



ARTS2630

HYfa YX]UH' >UdUbYgY'5

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

7ci fgY`Cj Yfj]Yk

GHJZZ'7cbHJW`8YHJ]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cW]h]cb	D\cbY
Gi a]c`]XU	g"]XU4 i bgk "YXi "Ui	H65	A cfj Yb`6fck b`&+&	Ž`*%&`-' ,)`'+()

Hi hcfj

B Ua Y	9a U]`	5j U]`UV]`]m	@cW]h]cb	D\cbY
BcVi U_]5_U[]	b"U_U[]4 i bgk "YXi "Ui		A cfj Yb`6fck b`&\$(`	Ž`*%&`-' ,)`'+*'

GWXcc``7cbHJW`bZcfa Uh]cb

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

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

CdYb]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 UfmicZhY'7ci fgY

H\Y'Wci fgY'ZcW'gYg'cb'>UdUbYgY'Wca a i b]WU]cb]b'i ddYf'VY[]bbYfg'Yj Y' h'fci [\X]ZYfYbh'cd]Wg'h'Uh UfY'fY'UH'X'hc'XU]m]Z' " #dfcj]XYg'mci 'k]h'U' [YbYfU' i bXYfgfUbx]b['cZ>UdUbYgY'gYbh'bw'ghf' W' fYz j cWUvi 'Ufm]bW' X]b[(-) ' _Ub'Z'dfU[a Uh]Wg'cZ>UdUbYgY'Wca a i b]WU]cb'hc [Yh'Yf'k]h'ZJa]]Uf]mk]h'U bi a VYf'cZgcW]cW' h' fU']ggi Yg" H\Y'Wci fgY'U]a g'hc'XYj Y'cd'mci f']bZcfa YX' i bXYfgfUbx]b['cZ>UdUbYgY YI dYf]YbW'gZ'W' h' fYzgcW]Yhm]UbX'k cF'X'j]Yk g'Ug'k Y' U'g'Z f'h'Yf'XYj Y'cd'VY[]bbYfgf>UdUbYgY']bh'fUW]j Y g_]`g'UW]Yj YX']b' #h'f'Xi W'c'fm'Yj Y' h'c' UfXg'dfY!]bh'fa YX]UH' 'Yj Y' " #U'gc'U]a g'hc'dfYdUfY'mci 'hc'VY'Wca Y' Wca dYh'bh'Wca a i b]WU]cb]b'>UdUbYgY']b'j Uf]ci g']bZcfa U'UbX'Zcfa U'Wc'bh'Y' h'g"

7ci fgY'@YUfb]b['Ci hWca Yg

% "8YgW]VY'UbX'bUffUH'Yj YbHg'ci hcZcbYfg'YI dYf]YbW'Z'UbX'YI dfYgg'h'ci [\h'g'cb'h'Y'Yj YbHg'i g]b[Wca d'YI 'gYbh'bw'ghf' W' fY']b'>UdUbYgY
&" DYfZcfa 'cfU'UbX'k f]h'Y'b'g_]`g [U]bYX']b' h'Y'Wci fgY
' " #Ybh]Zm]UbX'Yj U' i UH' 'dfcV'Ya g']b'ck b'cfU'UbX'k f]h'Y'b'k cf_
("5dd'm'_bck 'YX[Y'cZ>UdUb'UbX'f'>UdUbYgY'Ub[i U[Y'UbX'>UdUbYgY'Wca a i b]WU]cb'g_]`g h'fci [\d'Ufh]WdU]cb]b'ZUW'!hc!ZUW'UbX'cb]b'Y'UW]j]h'Yg'UbX'Yj YbHg
)" GY'YW]UbX' i gY'Udd'f'cf]UH' _Ub'Z'dfU' X]b[(-) 'bYk' _Ub'Z'UbX'_UbU']b'fYUX]b['UbX'k f]h]b[>UdUbYgY

HYUW]b['GhfUH' []Yg'

