

ARTS2452

 $7 \] bYgY \] 9b[\] g\] HfUbg\] Uh] cb$

7ci fgY^{*}Cj Yfj]Yk

GHJZZ:7cbHJWh:8YHJ]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`]hm	@cWUhjcb	D∖cbY
8f'Mb[`]'Gi b	m]b[`]"gi b4 i bgk "YXi "Ui	Vm'Uddc]bha Ybh	A cfj Yb 6fck b	-',)&*(\$
			&))	

@YWhi fYfg

B Ua Y	9a U]`	5j U]`UV]`] m	@cWUhjcb	D\cbY
8f'M b[`]'Gi b		cb`]bY`Wbgi`HJHcb Uh'!(da`AcbXUmcf VmUddc]bhaYbh	-	-',)&*(\$

GWXcc`7cbHJWh ±bZcfa Uh]cb

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

@c₩U'b

7ci fgY 8YHJ] g

7 fYX]h'Dc]bhg'*

Gi a a UfmcZh\Y 7ci fgY

H\]g`Wci fgY`YI d`cfYg`fYW\bhiffUbg`Uh]cb'h\Ycf]Yg`UbX`a Yh\cXc`c[]Ygž'Ug`k Y```Ug`h\Y`fc`Y`cZ'ffUbg`Uhcfg`]b a cXYfb`a i `h]!W``hi fU``gcW]Yh]Yg"`Mci `k]````YUfb'\ck 'hc'hfUbg`UhY`VYhk YYb'7\]bYgY`UbX`9b[`]g\ži g]b[X]ZYfYbhiffUbg`Uh]cb'h\Ycf]Yg`UbX'hYW\b]ei Ygž'UbX`\ck 'hc'XYj Y`cd']bX]j]Xi U`]gYX`ghfUhY[]Yg`Zcf`mci f hfUbg`Uh]cb'h\UhiHUd']bhc'mci f'ck b'WUdUW]mmUbX`ghfYb[h\'UbX`Z fh\Yf'YI dUbX`]h'`Nci 'k]```XYj Y`cd'UbX`\cbYmci f'q_]``q`]b'hUW_`]b['X]ZZYfYbhighmYq`cZhfUbq`Uh]cb'h\fci [\'j\Uf]ci q\\UbXq!cb'hfUbq`Uh]cb'YI YfW]qYq"

7 ci fgY @YUfb]b[Ci hWca Yg

- %"]XYbhjZmfYWYbhXYj Y`cda Ybhg`]b`hfUbg`Uhjcb`h\Ycf]Yg`UbX`dfUWfJWYg`UbX`YI d`Ujb`Uh`YUghcbY`VUg]W hfUbg`Uhjcb`a cXY`#ghm`Y
- &" UggYgg`bYk `HYW\b]ei Yg`UbX`HYW\bc`c[]Yg`Uj U]`UV`Y`Zcf`9b[`]g\`UbX`7\]bYgY`lfUbg`Uh]cb
- ' "HUW_Y'IfUbg`Uhjcb`]b'U'dfcV`Ya!VUgYXž'cV'YWhj Y!cf]YbhYX'aUbbYfž'Yad`cmjb['WcbWYdhgž hYfa]bc`c[mUbX``c[]WU`ih\]b_]b['hc'^qhjZmihfUbg`Uhjcb'ci hWcaYq
- (" lfUbg`UhY`gY`YWYX`fYdfYgYbHJhj Y`hYl lg`Zfca '7\]bYgY`]blc'9b[`]g\`UbX'9b[`]g\`]blc'7\]bYgY

HYUWX]b[GhfUhY[]Yg

H\]g`Wci fgY`k]``ZJa]`]Uf]gY`mci `k]h\`fYWYbhiffUbg`Uh]cb`h\Ycf]Yg`UbX`aYh\cXc`c[]Ygž`\cb]b[`mci f`g_]``g`]b
HUW_`]b[`X]ZZYfYbhighm`Yg`cZhfUbg`Uh]cb"'H\Y``YWi fYg`]bhfcXi WY`W ffYbhihfUbg`Uh]cb`h\Ycf]YgžaYh\cXc`c[]Yg
L#b>Xdh`W\#jdij`ii`\cqu\ke`\h]\W\k\#b\#j\\X\||ai`g\ke\f\#\j\g\|\make\f\#\j\g\|\make\f\#\j\g\|\make\f\#\j\g\|\make\f\#\j\g\|\make\f\#\j\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\g\|\make\f\

