



ARTS3664

? cfYUb`HfUbg`Uh]cb

HYfa`H\fYY`##`&\$%-

7ci fgY`Cj Yfj JYk

`GHUZZ7cbhUW`i8YHUJ`g`

`7cbj Ybcfg`

B Ua Y	9a Uj`	5j Uj`UVj`]m	@cWUj`cb	D\cbY
GYcb[!7\i`G\]b	g"g\]b4 i bgk "YXi "Ui	A cbXUmg`&!` / : f]XUmg`&!(`cf`Vm Uddc]bra Ybh	A 6&*`&	f\$&Ł -` ,) !` +&(`

`@YW`i fYfg`

B Ua Y	9a Uj`	5j Uj`UVj`]m	@cWUj`cb	D\cbY
GYcb[!7\i`G\]b	g"g\]b4 i bgk "YXi "Ui	A cbXUmg`&!` ž : f]XUmg`&!(`cf`Vm Uddc]bra Ybh	A 6&*`&	f\$&Ł -` ,) !` +&(`

`Hi hcfj`

B Ua Y	9a Uj`	5j Uj`UVj`]m	@cWUj`cb	D\cbY
>cc`M b`fF cgUŁ Mj`b[ĉc"nUj`b[4 i bgk "YXi "Ui	H65	A 6&*` ,	H65

GW\cc`7cbhUW`i`bZcfa Uh]cb

GW\cc`cZ<i a Ub]hYg`UbX`@Jb[i U[Yg

@cWUj`cb. `GW\cc`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 Uj`. [\U`4 i bgk "YXi "Ui](#)

7ci fgY'8YHJ`g

7fYX]hDc]bHg`*`

Gi a a UfmicZ\hY'7ci fgY

Gi VYWh5fYU.`=adMS` E fgV[Wé

H\]g`Wci fgY`dfcj]XYg`U`dUfU!dfcZYgg]cbU`Yj`Y`fUbg`Uh]cb`dfc[fUa`]b`? cfYUb`Zca`U`hJg_!VUgYX
UddfcUW`"H\Y`df]a Ufma`YX]i`a`cZ]bg]fi`W]cb`]g`? cfYUb`UbX`9b[]g\`H\Y`Wci fgY`]b]fcXi`Wg`fUbg`Uh]cb
hYcf]Yg`UbX`dfUW]W]g`]b`? cfYUb`žYI`Ua`]bYg`hYVX]b]ei`Yg`Zcf`UbU`mg]b[]UbX`fYbXYf]b[]hYI`hg`cZX]ZYfYbh
ghmYg`UbX`Wca`d`YI`]mž`UbX`UXXfYggYg`Wfcgg!`]b[i`]gh]WUbX`Wfcgg!`W`h`fU`dfcV`Ya`g`fY`Yj`Ub]h`c
dfcZYgg]cbU`fUbg`Uh]cbž]bWi`X]b[]YI`]W]#`fUa`a`Uh]W]`dfcV`Ya`g`UbX`Yh`]W]`]a`d`]W]h]cbg`"H\Y`ZcW`g`cZ`h`Y
Wci fgY`]g`h`c`i`d[fUXY`mci`f`g_]`g`cZ`fUbg`Uh]b[]9b[]g\`]b]c`? cfYUb`UbX`U`m]b[]Zci`bXU]cbg`Zcf`dfcZYgg]cbU`
fUbg`Uh]cb`"Mci`k`]`VY`YI`dcgYX`h`c`U`fU]b[Y`cZU`i`h`Y`b]h]W]hYI`hg`UbX`U`j`Uf]Y`hmicZ`h`d]W]g`]bWi`X]b[]gcW]c!
W`h`fU`žYXi`W]h]cbU`žWca`a`YfW]U`UbX`dc`]h]W]`h`h`Ya`Yg`"

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

%`7`cbj`Yfh`Wca`d`YI`k`f]hYb`gci`fW`hYI`hg`]b`9b[]g\`]b]c`? cfYUb`žWca`bj`Ym]b[]XYhU]YX`]bZc`fa`Uh]cb
Zi`Yb]h]mž`U\$` %o` " `mž`U\$` %o`

5ggYgga Ybh

5ggYgga YbhHUg_g`

5ggYgga YbhHUg_	K Y][\h	8i Y'8UH	Gh XYbh@YUfb]b[Ci hWta Yg'5ggYggYX
HfUbg`Uh]cb`HYghg`	* \$i	% #/\$#&\$%- `&da / %) #/##&\$%- `&da	%z&Z
J cWUvi `Ufm6Ub_`	%) i	&) #/##&\$%- `%&.\$\$.DA	&
<ca Yk cf_`5gg][ba Ybhg`	&) i	K YY_g`&!) /+!- `%"\$Ua "	%z&

