

ARTS2904

8 fYggYX 'hc '?]``. '8 fYgg 'UbX '*=*XYbh**]**hm]b '<]ghc fm

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

7 ci fgY[·]Cj Yfj]Yk

GHJZZ7cbHJWh78YHJ]`g

7cbj Ybcfg

BUa Y	9a U]`	5j U]`UV]`]m	@cWUh]cb	D∖cbY
A]bU [™] Fc₩g	a "fcWfg4 i bgk "YXi "Ui	D`YUgY`WćbHJWhij]U Ya U]`	A cfj Yb 6fck b ') -	-',)&'(,

Hi hcfg

BUa Y	9a U]`	5j U]`UV]`]m	@cWUh]cb	D∖cbY
>Ua YgʻDUi ``	∕*dUi ``4 i bgk "YXi "Ui	D`YUgY`WcbHJWhij]U	A cfj Yb ⁻ 6fck b	
	_	Ya U]`	&%%	

GWXcc``7cbHJWhi=bZcfaUh]cb

GWkcc``cZ<iaUb]h]Yg'UbX'@Ub[iU[Yg

@cWUhjcb. `GW&cc``CZJWYžAcfjYb 6fckb 6i]`X]b[ž@YjY``&ž&),

CdYb]b[`<ci fg. `A cbXUm! `: f]XUmž - Ua `!`) da

D\cbY. Ž*%&'-',) %*, %

: UI . Ž*%&'-' ,) ', +\$)

9a U]`. <u>\U`4 i bgk "YXi "Ui</u>

7ci fgY[·]8YHJ]`g

7 fYX]hDc]bhg[·]*[·]

Gi a a UfmcZhXY7ci fgY

5ggYgga Ybh

 $\mathsf{D}^{\mathsf{Y}}\mathsf{U}\mathsf{g}\mathsf{Y}^{\mathsf{W}}\mathsf{Y}\mathsf{W}_{\mathsf{T}}^{\mathsf{T}}\mathsf{h}\mathsf{Y}^{\mathsf{T}}\mathsf{A}^{\mathsf{T}}\mathsf{c}\mathsf{c}\mathsf{X}^{\mathsf{Y}}^{\mathsf{T}}\mathsf{g}]\mathsf{h}\mathsf{Y}^{\mathsf{T}}\mathsf{Z}\mathsf{c}\mathsf{f}^{\mathsf{T}}\mathsf{h}\mathsf{Y}^{\mathsf{T}}\mathsf{Z}]^{\mathsf{Y}}\mathsf{g}^{\mathsf{T}}\mathsf{c}\mathsf{b}.$

%"Hihcf]U``fYUX]b[g`UbX`eiYgh]cbg`Zcf`X]gWigg]cb`]bWiX]b[`h\Y`eiYgh]cbg`Zcf`h\Y`fYgdcbgYg`hc`fYUX]b[g UggYggaYbh

&"::]Y`cb`GYa]bUf!!`h\]g`]g`h\Y`Z]`Y`h\Uh`Yhg`mci`_bck`h\Y`fYUX]b[`fYei]fYX`Zcf`YUW\`gYa]bUf`UbX`h\Y eiYgh]cbg`Zcf`X]gWigg]cb"``K\]Y`bc`UggYggaYbh]g`XiY`Zcf`h\Y`gYa]bUfgž`h\Y`fYUX]b[`UbX`X]gWigg]cb`k]`` VY`]b`h\Y`WUgg`hYgh"

g]a]`Uf]hmifYdcfhg"

5ggYgga Ybh&. ⊕X]j]Xi U`Yl YfW]gY

GHJfh'XUHY. `\$%#\$*#&\$&%`\$(.\$\$`DA

8YHJ]`g.

Ghi XYbhgʻWkccgYʻUʻdi Vʻ]WZ][i fYʻfY"["ždfYg]XYbhždf]a Yʻa]b]ghYfža cbUfWkŁUbXʻUggYa VʻYʻd\chc[fUd\g Zfca ʻbYk gdUdYfgža U[Un]bYgʻUbXʻh\Y`k YVžUbXʻUbUʻmYʻh\Y]fʻgYʻZfYdfYgYbhUh]cbʻ]bʻh\Y]fʻXfYggž XYdcfha YbhUbXʻWcbgi a dh]cbʻdfUWf]WYg"`: YYXVUW_`]gʻVm]bX]j]Xi Uʻ`Wca a Ybhgʻ[]j Ybʻcbʻh\YʻXUmcZh\Y dfYgYbhUh]cbʻUgʻk Y```Ugʻk f]hhYbʻWca a Ybhgʻcbʻh\YʻV]Vʻ]c[fUd\mgi Va]hhYXʻffYhi fbYXʻh\YʻZc``ck]b[ʻk YY_L'