5ggYgga Ybh

5ggYgga YbhHUg_g

5ggYgga Ybh'tUg_	K Y][\h	8iY'8UHY	Gh XYbh@YUfb]b[Ci hWca Yg 5ggYggYX
HfUbg`Uh]cb'9 YfW]gYg'UbX Ei]nnYg'	(\$1	; fci d'hfubg`uh]cb'YlYfW]gYg]b'kYY_''/') hihcf]U`g/±b! WUgg'ei]nnYg']b'kYY_&ž(ž+ /'-''YWn fYg"	'Ž'(
HYghg [*]	(\$1	A]X! hYfa "HYgh"]b k YY_") "YWn fY f1%) #\$' #&\$&%2/:]bU" HYgh"]b k YY_"%\$ "YWn fY f1% #\$(#&\$&%2"	' Ž'(
FYgYUfVX Dfc YVVi	&\$I	Gc`c'Wf]hjWU`fYj]Yk'XiY']b kYY_'%\$/DU]f#[fcid dfYgYbhUhjcb'XiY']b'kYY_'%\$ hihcf]U`"	%ž [*] &

5ggYgga Ybh'8YHJ]`g

5ggYgga Ybh% HfUbg`Uhjcb 9l YfWjgYg UbX E i]nnYg

8YHJ]`g.

: YYXVUW_`cb`[fci d`hfUbg`Uh]cb`Yl YfW]gYg`j]U`k f]hhYb`cf`cfU``ZYYXVUW_`hc`[fci d/ZYYXVUW_`cb`g\cfhei]nnYg j]U`]b!WUgg`X]gW gg]cb"

5ggYgga Ybh'& 'HYghg

8 YW] g.

Gh XYbhg k]``Wca d`YhY 'U'&!\ci f``cb['a]X!hYfa 'hYghf&\$i E'UbX 'U'Z]bU``hYghcZ&'\ci fg`f&\$i E'

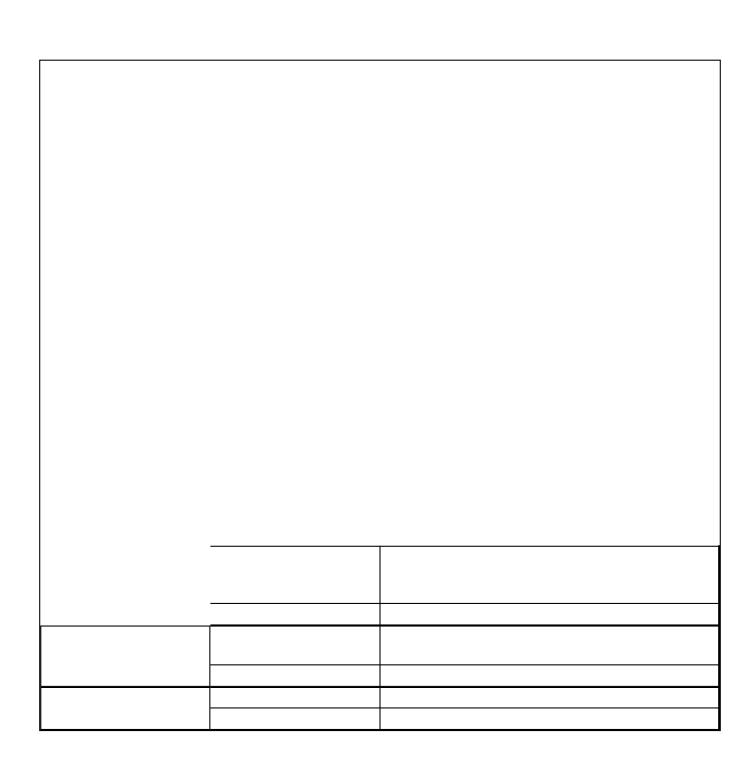
: YYXVUW_cb'a]X!hYfa 'hYghj]U']bX]j]Xi U``Wca a Ybhg"'Ghi XYbhg'k]``fYWY]j Y'U'a Uf_'Zcf'h\Y'Z]bU``hYgh'UbX WUb'Wcbgi `hih\Y``YWhi fYf'Zcf'Z fh\Yf'ZYYXVUW_"

