jv÷ w\_ª wgwbUm

g~j: cj †Wwfm

Abyev`: Avãyj¨vn Avw`j gvngy`

DrmM©

cig kÖ‡×q AMÖR †gv. knx`jøvn kvnxb fvB

whwb memgq †mœ‡ni evua‡b AvU‡K †i‡L‡Qb Avgv‡K

f~wgKv (g~j †jLK)

1960 Gi `k‡Ki ïiæi w`‡Ki K\_v| Avwg QvÎ ZLb| gnvwe‡k¦i ïiæi inm¨ Rvbvi Acwimxg †KŠZ~nj mevi †Pv‡L-gy‡L| weM e¨vs Z‡Ë¡i Rb¥ †mB 1920 Gi `k‡K n‡jI G‡K ¸iæ‡Z¡i mv‡\_ †bIqv ïiæ 1950 Gi `k‡Ki c‡i| mevB Gi mv‡\_ cwiwPZ \_vK‡jI ZË¡wU ZLbI †Zgb †Kv‡bv Av¯’v AR©b Ki‡Z cv‡iwb| Iw`‡K k³ cÖwZØ›Øx wn‡m‡e Av‡Q w¯’i Ae¯’v ZË¡ (steady-state theory)| gnvwe‡k¦I †Kv‡bv ïiæ \_vK‡Z cv‡I †m m¤¢vebvB GwU bvKP K‡i w`‡q‡Q| wewfbœ gn‡ji Kv‡Q GwU ZLbI me‡P‡q MnY‡hvM¨ ZË¡| Gici 1965 mv‡j Gj ievU© †cbwRqvm I Av‡b©v DBjm‡bi Avwe®‹vi Gj| gnvRvMwZK cUf~wg Zvc wewKiY| `„k¨cU cy‡ivcywi cv‡ë †Mj| cwi®‹vifv‡e cÖgvwYZ n‡jv, GKwU DËß, Db¥Ë I AvKw¯§K Ae¯’v †\_‡K ïiæ gnvwe‡k¦i|

Km‡gvjwR÷iv GB Avwe®‹v‡ii djvdj †ei Ki‡Z D‡Vc‡o jvM‡jb| weM e¨vs‡qi 10 jvL eQi c‡i gnvwek¦ KZUv DËß wQj? GK eQi ci? GK †m‡KÛ ci? †mB cÖviw¤¢K Pywjø‡Z †Kvb ai‡bi †fŠZ cÖwµqv msNwUZ n‡qwQj? m…wói ïii †Kv‡bv aŸsmve‡kl evwK Av‡Q wK? hv †\_‡K Rvbv hv‡e †mB mg‡qi Pig Ae¯’vi Lei|

Avgvi fv‡jvg‡Zv g‡b Av‡Q, 1968 mv‡j GKwU †jKPvi ïb‡Z wM‡qwQjvg| me‡k‡l Aa¨vcK cUf~wg Zvc wewKi‡Yi (cosmic background heat radiation) Avwe®‹v‡ii Av‡jv‡K weM e¨vs wb‡q K\_v ej‡jb| nvwmgy‡L ej‡jb, ÒweM e¨vs Gi c‡ii cÖ\_g wZb wgwb‡U msNwUZ wbDwK¬q cÖwµqvi Ici wfwË K‡i wKQy ZvwË¡K gnvwe‡k¦i ivmvqwbK Dcv`v‡bi weeiY w`‡q‡Qb|Ó `k©Kiv nvwm‡Z †d‡U co‡jb| gnvwe‡k¦i R‡b¥i gvÎ mvgvb¨ mgq c‡ii Ae¯’vi weeiY †`Iqvi †Póv KZB bv nvm¨Ki! GgbwK mß`k kZ‡Ki hvRK †Rgm DkviI Ggb `ytmvnm K‡ibwb| A\_P wZwbB wKš‘ evB‡e‡ji µgvbycywÄi Ici wfwË K‡i `vwe K‡iwQ‡jb, 4004 L…óc~e© mv‡ji 23 A‡±vei Zvwi‡L m…wó n‡qwQj gnvwe‡k¦i| cÖ\_g wZb wgwb‡Ui NUbv cÖev‡ni wbLyuZ eY©bv wKš‘ wZwbI w`‡Z †Póv K‡ibwb|

wKš‘ gnvRvMwZK Zvc wewKiY Avwe®‹v‡ii gvÎ GK `k‡Ki g‡a¨B cv‡ë †Mj weÁv‡bi MwZ | cÖ\_g wZb wgwbU QvÎ‡`iI g‡bv‡hvM †K‡o wbj| eB †jLv n‡Z jvMj| 1977 mv‡j A¨v‡gwiKvb c`v\_©we` I Km‡gvjwR÷ w÷‡fb DBbevM© wjL‡jb GKwU †e÷ †mjvi eB| wk‡ivbvg `¨ dv÷© w\_ª wgwbUm ev cÖ\_g wZb wgwbU| RbwcÖq weÁvb cÖKvkbvi RM‡Z GwU bZyb avivi cÖeZ©b K‡i| †jLK wek¦weL¨vZ GKRb cwÐZ| weM e¨vs‡qi wVK c‡ii cÖwµqv¸‡jv mvaviY cvV‡Ki R‡b¨ wj‡L‡Qb we¯ÍvwiZ I †evaMg¨ K‡i|

GK w`‡K D‡ËRK Avwe®‹vi¸‡jv mvaviY gvbyl Av‡¯Í Av‡¯Í eyS‡Z ïiæ K‡i‡Qb| Iw`‡K weÁvbxivI e‡m †bB| AvMÖ‡ni welq †Mj cv‡ë| GK mgq AvMÖ‡ni welq wQj gnvwe‡k¦i cÖviw¤¢K Ae¯’vi †LvuR Rvbv| gv‡b R‡b¥i cÖvq K‡qK wgwbU c‡ii K\_v| Avi GLb AvMÖ‡ni welq n‡q †M‡j ZviI A‡bK Av‡Mi Lei| R‡b¥i GK †m‡K‡Ûi cÖvq Amxg fMœvsk mgq c‡ii Ae¯’v| Zvi cÖvq GK `kK c‡i weªwUk MvwYwZK c`v\_©we` w÷‡di nwKs wjL‡jb A¨v weªd wn÷wi Ae UvBg| GK †m‡K‡Ûi `k †KvwU †KvwU †KvwU †KvwU †KvwU fv‡Mi GK fvM mg‡q Kx N‡UwQj ZvI ej‡jb wZwb| 1968 mv‡ji †mB †jKPv‡ii †kl nvwmUyKB AvR nvm¨Ki n‡q †M‡Q|

weM e¨vs ZË¡ GLb weÁvbx I mvaviY gvby‡li Av¯’v AR©b K‡i †d‡j‡Q| d‡j GLb †ewk wPšÍv-fvebv Pj‡Q gnvwe‡k¦i fwel¨Z wb‡q| gnvwe‡k¦i ïiæi Lei Avgiv fv‡jvB Rvwb| wKš‘ Gi cwiYwZ †Kgb n‡e? Gi P~WvšÍ cwiYwZ m¤ú‡K© Kx ejv hvq? †klI wK n‡e e¨vs (we‡ùviY) ev AvZ©bv‡`i gva¨‡g? ev Av‡`Š wK Gi †kl Av‡Q? Avgv‡`iB ev Kx n‡e? Avgiv ev Avgv‡`i c‡ii cÖRb¥ wK wPiKvj wU‡K \_vK‡e? hw`Iev †mUv nq i³-gvs‡mi Mov ev †iv‡evwUK kixi|

welq¸‡jv wb‡q †KŠZ~njx bv n‡qI Dcvq †bB| hw`I c„w\_exi †kl GLbI `~‡i Av‡Q e‡jB g‡b n‡”Q| eZ©gv‡b gvbe-m…ó bvbv mgm¨vq RR©wiZ c„w\_ex‡Z Av‡M Avgiv wbQK c„w\_ex‡Z wU‡K \_vKvi msMÖvg wb‡q wPšÍv KiZvg| GLb Ny‡i †M‡Q †m wPšÍvi †gvo| Avgv‡`i‡K GLb Avgv‡`i Aw¯Í‡Zi gnvRvMwZK w`K wb‡q fve‡Z n‡”Q| `¨ jv÷ w\_ª wgwbUm eB‡q eje fwel¨Z gnvwe‡k¦i Mí| weL¨vZ wKQy c`v\_©we` I Km‡gvjwR÷‡`i me©‡kl wPšÍvi Av‡jv‡K me‡P‡q †miv AbygvbUyKyB Avgiv Zy‡j aie| GUv Kíbvwbfi n‡e bv| mwZ¨ ej‡Z, fwel¨‡Z bwRiwenxb A‡bK wKQyB NU‡Z cv‡i| wKš‘ fy‡j †M‡j Pj‡e bv, †hUv GKevi Aw¯Í‡Z¡ Avm‡Z cv‡i, †mUv Aw¯ÍZ¡ nviv‡ZI cv‡i|

G eBwU mvaviY cvV‡Ki R‡b¨ †jLv| weÁvb ev MwY‡Zi †Kv‡bv c~e© Ávb bv \_vK‡jI Pj‡e| Z‡e, gv‡Sgv‡SB Avgv‡K A‡bK eo ev A‡bK †QvU msL¨v wb‡q K\_v ej‡Z n‡e| G †¶‡Î 10 Gi NvZ (cvIqvi) wfwËK msw¶ß MvwYwZK cÖZxK e¨envi Ki‡j myweav n‡e| †hgb, `k nvRvi †KvwU‡K wjL‡Z †M‡j 100,000,000,000 wjL‡Z nq| GUv AmyweavRbK| GLv‡b 1 Gi c‡i 11wU k~b¨ Av‡Q| d‡j, Avgiv G‡K 1011 ev 10 Gi 11Zg NvZ AvKv‡i wjL‡Z cvwi| GKBfv‡e `k j¶ n‡jv 106, GK j¶ †KvwU n‡jv 1012 BZ¨vw`| Z‡e g‡b ivL‡Z n‡e, GB cÖZx‡Ki gva¨‡g msL¨v¸‡jvi e…w×i nvi mivmwi †evSv KwVb| 1012 msL¨vwU 1010 Gi GKk ¸Y| cÖvq GKB g‡b n‡jI cv\_©K¨Uv wKš‘ wekvj| 10 Gi cvIqvi FYvZ¥K ewm‡q Avevi Lye †QvU msL¨v‡`i‡KI cÖKvk Kiv hvq| †hgb, GKk †KvwUi GK fvM ev 1/1,000,000,000 †K 10-9 (‡Ub Uy `¨ cvIqvi gvBbvm bvBb) †jLv hvq| KviY, fMœvs‡ki n‡i 1 Gi c‡i 9wU k~b¨ Av‡Q|

