



ARTS1630

Wc fm > Ud Ub Yg Y ' 5

HYfa ' Hk c ' # ' & \$ %

7ci fgY`Cj Yfj]Yk

GhJZZ'7cbhJWw'8YhJ]`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 UfmicZħY'7ci fgY

H\Y`Wci fgY`]bħcXi Wg`ħY`>UdUbYgY`gci bX`gmghYa žVUg]W[fYH]b[g`Ug`k Y`Ug`U`bi a VYf`cZVUg]W
>UdUbYgY`ghfi Wħ fYg`UbX`j cWUvi`UfmYI dfYggYX`]b`<]fU[UbU`UbX`? UħU`UbU`gm`UVUf]Yg`ħUħUfY`YggYbħ]U`
ħc`VUg]W>UdUbYgY`Wta a i b]WU]ħcb`H\]g`Wci fgY`]g`Zcf`ħcgY`k \c`\Uj Y`bc`cf`U`a cghbc`_bck`YX[Y`cZ
>UdUbYgY`H\Y`Zc`ck]b[`Zj Y`gcW]U`#W`ħi fU`ħcd]Wg`k]`VY`Wci YfYX.`%`; fYH]b[g`UbX`a YH]b[`bYk`Z]YbXg/
&`5g_]b[`UVci hħ]b[g`Ufci bX`mci /` "8U]mfci h]bYg/(`"@WU]ħcbg/) "@_Yg`UbX`X]g`_Yg" C b`YUW`ħcd]W
k \]Y`gh`Xm]b[`ħY`Ub[i U[Yžmci`UfY`WU`Yb[YX`ħc`X]gWc] YfX]ZYfYbħUddfcUW`Yg`ħc`j]Yk]b[`ħY`k`cf`X
Ufci bX`mci`]b[i]gh]W`mUbX`W`ħi fU`mž`UbX`UfY`]] Yb`ħY`cddcfi b]mħc`i bXYfgh]UbX`W`ffYbħgcW]cW`ħi fU`
]ggi Yg`]b`>UdUb`Mci`UfY`U`gc`]bħcXi`W`X`ħc`YUfb]b[`fci h]bYg`bYVW`ggUfmħc`gi`W`Y`X`]b`ħY`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`XYbħg`k \c`\Uj Y`UX`gca Y`YI dYf]YbW`k]ħ`ħY`
`Ub[i U[YžY]ħYf`Ug`U`Yf]U[Y`Ub[i U[Y`cf`ħfci [\`dfYj]ci g`]bghfi W]cbž`a i ghZ`]b`ħY`d`UW`a Ybh
ei YghcbbU]fY`Uj U]UV`Y`Uh`[hřdg.#A`U`"Ufřg"i bĝk`"YXi`"Ui`#gh`XYbħg`#Wci fgYg#Ub\[i U\[Y!d`UW`a Ybħg`"Mci`k` \]`
bchVY`d`Yfa \]ħY`X`ħc`Ybfc` \]b`U`Ub\[i U\[Y`Wci fgY`ħUħ\]g`ħc`c`YUgmZcf`mci` "Zħ\]g`c`W`W`fgž`mci`k` \]`VY`
fYei YghX`ħc`W`U`b\[Y`mci`f`Ybfc`a`Ybh`](#)

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

%` ěħcXi W`cbYgY`ZVmi`g]b[`g]a`d`Y`>UdUbYgY`
&` Gi`ghU]b`g]a`d`Y`W`bj`YfgU]cbg`]b`>UdUbYgY`k`Y`b`ħU`_]b[`UVci`ħcbYgY`ZUbX`cbY`g`XU]mfci`h]bYg`
'`" F`YUX`UbX`k`f]ħY`<]fU[UbUž?`UħU`UbU`Zi`Ybhmž`UbX`fYWc`[b]gY`),`?`Ub`^`
(`" F`Y`[c`[b]gY`dfcV`Ya`g`cZ]bħYfW`ħi`fU`]bħYfUW]cb`k`]ħ`c`ħYf`>UdUbYgY`gdYU`Yfg`
)`" K`cf`_`Wc`UVcfU]j`Y`mk`]ħ`c`ħYfg`