5ggYgga Ybh8YHU]`g

5ggYgga Ybh%`HfUbg`Uh]cb`HYghg`

GhUfhXUH. % #/\$#&\$%- `%&.\$\$.DA

@Yb[h. `Uddfcl "" \$\$.k cfXg YUW

8YHU]`g. `Hk c`hYghg`cZW" `cbY` \ci f`YUW `fi \$i `YUW`E`Xi f]b[`gdYW]ZYX`WUggYg" `9UW `Wcbg]ghg`cZ
 hfUbg`Uh]cb`UbX`Yh]Wg`Wta`dcbYbhg" `K f]hYb`Wta`a`Ybhg`k`j`VY`dfcj`]XYX" `H\Y`gYWcbX`hYgh]g`h\Y`ZbU`
 UggYgga`YbhZc`f`UhhYbXUbVW`di`fdcgYg"

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

9UW `hYgh]bW`XYg`%&`Yh]Wg`ei`Ygh]cbgZ`gYYb`hYi`hg`UbX`i`bgYYb`hYi`hg"

Gi Va]gg]cb`bchYg.Mci `a`i`ghgi`Va`]hnci`f`hYghdUdYfg`Xi`f]b[`h\Y`h`hc]U`h]a`Yg`cb`h\Y`XYg][`bUH`X`XUH`g`
]b`K`YY_g`) `UbX`%\$"

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

5ggYgga Ybh&.`J cWUvi `Ufm6Ub_`

GhUfhXUH. `&`#-\$-`#&\$%-`\$-`.\$\$.5A

@Yb[h. `a`]b]a`i`a`cZ%\$\$`k`cfXg`#I`dfYgg]cbg

8YHU]`g. `Mci`g`lci`X`Vi`]X`i`d`mci`f`ck`b`j`cWUvi`UfmVUb_`Wcb]b]b[`U`a`]b]a`i`a`cZ%\$\$`
 k`cfXg`#I`dfYgg]cbgZ`XYZ]b]h]cbg`UbX`Yi`Ua`d`Yg`cb`U`h\Ya`Uh]WUfYU`cZmci`f`Wc]W`Zca`Ua`cb[`h\Y`Wci`fgY`
 h\Ya`Yg" `Mci`k`j`fYW]j`Y`k`f]hYb`Wta`a`Ybhg"

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

D`YUgY`fYZf`hc`A`ccX`Y`Zc`f`a`cfY`]bZcfa`Uh]cb`cb`h\Y`J`cWUvi`Ufm6Ub_`dfc`YVW`

Gi Va]gg]cb`bchYg.Mci `a`i`ghgi`Va`]h`h\Y`ci`hWta`Y`cZmci`f`j`cWUvi`UfmVUb_`dfc`YVW]b`d`Yfgcb`hc`h\Y`
 `YVW`fYff]cZ]W`UhA`6*&`Vmi`h\Y`Xi`Y`XUH`UbX`h]a`Y"

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

5ggYgga Ybh' . '<ca Yk cf_ '5gg][ba Ybhg

GHUfhXUHY . '& #&- #&\$%- '%\$. \$\$ '5A

@Yb[h\ . '+\$'k cfXg'l '+

8YHU]`g. 'K YY_`mUgg][ba Ybhg Zc'f'fUbg'Uh'cb'dfUW]W'" HfUbg'Uh]b['hYb'9b[`]g\`gci fW`hYI hg]b'hc '? cfYUbz
YUW'k]h'Uddfcl]a UHY'mi+'\$'k cfXg'"H\Y'9b[`]g\`hYI hg'UfY'a UXY'Uj U]'UV'Y'cb'h\Y'@A G'Uhh\Y'VY[]bb]b['cZ
hYfa "'HfUbg'Uh]cbg'a i ghVY'gi Va]hYX'k YY_`m]b'WUgg'Uhh\Y'VY[]bb]b['cZh\Y'fY'Yj Ubh'YW]i fYg'"Gdc_Yb
UbX'k f]hYb'ZYXVUW_"

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

D`YUgY'bc'hY'h\Uhh\Y'bi a VYf'cZ\ca Yk cf_ 'Ugg][ba Ybhg \Ug'VYYb'UX↑ ghYX'Zca 'hYb'hc'gYj Yb"' : cf'a cfY
]bZcfa Uh]cb'cb'h\Y'fUbg'Uh]cb'\ca Yk cf_ 'd`YUgY'fYZf'hc'A ccX'Y#@A G"