†kl‡gk cvVK‡K GKUv K\_v e‡j ivwL| ¯^vfvweKfv‡eB eBwUi A‡bKUvB Abygvb wbf©i| n¨vu, eB‡qi AwaKvsk K\_vB eZ©gvb weÁv‡bi †miv Z‡\_¨i Av‡jv‡KB ejv n‡q‡Q| wKš‘ Gic‡iI fwel¨‡`i c~e©vfvm Ab¨vb¨ ˆeÁvwbK Z‡\_¨i mgvb gh©v`v †c‡Z cv‡i bv| ZeyI gnvwe‡k¦i P~ovšÍÍ cwiYwZ wb‡q Abygvb Kivi †jvf mvgjv‡bv m¤¢e bq| GB †Lvjv g‡bi Av‡jv‡KB eBwU †jLv| ˆeÁvwbKfv‡e G K\_v¸‡jv †gvUvgywU ¯^xK…Z †h weM e¨vs Gi gva¨‡g gnvwe‡k¦i ïiæ n‡q‡Q, GLb GwU kxZj I cÖmvwiZ n‡Z n‡Z wecixZ a‡g©i †Kv‡bv P~ovšÍÍ Ae¯’vi w`‡K GwM‡q hv‡”Q, A\_ev nqZ Db¥Ëfv‡e msKywPZ n‡q hv‡e| Z‡e †h my`xN© mgq wb‡q Avgiv K\_v ejwQ, Zv‡Z †Kvb †fŠZ cÖwµqv †h cÖfvekvjx f~wgKv ivL‡e Zv Lye †ewk wbwðZ K‡i ejvi my‡hvM †bB| mvaviY b¶‡Îi cwiYwZ m¤ú‡K© †R¨vwZwe©Ávbx‡`i aviYv †gvUvgywU cwi®‹vi| wbDU«b b¶Î I eø¨vK †nv‡ji †gŠwjK ˆewkó¨ m¤ú‡K©I Zvu‡`i aviYv w`b w`b mg…× n‡”Q| wKš‘ hw` gnvwek¦ AviI j¶ †KvwU eQi ev ZviI †ewk mgq wU‡K \_v‡K, Zvn‡j G‡Z Ggb †Kv‡bv m~² †fŠZ cÖwZwµqv NU‡ZI cv‡i, hv m¤ú‡K© Avgv‡`i Abygvb Kiv Qvov wKQy Kivi †bB| GK mgq nqZ †mUvB n‡e ¸iæZ¡c~Y© cÖwZwµqv|

cÖK…wZ m¤ú‡K© Avgv‡`i Ávb wKš‘ Am¤ú~Y©| d‡j gnvwe‡k¦i P~ovšÍÍ cwiYwZ Rvbvi †Póv I Abygvb Kivi Dcvq Av‡Q GKwUB| Avgv‡`i nv‡Z †hme ZË¡ Av‡Q †m¸‡jv‡K Kv‡R jvwM‡qB hyw³wfwËK †Kv‡bv wm×v‡šÍ †cŠuQ‡Z n‡e| wKš‘ G‡ZI mgm¨v Av‡Q| gnvwe‡k¦i cwiYwZ welqK A‡bK¸‡jv Z‡Ë¡iB GLb ch©šÍ cÖv‡qvwMK cix¶v nqwb| Ggb wKQy wel‡qI Av‡jvPbv K‡iwQ †h¸‡jv wb‡q ZvwË¡Kiv Lye Avkvev`x, wKš‘ GLbI Zvi cÖgvY †g‡jwb| †hgb, gnvKl© Zi½ wbM©gb1, †cÖvUb ¶q (proton decay) I eø¨vK †nvj †iwWq¨vÝ| Avevi GKBfv‡e Ggb †Kv‡bv †fŠZ cÖwµqvI wbðqB \_vK‡e hv Avgiv GLb G‡Kev‡iB Rvwb bv| nqZ †mUv G eB‡qi K\_v¸‡jv‡K eûjvs‡k cv‡ë †`‡e|

gnvwe‡k¦ e…w×gvb cÖvYxi m¤¢ve¨ Kvh©µ‡gi K\_v fve‡j GB AwbðqZvB AviI eo n‡q †`Lv †`q| Gev‡i Avgiv weÁvb KíKvwnwbi RM‡Z cÖ‡ek K‡i †d‡jwQ| ZeyI GgbUv‡Zv n‡ZB cv‡i †h Kv‡ji AveZ©‡b GK mgq RxweZ cÖvYxiv †fŠZ wm‡÷‡gi AvPiY µ‡gB eo cwim‡i D‡jøL‡hvM¨ iKg cwieZ©b K‡i †djj| gnvwe‡k¦i cÖvY m¤ú‡K©I Avwg Av‡jvPbv K‡iwQ| KviY, A‡bK cvVK gnvwe‡k¦i cwiYwZ Rvb‡Z Pvb g~jZ gvbyl ev Zvi cieZ©x cÖR‡b¥i cwiYwZ Rvbvi R‡b¨B| Z‡e g‡b ivL‡Z n‡e gvby‡li †PZbvi cÖK…wZ m¤ú‡K© GLbI weÁvbxiv mwVK K‡i wKQyB Rv‡bb bv| GUvI Rvbv †bB †h `~i fwel¨‡Z Aw¯ÍZ¡ wUwK‡q ivL‡Z n‡j †PZbvi g‡a¨ †Kvb †Kvb ¸Yvejx¸‡jv \_vKv cÖ‡qvRb|

eBwUi welqe¯Íy m¤ú‡K© mnvqK Av‡jvPbvq Ask †bIqvi R‡b¨ K‡qKRb gvbyl‡K ab¨ev` w`‡ZB nq| Guiv n‡jb Rb e¨v‡iv, d«¨vsK wUcjvi, R¨vmb Ugwj, iRvi †cb‡ivR I WvbKvb w÷j| wmwi‡Ri m¤úv`K †Rwi wjqb cvÐywjwc ¸iæ‡Z¡i mv‡\_ c‡o w`‡qwQ‡jb| GR‡b¨ Zvu‡KI ab¨ev`| P~ovšÍÍ cvÐywjwc‡Z KvR Kivi R‡b¨ m¨viv wjwcbKU‡KI ab¨ev`|

**Abyev`‡Ki †bvU**

1. 2016 mv‡ji †deªyqvwi gv‡m G Zi½ cvIqvi †NvlYv †`Iqv nq| Aek¨ cvIqv wM‡qwQj Av‡Mi eQ‡ii A‡±ve‡iB| d‡j eBwUi ¸iæZ¡ evoj ejv P‡j|

Abyev`‡Ki f~wgKv

gnvwek¦ wb‡q me‡P‡q eo `ywU cÖ‡kœi GKwU gnvwe‡k¦i fwel¨r| Av‡iKwU †Zv RvbvB| gnvwe‡k¦i AZxZ| gv‡b Kxfv‡e Rb¥ n‡qwQj gnvwe‡k¦i| GB `y‡Uv cÖ‡kœi DËi †c‡jB cy‡iv gnvwe‡k¦i BwZnvm Rvbv nq| gnvwe‡k¦i AZxZ wb‡q †bv‡ejRqx c`v\_©we` w÷‡fb DBbevM© wj‡L‡Qb KvjRqx eB `¨ dv÷© w\_ª wgwbUm| GB eBwUi bvg `¨ jv÷ w\_ª wgwbUm| ejvB evûj¨, bvgwU h‡\_ó mv\_©K n‡q‡Q| `¨ jv÷ w\_ª wgwbUm eBwU beŸB‡qi `k‡K †jLv| eZ©gvb mg‡qi Av‡jv‡K ZvB G‡K wKQyUv †m‡K‡j g‡b nIqv ¯^vfvweK|

eBwU †jLvi c‡i wKQy hyMvšÍKvix Avwe®‹vi N‡U‡Q †R¨vwZwe©`¨vq| eBwUi Av‡jvP¨ wel‡qi mv‡\_ cÖvmw½K GKwU Avwe®‹vi n‡jv 1998 mv‡ji gnvwe‡k¦i Z¡wiZ cÖmviY| Gi gva¨‡g Rvbv †Mj, `~‡ii Qvqvc\_iv †Kv‡bv ch©‡e¶K †\_‡K hZ `~‡i mi‡Q ZZB Zv‡`i `~‡i mivi †eM evo‡Q|

G Avwe®‹v‡ii gva¨‡g gnvwe‡k¦i m¤¢ve¨ fwel¨r m¤ú‡K© aviYvq wKQy cwieZ©b Av‡m| Gi d‡j eB‡qi Aí wKQy Z\_¨ AvcvZ`„wó‡Z †m‡K‡j n‡q †M‡Q| Z‡e cy‡ivcywi †m‡K‡j nqwb| eBwUi †k‡li w`‡K gnvm‡¼vPb wb‡q Av‡jvPbv Kiv n‡q‡Q| eZ©gvb Ávb ej‡Q, gnvwek¦ Avevi ¸wU‡q hv‡e †m m¤¢vebv Kg| Z‡e NU‡eB bv GgbUv ejv m¤¢e bv| d‡j, eBwUi H Av‡jvPbv A\_©nxb bq| ZvQvov gnvm‡¼vPb G‡Kev‡i evwZj n‡q †M‡jI Gi m¤¢ve¨ †KŠkj I djvdj Kx n‡e †mUv wb‡q eBwUi Av‡jvPbv h‡\_ó †KŠZ~n‡jvÏxcK|

eBwUi Av‡jvP¨ welq‡K hy‡Mvc‡hvMx K‡i Zyj‡Z eBwUi cwiwkó As‡k gnvwe‡k¦i m¤¢ve¨ cwiYwZ¸‡jv welqK GKwU †jLv hy³ K‡iwQ| hy³ K‡iwQ weÁvb, ˆeÁvvwbK ZË¡ weÁvb Kxfv‡e KvR K‡i Zv wb‡q GKwU AskI| weÁv‡bi mwVK iƒc m¤ú‡K© Avgv‡`i †`‡k fyj aviYv mwVK aviYvi †P‡q †ewk †`Lv hvq| G Kvi‡Y Avgiv A‡bKmgq bvbvb welq wb‡q A‡nZyK Z‡K© Rwo‡q wewfbœ mvgvwRK mgm¨vi Ask n‡q cwo|