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

FYZYfihcih\Y``YWnifYicbiUbU`mg]b[`h\Yid\chc[fUd\`Zcf\ckihciXcih\]g"``H\YfY`]g'U'[fcid`YIYfW]gY`]bik YY_ '`Xif]b[`h\YigYa]bUfik \YfY`ghi XYbhg``dfUW]WY`UbU`mg]b[`d\chc[fUd\g"

Ghi XYbhgʻ\Uj Yʻhcʻgi Va']hUʻ*\$\$ʻk cfXʻhfUbgWf]dhcZh\Y]fʻUbUʻng]gʻUgʻk Y```UgʻUʻcbYʻdU[YʻUbbchUhYX V]V`]c[fUd\mi dʻcUXYX'h\fci [\`Hi fb]h]b"`H\YʻUbbchUhYX`V]V`]c[fUd\mi^gha YUbgʻghi XYbhgʻk f]hYʻU gYbhYbWYʻcfʻhk cʻUZhYfʻYUWXʻfYZYfYbWYʻWebgi `hYX'hc``Yhi gʻ_bck `\ck 'h\Yʻgci fWYʻ\Y`dYX'h\Ya`]bʻh\Y]f UbU`ng]g"`Mci ʻg\ci `XʻUgʻa i WXʻUgʻdcgg]V`Yʻi gYʻgWXc`Uf`mk cf_`cb`mci fʻdYfgebʻf]YʻWebgi `hV]c[fUd\]Ygʻ]Z dcgg]V`Yʻcf`\]ghcfmihYI hVcc_gŁ'Ugʻk Y```Ugʻa UhYf]U``cb`h\Yʻdc`]h]WU``WebhYI hcZh\Yʻh]a Y"ʻ=bʻgca Y`WUgʻg gVXc`Ufg\]dʻcb`Webghfi Wf]cbgʻcZ]XYU``Zrʿa`]b]b]h]Yg#a UgW``]b]h]Yg#[YbXYf`cZh\Y`dUfh]W``Uf`Weʻi bhfm#W``hi fY a UmU`gc`VY`j Yfmi]a dcfhUbh'

H\Y'UggYgga Ybhi]g'Xi Y'cb'f\Y'A cbXUmcZk YY_', ž>i`m%+ž&\$&%Uhi) da "'5hih hcf]U`g'Zca 'k YY_', !%\$'k Y k]```Ug_'Zcf'j c`i bhYYfg'hc'dfYgYbhi\Y]f'UbU`mg]g'Uhih hcf]U`g'hc'g\UfY'k]t\ 'WUgga UhYg'UbX'[YhZYYXVUW_'''

Hi fb]h]b`gYh]b[.`H\]g`Ugg][ba Ybh]g`gi Va]hhYX`h\fci [\`Hi fb]h]b`UbX`gh XYbhg`WUb`gYY`Hi fb]h]b`g]a]`Uf]hm fYdcfng"

5ggYgga Ybh' . FYgdcbgY'hc'fYUX]b[g

GHJfh'XUHY. *\$%#\$*#&\$&%*\$).\$\$*DA

8YHJ]`g.

Ghi XYbhgʻgi Va]hUʻfYgdcbgYʻfWU") \$\$!*\$\$`k cfXgŁhcʻgYhei YghjcbgʻcbʻUʻk YY_`mfYUX]b[`VYZcfYʻcbY hi hcf]U`": YYXVUW_`]gʻj]Uʻ]bX]j]Xi U`Wca a YbhgʻUbX`]b!WUggʻX]gW gg]cb"

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

.

GYY'h\Y'Z]Y'cb'Hi hcf]U``fYUX]b[g'UbX'ei Ygh]cbg'Zcf'X]gW gg]cb'f]b'h\Y'A ccX`Y'g]hYEZcf'k YY_'' `fh\Y'Ncch gi]hEZcf'h\Y'ei Ygh]cbg'mci `bYYX'hc'Ubgk Yf'Zcf'h\]g'UggYgga Ybh'