Gi Va]gg]cb'bc'hYg.9UW' \ca Yk cf_ 'Ugg][ba Ybh'a i ghVY'gi Va]hYX'hc'h\Y'YW]i fYf'VYZc'fY'h\Y'YW]i fY']b
h\Y'WUggfcca "

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

5 HbXUbW F Yei JfYa Ybhg

5 HbXUbW cZ@YWi fYg#Hi hcfJU'g'g'a UbXUhcfm]b'h]g'Wci fgy"l bYl W gYX'UVgYbW'Zfca 'a cfY'hUb'&\$i cZ@YWi fYg#Hi hcfJU'g'k]'fYgi 'h]b'hY'Uk UfX'U'ZU]'[fUXY" b @YWi fY#Hi hcfJU'g'mci 'k]'UW]j Y'mYb[U[Y k]h'WcfY'Wci fgy'WcbhYbZ'YbUV']b['mci 'hc'UhtU]b'7 @C '%z&'UbX" "

7 ci fgY'GWYXi `Y

[J Jk WUgg'Ha YHUVY](#)

Hja YHUVY`

8UH	HmdY	7cbhYbh
K YY_% '%* 'GYdhYa VYf! &\$ 'GYdhYa VYf	@YWi fY	hfcXi W]cb'!HfUbg'Uh]cb'hmdYg'UbX'i bUWVdHUVY hfUbg'Uh]cb'"9h]Wg"
	Hi hcfJU'	HfUbg'Uh]cb'dfUW]W'%'YHfYfg'Z'YHfYfg'cZ]bfcXi W]cb'
K YY_& '&' 'GYdhYa VYf! &+ 'GYdhYa VYf	@YWi fY	9ei]j UYbW'%'K cfX/ 'UVcj Y'k cfX Yei]j UYbW'"9h]Wg"'<ca Yk cf_'%hc'gi Va]h'
	Hi hcfJU'	HfUbg'Uh]cb'dfUW]W'&'7ca a i b]m]bZfa Uh]cb
K YY_'.' '\$GYdhYa VYf! ('C WcVYf	@YWi fY	9ei]j UYbW'&.'; fUa a Uh]W'Yei]j UYbW" <ca Yk cf_&'hc'gi Va]h'
	Hi hcfJU'	HfUbg'Uh]cb'dfUW]W'.'5Xj Yfh]gYa Ybhg
K YY_(.'+'C WcVYf!'%' C WcVYf	@YWi fY	9ei]j UYbW'.'HYl hi U'Yei]j UYbW'"<ca Yk cf_' hc'gi Va]h'
	Hi hcfJU'	HfUbg'Uh]cb'dfUW]W'(. 'Fi 'Yg'UbX'fY[i 'Uh]cbg
K YY_).'%('C WcVYf!'%' C WcVYf	@YWi fY	F Yj]g]cb'%'<ca Yk cf_('hc'gi Va]h'
	Hi hcfJU'	HfUbg'Uh]cb'hYgh%
K YY_*.'&%C WcVYf!'&) C WcVYf	@YWi fY	Bc'YWi fY'k YY_'
	Hi hcfJU'	Bc'h hcfJU'k YY_'
K YY_+'.&' 'C WcVYf!'%' Bcj Ya VYf	@YWi fY	HfUbg'Uh]cb'h'W]b]ei Yg'"9h]Wg"'<ca Yk cf_) 'hc gi Va]h
	Hi hcfJU'	HfUbg'Uh]cb'dfUW]W') .'; cj Yfba YbhdUa d\Yhg
K YY_,'.('Bcj Ya VYf!', Bcj Ya VYf	@YWi fY	HfUbg']h'fUh]cbZ'fca Ub]gUh]cb'"9h]Wg"'<ca Yk cf_'* hc'gi Va]h'
	Hi hcfJU'	HfUbg'Uh]cb'dfUW]W'*.'BYk g'UbX'fYdcfHg
K YY_-'.'%Bcj Ya VYf!) 'Bcj Ya VYf	@YWi fY	7 fcgg!W 'hi fU']ggi Yg'UbX'UWVYX]h]cb'"<ca Yk cf_ +'hc'gi Va]h'
	Hi hcfJU'	HfUbg'Uh]cb'hYgh&
K YY_%.%UBcj Ya VYf! &&'Bcj Ya VYf	@YWi fY	F Yj]g]cb'&'9h]Wg'ei Ygh]cbg'
	Hi hcfJU'	HfUbg'Uh]cb'dfUW]W'+.'@YWi fYg'gdYYWYg'UbX YggUmg'fU'h'fbUh]j Y'mi, %o %o

FYgci fWg

DfYgWfjVYX F Ygci fWg

⊖!<ci gY'gh XmdUW_ltc`VY`dfcj jYX`VmhY`@YWh fyf`UbX`Uj Uj`UV`Y`cb`hY`I BGK `A ccX`Y`#@A G"