AZ¨šÍ mZK© \_vKv m‡Ë¡I eBwU‡Z wKQy ÎywU †\_‡K hvIqv Am¤¢e bq| †h‡Kv‡bv ai‡bi ÎywU †Pv‡L co‡j B‡gB‡ji gva¨‡g Avgv‡K Rvbv‡j AZ¨šÍ K…ZÁ \_vKe| †Kv‡bv civgk© \_vK‡jI Rvbv‡bvi Aby‡iva iBj|

eBwU †jLvi †¶‡Î cwiev‡ii m`m¨‡`i, we‡kl K‡i mnawg©bx mvjgv wmwÏKvi AK…wÎg Drmvn I cigv‡k©i Rb¨ Zvu‡`i mevi cÖwZ HKvwšÍKfv‡e K…ZÁZv cÖKvk KiwQ| eive‡ii g‡ZvB eBwU cÖKv‡k weÁvbwPšÍvi evmvi fvB I iwbi fvB‡qi µgvMZ I wbtmv\_© Drmvn †`Iqvi K\_v AvRxeb g‡b \_vK‡e| GRb¨ Zvu‡`i Kv‡Q we‡klfv‡e K…ZÁ| eBwUi cÖKvk Kivi R‡b¨ cÖ\_gv cÖKvk‡bi cÖKvkK I cÖKvkbvi mv‡\_ wewfbœfv‡e RwoZ mevi cÖwZI Acwiwmg K…ZÁZv|

gvngy`

08 A‡±vei, 2020

cvebv K¨v‡WU K‡jR

cÖ\_g Aa¨vq

gnvcÖjq

ZvwiL: 21 AvM÷, 2126| gnvcÖjq

¯’vb: c„w\_ex|

c„w\_exi bvbv cÖv‡šÍ nZvkvq Av”Qbœ A‡bK¸‡jv gvbyl jyKv‡bvi †Póvq e¨¯Í| †KvwU †KvwU gvbyl AvkÖqnxb n‡q c‡o‡Q| †KD †KD cvwj‡q‡Q f~wgi Mfx‡i| AvkÖq wb‡q‡Q ¸nv ev Lwbi †`qv‡j| †KD Avevi mve‡gwi‡b †P‡c mvM‡i Wye w`‡q‡Q| †KD †KD †ec‡ivfv‡e Gw`K-†mw`K †QvUvQywU Ki‡Q| Z‡e AwaKvsk gvbylB nZeyw× I welY&Y n‡q e‡m Av‡Q| A‡c¶v Ki‡Q †kl ciYwZi R‡b¨|

AvKv‡ki A‡bK DuPy‡Z Av‡jvi GKwU eo †iLv †`Lv hv‡”Q| ïiæ‡Z ïay †`Lv wM‡qwQj nvjKv †avuqvi gy`y wewKiY| GKw`b †mUvB gnvk~‡b¨i ey‡K M‡o Zyjj dyUšÍ M¨v‡mi cÖPÐ NywY©| M¨v‡mi Ic‡ii w`‡K GKwU Kv‡jv, KyrwmZ I fqvbK wRwbm †`Lv hv‡”Q| a~g‡KZywUi ¶y`ª gv\_v †`‡L Gi fqvbK aŸsmvZ¥K ¶gZv AvuuP Kiv KwVb| †m‡K‡Û cÖvq Pwjøk nvRvi gvBj †e‡M GwU †a‡q Avm‡Q c„w\_exi w`‡K| cÖwZ †m‡K‡Û `k gvBj| j¶ †KvwU Ub eid I cv\_i k‡ãi mËi ¸Y †e‡M c„w\_ex‡Z AvNvZ nvbvi R‡b¨ cÖ¯ÍyZ|

†`Lv I A‡c¶v Kiv Qvov gvby‡li Kivi wKQyB †bB| Awbevh© cwiYwZi gy‡L c‡o weÁvbxiv eû Av‡MB †Uwj‡¯‹vc †\_‡K gyL mwi‡q wb‡q‡Qb| wbi‡e eÜ K‡i w`‡q‡Qb Kw¤úDUvi| `~‡h©v‡Mi mwVK AvPiY GLbI mwVKfv‡e †evS hv‡”Q bv| †hUyKy Rvbv †M‡Q, †mUvB GZ fqven †h Zv mvaviY gvbyl‡K Rvbv‡bv wVK n‡e bv| †Kv‡bv †Kv‡bv weÁvbx wU‡K \_vKvi wKQy c~Y©v½ †KŠkj ˆZwi K‡i‡Qb| wb‡R‡`i †UKwbK¨vj Ávb Kv‡R jvwM‡q Ab¨‡`i Zyjbvq myweavRbK Ae¯’vq \_vKvi B‡”Q Zv‡`i| †KD †KD `~‡h©vMwU‡K g‡bv‡hvM w`‡q ch©‡e¶‡Yi †PóviZ| †kl w`bwU ch©šÍI Zvuiv Zvu‡`i mwZ¨Kvi weÁvbxmyjf AvPiY eRvq ivL‡Z Pv‡”Qb| c„w\_exi Mfx‡i ivLv UvBg K¨vcmy‡j cvwV‡q w`‡”Qb †m DcvË| D‡Ïk¨, fwelr eskaiiv hv‡Z †mUv Kv‡R jvMv‡Z cv‡ib|

msN‡l©i gyn~Z© AviI Nwb‡q Gj| mviv c„w\_exi jvL jvL gvbyl f‡q f‡q Nwoi w`‡K ZvKv‡”Q| †kl wZbwU wgwbU|

MÖvBÛ wR‡ivi wVK Ic‡i AvKvk we`xY© n‡q †Mj| GK nvRvi Nb gvBj cwigvY evqy Qy‡U †Mj GKw`‡K| GKwU kn‡ii AvKv‡ii †P‡qI †ewk cwigvY †avuqv KyÐjx cvwK‡q f~wgi w`‡K GwM‡q Avm‡Q| c‡bi †m‡KÛ c‡iB AvNvZ nvbj f~c„‡ô| `k nvRvi f~wgK‡¤úi mgvb AvNv‡Z †Ku‡c IVj c„w\_ex| ¯’vbvšÍwiZ evZv‡mi kK I‡qf D‡o hv‡”Q c„w\_ex c„‡ôi Ici w`‡q| †f‡O coj ¯’vcbv¸‡jv| †hUvB mvg‡b coj, wbwðý n‡q †Mj| msN‡l©i ¯’v‡bi Pvicv‡k mgZj f~wg‡Z GKwU e…ËvKvi Zij cvnvo ˆZwi n‡jv| D”PZv K‡qK gvBj| GK‡kv wgUvi PIov MZ© w`‡q c„w\_exi †fZ‡ii e¯Íy †ewi‡q Avm‡Q| MwjZ cv\_‡ii †`qvj †XD Zy‡j Qwo‡q co‡Q ax‡i ax‡i| G Zxeª AvNv‡Zi mvg‡b f~c„ô †hb mvgvb¨ GKwU K¤^j|

M‡Z©i †fZ‡ii j¶ †KvwU Ub cv\_i ev®úxf~Z n‡q †M‡Q| Zvi †P‡q A‡bK †ewk wQU‡K Ic‡i D‡V hv‡”Q| wKQy wKQy P‡j hv‡”Q gnvKv‡ki w`‡KI| Gi †P‡q †ewk cwigv‡Y wbw¶ß n‡”Q Aa©-gnv‡`k GjvKv Ry‡o| Gici cwZZ n‡”Q kZ kZ, GgbwK nvRvi nvRvi gvBj `~‡ii GjvKvq| †hLv‡bB Zv co‡Q, NUv‡”Q gvivZ¥K aŸsmhÁ| wKQy wKQy wbw¶ß c`v\_© wM‡q co‡Q mvM‡i| †mU †\_‡K ïiæ n‡”Q mybvwg| d‡j `~‡h©v‡Mi gvÎv AviI e…w× †cj| ay‡jvgq aŸsmve‡k‡li GKwU eo Ask evqygÐ‡j D‡V †Mj| m~h© cy‡ivcywi XvKv c‡o †Mj| m~‡h©i Av‡jvi gyL †`Lv hv‡”Q bv c„w\_exi †Kv\_vI †\_‡KB| Zvi e`‡j †`Lv hv‡”Q kZ †KvwU Dévi ˆckvwPK SjKvwb| Zxeª DËvc cvwV‡q Giv Sj‡m w`‡”Q gvwUi c„w\_ex| KviY wew”Qbœ LÐ¸‡jv gnvk~b¨ †\_‡K †di wd‡i Avm‡Q evqygÐ‡j|

Dc‡ii `„k¨cUwU GKwU Abygvb| my&BdU UvUj (Swift-Tuttle) bv‡gi GKwU a~g‡KZy 2126 mv‡ji 21 AvM÷ Zvwi‡L c„w\_ex‡Z AvNvZ nvb‡e| hw` †mUvB N‡U, ˆewk¦K `~‡hvM© AeavwiZ| BwZ NU‡e gvby‡liI| 1993 mv‡j G‡K †`Lvi c‡i wnmve-wbKvk K‡i †`Lv †Mj 2126 mv‡j Avm‡jI GKwU msNl© n‡Z hv‡”Q| c‡i ms‡kvwaZ wnmv‡e †`Lv hvq, GwU GK mßv‡ni R‡b¨ c„w\_ex‡K wgm Ki‡e| A‡íi Rb¨ evuPv| Avgiv Gi w`K †\_‡K wbwð‡šÍB \_vK‡Z cvwi| Z‡e wec` †h G‡Kev‡iB †bB Zv wKš‘ bq| AvR †nvK, Kvj †nvK, myBdU UvUj ev GiB g‡Zv †KD c„w\_ex‡Z AvNvZ nvb‡eB| wn‡me K‡i †`Lv †M‡Q, Aa©-wK‡jvwgUvi ev ZviI †ewk PIov `k nvRvi e¯Íyi K¶c\_ c„w\_exi K¶c‡\_i Ici w`‡q †M‡Q| wekvj wekvj GB Dc`ªc¸‡jvi Rb¥ †mŠiRM‡Zi ewnt¯’ kxZj GjvKvq| wKQy wKQy n‡jv a~g‡KZyi aŸsmve‡kl| AvUKv c‡o Av‡Q MÖn‡`i gnvKl©xq evua‡b| Ab¨‡`i DrcwË MÖnvYy †eóbx‡Z (asteroid belt)| RvqMvUv g½j I e…n¯úwZ MÖ‡ni gvSLv‡b| K¶c‡\_i fvimvg¨nxbZvi Kvi‡Y Giv wbqwgZ †mŠiRM‡Z Avmv-hvIqv Ki‡Q| AvKv‡i †QvU n‡jI G‡`i cÖwZwµqv fq¼i| c„w\_ex I Ab¨ MÖn‡`i ¯’vqx wec‡`i KviY|

