVci hY`]qY