



ARTS2127

; fYUh'D`Umg

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

7ci fgY`Cj Yfj]Yk

`GHUZZ7cbhUW`i8YHU]`g`

`7cbj Ybcfg`

B Ua Y	9a U]	5j U]UV]]m	@cWU]hcb	D\cbY
A Y[`A i a ZcfX	a "a i a ZcfX4 i bgk "YXi "Ui	K YXbYgXUm' !) da	@Yj Y`%F cVYfh K YVghYf'6`X[ž F cca `%%&	- ' ,) `(, *)

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Fcca " %&ž`Yj Y`" `F cVYfhK YVghYf'6i]X]b[

D\cbY. f\$&Ł- ' ,) `(,) *

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

K YVg]hY. [\hfdg.#gUa "Ufmg"i bgk "YXi "Ui](#)

H\Y`GWXcc`cZhY`5fmg`UbX`A YX]U`k ci `X`_]Y`h`F YgdYWZ`m5W_bck`YX[Y`hY`HfUX]h]cbU`7i`g]hX]Ubgž`hY`6YXY[U`fP`Ybg]b[hcb`WUa`di`gŁž; UX][U`f7]mUbX`5fhi`8Yg][b`7 Ua`di`gYgŁ`UbX`hY`B [i`bbUk`U`

7ci fgY'8YHJ]`g

7fYX]hDc]bHg`*`

Gi a a UfmcZh\Y'7ci fgY

5ggYgga Ybh

GYY'A ccXY"

5ggYgga YbhiHUg_g`

5ggYgga YbhiHUg_	K Y][\h	8i Y'8UH	Ghi XYbh@YUfb]b[Ci hWta Yg'5ggYggYX
F Y\YUfgYX'F YUX]b[`) \$i	h'Y`YWi fY#gYa]bUf'g`chcb (# 'cf'%%# 'cf'% # 'cf'&) #	%z&
D`UhtYI h5bU'mg]g`) \$i	&+#\$(#&\$&\$' \$) .\$\$'DA	%z&Z ž(

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GHUfhXUH. Bch5dd]WVY

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8YHU]`g. " \$(\$'a]bi h' [fci d' dfYgYbhU]cb" H\Y'F Y\YUfgYX'F YUX]b['dfYgYbhU]cb]g'k cft\ " \$i 'UbX'h.Y
 hX]]Xi U'7 cbf]Vi hcb'hc'hY'F Y\YUfgYX'F YUX]b[]g'k cft\ &\$i "Mci'k]`fYW]j Y'U'Wta d'YH'X
 5ggYgga YbhZcfa`]bWi X]b['U'fi Vf]W]bX]WU]b[``Yj Y`cZdYfZcfa UbVW'U[U]bghYUW'UggYgga YbhW]hYf]Už
 k f]hYb'Zcfa U]j Y'ZYXVUWžUbX'dYfW]bU] Y' [fUXY"

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

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Gi Va]gg]cb`bchYg.GYY'A ccXY

Hi fb]h]b'gYH]b[. H\]g]g'bchU'H" % % % %

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5 HbXUbW UH@YWi fYg UbX GYa]bUfg]g'a UbXUhc fm]b H]g Wci fgY Ug H YmUFY X]fYWhmUggcWUHX'k]h 7 ci fgY @YUfb]b['Ci H Wca Yg" ZU'gh XYbhZU]g hc UHbX'k]h ci h[ccX'WUj gY H Y WUgg]b'k \]W H Y]f' [fci d]g'dfYgYbh]b['H Y]f' F Y\YUfgYX'F YUX]b['Zc'f UggYgga Ybh'g'k] VY Wci bh'X Ug'U'bcblgi Va]gg]cb'cZ 5ggYgga Ybh%

H]g H Y fYgdcbg]V]]micZYUWX'gh XYbh'ca U_Y'gi fY H Ymg][b' H Y'7 Ugg'F c' H Uh]g'X]gh]Vi H X']b' YUWX k YY_ Zca 'K _' %cbk UfXg" H\]g'F c"]g'X]gh]Vi H X' YUfm]b' YUWX '& \f' WUgg" ZU'gh XYbh]g'i bUV'Y'hc' UHbX U' WUggz H Ymg\ci 'X']bZca 'H Y'7 cbj YbcfZdfYZfUV'm]b' UXj UbW' cZ H Y WUgg" 'K \YfY'fY'Yj Ubh' gi ddcf]b['XcW'a Ybh]cb'g\ci 'X' VY'dfcj]XYX' Ug'gccb Ug'dcgg]V'Y" '8 i f]b['H Y'F Y\YUfgYX'F YUX]b[dYf]cX'fK _g' %'hc' * Lz'gh XYbh'g\ci 'X' U'gc']bZca 'H Y'gh XYbh: UW]Hhc'ffg'k]b' H Y]f' [fci d"

7 ci fgY GWXYXi Y

[J \]k WUgg'Ha YHUV'Y](#)

H]a YHUV'Y'