HYUW`]b[`GħfUħY[]Yg`

H\Y`Wci fgY`]g`ħUj [\hħfci [\`k`YY`_`m`YWħi`fYgž`h`ħcf]U`g`UbX`gYa`]bUfg`" ě`Y`Wħi`fYgž`gh`XYbħg`YUfb`UVci`h`
ħY`W`bħYI`ħi`U`_`bck`YX[Y`cZ>UdUbYgY`Ub[i U[Y`UbX`Ub[i U[Y`YUfb]b[žghUf]b[`Zca`VUg]W`Wc`bW`dřg`" ě`
ħi`ħcf]U`g`UbX`gYa`]bUfgž`gh`XYbħg`dfUW]W`ħi`Yf`>UdUbYgY`Ub[i U[Y`g_]`g`Wc`Y`W]j`Y`mž`ghUf]b[`k`]ħ`VUg]W`
Z`bW]cbg`UbX`k`cf`_]b[`cb`Wta`dfY`Ybg]j`Y`ħUg`_`" ě`ħY`ffY`U]b[`k`]ħ`c`ħYf`Wci`fgY`a`Ya`VYfg`]b`Y`Wħi`fYgž`
ħi`ħcf]U`g`UbX`gYa`]bUfg`]g`U`gc`YggYbħ]U`" Gh`XYbħg`k`]`VY`YI`dYW`Y`X`ħc`dUf]W]dUħ`]b`X]gW`gg]cbgž`dU]fg`cf`
[fci`d`ħUg`_`g`ħfci [\`ci`hħY`Wci`fgY`"5`bmiZcf`a`cZX]gW]a`]bU]cb`VUgYX`cb`Ub`]bX]j`]Xi`U`řj`U[YžYħb]W]mž`
gYI`i`U`cf]YbħU]cb`UbX`ħY`_`Y`k`]`bchVY`ħc`YfUħY`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)'L"
	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') L'UbX'XU]mfc i h]bYg f@Yggcb '*L"
	Hi hcf]U'	@_Yg'UbX'X]g']_Yg'f@Yggcb') L'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 '*L'UbX'fYj]Yk 'cZ]hY'Wci fgY"
	Hi hcf]U'	8 U]mfc i h]bYg'f@Yggcb '*L''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`U]`h`Ya`i`cb`YI`HY`fb`U`HY`hgi`ddc`fh`4`i`bgk`"YXi`"Ui`"Gi`ddc`fh`
`l`ci`fg`UfY`,`.\$\$Ua`-`-%\$.\$\$da`i`cb`k`YY`XUmg`U`bX`-`.\$\$Ua`-`).\$\$da`i`cb`k`YY`YbXg`f`l`*)`XUmg`U`m`Y`Uf`l`"Ʒmci`
UfY`i`bUV`Y`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybhi`Xi`Y`hc`U`Z`Ji`h`k`]h`Hi`fb]h]b`mci`i`a`Um`Udd`m`Z`f`U`b`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`U`b`m`c`h`Y`f`f`Y`Y`U`b`h`X`c`W`a`Y`b`h`g`k`h`c`
]b`Wi`XY`U`g`Y`j`]X`Y`b`W`h`c`gi`ddc`fh`mci`f`YI`HY`bg]cb`Udd`]W`h]cb`"Ʒmci`Ya`U]`9I`HY`fb`U`Gi`ddc`fh`mci`k`]`
Ui`h`ca`U`h]W`U`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`]`b`Y`Y`X`h`c`gd`Y`W`Z]W`U`m`U`g`_`Z`f`c`b`Y`"
Hi`fb]h]b`U`gc`d`fc`j`]X`Y`g`i`d`X`U`h`Y`g`c`b`h`Y`]f`g`m`g`h`Y`a`i`g`h`U`h`g`c`b`H`k`]h`Y`f`"

;`Yb`Y`f`U`m`z`U`gg`Y`g`g`a`i`gh`V`Y`gi`Va`]h`Y`X`Y`Y`W`f`c`b]W`U`m`j`]U`Y`]h`Y`f`Hi`fb]h]b`c`f`U`A`cc`X`Y`
U`gg][`ba`Y`b`h`i`h`]b`g`h`U`b`W`g`k`Y`f`Y`h`l`g`]g`b`c`h`d`c`g`g]V`Y`z`]h`k`]`V`Y`g`h`U`h`X`c`b`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`"

:`c`f`]b`Z`c`fa`U`h]c`b`c`b`l`c`k`h`c`gi`Va`]h`U`gg][`ba`Y`b`h`g`c`b`]b`Y`j`]U`A`cc`X`Y`.\`h`d`g`#`g`h`X`Y`b`h`i`bgk`"YXi`"Ui`#`c`k`!`
gi`Va`]h`U`gg][`ba`Y`b`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`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
- 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
-

