



CRIM2042

9l d`U]b]b[`7 f]a Y

HYfa `Hk c`##`&\$%-

7ci fgY`Cj Yfj JYk

`GHUZZ7cbhUWhi8YHJ`g`

`7cbj Ybcfg`

B Ua Y	9a Uj`	5j Uj`UVj]m	@cWjhcb	D\cbY
8f?Yj`8YfhUX]Ub	_"XYfhUX]Ub4 i bgk "YXi "Ui	6mUddc]bha Ybh	A cfj Yb`6fck b ; ''	
8f`5bXm? U`UXY`Zcg	U"_U`UXY`Zcg4 i bgk "YXi "Ui	6mUddc]bha Ybh	A cfj Yb`6fck b ; ('	

GW\cc``7cbhUWhi`bZcfa Uhjcb

GW\cc``cZGcWjU`GWYbWg

Fcca`%) -

A cfj Yb`6fck b`7&\$

Ya Uj`.gchg4 i bgk "YXi "Ui

d\cbY.`\$&`-`'` ,)`%`\$+

7ci fgY'8YHJ]`g

7fYX]hDc]bqg`*`

Gi a a UfmicZ\hY'7ci fgY

Gi VYWh5fYU.'5d_ [a`aYk

K \UhWli gYg'W]a Y3'K \c'jg'a cFY`_Y'mic'cZYbX'UbX'k \m8'K \UhWUb'k Y'Xc'rc'dfYj YbhW]a Y3'<ck'XcYg W]a]bc`c[]W]`hYcfm\Y'd'i g'i bXYfgHUbX'hY'W ffYbhW]a]bU`↑ gh]W'gmgh'a 3'H\]g'Wci fgY'Vi]Xg'i dcb mci f'i bXYfgHUbX]b['cZ\hY'a U'cf'hYcfYh]W]`UddfcUW\Yg'rc'W]a Y'UbX'W]a]bU`↑ gh]W'z'UbX'gYY_g'rc Ubgk Yf'hY'UVcj Y'ei Yghcbg"7 f]a]bc`c[]W]`hYcfmk]`VY'W]h]W]`mYI Ua]bYX'Zcf']rg'i h']m]b'XYj Y'cd]b[dc']WnifYgdcbgYg'UbX'i bXYfgHUbX]b['hY'\]ghcf]W]`UbX'Wcbh'a dcfUfmXYj Y'cda YbhcZci f'i bXYfgHUbX]b[g cZW]a Yz'W]a]bU']miUbX'hY'W]a]bU`↑ gh]W'gmgh'a "G]a]Uf'rc'chYf'gcV]U`gW]YbW'gž'W]a]bc`c[m]g'U fYZYI]j Y'X]gW]d']bY'k \YfYVmdUfhicZ\hY'W]a]bc`c[]W]`YbhYfd]gY'jg'rc'W]h]W]`mYI Ua]bY'W]a]bc`c[m]rgY'Z K Y'k]`cc_'UhhYcf]Yg'hUhhY'd'i g'rc'i bXYfgHUbX'k \Uh[YbYfUH'g'W]a Yz'\ck'rc'dfYj YbhW]a Y'UbX'\ck W]a Y'jg'VYghXYU'hk]h"

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

% @cWUHy'W ffYbhW]a Y'dc']Wmk]h]b'hY'WcbhYI hcZW]a]bc`c[]W]`hYcfm
&" →Ybh]ZmghfYb[h'g'UbX'k YU_bYggYg:]b'Wcbh'a dcfUfmdi V]WXYVUH'g'UbX'W]a Y'Wcbh'c'dc']W]Yg'UbX UggYgg'hY'j U']X]micZi bXYf'm]b['hYcfYh]W]`Uggi a dhcbg
' " A Ud'hY'g\]Zg']b'W]a]bc`c[]W]`hYcfmZca 'hY'UH'%'h'W]bhi fmlc'W ffYbhXUm
(" →Ybh]ZmhYcfYh]W]`UddfcUW\Yg'UXcdhY'X']b'i bXYfgHUbX]b['W]a Yz'Wli gYg'cZW]a Yz'di b]g\va Ybh fU]cbU'Y'UbX'ghfUH' []Yg
) " 8Ya cbghfUH'mci f'i bXYfgHUbX]b[g'cZW]a Y'hYcfmUbX'dc']Wnh'fci [\gW'c'UfmiX]gW gg]cbž XYVUH'UbX'k f]h'Y'b'UbU'mg]g'cZW]gY'gfi Xma UH'f]U'UbX'dc']W]Yg

