la`a_ [US^S`V_ Wite LaVWiNVg[dW_Wfez` IZVV ala VVVII le IOIZ

WD[YZf EfgXX

dW8dW NMTaa]WžBWdZSbefZW_aef[_badtS`f i`efqgUf[a` VaUg_Wfel Tgf SdWaXfW S`gXSUfgdMdfZSfeZag^VTW[`UgVW[` WeWMAS^ [fW]e L_backS`f fa fZW\a[ef I ZW [f Ua_ We fa ebW{S^ \alpha [efe] fZWW

[Sf[a`ž FZW`a[ef_S`gXNJfgdMoli[^ ; vwf[k[Y fzw ladwr asv la_ ž

M[úW a` fZWa`fdSUf VdSi [`YežEbW[Z ANY fZWa[efe And fZWaSV La_T[`Sf[a`e

a`e [e dNeg[dWt fZNe 6Zag^V TNébNe]úW Sf[a`ež;XS V[XXVANVf eNVaX\aSV Ua_T[`SZ [efe.SdWWe/Y W fa fZWeS_ WaSV La_ T|Z [`YiZ[UZeWaf[a`iSegeWXadfZWahWaZ

[ef _ S' gXsUtgdMt[eUa`e|VMt] Y gb/[Xf[] bah|WWWpp/1XfhSgWe[`SdwSeiZWawfZW XadfZ[eWyfWe[a`[ea`1k##%b%z L badfS`f XadfZWefdgUfgd5^WY[`WMfa @af[Y fZWS_ ag f aX W gb/Xfz;f fZWJa`fdSUfVdSi [`Yez

SV; `af S Labef**ZAXXV**#[hW_ahW,S`V

Wag^w XadUMi [fZagf WWgUf[`ΥS`k W\$W

UfgdMol_Sk Ua`eWohSf[hWok Woe(Y` Xad

Walefad alef YldWolWolY z; XfZWgb/1Xf

[YZf TWWa[Y W faa La`eWahSf[hWkz f[hWbafWf[S^dWg?f [efZSffZWa[efY]dWWe

Dua vou coz v vg v radg v i v v v bak v v i auv vou

7j fWV ;f"

FkbWadDW/XadW/DZFkbWa eWvfZWfi a V[XXMWF US" agfe, E[_ b^WEZ US`f[WAMWiS]iSkez;`8[YgdW#la`WUS` egbbadfSi [WMASqWak aXWW_WfeegUZ Se SdNgeWfa UdANtWAhWadSi `[YeS V US XadYaffW SVhS fSYWaXefWV a[efez F ZWk Fab UZadV WHWefa`eSdWS Ua_ a` Tgf

'a`YSe&Xf(['āfZW_Sj_g_ 'aSVdSf['Y fa af WfZSf SfZagYZ S EZFkbWLS TWSe WfS Y*Wé[I WeTW/Y geWz;f [e [_ badtS`f WifWe[a`efZWWGS`YWedMMdfafZVW[XXMZ fkbWe# fZdagYZ E#\$ S' V D# fZdagYZ D#\$ fZW\asv usbsuffk Xad hsqlage wyfze ax ^Tg[V[`Y efcgtigdMi [* WegdMfZSf fZW _WfWe[a`eS`V WfWWW WVefZSf bcbh]VW ebW[úUSf[a`e ZShWfSTWe Xad fab UZadV FZWEfWV<alef; elfgfWE<fietS`VSdV

'aSVe ade'ai VqX 'aSVe a`fZWWWVe(a`f /eWV8[YgdW\$fiz;XfZWWSdWUa`UWfdSfW *WYFZ S' V 'aSVe dNeg[dNV Xad fZWbda\WF eb~SkW/Se Ydaee gb~{Xf} fZW\a[ef_S gZ \yfWe[a`US`TW_S gX8UfgdW Xad fZW dWeZai`a`fZWLa`fdSUFV6Si[`YeSdW_WHWWWWVV\aSVfSTWfaWegdMfZSfS` fZWfab UZadV WyfWe(a` 'aSV fSTVVS' V FZWefcgUgoS^ WY[`WaleZag^V dMa[W

