



# ARTS3289

8cW a YbhUfm: ]'a 'UbX' < ]ghc fm

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

7ci fgY`Cj Yfj ]Yk

GHJZ`7cbHJW`8YHJ]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cW]h]cb	D\cbY
F i h `6U]bh	f"VU]bh# i bgk "YXi "Ui	A cbXUm' !(	A cfj Yb`6fck b ' ( )	- ' , ) ; &+,

GWXcc``7cbHJW`#Zcfa U]h]cb

7ci fgY'8YHJ]`g

7fYX]hDc]bHg`\*`

Gi a a UfmicZ\hY'7ci fgY

8c'XcW a YbHf]Yg'hY'hY'fH 3'7Ub'k Y'fY'mcb'hYa 'Ug'gci fW'g'cZ\]gHcfmB'`b'h]g'Wci fgY'mci 'k']`  
k UH\Z'UbU'mgY 'UbX'XYVUH'\ck 'XcW a YbHfmiZ]a g'\Uj Y'Vch'fYdfYgYbhYX'UbX'fYj ]gYX'hY'dUgh': fca  
hY'YUf]YghfUX]W]'6c'g\Yj ]\_d]cbYYfg'hc'hY'\ca Y'a cj ]Yg'cZ\hY'Zc'f]YgZ'hc'hY'W ffYbhi gY'cZ\hY'd\cbY  
W]a YfU'hc'fYWcfX'Ya Yf[ YbWniUbX'k UfZ'UbX'Yj Yb'hc'hY'k ]X']Z'XcW a YbHfmiZ]h]g'Wci fgY'YI d'cfYg'\ck  
XcW a YbHfmiZ]a g']bHfYdfYh\]gHcfmZ'a U\_Y'\]gHcfmiUbX']b'gca Y'W]gYgZ'\Uj Y'Yj Yb'W]Ub[ YX'\]gHcfmi'H\]g  
Wci fgY']g'ghfi W'i fYX'Ufci bX'U'cj Y'cZ\XcW a YbHfmiUbX'YUW\k YY\_'k Y'YI Ua ]bY'U'X]ZYfYbh'hYa Y'fY'UHfX  
hc'hY'\]gHcfmXcW a YbHfmiZ]UbX']hg'XYj Y'cda YbhUg'U'Zcfa 'cZ\]gHcf]W]'bHffcc[ U]cb'cj Yf'hY'dUgh  
W'bh'fm''

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

%` 5bU'mgY'ja dcfHUbhhi fb]b[ 'dc]bHgZ]XYU'UbX'XYj Y'cda YbHg]b'hY'\]gHcfmicZ\XcW a YbHfmiZ]a  
&" 5bU'mgY'\ck '\_YmiXcW a YbHfmiZ]a g'\Uj Y'fYdfYgYbhYXZ]bHfYdfYhYX'UbX'a UXY'\]gHcfm  
' " 9j U'i UH'UbX'Yb[ U[ Y'k ]h'gW\c'UfmiUf[ i a YbHg  
( " 7ca a i b]W]hY']XYUg'UbX'Yb[ U[ Y']b'X]gW'gg]cbg

HYUW\]b[ 'GhfUH[ ]Yg`

h'a mick b'k cf\_'=Ua ]bHfYgHfX']b'hY'dcgg]V']h]Yg'cZ\hY'bcbl'df]bhZcfa 'Zc'f'\]gHcf]W]'fYgYUfW\ 'UbX'Ua  
dUfh]W'UfmiZ]gW]bUHfX'Vmi'hY'Ui X]cj ]gi U'UfW\]j Yg'UbX'hY'XcW a YbHfmiZ]a 'Zcfa UH'H\]g'Wci fgY']g  
ghfi W'i fYX'Ufci bX'U'cj Y'cZ\XcW a YbHfmiUbX'YUW\k YY\_'k Y'YI Ua ]bY'U'X]ZYfYbh'hYa Y'fY'UHfX'hc'hY  
\]gHcfmXcW a YbHfmiZ]UbX']hg'XYj Y'cda YbhUg'U'Zcfa 'cZdi V]W\]gHcfmicj Yf'hY'dUghW'bh'fm'K Y'j ]Yk  
a UbmX]ZYfYbhXcW a YbHfmiZ]a g'Zca 'Ufci bX'hY]'cVYZ'UbX'YUfb'hc'h]b'\_UVci h'hY]f'\]gHcf]W]'WcbHf] hg  
]b'h]a Y'UbX'd'UW'Z'hY]f'Uf[ i a YbhUbX'fYUW''=gYY'h]g'Wci fgY'Ug'U'k UmicZYb[ U[ ]b[ 'mci ]'b'X]gW'gg]cbZ  
XYVUH'UbX'Uf[ i a YbhUVci h'hY'YI HfUcfX]bUf]m]f]W\ Z]Y'X'cZ\XcW a YbHfmiZ]a 'UbX']hg'fY'U]cbg\]d'hc  
\]gHcfmi'

# 5ggYgga Ybh

## 5ggYgga YbhHUg\_g`

5ggYgga YbhHUg_	K Y][ \h	8i Y'8UHŸ	Gh XYbh@YUfb]b[ Ci hWta Yg'5ggYggYX
A U'cf'9ggUmi	) \$i	&' #/0/#&\$&\$' \$) . \$\$' DA	%ž&ž
Hi hc f]U'fYgdcbgYg`	&) i	\$&#/#\$#&\$&\$' \$) . \$\$' DA	%ž&ž
HYgh	&) i	Bch5dd`]WUV`Y	%ž&ž

## 5ggYgga Ybh8YHU]`g

5ggYgga Ybh% 'A U'cf'9ggUm

GHUfhXUHŸ. 'Bch5dd`]WUV`Y

@Yb[ h. '&\$\$\$'k cfXg

8YHU]`g.