G e¯Íy¸‡jvi g‡a¨ A‡bK¸‡jvB c„w\_exi me¸‡jv wbDwK¬qvi A‡¯¿i †P‡qI †ewk ¶wZmvab Ki‡Z m¶g| †h-†Kv‡bv mgq †Kv‡bv GKwU AvNvZ nvb‡Z cv‡i| †mUv gvby‡li R‡b¨ GKwU Lvivc LeiB n‡e| †mUv n‡e gvbe BwZnv‡mi GKwU AvKw¯§K I bwRiwenxb cÖwZeÜK| wKš‘ c„w\_exi †¶‡Î G iKg NUbv †gvUvgywU wbqg †g‡b P‡j| a~g‡KZy ev MÖnvYyi G gvÎvi msNl© M‡o K‡qK wgwjqb1 eQ‡i GKevi N‡U| A‡b‡Ki wek¦vm, G ai‡bi GK ev GKvwaK NUbvi d‡jB mv‡o Qq †KvwU eQi Av‡M WvB‡bvmiiv wejyß n‡q wM‡qwQj| c‡ii evi nqZ Avgv‡`i cvjv|

A‡bK ag© I ms¯‹…wZi gvby‡liv A¨vigv‡MWb2 `„pfv‡e wek¦vmx| evB‡e‡ji eyK Ae wiwf‡jkb cy¯Í‡K G hy‡× msNwUZ nZvnZ Ges ¶q¶wZi fv‡jv GKwU weeiY †`Iqv Av‡Q| †mUv G iKg:

Gici Gj we`¨yZ PgK, eR«aŸwb I ¸oyg ¸oyg kã| mv‡\_ GKwU Zxeª f~wgK¤ú| gvbyl c„w\_ex‡Z cv †djvi c‡i GZ eo f~wgK¤ú Avi KLbI Avi N‡Uwb| GUv GZB Zxeª wQj| wewfbœ †`‡ki kni¸‡jv †f‡O coj| Øxc¸‡jv nvwi‡q †Mj| †`Lv hv‡”Q bv cvnvo¸‡jvI| AvKvk †\_‡K GK GKwU GK‡kv cvDÛ3 I‡Rv‡bvi wkjve…wó coj gvby‡li gv\_v Ici| wkjve…wói cÖ‡Kv‡c gvbyl Ck¦i‡K MvjvMvj Ki‡Z jvMj| cÖ‡KvcUv Avm‡jB fqven wQj|

Aek¨B c„w\_ex AviI bvbv iKg cÖwZK~j NUbvi wkKvi n‡Z cv‡i| wecyj cwigvY e‡ji evua‡b cwie¨ß gnvwe‡k¦ cyuP‡K GKwU e¯Íy GB c„w\_ex| GZ wKQyi c‡iI AšÍZ mv‡o wZb k †KvwU eQi a‡i Avgv‡`i MÖnwU cÖvY avi‡Yi Dc‡hvMx wn‡m‡eB Av‡Q| Z‡e MÖnwU‡Z Avgv‡`i mvd‡j¨i †cQ‡b inm¨ wKš‘ gnvKvkB| †mUv A‡bKfv‡eB| wekvj k~b¨Zvi gnvmvM‡i Avgv‡`i †mŠiRMZ ¶y`ª GKwU mwµq AÂj| Avgv‡`i wbKUZg b¶‡Îi (m~‡h©i c‡i) Ae¯’vb Pvi Av‡jvKel©4 `~‡i| GB `~iZ¡ KZ †ewk †mUv eyS‡Z n‡j GKwU welq gv\_vq ivL‡Z n‡e| m~h© †\_‡K gvÎ mv‡o AvU wgwb‡Ui g‡a¨ Av‡jv bq †KvwU wÎk j¶ gvBj c\_ †cwi‡q Av‡m| Pvi eQ‡i †Zv AwZµg K‡i 20 wU«wjqb (20 j¶ †KvwU) gvB‡jiI †ewk c\_|

m~h© GKwU Av`k© evgb b¶Î| Ae¯’vb Avgv‡`i AvKvkM½v Qvqvc‡\_i (Milky Way galaxy) GKwU Av`k© AÂ‡j| G Qvqvc‡\_ b¶‡Îi msL¨v cÖvq `k nvRvi †KvwU| KviI fi m~‡h©i K‡qK kZvsk| KviI KviI fi Avevi m~‡h©i GK k ¸Y| Giv ax‡i ax‡i Qvqvc‡\_i †K‡›`ªi Pvicv‡k Nyi‡Q| Nyi‡Q Qvqvc‡\_ \_vKv cÖPyi cwigvY M¨vmxq †gN I ay‡jv, ARvbv msL¨K a~g‡KZy I MÖnvYy, MÖn Ges K…òMnŸiI| GB wecyj cwigvY e¯Íyi Dcw¯’wZi K\_v ï‡b g‡b n‡Z cv‡i, Qvqvc\_wU eywS wewfbœ e¯Íy w`‡q Kvbvq Kvbvq fwZ©| G aviYv fyj| Avm‡j, Qvqvc\_wUi `„k¨gvb Ask cÖvq GK jvL Av‡jvKel© cwigvY PIov| AvK…wZ n‡jv \_vjvi g‡Zv| †K›`ªxq AskUv GKUy ùxZ| G‡K wN‡i Qwo‡q Av‡Q K‡qKwU mwc©j evû| evûM‡jv Mov b¶Î I M¨vmxq c`v\_© Øviv| GgbB GKwU mwc©j evû‡Z i‡q‡Q Avgv‡`i m~h©| †K›`ª †\_‡K GwU Av‡Q cÖvq wÎk nvRvi Av‡jvKel© `~‡i|

Avgiv hZ`~i Rvwb, AvKvkM½v Qvqvc‡\_ Lye e¨wZµgag©x wKQyB †bB| GKB iKg Av‡iKwU Qvqvc\_ n‡jv A¨v‡Û«vwgWv| GwU Av‡Q Avgv‡`i †\_‡K wek jvL Av‡jvKel© `~‡i| AvKv‡ki A¨v‡Û«vwgWv ZvivgÐ‡ji w`‡K Gi Ae¯’vb5| Lvwj †Pv‡L G‡K Svcmv †Qvc †Qvc Av‡jvi g‡Zv g‡b nq| wewjqb wewjqb b¶Î mvwR‡q †i‡L‡Q Avgv‡`i `„k¨gvb gnvwek¦| †Kv‡bvwU mwc©j, †Kv‡bvwU Dce…ËvKvi, †Kv‡bvwU Avevi wbw`©ó AvKvinxb| `~i‡Z¡i gvcvKvwV GLv‡b wekvj| kw³kvjx †Uwj‡¯‹v‡ci mvnv‡h¨ K‡qK wewjqb Av‡jvKel© `~‡ii Qvqvc\_I Avjv`vfv‡e †`Lv m¤¢e| †Kv‡bv †Kv‡bv †¶‡Î †Zv G‡`i Av‡jv Avgv‡`i Kv‡Q †cŠuQ‡ZB c„w\_exi eq‡mi (mv‡o Pvi‡kv †KvwU eQi) †P‡q †ewk mgq †j‡M †M‡Q|

GB wekvj dvuKv ¯’v‡bi Dcw¯’wZi A\_© n‡jv gnvKv‡k msN‡l©i NUbv Lye †ewk N‡U bv| c„w\_exi me‡P‡q eo wec` jywK‡q Av‡Q Gi Av‡kcv‡kB| MÖnvYy‡`i K¶c\_ mvaviYZ c„w\_exi KvQvKvwQ \_v‡K bv| G‡`i eo AskB g½j I e…n¯úwZi gvSLv‡bi MÖnvYy †eóbx‡ZB \_v‡K me mgq| Z‡e e…n¯úwZi wecyj fi MÖnvYy‡`i‡K K¶c\_ †\_‡K wQU‡K w`‡Z cv‡i| d‡j G‡`i †Kv‡bv †Kv‡bvwU m~‡h©i w`‡K P‡j Av‡m| †W‡K Av‡b c„w\_exi wec`|

Av‡iKwU wec` n‡jv a~g‡KZy| g‡b Kiv nq, `k©bxq G e¯ÍyM‡jvi DrcwË m~h© †\_‡K cÖvq GK Av‡jvKel© `~‡ii GKwU †gNcy‡Ä| GLv‡b †`vl e…n¯úwZi bq| `vqx eis wbKU¯’ b¶Îiv| Qvqvc\_ w¯’i e‡m †bB| ïay b¶Î¸‡jvB Qvqvc\_ †K›`ª‡K cÖ`w¶Y Ki‡Q bv, Qvqvc\_ wb‡RI ax‡i ax‡i AveZ©b Ki‡Q| m~h© Zvi m½x MÖn‡`i‡K wb‡q cÖvq 20 †KvwU eQ‡i Qvqvc\_‡K cy‡iv GKevi Ny‡i Av‡m| G hvÎvc‡\_ gy‡LvgywL n‡Z nq bvbv iKg AwfÁZvi| wbKUeZ©x b¶Îiv a~g‡KZyi †gN‡K bvwo‡q w`‡Z cv‡i| wKQy wKQy a~g‡KZy ZLb wQU‡K Avm‡e m~‡h©i w`‡K| a~g‡KZyiv †mŠiRM‡Zi †fZ‡ii w`‡K P‡j G‡j m~‡h©i DËv‡c G‡`i DØvqx c`v\_© ev®úxf~Z n‡q hvq| †mŠi evqyi av°vq GKwU j¤^v cÖevn ˆZwi nq| GUvB a~g‡KZyi weL¨vZ †jR| †mŠiRM‡Zi †fZ‡ii w`‡K P‡j G‡jI a~g‡KZyi mv‡\_ c„w\_exi msNl© nevi m¤¢vebv Lye Kg| ¶wZ a~g‡KZyI K‡i| Z‡e Zvi †`vl wKš‘ c‡o c‡\_ †`Lv nIqv b¶‡Îi Ici| Z‡e Avgv‡`i fvM¨ fvj †h b¶‡Îi gv‡Si `~iZ¡ A‡bK †ewk nIqvq Ggb NUbv Lye †ewk N‡U bv|