HYUW\]b['GhfUH' []Yg'

H\]g'Wci fgY'\Ug'VYYb'XYg][bYX'rc'YI dUbX'mci f'i bXYfgHUbX]b['cZW]a]bc`c[]W]`hYcf]Yg'UbX'hY]f fY'Uh]cbg\]d'rc'dc']Wn]UbX'dfUW]W]z'Vi]X]b['cb'df]cf'YI dYf]YbW'UbX'_bck'YX[Y'j]bW] X]b['hUhh[U]bYX']b 7 F → %\$\$'UbX'f'7 F → %\$\$%Wci d'YX'k]h'UbmiY'YW]j Yg'U` † U

]bZcfa Uhc b'gc' h'Uhmc i' WUb'fYZYWhi dcb'h'Y']ggi Yg'fU]gYX'UbX'h'Yb'X]gW gg'h'Ya ']b'h' h'cf]U'g"@YWh' fYg
UfY']bh' bXYX' h'c' VY']bh' fUWh' j' Y' UbX' h'ci [\hidfcj c_]b['UbX'a Um]bWh' XY'[i YghdfYgYbh'fgz'h'Y'i gY'cZ]]XYc
W]dg'UbX'Z'a gZ'WUgY'gh' X]YgZ'ga U'![fci d'UWh' j]h'YgZ'dfcV'Ya 'VUgYX'UWh' j]h'Yg'UbX'dU]f'k cf_" H\Y'YWh' fYg
UfY'XYg][bYX'h'c'gi dd'Ya Ybh]bXYdYbXYbhghi Xmc b'h'Y' Wc' i fgY' h'UhVY[]bg'fVi hg\ci 'X' bchYbX'k]h' Wc'gY
Yb[U[Ya Ybhk]h' h'Y'k YY_'mfYei]fYX'fYUX]b[g"

Hi h'cf]U'g'k]' Wc'bg]ghcZWc''YWh' j' Y'Yi Ua]bUh'cb'j]U'WUgg'X]gW gg]cb'cZ'h'Y'h'Ycf]Yg'Yi Ua]bYX']b'h'Y
gi V'YWh'UbX'Udd']WUh'cb'cZ'h'Ya 'h'c'Yi Ua d'Yg'cZ'W'a]bU'VY\Uj]ci f'UbX'Yj Ybhg"K Y'h'U_Y'h'Y'j]Yk' h'Uh'h'Y
WUggfcca']g'U'WYU'h'j Y'gdUW'UbX'h'Uh'_bck' YX[Yz'fU'h'Yf'h'Ub'VY]b[']a dUfh'X']g'WYU'h'X'UbX'fYWYU'h'X
]b'h']g'gdUW''H\Y'gi WY'gg'cZ'h']g'dfcV'gg'XYdYbXg'i dcb'h'Y'X]U'c[i Y'YghUV']g\YX'VY'h' Y'Yb'dUfh'W]dU'bhg
fghi XYbhg'UbX'h' h'c'fg' 5Wh' j' Y'dUfh'W]dU'h'cb']b'h'Y'h' h'cf]U'g']g'YggYbh'U''K YY_'mih' h'cf]U'g'U'ck' mci' h'c'
X]gW gg'ei Ygh'cbgZ'h'Ya Yg'UbX']ggi Yg'Uf]g]b['Z'ca' mci' f']bXYdYbXYbhghi Xnz'Ug'k Y''Ug'dfcj]X]b['h'Y
cddcfi b]mih'c'Yb[U[Y']b'dfcXi Wh' j' Y'X]gW gg]cb'k]h' mci' f'dYYfg"