H\Y'h'fY'Y' \ci f'Y'W' fY']g'X]j]XYX']b'hc' h'c' d'Uf'hg' " #h'Y'Z'fgh'Y'W' fY'Z'gh' XYbh'g'k]' "YUfb'gcW]U'UbX'W' h' fU']ggi Yg'fY'UH'X'hc' h'Y'hc'd]WcZ'h'Y'k YY'_Z'Z'`ck YX'Vm'YI d'UbU]cbg#]gW'gg]cbg'UbX'gca Y']bh'fUW]j Y dfUW]W'g'cZ'bYk [fUa a Uh]WU'ghf' W' fYg' #I dfYgg]cbg' " #h'Y'gY'Wc'X'Y'W' fY'Z'gh' XYbh'g'k]' "Yb[U[Y']b fYUX]b['UbX'k f]h]b['UW]j]h'Yg']bW' X]b['YUfb]b['bYk' _Ub'Z'UbX'\UbXg]cb'YI YfW]gYg'h'UhUfY'YggYbh]U'hc h'Y'hc'd]WcZ'h'Y'k YY'_ "H\Y'Y'W' fY']g'fY[i 'Uf'mj]g]h'Y'X'Vm'gYb]cf'gh' XYbh'g'k \ca' gh' XYbh'g'WU]b']bh'fUW]k]h' UbX' [U]b'gi ddc'f' "H\Y'Y'W' fY']g'XY']j YfYX'a U]b'm]b'9b[]g\k]h' >UdUbYgY' #9b[]g\g'XYg']b'cfXYf'Zc'f gh' XYbh'g'hc'Z' "mi bXYfgfUbx'h'Y'Wc'bh'bh'cZ'h'Y'k YY'_ "Hi' hc'f]U'g'dfcj]XY'gh' XYbh'g'k]h'YI d']W]hdfUW]W'cZ]bh'fUW]cb]b'>UdUbYgY'k \YfY'h'Y'mdi h'hc' i gY'h'Y' _bck 'YX[Y' [U]bYX'Z'ca 'Y'W' fYg']b'hc'dfUW]W' h'fci [\U bi a VYf'cZYI YfW]gYgZ'h'Yb'Udd'mk \Uh'h'Ym\Uj Y'YUfb'hc'fYU'Wca a i b]WU]cb'k]h' h'YUW]Yf'UbX'dYf'g"

Hi' hc'f]U'g'UfY'XY']j YfYX']b'>UdUbYgY'hc'XYj Y'cd'gh' XYbh'g']gh'Yb]b['g_]`g'UbX'YbWci fU[Y'h'Ya'hc Wca a i b]WU]cb]b'>UdUbYgY'K \]Y'gY'h]b['h'Y'UVcj Y'ZUW'!hc!ZUW'WUggYgZ'h'Y'Wci fgY'UW]j Y'mi gYg @YUfb]b['A UbU[Ya Ybh'Gmg]h'Ya' f'@A G'hc'dfcj]XY'gh' XYbh'g'k]h' "YUfb]b['fYgci fW'gZ'UggYgga Ybh'g'Ug'k Y' U'g'U'YUfb]b['Wca a i b]m]k]h'c'h'Yf'gh' XYbh'g'UbX'h'UW]Yfg'h'fci [\h'Y'g'Uf]b['cZYI dYf]YbW'g'UbX]bZcfa U]cb'fY[UfX]b[' >UdUbYgY'Ub[i U[Yz'W' h' fY'UbX'gcW]Yhm'G'h' XYbh'g'UfY'U'gc'YbWci fU[YX'hc'Yb[U[Y]b'>UdUbYgY'Ub[i U[Y'UbX'>UdUb]fY'UH'X'UW]j]h'Yg'ci hg]XY'cZ'WUgg'hc'Z' f'h'Yf'XYj Y'cd'h'Y]f g_]`gZ'_bck 'YX[Y'UbX'YI dYf]YbW'cZ>UdUbYgY'Wca a i b]WU]cb"

H\Y'Wci fgY' i gYg' ; Yb_]`&'Ug'U' h'Y' h'cc_' "H\Y'Z'fgh]j' W'Ud'h'fg'W'c'j Yfg'h'Y'Z'`ck]b['hc'd]Wg.