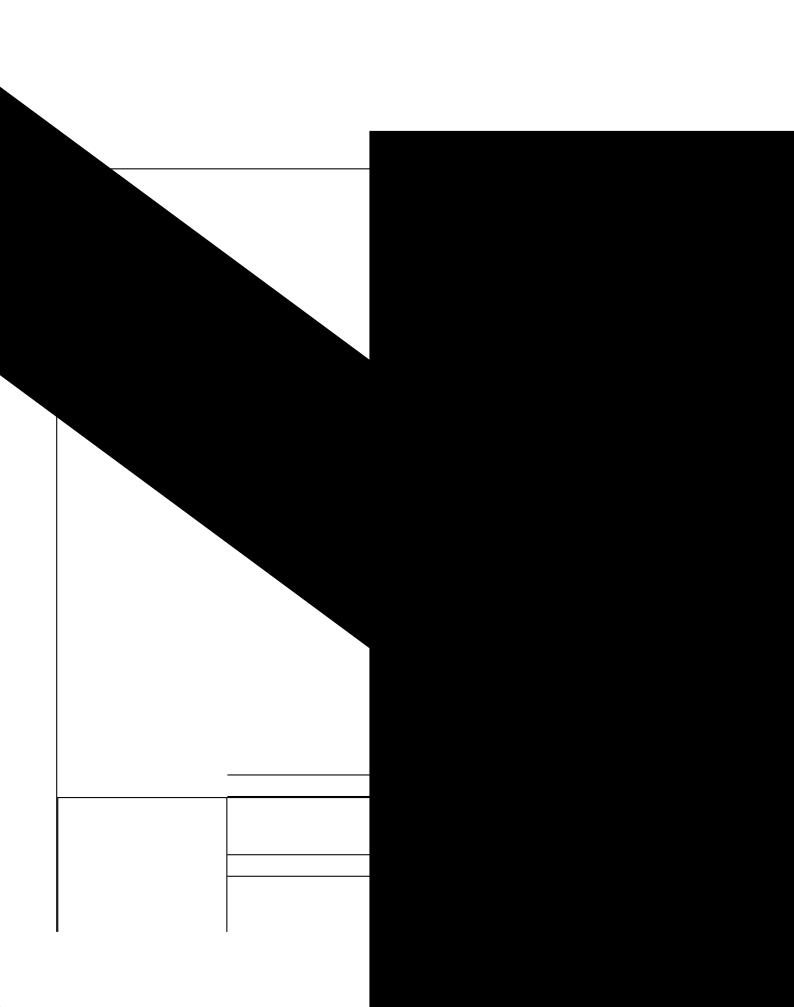
Hi fb]h]b`gYh]b[.`H\]g`Ugg][ba Ybh`]g`gi Va]hhYX`h\fci [\`Hi fb]h]b`UbX`gh XYbhg`WUb`gYY`Hi fb]h]b`g]a]`Uf]hm

fYdcfhg"

5ggYgga Ybh (. FYgYUfW YggUm

GHJfh`XUHY. `\$%#\$*#&\$&%`\$(.\$\$`DA

8 YHJ]`g.



F Ygci fWg

DfYgWf]VYX F Ygci fWYg

 $\label{eq:constraint} \begin{array}{l} \textbf{7ci fgY`FYUX]b[g"`FYUX]b[g`Zcf`h\Y`h hcf]U`g`WUb`VY`UWWYggYX`h\fci [\`h\Y`A ccX`Y`G]hY`i bXYf`h\Y`@Y[Ubhc`[fYYb``]b_`Ybh]hYX.`FYei]fYX`FYUX]b[g`Zcf`h\Y`7 ci fgY"`$

FYWca a YbXYX FYgci fWYg

FYWca a YbXYX HYI h "A]bU'F cWfg'UbX'@ci]gY'9Xk UfXg'ffXg"łź

FZWBa/[f[UeaX6dNee[`3e[SS`VfZW3_Wd[USefbf][\hcb."GiggYI5WUXYa]WDfYggž&\$\$+t"

Gi [YghYX F YZYfYbWrg" >ci fbU`g.

8SeZ[a`FZWack

 $FWJf[W] 3 < agd S^aX5 afZ S`V 5g/fgdW$

;`fWd Sf[a`S^<agd S^aX8SeZ[a` E fgV[We

>gj gdk, : [efadkł 5g/fgd₩ 5a`eg_bf[a`

HWefa\FZW<agd S^aXESdfad[S^? SffWde

='fYWca a YbX'i g]b['th.YgY'?ci fbU`g`th.Uhth.Y``]VfUfm\c`Xg`]b`Y`YWfcb]WZcfa "``Mci 'k]``Z]bX``chg`cZfYUX]b[g mci 'Wci `X'a]bY`Zcf`mci f`YggUng"``GYY'U`gc'th.Y`V]V`]c[fUd\midfcj]XYX`]b`th.Y`YggUm`]gh'