5ggYgga Ybh

5ggYgga YbhHUg_g`

5ggYgga YbhHUg_	K Y][\h	8i Y`8UHŸ	Gh XYbh@YUfb]b[Ci hWta Yg`5ggYggYX
7 f]a Y`h\YcfmHUg_`	%)	& # \$ * # & \$ % - ' % %) - `DA	%ž&
9ggUmi	()	&&# \$ + # & \$ % - ' % %) - `DA	&ž(ž)
:]bU`9I Ua `	(\$	F Y`YUgYX`UZŸf: cfa U`9I Ua H]a YHUV`]b[&ž ž(ž)

5ggYgga Ybh8YHU]`g

5ggYgga Ybh%`7 f]a Y`h\YcfmHUg_

GHUfhXUHŸ. `K YY_`&/ `` h hcf]U`g

@Yb[h\.`(\$ \$ `k c f X g`ž # ` % \$ | ` Y I W I X]b[` f Y Z f Y b W g

8YHU]`g.`(\$ \$ `k c f X `]b X]j]Xi U`gi Va]gg]cb" Gh XYbng`k]`f Y W]j Y`U`bi a Yf]WU`a Uf_`UbX`k f]hYb`ž Y X V U W_
k]h]b`tk c`k YY_g`cZgi Va]gg]cb"

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

H\]g`UggYgga YbhWcbg]ghg`cZtk c`Wta dcbYbng"

ቅ'K YY_(žmci 'k]''WłccgY'CB9'cZmci f'k c'd]YW'g'cZk cf_'hc'VY'gi Va]h'X'Zcf'Z]bU''UggYgga Ybh''Mci
g\ci 'X'WłccgY'mci f'VYghd]YW'hc'gi Va]h'Zcf'a Uf_]b[''Mci f'h'hc'f'k]''a Uf_'mci f'k cf_'i g]b['h'Y'gUa Y
a Uf_]b['W]h'f]U'XYd'cm'X']b'h'Y'h'hc'f]U'd'YYf'f'Yj]Yk 'dfc'W'gg''H\]g'Z]bU'gi Va]gg]cb'k]''VY'Uk Uf'YX'U
a Uf_'ci hc'Z%) ''5'WłdmcZ'h'Y'Uf'h]WYž]hg'XU'Y'UbX'gci f'W'a i ghUWł'a d'Ubm'mci f'k cf_'''H'Y'i gi U'
ghU'X'U'f'X'g'c'Z'U'W'X'Y'a]W'f'Y'Z'f'Y'b'W]b['Udd'm'hc'h\]g'UggYgga Ybh'f'Ug_''

Mci 'a i gh'Wł'a d'Y'h'h'Y'h'Ug_'Ug'Z'ck'g.

dfcgYW hX`j b`hY`BGK `8]gh]Wh7ci fh`

GY`WwCB9`cZ`hY`Z`ck]b[`WUgY`ghi X]Yg.

7 UgY`Gh Xm5.`\hd.## k k "Ui gh]]YXi "Ui #Ui #WUgYg#bgk #BGK 87 #&\$%(# \$&"\ha`

7 UgY`Gh Xm6.`\hd.## k k "Ui gh]]YXi "Ui #Ui #WUgYg#bgk #BGK 87 #&\$% #&&"\ha`

7 UgY`Gh Xm7.`\hd.## k k "Ui gh]]YXi "Ui #Ui #WUgYg#bgk #BGK 87 #&\$%#+"\$"\ha`

I`g]b[`HK C`cZ`hY`hYcf]Yg#dYfgdYW]j Yg`X]gW ggYX`Zca`K YY_`%a%\$`j b`hY`Wci fgYz`W]h]WU`mUbU`mgY`mci f`
WUgY`ghi Xm]b`fY`Uh]cb`hc`hY`W]a Y`Wca a]hYXz`hY`cZYbXYfzj]W]a žUggcW]UhYX`ZUWg`UbX`dYbU`hm\UbXYX`
Xck b`"