% "DUfh]h'a Y'k cf_

&" ;]Zif7 \Udh'f'&L

' "'HfUj Y`'f7 \UdhYf' ȷ

("'cghdfcdYfmif7 \UdhYf'(ȷ

)"'F i a ci f'UbX'A cUb]b['f7 \UdhYf') ȷ

*"'I b]j Yfg]mi@]Z' f7 \UdhYf'*ȷ

5ggYgga Ybh

5ggYgga YbhHUg_g

5ggYgga YbhHUg_	K Y][\ h	8i Y'8UH	Gh XYbh@YUfb]b[Ci hWta Yg'5ggYggYX
7`Ugg'hYghg'	()	HYgh%'b'K ' žHYgh&]'b'K +ž UbX'HYgh' ']b'K %\$	%ž&ž' ž)
GY`ZgY`YWHX`YUfb]b[UW]j]hYg'	&\$	K]h]b'k c`XUmg`UZf'kY Wta d`Yh]cb'cZYUW`UW]j]m'	%ž&ž' ž(
9I Ua `	')	8i f]b[`hY`YI Ua `dYf]cX	%ž&ž' ž(ž)

5ggYgga Ybh8YHU]`g

5ggYgga Ybh%`7`Ugg'hYghg'

GHUfhXUH. Bch5dd]WVY

@Yb[h. %) 'a]bg`Zcf'HYgh%ž&\$'a]bg`Zcf'HYgh&žUbX'%\$'a]bi hYg`Zcf'HYgh' 'f[i]XUbW`cb`nt

8YHU]`g.

Gh XYbhg`Wta d`Yh' " | 'i d'hc`&\$'a]bg'hYghg'hc`UggYgg'hY]f`Wta a i b]WU]cb'g_]`g"

Gh XYbhg`fYW]j Y`U'a Uf`UbX`ZYXVUW`" &X]j]Xi U`Wcbgi `h]cb']g`Uj U]UV`Y`Zcf`Z`f`hYf`ZYXVUW`

5XX]h]cbU`XYHU]`g.

6fYU_Xck b'cZkY`k Y][\h]b[.

HYgh%f%\$| Ł

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5ggYgga Ybh&. GY`ZgY`YWHX`YUfb]b[`UW]j]hYg'

GHUfhXUH. K YY`%

@Yb[h. `8YdYbX]b[`cb'hY`UW]j]m'`F YUX`hY`XcW`a Ybhcb`A`ccX`Y

8YHU]`g.

Gh XYbhg`gY`YWH`YUfb]b[`UW]j]hYg`Zca `U`]ghcZdfYgW]VYX`UW]j]hYg`di h]bhc`dfUW]W`UbX`k`f]h`U`fYdcfh]b >UdUbYgY`cb`@A`G"

H`Y`fYdcfh]g`UggYggYX`Vm`h`Y`]bg`fi`W`c`f`cb`]hg`UW]j]Y`Ya`Ybhcb`Z`h`Y`gh`U`h`X`UW]j]m]U]a`g`UbX`Zi`Yb`W`h`c`Z >UdUbYgY`ž`i`g]b[`U`fi`Vf]W`H`Y`fi`Vf]W]g`UW]j]gg]V`Y`Vm`h`Y`gh`XYbhg"

Gi Va]gg]cb`bchYg. F Ydcf#ec[`frc[YhYf`k]h`Yj]XYbW`k \YfY`fYei]fYXl`cb`A ccX`Y`Zcf`U`UW]j]hYg"

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

5ggYgga Ybh' .`9I Ua

@Yb[h. `&`\ci fg

8YhU]`g.

Gh XYb]g`Wca d`Yh`U`&`\ci f`YI Ua]bU]cb`]b`hY`Zcfa U`YI Ua]bU]cb`dYf]cX`k]h`a i`h`d`Y`Wlc]W`ei Ygh]cbg
UbX`g\cfhlc`cb[`Ubgk Yf`ei Ygh]cbg"

Gh XYb]g`fYW]j Y`U`a Uf`_`UbX`W]b`Wcbgi`hk]h`hY`YWh`fY`Zcf`Z`fhYf`ZYXVUW`"H\]g`]g`hY`Z]bU`
UggYgga YbhZcf`UhhYbXUbVW`di fdcgY"

5XX]h]cbU`XYhU]`g.

