

ARTS5505

DYfgcbU`]gYX'9b[`]g\'@Ub[i U[Y'9b\UbWa Ybh

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

7ci fgY 8YHJ] g

7 fYX]hDc]bhg**

Gi a a UfmcZh\Y 7 ci fgY

7 ci fgY @YUfb]b[Ci hWca Yg

5ggYgga Ybh

5bmfYZYfYbW]b['gmghYa 'gi W.'Ug'5D5']g'UWWYdHUV`Y']b'h\]g'Wci fgY'Ug'`cb['Ug']h']g'Wcbg]ghYbhmiUdd`]YX. W.YW_I BGK 'Gi ddcfhiZcf'F YZYfYbW]b['5gg][ba Ybhg. <u>\htdg.#ghi XYbh'i bgk "YXi "Ui #YZYfYbW]b[</u>

Gh XYbhg WUb UWW gg dfYj]ci g gh XYbhgUa d Yg cb C dYb@YUfb]b["

5ggYgga YbhHUg_g

5ggYgga Ybh'tUg_	K Y][\h	8i Y'8UHY	Gh XYbh@YUfb]b[Ci hWca Yg 5ggYggYX
DYfgcbU`dfcYWiXYg][bfDD8E	' \$1	&) #\$*#&\$&%'%%\$\$ [*] DA	'Ž(Ž)
DfcYWhc[Vcc_'UbX'&ifbU'.	&\$I	&' #\$+#&\$&%`%%\$\$`DA	%ž [*] &
Cfu``DfYgYbfUf]cb'!'%\$ a]bi fYg'	&\$ı	&*#\$+#&\$&%`\$\$\$ ¹ 5A	(Ž)
FYZYW¶jY'YggUmi	' \$ı	%\$#\$, #&\$&%`%%\$\$`DA	%ž [*] &

5ggYgga Ybh'8YhJ]`g

5ggYgga Ybh% DYfgcbU dfc YWhXYg][b fDD8Ł

GhUfhXUhY. Bch5dd`]WUV`Y

@Yb[h\.'%) \$\$"k cfXg

8 YHJ] g.

Ghi XYbhg XYg][b'h\Y]f'ck b'dYfgcbU``dfc YWhrc 'UXXfYgg'h\Y]f'ck b'9b[`]g\``Ub[i U[Y'bYYXg"'H\Ym'UfYfYei]fYX'hc 'gdYW]Zmh\Y]f'dYfgcbU``dfc YWh[cU`žVUW_[fci bXža Yh\cXžfYgci fWgždfc[fYgg'a YUgi fYa Ybhžh]a Y`]bYžgW\YXi `Y'UbX'Ubh]W]dUhYX'ci hWca Yg"'H\YmbYYX'hc 'XYj Y`cd'h\Y]f'DD8 'VUgYX'cb'fY`Yj Ubh`]hYfUhi fY'cZh\Y'Z]Y`X'WcbWfbYX"'H\Y'k cfX``]a]h]g'%) \$\$"

Gh XYbhg fYWY]j Y k f]hhYb ZYYXVUW_VUgYX cb fi Vf]Wg"

 $\label{thm:continuous} \begin{tabular}{ll} Hi fb]h]b gYh]b[. Hi]g Ugg][ba Ybh]g gi Va]hhYX hI fci [II]h fb]h]b UbX ghi XYbhg Wub gYY Hi fb]h]b g]a] Uf]h fYdcfhg"$

5ggYgga Ybh& Dfc YWh`c[Vcc_UbX 'ci fbU`

GhUfhXUhY. Bch5dd`]WUV`Y

8 YHJ]`g.

Gh XYbhg fYWcfX h\Y]f^YUfb]b['UWhj]hjYg^UbX__YYd fYZYWhj Y 'ci fbU`cb'U'fY[i `Uf'VUg]g'Ug'd`

Ghi XYbhq fYWY] Yk f]hhyb ZYYXVUW_VUgYXcb fi Vf]Wg"

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

H\Y``c[Vcc_'UbX'^cifbU``XcYg'bchbYYX'giVa]gg]cb/fUh\Yfz']hk]```VY'UggYggYX'X]fYWhmcb'h\Y'Y!dcfhzc`]ch\Uhh\Y'ghXYbhWfYUhYg'UbX'g\UfYg'k]h\rh\Y'hYUW\Yfg''

Hi fb]hb gYhb[. H\]g]g bchU Hi fb]hb Ugg][ba Ybh

5ggYgga Ybh' . CfU DfYgYbHJh]cb! % a]bi hYg

GhUfhXUhY. Bch5dd`]WUV`Y

8 YW] g.

Ghi XYbhgʻdfYgYbhh\Yjf``YUfb]b[`\][\\jazaca h\Y]fʻdYfgcbU``dfcYWhzcf`UVci h%\$`a]bi hYgʻhc`]bgd]fY dYYfgʻhc`Wcbh]bi Y`hc`Yb\UbWY`h\Y]f``Ub[i U[Y`g_]``gʻYj Yb`UZYf`Wca d`Yh]b[h\Y`Wci fgY"`H\YmUfY`fYei]fYX`hc gi Va]hUb`UVghfUWhfUVci h'%) \$`k cfXgŁ`UVci hk\Uhh\YmUfY`[c]b[`hc`dfYgYbhU'Wci d`Y`cZk YY_g`VYZcfY`h\Y dfYgYbhUh]cb`XUm'`Ghi XYbhgʻfYWY]j Y`k f]hhYbʻZYYXVUW_Zfca hi hcf`cb`UVghfUWgʻf%\$i Ł`UbX`Zfca dYYfgʻcb dfYgYbhUh]cb`f%\$i Ł`VUgYX`cb`fi Vf]Wg''