Qvqvc‡\_i Pvicv‡k Nyi‡Z Nyi‡Z AviI wKQy e¯Íy Avgv‡`i w`‡K P‡j Avm‡Z cv‡i| †hgb Qvqvc‡\_ †f‡m Pjv M¨v‡mi eo eo †gNcyÄ| Giv A‡bK wPKb n‡jI †mŠievqy‡K gvivZ¥Kfv‡e cÖfvweZ Ki‡Z cv‡i| cÖfvweZ Ki‡Z cv‡i m~h© †\_‡K Avmv Zv‡ci cÖevn‡K| AÜKvi gnvk~‡b¨ AviI bvbvb fqbvK wRwbm jywK‡q \_vK‡Z cv‡i| †hgb, wew”Qbœ MÖn, wbDU«b b¶Î, ev`vgx evgb, K…òMnŸi BZ¨vw`6| Givmn AviI A‡b‡KB Avgv‡`i ARv‡šÍB Avgv‡`i w`‡K †a‡q Avm‡Z cv‡i| †mŠiRM‡Z N‡U †h‡Z cv‡i UvjgvUvj Ae¯’v|

wec` AviI fqvenI n‡Z cv‡i| †Kv‡bv †Kv‡bv †R¨vwZwe©` g‡b K‡ib, m~h© nqZ GKwU wØ-Zviv7 RM‡Zi Ask| Avgv‡`i Qvqvc‡\_i AviI eû b¶‡Îi Ae¯’vB Ggb| cÖ¯ÍvweZ m~‡h©i GB m½x ZvivwUi bvg †b‡gwmm| Z‡e Aw¯ÍZ¡ \_vK‡jI GUv n‡e A‡bK †ewk Aby¾¡j| `~iZ¡ n‡e A‡bK †ewk| GRb¨B GLbI G‡K Lyu‡R cvIqv hvqwb| m~‡h©i Pvicv‡ki K¶c‡\_ Gi MwZ axi n‡jI gnvK‡l©i gva¨‡g GwU Dcw¯’wZi Rvbvb w`‡Z cv‡i| gv‡S gv‡S `~‡ii a~g‡KZy‡`i MwZc\_ cv‡ë cvwV‡q w`‡Z cv‡i c„w\_exi w`‡K| cwiYwZ‡Z NU‡e G‡Ki ci GK mvsNvwZK msNl©| f~ZvwË¡‡Kiv †`‡L‡Qb †h wbqwgZ weiwZ‡Z eo AvKv‡ii ev¯ÍyMZ (ecological) wech©i N‡U| GUv N‡U cÖwZ 30 jvL eQi c‡i GKevi|

AviI Mfxifv‡e ch©‡e¶Y K‡i †R¨vwZwe©`iv Rvb‡jb, m¤ú~Y© Qvqvc\_ivB msNl© evuav‡Z cv‡i| AvKvkM½vi mv‡\_ Av‡iKwU Qvqvc‡\_i av°v jvMvi m¤¢vebv †Kgb? Ggb wKQy cÖgvY Aek¨ Av‡QB| b¶Î‡`i `ªæZ PjvPj †`‡L †evSv hvq, B‡Zvg‡a¨ AvKvkM½v Qvqvc\_ wbKU¯’ Qvqvc\_‡`i mv‡\_ msNl© K‡i b‡oP‡o e‡m‡Q| Z‡e wbKU¯’ `y‡Uv Qvqvc‡\_i msNl© evua‡jB †h Qvqvc\_ cwiev‡ii b¶Î‡`iI wech©q NU‡e Ggb †Kv‡bv K\_v †bB| Qvqvc\_‡`i NbZ¡ GZ Kg †h b¶Î‡`i g‡a¨ msNl© bv NwU‡qI Giv G‡K A‡b¨i mv‡\_ wg‡k †h‡Z cv‡i|

gnvcÖj‡qi Av‡jvPbv AwaKvsk gvbyl‡K gy» K‡i| Zvu‡`i Kv‡Q gnvcÖjq gv‡b AvKw¯§K I `„wóKvov Dcv‡q c„w\_exi g„Zy¨| Z‡e ax‡i ax‡i †kl n‡q hvIqvi †P‡q nVvr g„Zy¨i g‡a¨B wec` Kg| A‡bK¸‡jv Dcv‡q c„w\_ex ax‡i ax‡i emev‡mi Abyc‡hvMx n‡q †h‡Z cv‡i| †hgb, ev¯Íyms¯’v‡bi µgvbebwZ, Rjevqy cwieZ©b ev m~h© †\_‡K Avmv Zv‡ci cwigv‡Yi GKUyLvwb ZviZg¨| fO&¸i c„w\_ex‡Z G¸‡jv Avgv‡`i Aw¯ÍZ¡‡K ûgwKi gy‡L bv †dj‡jI Avivg-Av‡q‡ki Rxe‡b BwZ Aek¨B NUv‡e| Z‡e G ai‡bi cwieZ©b NU‡Z nvRvi nvRvi ev GgbwK j¶ j¶ eQiI †j‡M hvq| AvaywbK cÖhyw³i mvnv‡h¨ gvbyl nqZ G¸‡jv‡K cÖwZ‡ivaI Ki‡Z cvi‡e| †hgb, bZyb K‡i ax‡i ax‡i eid hy‡Mi m~Pbv n‡Z \_vK‡jI Avgv‡`i m¤ú~Y© wech©q NU‡e bv| †mUv NUvi Av‡M mewKQy bZyb K‡i †X‡j mvRvevi R‡b¨ h‡\_ó mgq nv‡Z \_vK‡e Avgv‡`i| a‡i †bIqv hvq †h GKwesk kZvãx‡ZI cÖhyw³i Af~Zc~e© DbœwZ NU‡Z \_vK‡e| d‡j GUv wek¦vm‡hvM¨ †h gvbyl ev Zvi eskaiiv µ‡gB RM‡Zi eo KvVv‡gvi wbqš¿Y wb‡Z cvi‡e| †VKv‡Z cvi‡e eo eo me `~‡h©vMI|

ZvwË¡Kfv‡e wK gvbyl wPiKvj †eu‡P \_vK‡Z cv‡i? nqZ cv‡i| wKš‘ Avgiv †`Le, AgiZ¡ AR©b Kiv †mvRv K\_v bq| nqZ †mUv Am¤¢eB| gnvwek¦ wb‡RB †fŠZ m~‡Îi Aaxb| m~Î¸‡jvB Gi RxebPµ †eu‡a w`‡q‡Q: Rb¥, weeZ©b Ges nqZ g„Zy¨| b¶‡Îi wbqwZi mv‡\_ Avgv‡`i wbqwZ Awbevh©fv‡e Rwo‡q Av‡Q|

**Abyev`‡Ki †bvU**

1. GK wgwjqb mgvb `k j¶

2. evB‡e‡ji wbD †U÷v‡g›U Ask Abymv‡i c„w\_exi †k‡li w`‡K GKwU eo hy× n‡e| G hy‡×i gq`v‡bi mwZ¨Kvi ev cÖZxwK bvg n‡jv A¨vigv‡MWb|

3. GK cvDÛ mgvb 0.4536 †KwR| gv‡b, 100 cvDÛ mgvb cÖvq 45 †KwR|

4. GK Av‡jvKel© n‡jv Av‡jvi GK eQ‡i AwZµvšÍ `~iZ¡|

5. A¨v‡Û«vwgWv GKB mv‡\_ GKwU Qvqvc\_ Ges GKwU ZvivgÐ‡ji bvg| gnvKv‡ki wewfbœ e¯Íyi Ae¯’vb wbw`©ó Kivi R‡b¨ cy‡iv AvKv‡ki `„k¨gvb †MvjK‡K 88wU AÂ‡j fvM Kiv n‡q‡Q| Gi cÖwZwU‡K GK GKwU ZvivgÐj (constellation) e‡j|

6. G‡`i cwiPq I cv\_©K¨ †`Lyb cwiwkó As‡k|

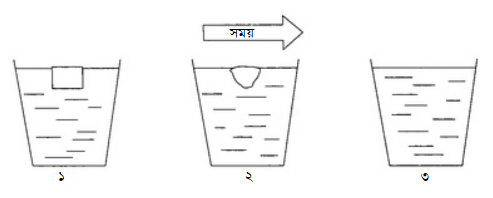
7. eZ©gv‡b wØ-Zviv ev Wvej ÷vi ejv nq Ggb `y‡Uv Zviv‡K hv‡`i‡K c„w\_ex †\_‡K †`L‡Z Lye KvQvKvwQ g‡b nq| ev¯Í‡e Giv wb‡R‡`i †\_‡K A‡bK `~‡i Ae¯’vb K‡iI c„w\_exi AvKv‡k KvQvKvwQ Ae¯’v‡b \_vK‡Z cv‡i| Avevi n‡Z cv‡i Giv G‡K Aci †K›`ª K‡i Nyi‡Q| GB wØZxq †¶‡Î G‡`i‡K evBbvwi ÷vi ev †Rvov Zviv e‡j| Av‡jvP¨ As‡k wØ-Zviv ej‡Z Avm‡j †RvovZviv‡K †evSv‡bv n‡q‡Q|

wØZxq A\_¨vq

gyg~l©y gnvwek¦

1856 mv‡ji K\_v| Rvg©vb c`v\_©we` †nig¨vb fb †njgnjR weÁv‡bi BwZnv‡mi m¤¢eZ me‡P‡q nZvkvRbK AbygvbwU K‡ib| †njgnjR ej‡jb, g„Zy¨i w`‡K GwM‡q P‡j‡Q gnvwek¦| Zvui G Abygv‡bi wfwË n‡jv Z\_vKw\_Z Zvc MwZwe`¨vi wØZxq m~Î| m~ÎwU cÖ\_g AvZ¥cÖKvk K‡i Ebwesk kZ‡Ki ïiæi w`‡K| D‡Ï‡k¨ wQj Zvc BwÄ‡bi Kg©`¶Zvi (efficiency) msÁv †`Iqv| Aí w`‡bi gv\_vqB m~ÎwUi wek¦Rbxb ¸iæZ¡ ¯^xK…wZ †c‡q †Mj| (A‡bK mgq G‡K mnR K‡i `¨ †m‡KÛ j¨ ev wØZxq m~ÎI ejv nq)| cÖK…Zc‡ÿ Av¶wiK A‡\_©B Gi ¸iæZ¡ wek¦Rbxb, Z\_v mgMÖ gnvwek Ry‡o|

me‡P‡q mnR K\_vq wØZxq m~‡Îi e³e¨ n‡jv, Zvc cÖevwnZ nq DËß e¯Íy †\_‡K kxZj e¯Íyi w`‡K| n¨vu, †fŠZ cwi‡e‡ki GKwU cwi®‹vi I cwiwPZ ˆewkó¨ GwU| Lvevi ivbœv Ki‡Z †M‡j ev Mwig Kwd VvÐv Ki‡Z †M‡jB m~ÎwUi †`Lv cvB Avgiv| D”P ZvcgvÎvi GjvKv †\_‡K Zvc wbgœ ZvcgvÎvi GjvKvi w`‡K cÖevwnZ nq| G‡Z †Kv‡bv inm¨ †bB| c`v‡\_©i AYyi RM‡Zi K¤ú‡bi gva¨‡g Zvc wb‡Ri ewntcÖKvk NUvq| M¨v‡mi g‡a¨ (‡hgb evqy) AYyiv G‡jv‡g‡jvfv‡e †QvUvQywU I msNl© K‡i| GgbwK KwVb c`v‡\_©i g‡a¨I cigvYyiv cÖejfv‡e ¯úw›`Z nq| c`v‡\_©i DòZv hZ †ewk n‡e, AYyi K¤ú‡bi cÖvej¨I ZZ †ewk n‡e| wfbœ ZvcgvÎvi `y‡Uv e¯Íy‡K ms¯ú‡k© Avbv n‡j DËß e¯ÍywUi AwaKZi cÖej K¤úb Aí mg‡qi g‡a¨B VvÐv e¯ÍywU‡Z Qwo‡q co‡e|



wPÎ 2.1

A¨v‡iv Ae UvBg ev mg‡qi Zxi

ei‡di Mjb †\_‡K mgq cÖev‡ni w`K m¤ú‡K© GKwU aviYv cvIqv hvq| Zvc Mig cvwb †\_‡K VvÐv ei‡di w`‡K cÖevwnZ nq| †Kv‡bv gywf‡Z hw` Ic‡ii Qwei NUbvwU M, L, K AvKv‡i †`Lv‡bv nq, Z‡e fyjwU mn‡RB mevi †Pv‡L aiv co‡e| GbU«wc bv‡g GKwU ivwk G AcÖwZmv‡g¨i ˆewkó¨ cÖKvk K‡i| eid Mj‡j Gi cwigvY ev‡o|

