



# ARTS1190

GmXbYm' < ]ghc fnž' @UbXgWJdYgž' DYcd'Y

HYfa 'H\fYY'##'&\$&\$

7ci fgY`Cj Yfj ]Yk

GHJZZ7cbHJW`8YHU]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]]m	@cWU]cb	D\cbY
>Ua Yg`?YU]b[	^_YU]b[ 4 i bgk "YXi "Ui	Ya U]`Zcf Uddc]bha Ybh	A cfj Yb`6fck b &, \$	

GW`cc``7cbHJW`bZcfa U]cb

GW`cc``cZ<i a Ub]h]Yg`UbX:@Ub[ i U[ Yg

@cWU]cb. `GW`cc``C Z]W`ZA 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 UfmcZhY'7ci fgY

H\]g`Wci fgY`ja a YfgYg'mci`]b`hY`\]ghc'fmž'dc`]h]Vg`UbX`W`hi fY`cZGmXbYmiUbX`h\fc [ \`h\Ya ž]b\fcXi Wg'mci


8YHJ]g.

6)V`c[ fUd\mWta df]gYg'U`]ghcZ%\$[ ccX'ei U']imgci fWg'Zcf'kY'a U'cf'dfc'YW'5Vci h) \$\$'k cfXg"

⊖X]j ]Xi U`ZYXVUW\_Vmfi Vf]Wd'i g'bi a Yf]WJ`[ fUXY"

5XX]h]cbU`XYHJ]g.

H\]g'Ugg][ ba Ybh]g'hc'a U\_Y'gi fY'mci 'UFY'k cf\_]b[ 'hck UfXg'mci f'A U'cf'G]H!VUgYX'dfc'YW'hfUggYgga Ybh  
' ĽUbx'cb'hfUW'hc'Wta d'Yh]b[ ' ]h'hc'U'\[ \ 'g'fUbxUfX"'⊖]h'z'mci 'k ]''b'Y'Y'X'hc'dfcj ]XY.

% 5`gmbcdg]g#UVghfUW'h\]g' ]g'U'g\cfhfUVci h' \$\$'k cfXgž) !\*`gYbhYbWgĚgi a a UfmidfYgYbh]b[  
mci f'cj YfU`Uf[ i a Ybh'f'kYg]gĚ'hUhmci 'k ]''VY'Uf[ i ]b[ ' ]b'mci f'a U'cf'dfc'YW'Mci 'k ]''ci h]bY'k \m  
mci f'W'cgY'g]h' ]g'g][ b]Z]W]b]h'k \Uh]h'h'g'i g'UVci hGmXbYmUbX']hg'\]ghcfma cfY [ YbYfU`nž  
k \UhYj Ybhgž'hYa Ygž'dfc'W'gg'mci 'ZY'`h'Y'g]h'a ][ \h'fYdfYgYbh'z'Y'W'Mci 'k ]''U'gc'b'Y'Y'X'hc'ci h]bY  
h'Y'UddfcUW'mci 'k ]''VY'fU\_]b[ ' ]b'h'fa g'cZa Y'h'cXgž'UfYUg'cZ'Z'W'g'fY"[ "ž'gcW]U'[ fci dgž'\]ghcf]WJ`  
dYf]cXg'Y'W'K' f]h]b[ 'h]g'UVghfUW'hk ]''\Y'd'mci 'hc'VY'WYUf'UbX'gi W]b]W]h'UVci h'mci f'Uf[ i a YbhUbX  
Z'W'g"

&" 5`V]V`c[ fUd\nžW'cbg]gh]b[ 'cZ`

% Df]a UfmGci fWg.'5` ]ghcZU'a ]b]a i a 'cZ'X'gdgci fWg'fa UH'f]U'ž'k f]h'Y'bž'U'f'W'Y'c'c[ ]WJ`