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

H\Y`UVghfUWhi]g`Xi Y`cb`Hi fb]h]b`Vm-`Ua `A cbXUm'&*`>i `mfK YY_'-\!"H\Y`dfYgYbhUh]cb`]g`dYYf!UggYggYX UbX`Xi Y`]b`h\Y`WUgg`cZh\Y``Ughk YY_/ghi XYbhg`k \c`a]gg`h\Y`Z|bU``WUgg`k]``a]gg`h\]g`%\$i `UggYgga Ybh''

 $\label{eq:higher} \begin{tabular}{ll} Hi fb]h]b gYhdb gYYhd for $[\ \ \]h]YXh\fci [\ \ \]h]b UbXgh XYbhg WUb gYYhd fb]h]b g]a] Uf]hm fYdcfhg" \end{tabular}$

5qqYqqa Ybh(. FYZYWNj Y YqqUm

GHJfhXUhY. Bch5dd`]WUV`Y

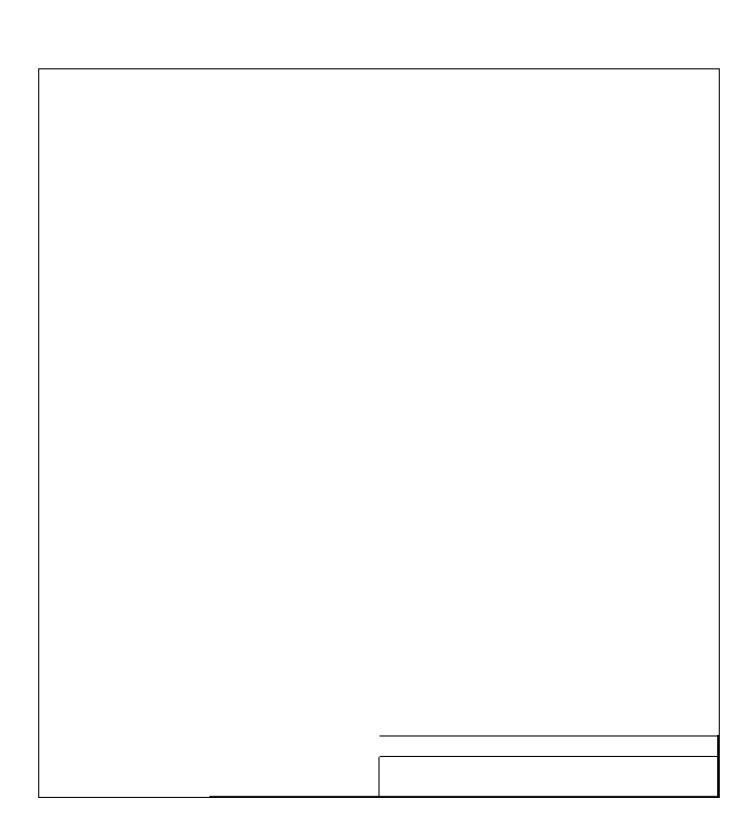
@Yb[h\. '&\$\$\$ k cfXq

8YW]`q.

Ghi XYbhgʻUbU`mhjWJ``mʻUbX`WfjhjWU``mfYZYWhcbʻh\Yjf``YUfb]b['Yl dYf]YbW'`cZja d`Ya Ybhjb['h\Yjf'ck bʻdYfgcbU` dfc^YWhUbX'di hʿUW\]Yj UV`Y`UWhjcbgʻ]bʻU'd`UbʻZcf'h\Y`bYl h`YUfb]b['ghU[Y"'H\Y`k cfX``]a]h`]gʻ&\$\$\$"

 $\label{eq:continuity} Gh XYbhg fYWM ji Y k f]hhYb ZYYXVUW_VUgYX cb fi Vf]Wg" H\ jg jg h\ Y Z]bU U UggYgga YbhZcf UhhYbXUbWM di fdcqYg"$

 $\label{thm:continuous} \begin{tabular}{ll} Hi & fb & fb & gYM &$



FYgci fW/g

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]bz'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 UmUdd'mZcf'Ub'Y! hy'bg]cbz'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 Ybhgthc
]bWi XY'Ug'Yj]XYbW' hc'gi ddcfhmci f'Y! hy'bg]cb'Udd']\WJh]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'gdY\WZ]\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

5WUXYa]W±bZcfaUhjcb

: cf`YggYbh]U``gh`XYbh]bZcfa~Uh]cb`fY`Uh]b[~hc.

- fYei Yghg Zcf Yl hYbg]cb/`UhY gi Va]gg]cbg [i]XY`]bYg/