Zv‡ci cÖevn †h‡nZy GKgyLx, ZvB cÖwµqvwU‡Z mg‡qi fvimvg¨ †bB| †Kv‡bv gywf‡Z hw` †`Lv‡bv nq VvÐv e¯Íy †\_‡K Zvc ¯^Ztù~Z©fv‡e Mig e¯Íy‡Z hv‡”Q, †mUv LyeB nvm¨Ki n‡e| GKB iKg nvm¨Ki n‡e b`xi cvwb Xvjy †e‡q D‡V hv‡”Q ev e…wói †dvUv †g‡N wM‡q Rgv n‡”Q †`Lv‡bvUv| d‡j Avgiv Zvc cÖev‡ni GKwU †gŠwjK w`KgywLZv †`L‡Z cvw”Q| G‡K A‡bK mgq AZxZ †\_‡K fwel¨‡Zi w`‡K wPwýZ GKwU Zx‡ii gva¨‡g †`Lv‡bv nq| mg‡qi GB ÔZxiÕ ZvcMZxq cÖwµqvi AcÖZ¨vMvgx1 AvPiY cÖKvk K‡i| †`ok eQi a‡i welqwU c`v\_©weÁvbx‡`i Awff~Z K‡iQ P‡j‡Q| (†`Lyb wPÎ 2.1)

ZvcMwZwe`¨vi AcÖZ¨vMvgx ˆewkó¨ cÖKvk Kivi R‡b¨ GbU«wc ivwkwU Lye ¸iæZ¡c~Y©| G welqwUi ¯^xK…wZ †g‡j †njgnjR, iæWjc K¬wmqvm I jW© †Kjwf‡bi Kv‡Ri gva¨‡g| GKwU mnR welq wPšÍv Kiv hvK| GKwU Dò e¯Íy GKwU VvÐv e¯Íyi ms¯ú‡k© Av‡Q| G‡¶‡Î Zvc kw³ I ZvcgvÎv AbycvZ‡K GbU«wci msÁv wn‡m‡e wPšÍv Kiv hvq| g‡b Kiæb, Aí cwigvY Zvc Dò e¯ÍywU †\_‡K kxZj e¯Íy‡Z cÖevwnZ n‡”Q| Dò e¯ÍywU wKQy GbU«wc nviv‡e, Avi kxZj e¯ÍywU wKQy GbU«wc jvf Ki‡e| GLv‡b Zvc kw³i cwigvY GKB \_vK‡jI ZvcgvÎv wKš‘ wfbœ wQj| AZGe, Dò e¯ÍywU hZUyKy GbU«wc nvwi‡q‡Q, kxZj e¯ÍywU Zvi †P‡q †ewk GbU«wc jvf K‡i‡Q| d‡j wm‡÷‡gi †gvU GbU«wc, gv‡b Dò I e¯Íy kxZj e¯Íyi GbU«wci mgwó †e‡o‡Q| Zvi gv‡b, ZvcMwZwe`¨vi wØZxq m~Î‡K Av‡iKfv‡eI ejv hvq| G ai‡bi wm‡÷‡gi GbU«wc KLbI n«vm cv‡e bv| KviY, †m‡¶‡Î wKQy cwigvY Zvc‡K ¯^Ztù~Z©fv‡e kxZj e¯Íy †\_‡K Dò e¯Íy‡Z cÖevwnZ n‡Z n‡e|2

Av‡iKUy Mfxifv‡e wPšÍv Ki‡j m~ÎwU‡K †h-†Kv‡bv e× wm‡÷‡gi R‡b¨ cÖ‡qvM Kiv hvq: GbU«wc KL‡bvB K‡g bv| aiv hvK wm‡÷‡g Av‡Q GKwU †iwd«Rv‡iUi (wd«R)| GwU kxZj e¯Íy †\_‡K DËß e¯Íy‡Z Zvc cvVvq| GbU«wci †gvU cwigvY wn‡me Ki‡Z n‡j wd«R Pvjv‡bvi R‡b¨ e¨q nIqv kw³i K\_v gv\_vq ivL‡Z n‡e| GB e¨‡qi cÖwµqvi Kvi‡YB wKQy GbU«wc †e‡o hv‡e| d‡j memgq GKB NUbv NU‡e| wd«R VvÐv e¯Íy‡K Mig K‡i wKQy GbU«wc Kgv‡e wVKB, wKš‘ wd«R Pvjy ivL‡Z wM‡q †h cwigvY GbU«wc evo‡e †mUv Gi †P‡q †Xi †ewk| cÖvK…wZK wm‡÷g¸‡jv‡ZI GKB NUbv N‡U| †hgb, wewfbœ Rx‡ei †`‡n ev ùwUK ˆZwii cÖwµqv| wm‡÷‡g‡i GK As‡ki GbU«wc K‡g hvq, wKš‘ Aci †Kv‡bv As‡k wVKB Zvi †P‡q †ewk cwigvY GbU«wc †e‡o hvq| me wgwj‡q wPšÍv Ki‡j GbU«wc KL‡bvB K‡g bv|

mvgwMÖKfv‡e cy‡iv gnvwek¦‡K GKwU GKwU e× wm‡÷g fvev hvq| GB A‡\_© †h, Gi ÔevB‡iÕ wKQyB †bB| Zvn‡j, ZvcMwZwe`¨vi wØZxq m~Î ¸iæZ¡c~Y© GKwU c~e©vfvm cÖ`vb K‡i| †mwU n‡jv, gnvwe‡k¦i †gvU GbU«wc KL‡bvB K‡g bv| Avm‡j GwU AcÖwZ‡iva¨ MwZ‡Z †e‡oB P‡j| Avgv‡`i Lye Kv‡QB †Zv Gi GKwU bgybv Av‡Q| ejwQ m~‡h©i K\_v| m~h© Aweivg gnvk~‡b¨i kxZj AÂ‡ji w`‡K Zvc Qwo‡q w`‡”Q| Zvc Qwo‡q co‡Q gnvwek¦ Ry‡o| wd‡i Avm‡Q bv KLbI| GKwU ¯úó AcÖZ¨vMvgx cÖwµqv|

fvebvi welq n‡jv, GUv wK m¤¢e †h gvnwe‡k¦i GbU«wc wPiKvj evo‡ZB \_vK‡e| g‡b Kiæb, Ggb GKwU cvÎ †bIqv n‡jv, †hLvb †\_‡K †Kv‡bv Zvc †ei n‡Z cv‡i bv, Avevi †Kv‡bv Zvc †mLv‡b cÖ‡ekI Ki‡Z cv‡i bv| aiæb †mLv‡b GKwU Dò I GKwU kxZj e¯Íy‡K cvkvcvwk ivLv n‡jv| Zvc kw³ Dò e¯Íy †\_‡K kxZj e¯Íy‡Z cÖevwnZ n‡e| GbU«wc evo‡e| wKš‘ GK ch©v‡q kxZj e¯ÍywU Mig n‡e Ges Dò e¯ÍywU VvÐv n‡e| d‡j `y‡Uvi ZvcgvÎv mgvb n‡q hv‡e| G Ae¯’vq †cŠuQvi ci Avi †Kv‡bv Zvc wewbgq n‡e bv| cv‡Îi †fZ‡ii wm‡÷g GKwU wbw`©ó ZvcgvÎvq †cŠuQ‡e| m‡e©v”P GbU«wci GB myw¯’Z `kv‡K ZvcMZxq mvg¨ve¯’v e‡j| wm‡÷gwU wew”Qbœ \_vK‡j Avi †Kv‡bv cwieZ©b nIqvi K\_v bq| wKš‘ e¯Íy¸‡jv‡K †Kv‡bvfv‡e cÖfvweZ Ki‡j wfbœ K\_v| †hgb aiæb, cv‡Îi evB‡i †\_‡K AviI Zvc mieivn Kiv n‡jv| †m‡¶‡Î Zvcxq NUbv AviI NU‡e| Ges GbU«wci m‡e©v”P mxgv Av‡iKUy evo‡e|

gnvwe‡k¦i cwieZ©b m¤ú‡K© ZvcMwZwe`¨vi G m~Î¸‡jvi e³e¨ Kx? m~h© Ges AwaKvsk b¶‡Îi K\_v hw` ewj, Zvc wbM©g‡bi cÖwµqv AviI eû wewjqb eQi a‡i Pj‡Z cv‡i| wKš‘ Gi †h †kl †bB Zv bq| GKwU mvaviY b¶‡Îi Zvc Drcbœ nq Gi Af¨šÍ‡i msNwUZ wbDwK¬qvi cÖwµqvi gva¨‡g| c‡i Avgiv †`Le, m~‡h©i R¡vjvwb GK mgq dywi‡q hv‡e| Ges mewKQy wVKVvK \_vK‡j GK mgq Gi ZvcgvÎv Gi cvk¦eZ©x gnvk~‡b¨i ZvcgvÎvi mgvb n‡q hv‡e|