> ZShWfa TW[`LdMseWz? aef \a[ef__S'gxsUz .[`[_g_ dWeg[dWTV&d[`YeV&FVWefZ_Sk fa bcblgdMfZ[e[`Xbd_Sf[a`ž3`afZMI`WSZ_I_ZW fZWa[deSdW[`dS^W_SfSeabWfZW

> > אושי כאשניט דיוקק כיזים ביי. בביושניש מני

2" Worl M Figure 1.

of Support **ength** Inside Edge TCX L Span Point

Figure 2.

_ [` _ g_ dwg[dwTvsd]`Yevsf WwfZeXidSY[hWe'abvsefsf]`YfZvsw_ [` _ g_ Tvsvž [`Yevsf WwfZea` fZwWa`efgUf[a` VaUgŽ _ Wfe[`SULadvS`Uwf [fZ fZwswfSTvsfi [^^ `afa`'k dwgUwfZwg_TvsfaxD8;ea` Sbda`WrfTgfi [^^S'ea ebwwgb fZwwws[']`YS`V_S`gXsUfgd]`YeUZwg'Vsf I Zw fZwasveXidS fab UZadv ywfwž ela` axs yhw wwxfxsfatfs; fzw

I ZW fZWaSVe Xad S fab UZadV VMWŽ e[a`aXS Y[hW WYfZ SdWdMsfWlfZS`fZW hS'gWeY[hW [`a`WeXfZV8TahWŽ_Wf[a`W fST'Wel [f [eS`[`V[USf[a`fZSf fZWM[hW eWsf V_ Wela`i [^`af i ad] žEa i ZSf TVSd[`Y eWsf WWfZ eZag'VTWebW[úW13 YaaV dg'W aXfZg_Tl[`_aef USeWel [efZSf fZWWMfZ aX fZWTWsd[`Y eWsf [`[`UZWeZag'VTWWegS^fa fZWWYfZ aXfZWWMWela`[`XWWE

3eS`VNS_b'VNVa`e(VVNS`DŽFkbWa[ef WyfWe[a`i[fZS′WYfZaX'Xf]([`zlS\$*"Ž b/X'aSV a` fZWa[ef S`V WfWe[a`l S`V S #I"""ŽT Ua`UWfdSfW 'aSV Sf fZWWV aX fZWWMfWe[a`žFZWWkg[hS'Wfg`[Xad_ 'aSV a` fZWWfWe[a` [e, \$*" Ł/\$ 3/4#f"""fl' z / (&&b^%\colon 3U.\dot{M}`Y fa fZWW/fWWW WV ^aSV fST^W/DŽFkbWii fZW_Sj[_g_ ^aSV a`S'ŽXd(Ž(ž)žVMtWe(a`[e%)'b'XXadS fkbWD#\$ VyNfWVW WVžFZWaMAadMVS \$° Ž [`žŽWWNo'TWSkd[`YeWSnFi[^^`afiad] Xad fZ[e \a[efz4SeW a` fZWdg/WaXfZg_ Tl fZW TVskd`YeVsf VVksfZeZag'VTW(`UdVskeW fa ' [`ž8[YgdW%[^gefdSfWefZWW[XXXVdWUNS` Sbbcabd(SfWfab UZadV yMfWe(a` VMMfZ US` <u>Z</u>Sji**ang'8**adfZWWJS_b'WlfZWaSVeS`VebS` aXfZWfabUZadVUMfWe[a`iWdWegUZfZSf fZW_Sj [_g_S`YWe[lWeShS['ST'WAadgeW [`fZWebW[úW\$°Z[`žZWWbWfWe[a`i WbW af efdgUfgd5^1k SVWtgSfWVea fZW_S`gXSUŽ fgdMdSVVW Xagddag`VTSdefa efdWYfZW fZ[e eWf[a`ž3e [^gefdSfW [`8[YgdW%]S WMofZ aX% [`ži ag^V ZShWS^ai W fZW S`gXSUfgdMdfa geVVS $_$ adVVJa`hVVf[a`S^ XagdS`YWfab UZadV VMfWe[a`ž;XS WMfZ aX [`žZSVTWVS^ai WłfZW_S`gX\$UfgdMd i ag/VZShWZSVfZWabf[a`aXge[`Yfi a 5' UZS``We fa Xad_ fZWfab UZadV VMfWe[a`ž 8da_fZ[ela`WUS`eWWfZSf[`UdWSe[`YfZW VMfWe[a`VMxfZe[_b/[úWxfZWLa`efcgUf[a`