K YVg]hYg

='fYWca a YbX`VXYW_]b[`6`cca gVi fmidfYgg'`XfYgg`UbX`ZJg\]cb`gYf]Yg"``H\Ymidi V`]g\YX`a cghcZh\Y`Vcc_g cb`XfYgg`fgc`]h]g`WU``YX`h\Y`XfYgg`dfYggŁ"

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

7 ci fgYgʻUfYʻdYf]cX]WU``mfYj]Yk YXʻUbXʻgh XYbhgʻZYYXVUV<u>`</u>]gʻi gYX'hcʻ]a dfcj Yʻh\Ya "`: YYXVUV<u>`</u>]g [Uh\YfYXʻi g]b[ʻj Uf]ci gʻa YUbgʻ]bWi X]b[ʻI BGK 'gʻa m9I dYf]YbWf"`HYUV\]b[`9j U`i Uh]cbgʻWcbXi WhYXʻ]b &\$%%gi [[YghYXʻUʻgʻ][\hXYXi Wf]cbʻ]bʻh\Y`bi a VYf`cZfYgdcbgYgʻhcʻh hcf]U``ei Ygh]cbg"`=fYXi WfXʻh\Ya 'Zfca

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

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

Zmci YbWci bhYf'U'dfcV'Ya 'k \Yb'UhYa dhjb['hc'gi Va]hmci f'Ugg][ba YbhN fci [\ 'Hi fb]hjbžd'YUgY hY'Yd\cbY'9I hYfbU'`Gi ddcfhcb'-',) '' ' '%cf'Ya U]`'h\Ya 'cb'YI hYfbU'hY'hgi ddcfh4 i bgk "YXi "Ui '"'Gi ddcfh \ci fg'UfY', .\$\$Ua '-'%\$.\$\$da 'cb'k YY_XUmg'UbX'-.\$\$Ua '-') .\$\$da 'cb'k YY_YbXg'fl *) 'XUmg'U'mYUfŁ'' Zmci UfY'i bUV'Y'hc'gi Va]hmci f'Ugg][ba YbhXi Y'hc'U'ZJi `hk]h\'Hi fb]hjb'mci 'a UmUdd`mZcf'Ub'YI hYbg]cbžVi hmci a i ghfYhU]b'mci f'hjW_Yhbi a VYf'Zfca '9I hYfbU'`Gi ddcfhfU'cb['k]h\ 'Ubmch\Yf'fY'Yj UbhXcW a YbhgŁhc]bWi XY'Ug'Yj]XYbWY hc'gi ddcfhmci f'YI hYbg]cb'Udd`]WUh]cb'' Zmci 'Ya U]`'9I hYfbU'`Gi ddcfhimci 'k]`` Ui hca UhjWU'`mfYWY]j Y'U'hjW_Yhbi a VYfžVi h]Zmci 'hY`Yd\cbY'mci 'k]``bYYX'hc'gdYWJZWU``mUg_'Zcf'cbY" Hi fb]hjb'U`gc'dfcj]XYg'i dXUhYg'cb'h\Y]f'gmghYa 'gfUh'g'cb'Hk]hYf"

; YbYfU`mžUggYgga YbhHUg_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 Ybh'`=b`]bgHUbWfg`k \YfY`h\]g`]g`bchdcgg]V`Yž`]hk]```VY`gHUhYX`cb`mci f`Wci fgY**'**g`A ccX`Y`g]hY`k]h\ U`hYfbUh]j Y`gi Va]gg]cb`XYHU]`g"

: cf`]bZcfa Uh]cb`cb`\ck `hc`gi Va]hUgg][ba Ybhg`cb`]bY`j]U`A ccX`Y.`\hhdg.##gh XYbh'i bgk "YXi "Ui #\ck! gi Va]hUgg][ba Ybha ccX`Y

5WUXYa]W<cbYghmUbX`D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b['H\Y`k cfXg`cf`]XYUg`cZcH\Yfg`UbX`dfYgYbH]b['H\Ya `Ug`mci f`ck b"`=h\Wb`HU_Y`a Ubm Zcfa gžZīca `XY`]VYfUHY`W\YUH]b['hc`UWV]XYbHU``mWcdm]b['Zīca `U`gci fW'`k]H\ci hUW_bck `YX[Ya YbH'

I BGK '[fci dg'd`U[]Uf]ga ']bhc'h\Y'Zc``ck]b['WUhY[cf]Yg.