†nig¨vb fb †njgnjR Aek¨ wbDwK¬qvi wewµqvi K\_v Rvb‡Zb bv| (m~h© GZ wecyj kw³ Kxfv‡e Drcbœ K‡i Zv Zvui mg‡q ARvbv wQj) Z‡e GKwU mvwe©K bxwZ Zvui Rvbv n‡q wM‡qwQj| †mUv n‡jv, gnvwe‡k¦i mKj †fŠZ cÖwµqv GKwU P~ovšÍÍ ZvcMZxq mvg¨ve¯’v ev m‡e©v”P GbU«wci w`‡K G‡Mv‡”Q| Zvi c‡i Avi †Kv‡bv w`b ejvi g‡Zv wKQy NUvi m¤¢vebv †bB| cÖ\_g w`‡Ki we‡klÁiv mvg¨ve¯’vi w`‡Ki GB GKgyLx MwZ‡K bvg †`b ÔZvcxq g„Zy¨Õ (heat death)| Z‡e mevB gvb‡Zb †h evB‡i †\_‡K KvR K‡i ¯^Zš¿ wm‡÷g‡K Avevi mwµq Kiv †h‡Z cv‡i| wKš‘ msÁv Abymv‡iB gnvwe‡k¦i ÔevB‡iÕ wKQyB †bB| d‡j, mvgwMÖK †mB Zvcxq g„Zy¨ †VKv‡bvi g‡Zv wKQyB †bB| Awbevh© GK cwiYwZ|

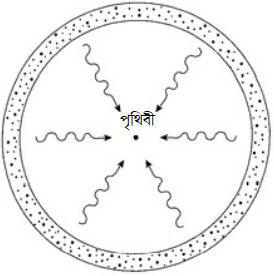
ZvcMwZwe`¨vi m~‡Îi Kvi‡Y gnvwek¦ AcÖwZ‡iva¨fv‡e g„Zy¨i w`‡K GwM‡q hv‡”Q, G Avwe®‹vi eû cÖR‡b¥i weÁvbx I `vk©wbK‡K nZvk K‡i‡Q| †hgb evU©vÛ iv‡mj Zvui †nvqvB AvB A¨vg bU A¨v wµwðqvb eB‡q wb‡Ri welY&Y g‡bvfve Zy‡j ai‡Z wM‡q e‡jb,

Ôhy‡Mi ci hyM a‡i K‡i hvIqv GZ me cwikÖg, GZ HKvwšÍKZv, GZ me Drmvn-DÏxcbv, gvby‡li eyw×gË¡vi GZ `viæY me wb`k©b †mŠiRM‡Zi g„Zy¨i mv‡\_ mv‡\_ nvwi‡q hv‡e, Avi gvby‡li mKj AR©b Awbevh©fv‡e gnvwe‡k¦i aŸsmve‡k‡li wb‡P Pvcv co‡e — G K\_v¸‡jvi mv‡\_ mevB GKgZ bv n‡jI Gi wec¶ †Kv‡bv `k©b cÖ‡qvM K‡iI Gi †\_‡K evuPvi Avkv Kiv †h‡Z cv‡i bv| ïay GB m‡Z¨i Ici fi K‡iB, GB KwVb nZvkvi Ici `„pfv‡e `vuwo‡q †\_‡KB AvZ¥v‡K wbivc` Kiv †h‡Z cv‡i|Õ

ZvcMwZwe`¨vi wØZxq m~Î I Gi gi‡Yvb¥yL gnvwek¦ welqK djvdj m¤ú‡K© A‡bKB gšÍe¨ K‡i‡Qb, gnvwek¦ Avm‡j wbi\_©K wRwbm| Ges P~ovšÍfv‡e gvby‡li Aw¯ÍZ¡I A\_©nxb| GB nZvkve¨ÄK gšÍe¨ m¤ú‡K© Avwg c‡ii Aa¨vq¸‡jv‡Z K\_v eje| GB aviYv wVK wK fyj †mUvI Av‡jvPbv Kie|

gnvwe‡k¦i P~ovšÍÍ Zvcxq g„Zy¨ †h †Kej fwel¨r gnvwe‡k¦i K\_vB ej‡Q Zv wKš‘ bq| AZx‡Zi IciI f~wgKv Av‡Q Gi| GUv cwi®‹vi †h gnvwek¦ hw` GKwU wbw`©ó nv‡i wbt‡kl n‡q †h‡Z \_v‡K, Z‡e Gi c‡¶ wPiKvj wU‡K \_vKv Am¤¢e| KviYUv Lye †mvRv| gnvwe‡k¦i eqm hw` Amxg nZ, Z‡e GZ w`‡b Gi g„Zy¨B n‡q †hZ| †h wRwbm wbw`©ó nv‡i †kl n‡q †h‡\_ \_v‡K †mUvi c‡¶ wPiKvj wU‡K \_vKv m¤¢e bq| Ab¨ K\_vq, Aek¨B GKwU wbw`©ó mgq Av‡M gnvwe‡k¦i Rb¥ n‡q‡Q|

GKUv eo welq n‡jv, Ebwesk kZ‡Ki weÁvbxiv GB eo djvdjwU fv‡jvg‡Zv eyS‡Z cv‡ibwb| 1920 Gi `k‡K gnvKvk ch©‡e¶‡Yi gva¨‡g †evSv †Mj, AvKw¯§K GK gnvwe‡ùvi‡Yi (weM e¨vs) gva¨‡g Rb¥ n‡q‡Q gnvwe‡k¦i| Z‡e †`Lv hv‡”Q, ïay ZvcMZxq Kvi‡Yi Ici wfwË K‡iB gnvwe‡k¦i GKwU wbw`©ó mg‡q ïiæi wel‡q Av‡M †\_‡KB `„p mg\_©b wQj|



wPÎ 2.2

[Ijevm© c¨vivW·| g‡b Kiæb, gnvwek¦ AcwieZ©bkxj| b¶Î¸‡jv wbw`©ó GKwU Mo NbZ¡ wb‡q G‡jv‡g‡jvfv‡e Qwo‡q wQwU‡q Av‡Q| wP‡Î c„w\_exi Pivw`‡Ki GKwU wPKb †MvjKxq †Lvj‡mi g‡a¨ Aew¯’Z b¶Î‡`i wKQy †`Lv‡bv n‡jv| (‡Lvj‡mi evB‡ii b¶Î¸‡jv‡K wPÎ †\_‡K ev` †`Iqv n‡q‡Q|) G †Lvj‡mi b¶Î¸‡jv †\_‡K Avmv Av‡jvB c„w\_ex‡Z cwZZ mg¯Í bv¶wÎK Av‡jvi †hvMvb †`q| GKwU wbw`©ó b¶Î †\_‡K Avmv Av‡jv Gi †Lvj‡mi e¨vmv‡a©i eM© Abycv‡Z K‡g hvq3| Avevi, †Lvj‡mi e¨vmva© evovi mv‡\_ mv‡\_ b¶‡Îi msL¨vI †e‡o hvq eM© Abycv‡ZB| d‡j `y‡Uv cÖfve G‡K Aci‡K evwZj K‡i †`q| Zvi gv‡b, †Lvj‡mi †gvU `xwß4 Gi e¨vmv‡a©i Ici wbf©i K‡i bv| gnvwek¦ Amxg n‡j G‡Z GiKg †Lvj‡mi msL¨vI Amxg n‡e| d‡j, c„w\_exi ey‡K G‡m cwZZ Av‡jvi cwigvYI Amxg nevi K\_v|]

wKš‘ ev¯Í‡e GgbUv †`Lv hvqwb e‡j Ebwesk kZ‡Ki †R¨vwZwe©`‡`i‡K gnvwek¦ welqK GKwU AvMÖ‡nvÏxcK c¨vivW· nZeyw×‡Z †d‡j †`q| Rvg©vb †R¨vwZwe©` Ijev‡ii bvg Abymv‡i G‡K IjeviÕm c¨vivW· e‡j WvKv nq| wZwbB c¨vivW·wUi Rb¥ †`b| GwU GKwU mij wKš‘ Lye ¸iæZ¡c~Y© cÖkœ DÌvcb K‡i| iv‡Zi AvKvk †Kb Kv‡jv?

cÖ\_g `„wó‡Z G‡K †QvULv‡Uv mgm¨v g‡b n‡e| iv‡Zi AvKvk Kv‡jv, KviY b¶Îiv Avgv‡`i †\_‡K A‡bK A‡bK `~‡i Av‡Q| ZvB Giv Aby¾¡j| (†`Lyb wPÎ 2.2) wKš‘ aiæb, gnvk~‡b¨i †Kv‡bv †kl †bB| †m‡¶‡Î b¶‡Îi msL¨v Amxg n‡Z †Zv †Kv‡bv evav †bB| Amxg msL¨K Ayb¾¡j b¶‡Îi Av‡jv GKÎ Ki‡j †Zv cÖPyi Av‡jv nq| gnvk~‡b¨ cÖvq mylgfv‡e (mgvb GjvKvq cÖvq mgvb msL¨K) web¨¯Í Amxg msL¨K AcwieZ©bkxj b¶‡Îi †gvU Av‡jvi cwigvY mn‡RB wn‡me K‡i †ei Kiv hvq| wecixZ eM©xq m~Î Abymv‡i `~i‡Z¡i mv‡\_ mv‡\_ D¾¡jZv K‡g Av‡m| Gi gv‡b n‡jv, `~iZ¡ wØ¸Y n‡j D¾¡jZv Pvi fv‡Mi GK fvM n‡q hv‡e| `~iZ¡ wZb ¸Y n‡j D¾¡jZv n‡e bq fv‡Mi GK fvM| Gfv‡eB Pj‡Z \_vK‡e| Ab¨ w`‡K hZ `~i ch©šÍ `„wó †`Iqv n‡e, b¶‡Îi msL¨v ZZ evo‡Z \_vK‡e| Ges mvaviY R¨vwgwZi gva¨‡gB †`Lv‡bv hvq, GK k Av‡jKel© `~‡i hZ b¶Î Av‡Q, `yB k Av‡jvKel© `~‡i Zvi Pvi ¸Y b¶Î Av‡Q| Avevi, GK k Av‡jKel© `~‡i hZ b¶Î Av‡Q, wZb k Av‡jvKel© `~‡i Av‡Q Zvi bq ¸Y b¶Î| Zvi gv‡b, `~i‡Z¡i e‡M©i mgvbycv‡Z b¶‡Îi msL¨v †e‡o hv‡”Q Avi D¾¡jZv K‡g hv‡”Q| `y‡Uv cÖfve G‡K Aci‡K evwZj K‡i w`‡”Q| Zvi A\_© n‡jv, GKwU wbw`©ó `~i‡Z¡ Aew¯’Z me¸‡jv b¶Î †\_‡K †gvU Kx cwigvY Av‡jv Avm‡e Zv `~i‡Z¡i Ici wbf©ikxj bq| `yB k Av‡jvKel© `~‡ii b¶Îiv hZUyKy Av‡jv †`‡e, GK k Av‡jvKe‡l©i `~‡ii b¶ÎivI †mB GKB cwigvY Av‡jv †`‡e|