F YgYUfW`YggUm"&\$\$\$'k cfXg" 5bgk Yf]b[ 'U'gYhei Ygh]cb'gci fW`UbX'UbU'mgY'cbY'cf'a cfY'XcW'a YbhUfm  
Z'a g'UbX'\]ghcf]W`gci fW`g'hc'a U\_Y'Ub`]bZcfa YX'Uf[ i a Ybh'

H\Y'ZYXVUW\_]g`]b'hY'Zcfa 'cZU'k f]hYb'fYgdcbgY'cb'a ccX'Yž'UbU'mg]b[ 'Uf[ i a YbhUbX'UbU'mg]gž'ZYW]j Y  
'cWU]cb'UbX'i gY'cZfY'Yj Ubhgci fW`gž'ZYW]j Y'i gY'cZcW'a YbhUfmWUgY'gh X]Ygž'fY'ZYfYbW]b[ 'UbX  
dfYgYbhU]cb'UbX'k f]hYb'ghmY"

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

9ggUmiei Ygh]cbg

% 7 \ccgY'cbY'XcW'a YbhUfmZ'a 'hUhUXXfYggYg'Ub'\]ghcf]WU`Yj Ybhž'UbX'X]gW'gg'\ck`]hYdfYgYbhg  
\]ghcf]m'7cbg]XYf'hY'WcbhY'i h]b'k \]W`]hk Ug'a UXY'UbX'\ck`hY'Z'a 'Wta dUfYg'hc'gW'c'Ufm  
UbU'mgYg'cZ'hY'gUa Y'Yj Ybh'Mci 'a Umik ]g`'hc'Wta dUfY'k'c'Z'a g'a UXY'UhX]ZYfYbh]a Yg'g]bW`  
hY'Yj Ybh]hgY'Z'UbX'k \Y'hYf' ]bhYfdYfU]h]cbg'a Um\Uj Y'WU'Ub[ YX"

&" f8cW'a YbhUfmWU]a g'hc'UXXfYgg'hY'\]ghcf]WU`'0hY'fYU'Qk cfX'UbX'hc'dcggYgg'hY'WUdUW]mhc  
]bhYfj YbY'Vmig\Ud]b[ '\ck`k Y'fY[ UfX' ]h'f]c8`'B ]W'c'gQ'8 ]gW'ggž'i g]b[ 'YI Ua d'Yg'hUhXc'cf'Xc'bch  
WcbZcfa 'hc'h]g'UbU'mg]g"

' " <ck`Xc'dfcdU[ UbXU'Z'a g'U]X'\]ghcf]WU`'i bXYfghU]bX]b[ 3'5fY'hYfY'Yh ]WU`'UbX'a cfU`X]Ya a Ug  
\]ghcf]Ubg'ZUW` ]b'i g]b[ 'hYgY'UfW]j U'Z'a g'Zcf'\]ghcf]WU` ]bj Ygh[ U]h]cb3'K \UhUfY'hYm8  
( " F UhYf'hU'bi bXYfW'h9i fcdYU'ba mthg'UVci hfUW'ž'Yh]bc[ fUd\]WZ'a g'\Uj Y'hYbXYX'hc'fY]bZc'fW`  
gi W'Uggi a dh]cbg" 8 ]gW'ggž'i g]b[ 'Uh'YUgh'k'c'YI Ua d'Yg"

) " "h'a mth]a U\_]b[ 'UVci h5i ghU']Ub'5Vcf[ ]bYg'hYfY'\Ug'VYyb'U'Wcbg]ghY'bhUfUX][ a 'cZcddcg]b[  
dc'Yg]bcV'Y'UbX'gUj U[ Yž[ ccX'V'UW'g'UbX'VUX'V'UW'gž'df]a ]h] Y'UbX'W]j ] ]gYXž'fYU`UbX  
i bfYU`"" fi fUbW'g'DYhYfg!@]hYž'&\$\$&L'"8 ]gW'gg"

\* " <ck`WU'UfW]j U'Z'a 'a UhYf]U'g'gi W'Ug'\ca Y'a cj ]Yg'cf'Ua UhYi f'Zc]U[ Y'VY'i gYX'Ug'Yj ]XYbW` ]b  
\]ghcf]WU`'UbU'mg]g3' h'mci f'X]gW'gg]cbž'mci 'a Umik ]g`'hc'fY'Zf'hc'cbY'cf'a cfY'Z'a g'k \YfY  
Z'a a U\_Yfg'\Uj Y'fY'di fdcgYX'cf[ ]bU`#Zci bX'Zc]U[ Y'hc'a U\_Y'bYk '\]ghcf]WU`'a YUb]b[ g"