8c`bchia U`_`Y`Ubmi]Uj Y`UffUb[Ya Ybhi bh]`hY`YI Ua `XUhY`]g`fY`YUgYX"

		F Yj JgY`K %d) `Wc`bhY`bHg`UbX`VY`fYUXmZc`f`h`Y`WUgg`hY`gh]b`K`YY`_`+`"
	Dfc`YWh`	F Yj JgY`mci`f`Dfc`YWh`Dc`f`h`Z`c`]c`UW]j`J]Yg` fl` !<Uj`Y`mci`VYY`b`k`cf`_]b[`fY[`i`Uf`mB` !8c`mci`Uj`Y`Ybci`[`h`UW]j`J]Yg3` !<Uj`Y`mci`UXX`YX`U`fY`dc`f`g`#`c[`g`c`b`A`cc`X`Y3`
K`YY`_`+`,`&`-`A`Uf`W`!`&`5df]`	@YWh`fY`	@YWh`fY`%`7`Ugg`HY`gh`&/`7`UdhY`f`%`*/7`i`h`fY`z` ;`fUa`a`Uf`UbX`DfUW]W`" @YWh`fY`&`7`UdhY`f`%`Wc`bh]`bi`Yg`"fBi`Y`h`c`di`V`]W` \\c`]XUmcb`b`f]XUmz`h`Y`fY`k`]VY`bc`]j`Y`YWh`fY`" "H`Y`fY`Wc`fY`X`YWh`fY`k`]VY`fY`YUgY`X`cb`A`cc`X`Y`E`
	Hi`hcf]U`	DfUW]W`]b`hY`fUW]cb`k`J]h`WUgga`UH`Yg`"
K`YY`_`,`.)`5df]`!`-`5df]`	@YWh`fY`	@YWh`fY`%`7`UdhY`f`%`+/7`i`h`fY`z`;`fUa`a`Uf`/ DfUW]W`"fBi`Y`h`c`di`V`]W\\c`]XUmcb`A`cb`XUmz`h`Y`fY` k`]VY`bc`]j`Y`YWh`fY`" "H`Y`fY`Wc`fY`X`YWh`fY`k`]VY`fY`YUgY`X`cb`A`cc`X`Y`E` @YWh`fY`&`7`UdhY`f`%`Wc`bh]`bi`Yg`"
	Hi`hcf]U`	DfUW]W`]b`hY`fUW]cb`k`J]h`WUgga`UH`Yg`"
	Dfc`YWh`	f]f`Ygci`fW`G`UfY`fUW]j`J]m]g`Xi`Y`h`Jg`f]XUm(`da` cb`5df]`-`J]Zmci`W`XcgY`h`Y`UW]j`J]m]
K`YY`_`,`.`%&`5df]`!`%*`5df]`	@YWh`fY`	@YWh`fY`%`7`UdhY`f`%`Wc`bh]`bi`Yg`" @YWh`fY`&`7`UdhY`f`%`f]i`b]j`Yfg]m]@]Z]f]i`7`i`h`fY`z` ;`fUa`a`Uf`UbX`DfUW]W`"
	Hi`hcf]U`	DfUW]W`]b`hY`fUW]cb`k`J]h`WUgga`UH`Yg`"
K`YY`_`,`%\$`,`%`5df]`!`&`5df]`	@YWh`fY`	@YWh`fY`%`7`UdhY`f`%`Wc`bh]`bi`Yg`" @YWh`fY`&`7`UdhY`f`%`Wc`bh]`bi`Yg`"
	Hi`hcf]U`	7`Ugg`HY`gh`].`b`hY`fUW]cb`HY`gh`"
	Dfc`YWh`	5`d`f`c`Y`W`h`d`c`f`h`Z`c`]c`f`Y`d`c`f`g`z`c`[`g`U`b`X`c`h`Y`f` X`c`W`a`Y`b`h`g`h`c`V`Y`d`c`g`h`Y`X`V`m`(`d`a`c`b`b`f]XUmz`5df]`&`" G`i`V`a`J]g]c`b`h`c`k`]VY`W`c`a`Y`]b]j]g]V`Y`U`Z`Y`f`h`J]g`Xi`Y`z` U`b`X`U`b`m`g`i`V`a`J]g]c`b`U`Z`Y`f`h`Y`X`i`Y`V`m`i`Y`a`U`]c`f`Y`a`U`]` U`h`U`W`X`a`Y`b`h`k`]V`b`c`h`V`Y`U`V`W`d`h`Y`X`"

