



ARTS1630

Wc fm > Ud Ub Yg Y ' 5

HYfa ' Hk c ' ' # ' & \$ %

GWXcc ``cZ < i a Ub]hYg `UbX `@Ub [i U [Yg ` ` # ` i BGK ` 5ftgz8 Yg] [b / ` 5fWX]hY Wñ FY

7ci fgY`Cj Yfj]Yk

GhJZZ'7cbhJWw'8YhU]`g

7cbj Ybcfg

B Ua Y	9a U]	5j U]UV]]m	@cW]hcb	D\cbY
B U[]gU': i _j]	b"Z _j]4 i bgk "YXi "Ui	H65	A cfj Yb'6fck b &\$*	- ' ,) `&(%\

Hi hcfg

B Ua Y	9a U]	5j U]UV]]m	@cW]hcb	D\cbY
M a _c`< Ug\]a chc	m"\Ug\]a chc4 i bgk "YXi "Ui	H65	A cfj Yb'6fck b &\$'	- ' ,) `` +&&
F]_U`GUY[i gU	f"guY[i gU4 i bgk "YXi "Ui	H65	A cfj Yb'6fck b &\$()	
M b]b[`N\Yb[m'n\Yb[4 i bgk "YXi "Ui	H65	A cfj Yb'6fck b &\$()	
? Uni Y`C_Ua chc	_c_Ua chc4 i bgk "YXi "Ui	H65	A cfj Yb'6fck b &+'	- ' ,) `` +(-
M hU_U`BU_U]a U	m'bU_U]a U4 i bgk "YXi "Ui	H65	A cfj Yb'6fck b &\$()	
5hca]`C\Ua U	U"c\Ua U4 i bgk "YXi "Ui	H65	\$ %o	%o

7ci fgY'8YHJ]`g

7fYX]hDc]bHg`*`

Gi a a UfmicZhY'7ci fgY

H\Y`Wci fgY`]bfcXi Wg`hY`>UdUbYgY`gci bX`gmghYa žVUg]W[fYH]b[g`Ug`k Y`Ug`U`bi a VYf`cZVUg]W
>UdUbYgY`ghf Vh fYg`UbX`j cWUvi `UfmYI dfYggYX`]b`<]fU[UbU`UbX`? UHU`UbU`gm`UVUf]Yg`hUhUfY`YggYbh]U`
hc`VUg]W>UdUbYgY`Vta a i b]WU]cb`H\]g`Wci fgY`]g`Zcf`hcgY`k \c`\Uj Y`bc`cf`U`a cghbc`_bck`YX[Y`cZ
>UdUbYgY`H\Y`Zc`ck]b[`Zj Y`gcW]U`#W`h`fU`hcd]Wg`k]`VY`Wci YfYX.`%`; fYH]b[g`UbX`a YH]b[`bYk`Z]YbXg/
&`5g_]b[`UVci hih]b[g`Ufci bX`mci /` "8U]mfci h]bYg/(`"@WU]cbg/) "@_Yg`UbX`X]g`_Yg" C b`YUW`hc`d]W
k \]Y`gh`Xm]b[`hY`Ub[i U[Yžmci `UfY`WU`Yb[YX`hc`X]gWc] YfX]ZYfYbhUddfcUW`Yg`hc`j]Yk]b[`hY`k`cf`X
Ufci bX`mci `]b[i]gh]W`mUbX`W`h`fU`mž`UbX`UfY`]] Yb`hY`cddcfh`b]mhc`i bXYfghUbX`W`ffYbhgcW]cW`h`fU`
]ggi Yg`]b`>UdUb`Mci `UfY`U`gc`]bfcXi W`X`hc`YUfb]b[`fci h]bYg`bYVW`ggUfmhc`gi W`W`YX`]b`hY`Z]ghdUW`
YUfb]b[`cZU`ZcfY][b`Ub[i U[Y`