8UH	HmdY	7cbhYbh
K YY_ '% %+ : YVfi Ufm! &% : YVfi Ufm	@YWi fY	K YX' % - : YVzK YVgh'f' &+ HfcXi W]b['H Y' Wci fgYz'Ug'k Y'' Ug'bc]cbg'cZ H Y [fYUhid'Um'
	GYa]bUf	H\i fg' &\$'cf: f]X' &%: YVz'6'cW_ ; % 5f]ghchYf] H Yc'fmcZU [fYUhid'Um' fDcYh]Wg'f'
K YY_ '& : YVfi Ufm! & : YVfi Ufm	@YWi fY	K YX' & * : YVzK YVgh'f' &+ 5 [fYUh; fYY_ 'fU] YXm'
	GYa]bUf	H\i fg' &+ 'cf: f]X' & , z'6'cW_ ; % Gh X'm]b['d'chUbX'UW]cbz[YbfY'UbX'cWU]cb''
K YY_ ' . : &'A UfW ! '* A UfW	@YWi fY	K YX' ('A UfW zK YVgh'f' &+ 5 [fYUh; fYY_ Wca YXm'
	GYa]bUf	H\i fg') 'A UfW 'cf: f]X' * 'A UfW z'6'cW_ ; % Gh X'm]b['UbW]bh; fYY_ 'H YUfY'UbX'gcW]Yhm'
K YY_ '(. : 'A UfW ! '% A UfW	@YWi fY	K YX' % % 'A UfW zK YVgh'f' &+ 5 [fYUhF YbU]ggUbW' fU] YXm'
	GYa]bUf	H\i fg' % &'cf: f]X' % : YVz'6'cW_ ; % F YbU]ggUbW' ghU[]b[z'ghU[Y'X]fYWh]cbg'UbX X]U'c[i Y"

K YY_) .%* 'A UfWx !' &\$ A UfWx	@YWh fy	K YX'% 'A UfWxžK YVghYf' &+ 5 '[fYUh: fYbWx 'B YcWUgg]WU' 'Wta YXn' 5ggYgga Ybh% 'F Y\YUfgYX'F YUX]b[(
	GYa]bUf	H\i fg'%- 'cf': f]X'&\$'A UfWxž6`cW_'; % : fYbWx 'B YcWUgg]WU' 'h YUfYžghU[Y'X]fYWh]cbg'UbX VXUfUWYf]nU]cb"
K YY_)*. '&' 'A UfWx !' &+ A UfWx	@YWh fy	K YX'&) 'A UfWxžK YVghYf' &+ 9Ufm%- 7 'XcW XfUa U'' 5ggYgga Ybh% 'F Y\YUfgYX'F YUX]b[()
	GYa]bUf	H\i fg'&* 'cf': f]X'&+'A UfWxž6`cW_'; % HfYUha Ybhczh'Y'UW'cf#W UfUWYf]g'VcXm]b'fY'U]cb hc']hg'Ybj]fcb' Ybhg"
K YY_+. ' \$' 'A UfWx !' " 5df]	@YWh fy	K YX'%5df]žK YVghYf' &+ @U]Y'%- 7 'B U]h fU']ga "
	GYa]bUf	H\i fg'&'cf': f]X' " '5df]ž6`cW_'; % HfYUha YbhczZYa U'Y'VcX]Yg']b'fY'U]cb'hc'gcW]U' fc'YgžfY'U]cbg'UbX'gdUWYg"
K YY_ ; . '* '5df]' ! '%\$ '5df]	@YWh fy	K YX' ; '5df]žK YVghYf' &+ A]X'&\$7 '5Vgi fX]ga "
	GYa]bUf	H\i fg' - '5df]ž6`cW_'; % 9b[U[Ya Ybhk]h' ghmY'UbX'dcghk Uf'W' h' fY'' @4, 6gWfa fZW7SefWdZa fVSk fZWdW[e` a eW_ [Sd a` 8dVSk #'' 3bd[ž EfgVW fe [fZ[e eW_ [SdSdW i WJa_ Wfa SffW V fZWI] * eW_ [Sda` FZgdVSk [eWVž 8adfZaeWi Za US` `af SffW V] S dWb'SUW_ W f eW_ [Sde'afi [^TW eUZWg^W [Ua` eg fSf[a` i [fZ fZWdWWhS` f efgVW fe [] # aX fZUagdVž
K YY_ - . '% '5df]' ! '%+ 5df]	@YWh fy	K YX'%) '5df]žK YVghYf' &+ @U]Y'&\$7 'K cfX'XfUa U''
	GYa]bUf	H\i fg' %* 'cf': f]X' %+ '5df]žK YVghYf' &+ D`UmtYI hUbU'mg]g'gi f[Yfm'
K YY_ %\$. '&\$ '5df]' ! '&(5df]	5ggYgga Ybh	F YUX]b['K YY_!' 'bc'WUggYg'' DfYdUfY' D`UmtYI h 5bU'mg]g" 5ggYgga Ybh&.

	D`UmhYI h5bU`mg]g`Xi Y`hc`Hi fb]hb`Vm) da `cb A cbXUm&+ `5df]`"
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F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

%&A]W`K U``g`UbX`G]a cb`G\Yd\YfXžE fgVkl[Y B`Skef

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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[YgžUfhUbX`XYg][b`dfc`YWgžUg`k Y`Ug
dfYgYbhU]cbg`k \YfY`gca YcbY`dfYgYbh]g`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hWYX]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`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 hWYX]hU`bX`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'j]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 ""

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