h`mci f`UbGk Yf`mci `a i ghYI d`U]b`lck`hY`hYcfYh]WU`UddfcUWXYg`Y`d`hc`i bXYfghUbX`cf`YI d`U]b`hY`WUgY`
ghi Xmimci `Uj Y`WcgYb`VmWca dUf]b[#WcbfUgh]b[`hY`hYcf]Yg`UbXz`]b`Xc]b[`gcž`ci h]b]b[`hY`ghfYb[h]g`
UbX`k YU_bYggYg`cZ`hY`hYcf]Yg"

H\]g`]g`bchU`XYgW]d]h] Y`bUffU]h] Y`gc`d`YUgY`Xc`bch]a d`mifY`UhY`hY`ghc`fmcZ`hY`cZYbWž`cf`XYgW]VY`hY`
]bX]j]Xi U`g %o

GhUfhXUH. Bch5dd`]WV`Y

8YhU]`g.

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

DfYgWf]VYX`F Ygci fWg`

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

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

Ẓmci `YbWci bhYf`U`dfcV`Ya `k \Yb`U`H`Ya dh]b[`hc`gi Va]hmc i f`Ugg][ba YbhHfci [\`Hi fb]h]bžd`YUgY
H`Yd\cbY`9I H`fbU`Gi ddcfhcb`-` ,) `` `` %cf`Ya U]`H`Ya `cb`YI H`fbU`H`hgi ddcfh4 i bgk "YXi "Ui ``Gi ddcfh
\ci fg`UfY` , .\$\$Ua `--`%\$. \$\$da `cb`k YY_XUmg`UbX`- . \$\$Ua `--`) . \$\$da `cb`k YY_YbXg`fI *) `XUmg`U`m`Y`UfL` Ẓmci
UfY`i bUV`Y`hc`gi Va]hmc i f`Ugg][ba YbhXi Y`hc`U`ZU`i`hik]H`Hi fb]h]b`mci `a UmiUdd`miZc`f`Ub`YI H`bg]cbžVi hmc i
a i ghfY`hU]b`mci f`h]W`Yhbi a VYf`Zca `9I H`fbU`Gi ddcfhfU`cb[`k]H`U`bmc`H`Yf`fY`Yj UbhXcW a Yb`hgL`hc
]bWi XY`Ug`Yj]XYbW`hc`gi ddcfhmci f`YI H`bg]cb`Udd`]W]h]cb" Ẓmci `Ya U]`9I H`fbU`Gi ddcfhmci `k]`

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

D`U[]Uf]ga `]g`i`g]b[`h`Y`k`cfXg`cf`]XYUg`cZc`h`Yfg`UbX`dfYgYb]b[`h`Ya`Ug`mci`f`ck`b" `#WUb`hU`Y`a`Ubm
Zcfa`gž`Zca`XY`]VYfU`h`W`Y`U`h]b[`h`U`W`Y`X`Y`b`U`m`W`d`m]b[`Zca`U`gci`f`W`k`]h`ci`h`U`W`b`ck`Y`X[`Ya`Y`b`h`

- i bXYfgHUbX'mci f'f][\hg'UbX'fYgdcbg]V]]hYg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[]Uf]ga ž'Wcdmf][\hž' BGK 'Gh XYbh7cXY'cZ7cbXi WñUbX'5WwdfUV'Y'I gY'cZ
I BGK '⇒H'F Ygci fW'g'Dc`]Wñ

5 WUXYa]WbZcfa Uh]cb`

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

- fYei Ygh]Zcf`YI h`bg]cb/
- `Uh]`gi Va]gg]cbg`[i]XY`]bYg/
- fYj]Yk `cZa Uf_g/
- I BGK `<YU`h`UbX`GUZY`midc`]WYg/
- YI Ua]bUh]cb`dfcVWXi fYg/
-