ϕXj ]Xi U`ZYXVUW\_Vmfi Vf]Wk f]hYb`Vca a Ybhd`i g`bi a Yf]WU`[ fUXY"

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

H\]g`UggYgga Ybhfyei ]fYg`hc`fYgYUfW`UbX`k f]hY`U`dfc`YWhcb`Ub`]a dcfUbhid`UW`žg]hY`cf`bY][ \Vci`f\ccX`]b GmXbYm`H\]g`]g`hY`a U`cf`d]YW`cZk`cf`\_`Zc`f`h\]g`Vci`fgY`žUbX`k`YfY`mci`WUb`XYa`cbghfU`hY`mci`f`fYgYUfW`ž UbU`m]W]ž`hY`cfY`h]W`UbX`]b`hY`fdY`h]`Y`g`\_`g"

7\ccgY`CB9`cZ`hY`Z`ck`]b[ `]g]hY`g`f]Z`hY`fY`]g`gca`Yk`YfY`Y`gY`mci`k`ci`X`]Y`hc`k`cf`\_`cbž`d`YUgY`Ya`U]`a`Y`]b`UXj`UbW`gc`h`Uh`=WUb`Uddfcj`Y`]h

- F`YXZYfb`fH\Y`6`cW`\_`
- @U`DYfci`gY
- A`cfh`UfmGhU]h]cb`UbX`#`f`F`cc`\_`k`ccX`7`Ya`Y`hY`fm
- <`mXY`DUf`\_`6`UffUW`\_`g
- H\Y`<`mXY`DUf`\_`7`YbchUd\
- A`Uff]W]j`\_]`Y
- 7`UVfUa`U`hU
- 7`i`ghca`g`<`ci`gY
- 6`chUb]W;`UfXYbg
- A`i`gYi`a`c`ZGmXbYm
- 7`cW`Uhc`c`\_`g`UbX
- DUffUa`U`hU`fY`gd`"`hY`W`a`Y`hY`fm`\_`
- 6`cbX`]6`YUW
- ?`]b[ `g`7`fcgg
- 8`UF`]b[ \i`fgh;`Uc`

Mci`a`i`ghj`]g]h`hY`d`UW`mci`UfY`k`f]h]b[ `UVci`hž`gc`mci`f`fYgYUfW`a`i`gh]bW`i`XY`Uh`Y`UghcbY`j`]g]h`hc`mci`f`g]hY`fb]c`f`d`Uf`hg`h`Y`fY`cZ`ϕ`mci`f`Ugg][`ba`Y`bž`mci`a`i`gh]bW`i`XY`U`d`l`hc`c`Z`mci`fgY`Z`Uh`hY`g]hY`hc`d`fcj`Y`h`Uh`mci`k`YfY`h`Y`fY`"

Mci`f`d`fc`Y`W`h`g`l`ci`X`f`b`ch`b`Y`W`gg`Uf`]m`]b`h`]g`c`f`XY`f`\_`

- 8`Y`g`W`]VY`h`Y`g]hY`/`
- C`i`h]bY`h`Y`\_`]g`hc`f`m`c`Z`h`Y`g]hY`ž`g`Y`h`k`]h`]b`k`]X`Y`f`\_`]g`hc`f]W]`W`c`b`hY`I`hg`UbX`h`Y`a`Y`g`/`
- 9`I`d`c`fY`k`\_`U`h`h`Y`g]hY`hY`g`i`g`UVci`h`h`Y`d`Y`f]c`X`]b`k`\_`]W`\_`]h`k`U`g`Vi`]h`c`f`W`Y`U`hY`X`ž`UbX`k`\_`U`h]h`hY`g`i`g`UVci`h`h`Y`\_`]g`hc`f`m`c`Z`h`Y`W]m`c`j`Y`f`U`"`"`H\]g`Vca`dcbYbhU`ck`g`mci`hc`XYj`Y`cd`W]h]W]`UbX`UbU`m]W]`ei`Y`g]h]cbg`UVci`h`mci`f`g]hY`/`
- ~`

a UHf]U`Zcf]g]Hf]k ]`j UfmžVi hV]V`]c[ fUd\]Yg`g\ci `X`WēbH]b`U`a ]b]a i a `cZY][ \hgi VghUbh]U`fYZfYbVW`g"