5ggYgga Ybh' . F YgYUfW Dfc YWh

8 YHJ] g.

 $Gh XYbhg Wca d YhY U gc c WfhWU fYj]Yk fUddfcl "'%* $$ '9b[`]g k cfXg cf' \&) $$ '7 \] bYgY Wk UfUWhYfgŁ' CF' UdU]f# fci d 'dfYgYbhUh]cb fWU" ('a]bi hYg 'dYf' dYfgcbŁ''$

 $: YYXVUW\underline{\quad 'j\]U']bX]j\]Xi\ U``Wca\ a\ Ybhg`cf`]b!WUgg`X]gW gg]cb''$



FYgci fWyg

DfYgWf]VYX F Ygci fWYg

5 ```fYUX]b['a UhYf]U`g'UfY'Uj U]`UV`Y']b'A ccX`Y"

FYWca a YbXYX FYgci fW/g

6cc_g

A U`a _\hat{A} fž?]fghYb/K]bX`Yž?Yj]bž`FZWAj XadV: S` VTaa] aXFdS` e'Sf[a` E fgV[WežC | ZcfX`| b]j Yfg]hm DfYggž &\$\%\"`f9Vcc_'Uj U]`UV`Y`Uhl BGK \``]VfUfmL

A]``%bž7UfaYb`YX'''`FZWDagf*WYWZS`VTaa]aXfc\$`e'\$f[a`efgV[Wež<cVc_Yb.`HUm`cf'UbX':fUbW]gž&\$%"f9Vcc_'UjU]`UV`Y`UhiBGK``]VfUfmL

A i bXUmž'>YfYa m''; `fcaVgU[`Y fcb` e'Sf[a` efgV[We, fZWaqWe S` V Sbb'{USf[a` ež: ci fh\ YX]h]cb"ž'C l ZcfX'. HUmcf'/ : fUbW]qž'&\$%""f9Vcc_'Uj U]`UV'Y`Uhil BGK ``]VfUfmŁ

 $\label{eq:condition} $$Dc``UfXž8Uj]X/7 \setminus Ub\check{z}G]b!kU]"''3`W'UkU'abSWW[SaXfdS`e'Sf[a`,5Z[`WeW\Z7`Y'[eZ\Z5Z[`WeW\Z9]'''3) W'UkU'abSWW[SaXfdS`e'Sf[a`,5Z[`WeW\Z9]'''] $$ dUdYfVUW_YX"z'<cb['?cb[..7\]bYgY'Ib]jYfg]mDfYggž&$$%"$

FcV]bgcbž8ci[`Ug"'4WUa_['YSfdS`e'Sfad,S`['fdaVgUf[a` fa fZWfZWadk,S`V bdSUf[UWaXfdS`e'Sf[a`ž" fXYX"ž'A]'hcb'DUf_ž'5V]b[Xcbž'Clcb/BYk 'Wcf_'.Fci hYX[Yž'&\$\%":f9Vcc_'Uj U]`UV`Y'Uhl BGK ``]VfUfmŁ

 $7 \ Y b z < cb[k Y] z : S ` K[Y XS ` k[Y UZg ' 9ggYbh] U ` 'hf Ubg` Uh] cb 'Zf ca ' 7 \] b Y g Y `] b hc '9 b[`] g \ z \ G \ Ub[\ U] k U] ' mi ' ' | UC ' mi ' W i ' V Ub ' g \ Y \ z ` % - , "$

; i cž·N\i n\Ub[/@]žE]b[g\Yb["'K[Y: S` Zg k[eZ[ka`Y \Sa UZW Y, j [g V[Y TW ... 5 'dfUWf]WU`'Wci fgY]b 'HfUbg`Uh]cb 'VYhk YYb '9b[`]g\ 'UbX '7 \]bYgYžK i W\Ub[... K i \Ub 'XU'l i Y 'W\i VUb 'g\Y/ ... \Z''\%- *

>ci fbU`q.