fgcMtUSfS^aYebchh[W\SfST^WfZSfY]hNefZW S`VfZVtMX6dWfZWahNt6M^Uaefz;`SW[f]a`ł _[`[_g_dNeg]dWTVs7d[`YeWsfWhofZeXad [XfZWa[efiSeS^eafaTW]^efS^WSfSe*abW SY[hWe*abVkTEfSf[`YfZVkW_[`[_g_TVs7dZ fZWTVs7d[`YeNsfWhofZ_SkZShWZSVfaTW [`YeNsfWhofZea`fZWUa`efcgUf]a`VaUgZ xgcfZWtl[`UdNseWfaSUUag`fXadfZWe*abWt

4d[VY[Y fZW9Sb

I Z[W_S`kWY[`WodeWh[e[a`fZWfab S`VTaffa_ UZadVTdVY[`YS'[Y`[`Y[`fZW eS_WhWaffUS^b'S`WVfZ[eUa`úYgdSf[a` [e `af`WWeSck addWg[dWž;`XSUflfZWMeS bafWf[S^Uaef eSh[`Ye [XfZWebSU`Y aXfZW Td[VY[`Y dai e [e hSd[W SUJadM]`Y fa fZW efcglfgd5^`WežFZ[e[ebSdf[lg/SdkfcgW] dW[a`ei [fZ Z[YZ gb^[Xf hS^gWzFZWWY[Ž `WwiaXdWadVeZag^VSha[VV[_We[a`[`Y ebW[úUTd[VY[`Y']`WaUSf[a`ea` fZWUa`Ž fdSUfVdSi [`Yele[`UWfZ[ei [^Y[hWfZWa[ef _S`gXSUfgdMdfZWST[^[fk fa abf[_[]WfZW Td[VY[`Y'Skagfž;` XSUfl [f [eegXuUWfl S`V ea_ VM_ V& UaefŽ/XXV/f[hW/fa efSfWa` fZW Ua`fdSUf VdSi [`Ye, z4d[VY[`Y Se dWg[dW bWdE<ž

F ZWefcgLfgcB^ WY[`WM eZag^V S'ea TWSi ScWfZSf i ZW eWWf[`Y fZW\a[ef] fZW\[YZf\wf \a[ef] _ Sk `af TWfZW_ aef Wa`a_ [US'ž 8ad VJ\S_ b\W [X S \[YZf\wf \a[ef] cM\[g]cM\[W]\fa` efST[\fik Td\[VY]` Y /Ta\[YW \V]SYa` S^ Td\[VY]` YfI ad S e\[YZf\[k Z\W]\[W]\a[ef] a`\[k cM\[g]cM\[ef] efS` \VScW Zad\[Z La` fS^ Td\[VY]` YI fZWS_ ag` f aXf[_ WS` V S\[f] a` S^ \STad\[Lac eSh\[`Ye i [\] XSd agf\[Z i \W]\[Z e\W\[F]\[Y fZW \V[f]a` S^` \Ve

`WS`VŽQú

ag