H\Y`i gY`cZgca Y`df]a Ufmgci fVW`g`]g`gfcb[ `mYbWēi fU[ YX`!`k`Y`k ]`X]gW`gg`\ck `hē`fYUX`UbX`UbU`mgY  
h\YgY`cj Yf`h\Y`Wēi fgY`cZh\Y`h`fa "

Hi`fb]h]b`gYH]b[ .`H\]g`Ugg][ ba`Ybh]g`gi Va ]HfX`h`fci [ \`Hi`fb]h]b`UbX`ghi XYbfg`WUb`gYY`Hi`fb]h]b`g]a ]`Uf]m  
fYdcfg"

5 HhYbXUbW F Yei JfYa Ybhg

Gh XYbhg UfY ghfc b[ mYbWci fu[ YX hc UhhYbX U WUggYg UbX fYj JYk YWih fY fYWc fX]b[ g"

7 ci fgY GWXYXi Y

[J JYk WUgg hja YhUVY](#)

Hja YhUVY

8UhY	HmdY	7cbhYbh
K YY_%%(GYdhYa VYf! %GYdhYa VYf	@YWh fY	7ci fgY ðhfcXi Wjcb. 7cbj JWhHck b'hc'; `cVU`7]m
	GYa JbUf	ðhfcXi Wjcb. K \Uh]g'Mci f'GmXbYm3
K YY_&.&%GYdhYa VYf! &)GYdhYa VYf	@YWh fY	Cb]bY @YWh fY. 5Vcf][ JbU`@UbXgWUdYg'cZGmXbYm
	GYa JbUf	; cj Yfbcf'D\]]d'UbX'hAY'9cfU'BUhcb
K YY_" .&,'GYdhYa VYf! &C WcVYf	: JYXk cf_	9I d'cf]b[ 'hAY'7cbj JWhfHck b
	GYa JbUf	D'YUgY'Xck b'cUX'hAY'I BGK 'K U_]b[ 'Hci f/Zcf'hAY "9I d'cf]b[ '7cbj JWhGmXbYm'hc' fzi gY'hAY Wci dcb WcXY. '6<G&HG'UbX'hAY'UWwci bhYa U]. \U'4 i bgk "YXi "Ui "  @chY. 'h.]g'hU_Yg'hAY'd'UW'cZmci f'YWh fY'h.]g'k YY_C
K YY_(.)'C WcVYf!'-' C WcVYf	@YWh fY	Cb]bY @YWh fY. '6cca '7]mž; YbXYfYX'7]m
	GYa JbUf	K ca Ybhg'D'UW'Jb'hAY'7]m
K YY_) .%&'C WcVYf!'%'* C WcVYf	5ggYgga Ybh	A U'cf'9ggUmUbX'6]V]c[ fUd\mXi Y: f]XUm %*'C WcVYf''
	@YWh fY	Cb]bY @YWh fY. 'F JWh'GmXbYmž Dccf'GmXbYm
	GWYYb]b[	D'YUgY'k UHw 'fD'Um]b[ 'Jb'hAY'G\UXck gfif&\$\$, L']b mci f'ck b'hja Y'f]b_'Uj U]UVY'hfci [ \A ccX'Yt
	Cb]bY'5Whj]m	




F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

5`Wci fgY`fYUX]b[ g`k ]`VY`Uj U]UV`Y`cb`A ccX`Y`j ]U`@[ Ubr`c`Z`UXX]hcbU`a UHf]U`Zcf`X]gW gg]cb`]b  
gYa ]bUfg#Z]bh`fYghZcf`Ugg][ ba`Ybhg`k ]`VY`dcghYX`k YY`\_m`