? WfS, FdS` e'Sfadei <agd S? WfS, FdS` e'Sfadei <agd S^

FSdYWf,; fWd Sf[a S^ayFdS e'Sf[a EfgV[We

5Z[WeWFdS e/Sfade <aqd S^

7 ci fgY '9j U'i Uhcb 'UbX '8 Yj Y`cda Ybh

H\]g'Wci fgY'k]``'VY'Zcfa U``mYj U`i UhYX'h\fci [\'A m9I dYf]YbWY"

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

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

Image: Ybwei bhyfu'dfcv'ya k \yb'uhhya dhjb['hc'gi va]hmci f'Ugg][ba Ybhh\fci [\ 'Hi fb]h]bž'd'YUgY

Hy'Yd\cby'9| hy'fbu''Gi ddcfhcb'-',) '' ' ' %cf'Ya U]''h\Ya 'cb'Y! hy'fbu'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'mYUft"'=Z'mci
UfY'i bUV'Y'hc'gi va]hmci f'Ugg][ba YbhXi Y'hc'U'ZJi 'hk]h\ 'Hi fb]h]b'mci 'a Um'Udd'mZcf'Ub'Y! hy'bg]cbž'Vi hmci
a i ghfYhJ]b'mci f'h]W_Yhbi a VYf'Zfca '9! hy'fbU''Gi ddcfhfU'cb['k]h\ 'Ubmch\Yf'fy'Yj UbhXcW a Ybhgt'hc
]bWi XY'Ug'Yj]XYbW' 'hc'gi ddcfhmci f'Y! hy'bg]cb'Udd']WUh]cb"'=Zmci 'Ya U]''9! hy'fbU''Gi ddcfhmci 'k]'`
Ui hca Uh]WJ'`mfYW']j Y'U'h]W_Yhbi a VYfZ'Vi h]Zmci 'hY'Yd\cbY'mci 'k]``bYYX'hc'gdYW]Z]WJ'`mUg_'Zcf'cbY''
Hi fb]h]b'U'gc'dfcj]XYg'i dXUhy'g'cb'h\Y]f'gmghYa 'ghUh' g'cb'Hk]hyf''

; YbYfU`mž'UggYgga YbhiHug_g'a i ghVY'gi Va]hhYX'Y`YVWfcb]\WJ``mij]U'Y]h\Yf'Hi fb]h]b'cf'U'A ccX`Y Ugg][ba Ybh''=b']bgHJb\W'g'k \YfY'h\]g']g'bchdcgg]V`Yž']hk]```VY'gHJhYX'cb'mci f'\\circ i fgY'g'A ccX`Y'g]hY'k]h\U`hYfbUh]j Y'gi Va]gg]cb'XYHJ]`g"

cfi]bZcfa Uhjcbicbi\ckihcigi Va]hUgg][ba Ybhgicbi]bYij]UiA ccXiY.i\hdg.#gh XYbhi bgk "YXi "Ui #\ck! gi Va]hUgg][ba Ybha ccXiY

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

D`U[]Uf]ga i]gii g]b[ih\Yik cfXgicfi]XYUgicZch\YfgiUbXidfYgYbh]b[ih\Ya iUgimci fick b"i=hWJbihU_Yia Ubm Zcfa gžZfca iXYi]VYfUhYiWXYUh]b[ihciUWW]XYbhU`mWcdm]b[iZfca iUigci fWYik]h\ci hiUW_bck iYX[Ya Ybh'

IBGK [fcidg'd'U[]Uf]ga]bhc'h\Y'Zc``ck]b['WUhY[cf]Yg.

• i bXYfgHJbX'mci f'f][\hg'UbX'fYgdcbg]V]`]h]Yg'Ug'U'gh XYbh'Uhil BGK

5 WUXYa]W + DZcfa Uh]cb

: cf'YggYbhJU`'ghi XYbhi]bZcfa UhJcb'fY`UhJb['hc.

- fYei Yghg Zcf Yl hYbg]cb/
- `UhY 'gi Va]gg]cbg '[i]XY `]bYg/
- fYj]Yk 'cZa Uf_g/
- I BGK '< YU'h\ 'UbX'GUZYhm'dc']W]Yg/
- YI Ua]bUh]cb dfcW/Xi fYg/
- •