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

Hi fb]hb`Gi Va]gg]cb

≠mci`YbWci bhYf`U`dfcV`Ya`k`Yb`U`hYa`dh]b[`hc`gi Va`]hmcif`Ugg][`ba`Ybh`h`fci`[\`Hi`fb]hbzd`YUgY
hY`Yd\cbY`9I`hYfbU`Gi`ddcfhcb`-`,`)`''`%cf`Ya`U]`hYa`c`%YI`hYfbU`hY`hgi`ddcfh`i`bgk`"YXi`"U%`bE

5 WUXYa]W<c bYghmUbX`D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b[`hY`k cfXg`cf]XYUg`cZchYfg`UbX`dfYgYbh]b[`hYa `Ug`mci f`ck b" `hWUb`hU`Y`a Ubm
Zcfa gž`Zca `XY`]VYfUHY`WXYU]b[`hc`UWV]XYbhU`mW`dm]b[`Zca `U`gci fW`k]h`ci hUW_bck`YX[Ya Ybh`

I BGK `[fci dg`d`U[]Uf]ga `]bhc`hY`Zc`ck]b[`WUHY[cf]Yg.

7 cdm]b[.`i g]b[`hY`gUa Y`cf`j Yfmg]a]Uf`k cfXg`hc`hY`cf][]bU`hYI hcf]XYU`k]h`ci hUW_bck`YX[]b[`hY`
gci fW`cf`i g]b[`ei chU]cb`a Uf_g" `H\]g`U`gc`Udd`]Yg`hc`]a U[Ygž`UfhUbX`XYg][b`dfc`YWgž`Ug`k Y`Ug
dfYgYbhU]cbg`k \YfY`gca YcbY`dfYgYbh]g`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hW`YX]h`

hUddfcdf]UHY`dUfUd`fUg]b[.`7`U`b[]b[`U`ZYk `k cfXg`UbX`d`fUgYg`k \]Y`a cghmifYU]b]b[`hY`cf][]bU`
ghfi W`i fY`UbX`#`f`dfc[fYgg]cb`cZ]XYUg`cZ`hY`cf][]bU`ž`UbX`]bZcfa U]cb`k]h`ci hUW_bck`YX[Ya Ybh`H\]g`U`gc
Udd`]Yg`]b`dfYgYbhU]cbg`k \YfY`gca YcbY`dUfUd`fUgYg`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hW`YX]h`UbX`hc
d]YW]b[`hc[YhYf`ei chYg`UbX`dUfUd`fUgYg`]bhc`U`bYk `k \c`Yž`k]h`ci hUddfcdf]UHY`fYZYfYbW]b["

7 c`i g]cb.`k cf_]b[`k]h`chYfg`Vi hdUgg]b[`cZ`hY`k cf_]Ug`U`dYfgcb`g`]bX]j]Xi U`k cf_]7 c`i g]cb`U`gc
]bWi XYg`dfcj]X]b[`mci f`k cf_]hc`UbchYf`gh`XYbhVYZc`fY`hY`Xi Y`XUHYž`cf`Zc`f`hY`di fdcgY`cZ`hY`a

- i bXYfghUbx'mci f'f][\hg'UbX'fYgdcbg]V]h]Yg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[]Uf]ga ž'Wcdmf][\hž' BGK 'Gh XYbh7cXY'cZ7cbXi W'Ubx'5Ww'dhUV'Y'I gY'cZ I BGK '⇒H'F Ygci fW'g'Dc`]Wm
- VY'Uk UfY'cZh'Y'ghUbxUfXg'cZVY\Uj]ci f'YI dYW'X'cZYj Yfmcby`]b'h'Y'I BGK 'Wca a i b]m
- `cWJh'gYfj]Wg'UbX'j]bZcfa Uh]cb'UVci hl 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 bXYfghUbx]b['cZU`h'Y fY'UH'X'UgdYW'g'cZ9@G9'k]`Y'd'mci 'a U_Y'h'Y'a cghcZmci f'gh X]Yg'Uhl BGK ""

[\hd. #gj V'YWf i \]XYg" \]VfUfm'i bgk "YXi "Ui #` \]gY#JVci h' \]gY](#)

5 WUXYa]WbZcfa Uh]cb`

: cf`YggYbh]U`ghi XYbh]bZcfa Uh]cb`fY`Uh]b[`rc.

- fYei Ygh]Zc`fYI h`bg]cb/
- `Uh]`gi Va]gg]cbg`[i]XY`]bYg/
- fYj]Yk `cZa Uf_g/
- I BGK `<YU`h`UbX`GUZY`midc`]WYg/