H\]g`Wci fgY`]g`U`VY[]bbYfg!`Yj Y`Ub[i U[Y`Wci fgY`5`gh`XYbhg`k \c`\Uj Y`UX`gca Y`YI dYf]YbW`k]h`hY`
`Ub[i U[YžY]hYf`Ug`U`Yf]U[Y`Ub[i U[Y`cf`hfc] [\`dfYj]ci g`]bghf] W]cbž`a`i`ghZ`]b`hY`d`UW`a`Ybh
ei YghcbbU]fY`Uj U]UV`Y`Uh`[hfdg.#A`U`"Ufng"i`bkg`"YXi`"Ui`#gh`XYbhg#Mci`fgYg#Ub\[i`U\[`Y!d`UW`a`Ybhg`"Mci`k`\]`
bchVY`d`Yfa`\]hYX`hc`Ybfc`\]b`U`Ub\[i U\[Y`Wci fgY`hUh\]g`hc`c`YUgmZcf`mci`"-Z`h\]g`c`W`fgž`mci`k`\]`VY`
fYei YghX`hc`W`Ub\[Y`mci`f`Ybfc`a`Ybh`](#)

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

%` bfcXi W`cbYgY`ZVmi`g]b[`g]a`d`Y`>UdUbYgY`
&` Gi`ghU]b`g]a`d`Y`Wcbj`YfgU]cbg`]b`>UdUbYgY`k`Yb`hU`_]b[`UVci`hcbYgY`ZUbX`cbY`g`XU]mfci`h]bYg`
'`" F`YUX`UbX`k`f]h`<]fU[UbUž?`UHU`UbU`Zi`Ybhmž`UbX`fYVc`[b]gY`),`?`Ub`^`
(`" F`Y[c[b]gY`dfcV`Ya`g`cZ]bhYfW`h`fU`]bhYfUW]cb`k`]h`chYf`>UdUbYgY`gdYU`Yfg`
)`" K`cf`_`Wc`UVcfU]h]`Y`mk`]h`chYfg`

HYUW]b[`GhfUH[]Yg`

H\Y`Wci fgY`]g`hUj [\`h`h`fci [\`k`YY`_`m`YW`h`fYgž`h`hc]f]U`g`UbX`gYa`]bUfg`" b`Y`W`h`fYgž`gh`XYbhg`YUfb`UVci`h`
h`hY`WcbhYI`h`U`_`bck`YX[Y`cZ>UdUbYgY`Ub[i U[Y`UbX`Ub[i U[Y`YUfb]b[žghUf]b[`Zca`VUg]W`WcbW`dHg`" b`
h`hc]f]U`g`UbX`gYa`]bUfgž`gh`XYbhg`dfUW]W`h`Yf`>UdUbYgY`Ub[i U[Y`g_]`g`Wc`Y`W]j`Y`mž`ghUf]b[`k`]h`VUg]W`
Z`bW]cbg`UbX`k`cf`_]b[`cb`Wca`dfY`Ybg]j`Y`hUg`_`" b`hY`ffY`Uh]b[`k`]h`chYf`Wci`fgY`a`Ya`VYfg`]b`Y`W`h`fYgž`
h`hc]f]U`g`UbX`gYa`]bUfg`]g`U`gc`YggYbhU`" Gh`XYbhg`k`]`VY`YI`dYW`YX`hc`dUf]W]dUH`]b`X]gW`gg]cbgž`dU]fg`cf`
[fci`d`hUg`_`h`fci [\`ci`h`h`Y`Wci`fgY`5`bmiZcf`a`cZX]gW]a`]bU]cb`VUgYX`cb`Ub`]bX]j`]Xi`U`f]g`U[YžY`h`b]W]mž`
gYI`i`U`cf]YbU]h]cb`UbX`h`Y`_`Y`k`]`bchVY`hc`YfUH`X`"

ϕhYfUW]cb'hYghk]"VY\Y'X'Xi f]b['mci f'gYa]bUf"McI 'k]"dYfZcfa 'U'g\cfhfc'Y'd'Um]b'>UdUbYgY'k]h'cbY
cZmci f'WUgga UH'g'Zcf') 'a]bi h'g" A cfY'XYHJ]g'k]"VY 'Ubbci bW'X']b'h'Y'YW'i fY 'UbX'mci f'gYa]bUf
WUgg"H\Y'dYfZcfa UbW'k]"VY'fYW'cfYX'UbX'a Uf_YX']bX]j]Xi U'mVm'h'Y'h'UW'Yf"

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

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

GhUfhXUH'. Bch5dd]WUV'Y

8YHJ]g.