+ " < ck \ Uj Y XcW a YbUf]Yg UVci hk UfZUfY 'bUj ] [ UH'X'cf'fYUH'X'h\Y'Wta d'YI ]h]Yg'cZ\]gfcfmž'a Ya cfm  
UbX'bUh]cbU' ]XYbh]m3  
, " 5fY' "bUhi fU' \]gfcfm'cf'bUhi fY'XcW a YbUf]YgžbUhi fU'cf' \]gfcf]WU'3'K \micf'k \mbch3

Hi fb]h]b'gYh]b[ . H\]g'Ugg][ ba Ybh]g'gi Va ]h'X'h'fci [ \ 'Hi fb]h]b'UbX'ghi XYbhg'WU'gYY'Hi fb]h]b'g)a ]Uf]hm  
fYdcfmg"

5ggYgga Ybh&. Hi hcf]U'fYgdcbgYg

GHUfhXUH. Bch5dd]WUVY

@Yb[ h. '&\$ \$'k cfXg'YUW

8YhU]`g.

Gh XYbng'k ]''UWVgg'hY'hYghUh%\$Ua žUbX'gi Va ]hUha ]XXUm'

Hi fb]hb'gYhb[ . 'H\]g'Ugg][ ba Ybh]g'gi Va ]hYX'h'fci [ \ 'Hi fb]hb'UbX'gh XYbng'WUb'gYY'Hi fb]hb'ga ]'Uf]m  
fYdcfg"



F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

K YY\_mfYUX]b[ g`k ]`VY`Uj U]UV`Y j ]U`h`Y`A ccX`Y`g]fY`Zcf`h`g`Wci fgY`

D`YUgY`bch`h`Uhk`Y`k ]`VY`i`g]b[ `6`UW`VcUfX`I` fU`Zcf`ci`f`YW`fYgž`Ug`h`g`Wci`fgY`]g`h`fi`b`cb`]bY`"=  
YI`dYW`mci`h`U`fY`bX`YW`fYgž`k`\\W`k`]`i`gi`U`mfi`b`Zcf`Ufci`bX`&`\`ci`fg`H`Y`h`]fX`\`ci`f`k`Ug`i`gYX`Zcf`Z`a  
j`Yk`]b[ `]b`ZUW`h`ZUW`YW`fYg`"5g`gW`fY`b]b[ `\`ci`f`cb[ `Z`a`g`cb`]bY`]b`h`Y`YW`fY`h`a`Y!g`ch]g`bchU`j`]UV`Y`



DfYggžA UbWYgřřf'UbX`BYk `Mcf\_ž&\$\$) "

Gi Va ]gg]cb`cZ5ggYgga YbhiHUg\_g

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

≠mci`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`  
`l`ci`fg`UfY`,`.\$`\$Ua`-`-%`\$.\$`\$da`icb`k`YY`\_X`Umg`U`bX`-`.\$`\$Ua`-`-`).`\$`\$da`icb`k`YY`\_Y`bX`g`f`l`\*)`X`Umg`U`m`Y`U`f`l`"≠mci`  
UfY`i`b`UV`Y`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybhi`Xi`Y`hc`U`Z`Ji`h`k`]h`Hi`fb]h]b`mci`a`Um`Udd`m`Z`f`U`b`YI`HY`bg]cb`z`Vi`hmc`i`  
a`i`gh`f`Y`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`Yj`U`b`h`X`c`W`a`Y`b`h`g`k`hc`  
]b`Wi`XY`U`g`Y`j`]X`Y`b`W`hc`gi`ddc`fh`mci`f`YI`HY`bg]cb`Udd`]W`h]cb""≠mci`Ya`Uj`9I`HY`fb`U`Gi`ddc`fh`mci`k`]`  
Ui`hc`a`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`hc`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`Y`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`f`a`U`h]c`b`c`b`l`c`k`hc`gi`Va`]h]Ugg][`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]Ugg][`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]h]Yg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[ ]Uf]ga ž'Wcdmf][ \hžI 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'jb'h'Y'I BGK 'Wca a i b]m
- `cWJh'gYfj ]W'g'UbX'jbZcfa 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](#)

XYa ]W#Zcfa Uh]cb

gYbh]U`gh XYbh]bZcfa Uh]cb`fY`Uh]b[ `tc.

fYei Ygth]Zcf`YI H`bg]cb/

`UhY`gi Va ]gg]cbg[ [ i ]XY`]bYg/

fYj ]Yk `cZa Uf\_g/

I B GK `< YU`h `UbX`GUZY`mdc`]WYg/

YI Ua ]bUh]cb`dfcW`Xi fYg/

gdYW]U`W`bg]XYfU]cb`]b`hY`Yj YbhcZ]`bYgg`cf`a ]gUXj Ybh fY/

Zcfa