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

; Yb_]`=HYI hVcc_`H\]fX`9X]h]cb
; Yb_]`=K cf_Vcc_`H\]fX`9X]h]cb

7 ci fgY`bchYg`UbX`chYf`YUfb]b[`XcW`a YbHg`UFY`cb`A ccX`Y"

F YWca a YbXYX`F Ygci fWg

GYY`7 ci fgY`BchYg`cb`A ccX`Y

7 ci fgY`9j U`i Uh]cb`UbX`8Yj Y`cda Ybh

: cfa U`ZYXVUW_`Zca`ghi XYbHg`k]`VY`Wc`YWYX`j]U`a m9I dYf]YbWZ`UbX`k]`VY`i gYX`hc`]a dfcj Y`Z hi fY
]hYfUh]cbg`cZh]g`Wci fgY" `Zcfa U`fYU`!h]a Y`ZYXVUW_`]g`U`gc`j Yfmk Y`Wca Y`Y]hYf`]b`dYfgcb`cf`h]fci [\ `U
A ccX`Y`Zcfi a`Zcfgi [[Ygh]cb`UbX`Wca a YbHg"

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 YbhiH'fci [\ 'Hi fb]h]bž'd'YUgY
HY'Yd\cbY'9I HYfbU'Gi ddcfhcb'-',) "' ' ' %cf'Ya U]'H'Ya 'cb'YI HYfbU'HY'f'gi 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'm'YUfI" Ʒmci
UfY'i bUV'Y'hc'gi Va]hmc i f'Ugg][ba YbhiXi Y'hc'U'Zi 'hk]H'Hi fb]h]b'mci 'a UmUdd'm'Zcf'Ub'YI HYbg]cbž'Vi hmc i
a i ghfYHU]b'mci f'h]W_Yhbi a VYf'Z'ca '9I HYfbU'Gi ddcfhfU'cb['k]H'UbmcH'Yf'f'Yj UbhXcW a Yb'f'g'hc
]bWi XY'Ug'Yj]XYbVW'hc'gi ddcfhmc i f'YI HYbg]cb'Udd']W]h]cb" Ʒmci 'Ya U]'9I HYfbU'Gi ddcfhmc i 'k]
Ui 'ca UH]W]m'f'YW]j Y'U'h]W_Yhbi a VYfž'Vi h]Zmci 'HY'Yd\cbY'mci 'k]'b'Y'X'hc'gd'Y'W]W]m'Ug_'Zcf'cbY"
Hi fb]h]b'U'gc'dfcj]XYg'i dXUH'g'cb'H'Y]f'gm'g'Ya 'g'U'hi'g'cb'Hk]H'Yf"

; YbYfU'mž'UggYgga YbhiHUg_g'a i ghVY'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 ccX'Y
Ugg][ba Yb'f' Ʒ]bg'f'Ub'VW'g'k \Yf'Y'h'g]g'bc'hd'cgg]V'Yž'hk]'VY'g'f'U'Y'X'cb'mci f'W'ci fg'Y'g'A ccX'Y'g]H'k]H
U'HY'fbUH] Y'gi Va]gg]cb'XYHU]g"

: cf]bZ'fa UH]cb'cb'\ck 'hc'gi Va]h]Ugg][ba Yb'f'g'cb]b'Y'j]U'A ccX'Y. \h'hd'g.#g'h XYb'f'hi bgk "YXi "Ui #ck!
gi Va]h]Ugg][ba Yb'f'ha 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
-