:]bU'9I Ua 'k]"VY\Y'X'Xi f]b['h'Y'i b]j Yfg]mYI Ua 'dYf]cX"H\Y'YI Ua ']g'Zcf'&\ci fg"H\Y'h'ghdUdYf'k]"VY
a Uf_YX'Uz'f'h'Y'W'a d'Yh]cb'cZYI Ua "

H\]g]g'h'Y'Z]bU'UggYgga Ybh]Ug_'Zcf'UH'Y'bXUbW'idi fdcgY"

5XX]h]cbU'XYHJ]g.

H\Y'XYHJ]g'cZ'h'Y'YI Ua 'k]"VY]bZcfa YX']b'h'Y'YW'i fY'k YY_%\$"

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

	Hi hcf]U'	; fUa a Uf'YI YfW]gYg'UbX'? UHJ_UbU'dfUW]VW'g"
	GYa]bUf	7 cbj YfgU]hcb'dfUW]VW' UbX'fc'Y!d'Um'
K YY_'; :%>'>i `m!' &'>i `m'	@YWh' fY	'F Yj]Yk]b['@Yggcb'(' UbX'']_Yg'UbX'X]g']_Yg'f@Yggcb)'E"
	Hi hcf]U'	hfcXi W]b['? Ub'F Yj]Yk]b['@Yggcb'("
	GYa]bUf	7 cbj YfgU]hcb'dfUW]VW'. DfYdUfU]hcb'Zcf' hYfUW]cb HYgh'
K YY_-' :&'>i `m!' \$>i `m'	@YWh' fY	@_Yg'UbX'8]g']_Yg'f@Yggcb') E'UbX'XU]mfc' h]bYg f@Yggcb '*E"
	Hi hcf]U'	@_Yg'UbX'X]g']_Yg'f@Yggcb') E'UbX'? Ub'f'dfUW]VW'"
	GYa]bUf	hYfUW]cb'HYgh
K YY_%\$. &'5i [i gh!' * 5i [i gh	@YWh' fY	8 U]mF ci h]bYg'f@Yggcb '*E'UbX'fYj]Yk 'cZ]hY'Wci fgY"
	Hi hcf]U'	8 U]mfc' h]bYg'f@Yggcb '*E''8]W]hcb'HYgh&'k]'VY \Y'X'Xi f]b['mci f'Hi hcf]U'"
	GYa]bUf	F Yj]Yk 'cZ]hY'Wci fgY"

F Ygci fWg

DfYgW]VYX F Ygci fWg

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`Ug`Y`
HY`Yd`\\cb`Y`9I`HY`fb`U`Gi`ddc`fh`cb`-`,`,)`````%cf`Ya`Uj`h`Ya`icb`YI`HY`fb`U`HY`hgi`ddc`fh`4`i`bgk`"YXi`"Ui`""`Gi`ddc`fh`
\\ci`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`ddc`fh`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`ddc`fh`mci`f`YI`HY`bg]cb`Udd`]W`h]cb`"Ʒmci`Ya`Uj`9I`HY`fb`U`Gi`ddc`fh`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`YYX`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`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`\\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]]hYg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[]Uf]ga ž'Wcdmf][\hž' BGK 'Gh XYbh7cXY'cZ7cbXi WñUbX'5WwdfUV'Y'I gY'cZ
I BGK '⇒H'F Ygci fW'g'Dc`]Wñ
-