F YWca a YbXYX`F Ygci fWg

B #5

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

H\]g`]g`h`Y`gYWcbX`h]a Y`h\]g`i b]h]g`VY]b[ `hU[ \h`z`gc`k`Y`UFY`YU[ Yf`tc`fYW]j` Y`mc`i`f`ZYXVUW`\_j ]U  
a m9l dYf]YbW`"

Gi Va ]gg]cb`cZ5ggYgga YbhiHUg\_g

Hi fb]h]b`Gi Va ]gg]cb

≠mci`YbWci bHYf`U`dfcV`Ya`k` \Yb`UHYa` dh]b[`hc`gi`Va`]hmc`i`f`Ugg][`ba`YbhiHfci`[`\`Hi`fb]h]bzd`YUgY`  
HY`Yd\cbY`9I`HYfbU`Gi`ddcfhcb`-`,`)`"``"``%cf`Ya`Uj`hYa`icb`YI`HYfbU`HY`hgi`ddcfh4`i`bgk`"YXi`"Ui`""Gi`ddcfh`  
\ci`fg`UfY`,`.\$\$Ua`-`-%\$.\$\$da`icb`k`YY`XUmg`UbX`-`.\$\$Ua`-`).\$\$da`icb`k`YY`YbXg`fI`\*)`XUmg`U`mY`UfI`"≠mci`  
UfY`i`bUV`Y`hc`gi`Va`]hmc`i`f`Ugg][`ba`YbhiXi`Y`hc`U`ZU`ihk`]h`Hi`fb]h]b`mci`ia`UmUdd`mZc`f`Ub`YI`HYbg]cbz`Vi`hmc`i`  
a`i`ghfYhU]b`mci`f`h]W`Yhbi`a`VYf`Zca`9I`HYfbU`Gi`ddcfhfU`cb[`k`]h`Ubmc`h`Yf`fY`Yj`UbhXcW`a`Ybhtg`hc`  
]bWi`XY`Ug`Yj`]XYbVW`hc`gi`ddcfhmc`i`f`YI`HYbg]cb`Udd`]W]h]cb""≠mci`Ya`Uj`9I`HYfbU`Gi`ddcfhmc`i`k`j`  
Ui`hca`U]WU`mifYW]j`Y`U`h]W`Yhbi`a`VYfz`Vi`h]Zmci`HY`Yd\cbY`mci`k`j`bYYX`hc`gdYW]Z]WU`mUg`Zc`f`cbY`"  
Hi`fb]h]b`U`gc`dfcj`]XYg`i`dXUH`g`cb`h`Y]f`gmghYa`ig`hU`h`g`cb`Hk`]HYf`"

;`YbYfU`mz`UggYgga`YbhiUg\_g`a`i`ghVY`gi`Va`]hYX`Y`YWfcb]WU`mj`]U`Y]h`Yf`Hi`fb]h]b`cf`U`A`ccX`Y`  
Ugg][`ba`Ybhi`h`]bghU`bVW`g`k`\YfY`h`lg`]g`bchidcgg]V`YZ`]hk`j`VY`ghU`YX`cb`mci`f`Wci`fgY`g`A`ccX`Y`g]h`k`]h`  
U`HYfbU]h]`Y`gi`Va`]gg]cb`XYhU]g`"

:`cf]bZcfa`U]cb`cb`\ck`hc`gi`Va`]hUgg][`ba`Ybhtg`cb]bY`j`]U`A`ccX`Y`.\`hdg`#gh`XYbhi`bgk`"YXi`"Ui`Ack`!  
gi`Va`]hUgg][`ba`Ybhta`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`i`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`V`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`i`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`i`[`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]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 ]W'g'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'YW'i \]XYg" \]VfUfm'i bgk "YXi "Ui #' \]gY#JVci h' \]gY](#)