mgm¨v nq hLb Avgiv m¤¢ve¨ mKj `~i‡Z¡i mKj b¶‡Îi Av‡jv GKÎ Kwi| gnvwe‡k¦i hw` †Kv‡bv mxgvbv bv \_v‡K, Zvn‡j †Zv g‡b nq c„w\_ex‡Z G‡m cov Av‡jvi †gvU cwigv‡Yi †Kv‡bv mxgv \_vK‡e bv| AÜKvi nIqv †Zv `~‡ii K\_v, iv‡Zi AvKvk Zxeª Av‡jv‡Z Sjgj Kivi K\_v|

b¶Î‡`i mmxg mvB‡Ri K\_v gv\_vq ivL‡j mgm¨vwU AviI eo n‡q †`Lv †`q| c„w\_ex †\_‡K †Kv‡bv b¶Î hZ `~‡i \_vK‡e, Gi AvcvZ mvBRI ZZ Kg n‡e| c„w\_ex †\_‡K †`L‡Z `y‡Uv b¶Î GKB †iLv eivei n‡j Kv‡Qi †Kv‡bv b¶‡Îi A‡c¶vK…Z `~‡ii b¶Î‡K GwU Avovj K‡i †dj‡e| gnvwek¦ Amxg n‡j GUv NU‡e Amxg msL¨K evi| GUv‡K wnmv‡e ai‡j Av‡Mi wm×všÍ wKš‘ cv‡ë hv‡e| c„w\_ex‡Z G‡m †cŠuQv Av‡jv A‡bK †ewk n‡e GUv wVK, wKš‘ †mUv Amxg n‡e bv| c„w\_ex †mŠic„ô †\_‡K cÖvq 10 jvL gvBj `~‡i \_vK‡j c„w\_exi AvKv‡k †h cwigvY Av‡jv AvmZ GUv cÖvq Zvi mgvb n‡e| G iKg Ae¯’vb Aek¨B Lye A¯^w¯ÍKi n‡e| e¯ÍyZ, Zxeª DËv‡c c„w\_ex wb‡g‡lB ev®úxf~Z n‡q †hZ|

Amxg gnvwek¦ †h Avm‡j GKwU gnvRvMwZK Pywjøi g‡Zv AvPiY Ki‡e G aviYv bZyb wKQy bq| GUv Avi Av‡M Av‡jvwPZ ZvcMZxq mgm¨v Avm‡j GKB K\_v| b¶Îiv gnvk~‡b¨ Zvc I Av‡jv Qwo‡q w`‡”Q| GB wewKiY µgk Rgv n‡”Q gnvk~‡b¨| hw` b¶Î¸‡jv Amxg mgq a‡i R¡‡j, Zvn‡j cÖ\_g `„wó‡Z g‡b nq wewKi‡Yi ZxeªZv Amxg n‡e| wKš‘ gnvk~b¨ w`‡q mÂvwjZ nevi mgq wKQy wewKiY Ab¨ b¶‡Îi Ici wM‡q c‡o cybt‡kvwlZ n‡e| (Avgiv †h †`wL wbKUeZ©x ZviKviv `~‡ii ZviKv‡`i Av‡jv Avovj K‡i iv‡L, GUv †mB GKB K\_v|) d‡j wewKi‡Yi ZxeªZv †e‡o Pj‡e| GUv Pj‡e GKwU mvg¨ve¯’v AwR©Z nIqv ch©šÍ| G Ae¯’vq wbM©gb I †kvl‡Yi nvi mgvb n‡q hv‡e| GB ZvcMZxq mvg¨ve¯’v AwR©Z n‡e ZLwb, hLb gnvk~b¨ wewKi‡Yi ZvcgvÎv b¶‡Îi c„ô ZvcgvÎvi mgvb n‡q hv‡e| G ZvcgvÎv n‡jv K‡qK nvRvi wWwMÖ †mjwmqvm| d‡j mgMÖ gnvwek¦ Zvcxq wewKi‡Y cwic~Y© nIqv DwPZ&| hvi ZvcgvÎv n‡e K‡qK nvRvi wWwMÖ †mjwmqvm| Ges iv‡Zi AvKvk AÜKvi nIqv †Zv `~‡ii K\_v, ZvcgvÎvq eis R¡jR¡j Kivi K\_v|

wb‡Ri c¨vivW‡·i mgvavb †`Iqvi †Póv †nbwiL Ijevm© wb‡RI K‡iwQ‡jb| gnvwek¦ wecyj cwigvY aywjKYvq fwZ©| wZwb ej‡jb, G c`v\_©¸‡jv b¶‡Îi †ewki fvM Av‡jv †kvlY K‡i †bq e‡jB (iv‡Zi) AvKvk Kv‡jv nq| `~f©v‡M¨i e¨vcvi n‡jv, Zvui eyw×Uv h‡\_ó m…Rbkxj n‡jI Gi g‡a¨ wQj †gŠwjK GKwU ÎywU| aywjKYv¸‡jv †klch©šÍ DËß n‡e Ges R¡j‡Z ïiæ Ki‡e| †h cwigvY wewKiY Giv †kvlY K‡iwQj, wVK †m gvÎvi ZxeªZvqB R¡j‡e Giv|

Av‡iKwU m¤¢ve¨ mgvavb n‡jv, gnvwe‡k¦i AvKvi Amxg we‡ePbv bv Kiv| g‡b Kiæb b¶‡Îi msL¨v A‡bK †ewk n‡jI wbw`©ó| Zvi gv‡b, gnvwe‡k¦ Av‡Q wecyj cwigvY b¶Î Avi Amxg AÜKvi gnvk~b¨| Zvn‡j b¶‡Îi †ewkifvM Av‡jvB `~i gnvk~‡b¨ Qwo‡q co‡Z co‡Z nvwi‡q hv‡e| wKš‘ GB mij mgvav‡bI wQj gvivZ¥K fyj| m‡Zi kZ‡K AvBR¨vK wbDUbI G mgm¨vi K\_v Rvb‡Zb| mgm¨vwUi mv‡\_ gnvKl© m~‡Îi m¤úK© Av‡Q| cÖwZwU b¶ÎB Aci b¶Î¸‡jv‡K gnvKl© e‡ji gva¨‡g AvKl©Y Ki‡Q| d‡j me¸‡jv b¶Î G‡K Ac‡ii w`‡K avweZ n‡e| †kl ch©šÍ G‡m Ro n‡e Zv‡`i gnvKl© †K‡›`ª| hw` gnvwe‡k¦i GKwU wbw`©ó †K›`ª I cÖvšÍ \_v‡K, Z‡e g‡b n‡”Q GwU wb‡Ri IciB ¸wU‡q hv‡e| GKwU Aej¤^bnxb, mmxg I w¯’i gnvwek¦ n‡e Aw¯’wZkxj| gnvK‡l©i cÖfv‡e †kl ch©šÍ GwU m¼ywPZ n‡q hv‡e|

gnvK‡l©i mgm¨vi K\_v c‡i AviI eje| GLv‡b ïay eje wbDUb Kx `viæY Dcv‡q G mgm¨vwU `~i Ki‡Z †P‡qwQ‡jb| wbDUb ej‡jb, gnvwe‡k¦i c‡¶ Gi gnvKl© †K‡›`ªi w`‡K ¸wU‡q hvIqv m¤¢e n‡Z n‡j †Zv Av‡M Gi gnvKl© †K›`ª ej‡Z wKQy \_vK‡Z n‡e| gnvwe‡k¦i †K›`ª I cÖvšÍ bv \_vK‡Z n‡j GKB mv‡\_ `y‡Uv kZ© c~iY n‡Z nq| gnvwek¦‡K Amxg n‡Z n‡e Ges b¶Îiv (M‡o) mylgfv‡e web¨¯Í n‡Z n‡e| GKwU b¶Î Gi cÖwZ‡ekx b¶Î¸‡jv Øviv me w`K †\_‡K AvKl©Y Abyfe Ki‡e| wekvj GK `wo UvbvUvwb †Ljvi g‡Zv, †hLv‡b `wo mew`‡KB Uvb Abyfe K‡i| mew`‡Ki Uvb¸‡jv M‡o G‡K Aci‡K evwZj K‡i †`‡e| d‡j, b¶ÎwUi †Kv‡bv boPo n‡e bv|

d‡j, gnvwe‡k¦i ¸wU‡q hvIqvi mgm¨v Gov‡Z wbDU‡bi mgvavb †g‡b wb‡Z †M‡j AveviI Amxg gnvwe‡k¦i K\_v P‡j Av‡m| Ijev‡m©i c¨vivW·I nvwRi| †`Lv hv‡”Q, Avgv‡`i‡K †h-‡Kv‡bv GKwU‡K †g‡b wb‡ZB n‡e| wKš‘ GKUy †cQ‡b wd‡i ZvKv‡j Avgiv GKwU Dcvq Lyu‡R cvB| GLv‡b gnvwek¦‡K Amxg ai‡Z n‡e bv| fyj Abygvb GUv bq †h gnvwek¦ ¯’v‡bi w`K w`‡q Amxg, eis fyj Abygvb n‡jv gnvwek¦ mg‡qi w`K w`‡q Amxg| R¡jR¡‡j AvKv‡ki c¨vivW· ˆZwi n‡q‡Q, KviY †R¨vwZwe©`iv a‡i wb‡qwQ‡jb, gnvwek¦ AcwieZ©bkxj| a‡i wb‡qwQ‡jb, b¶Îiv w¯’i Ges G‡`i wewKi‡Yi ZxeªZvq KLbI fvUv c‡o bv| wKš‘ GLb Avgiv Rvwb, G `y‡Uv AbygvbB fyj wQj| cÖ\_gZ, gnvwek¦ w¯’i bq, eis cÖmvwiZ n‡”Q| GKUy ciB GUv Avwg e¨vL¨v Kie| wØZxqZ, b¶Îiv wPiKvj Av‡jv w`‡q †hZ cv‡i bv| GK mgq G‡`i R¡vjvwb dywi‡q hvq| GLb b¶iiv R¡j‡Q| Zvi gv‡b, AZx‡Zi wbw`©ó GKwU mgq Av‡M Zv‡`i Rb¥ n‡qwQj|

gnvwe‡k¦i eqm wbw`©ó n‡j Ijev‡m©i c¨vivW· mgvavb n‡q hvq| †mUv †Kb nq eyS‡Z n‡j GKwU `~‡ii b¶‡Îi K\_v fveyb| Av‡jv P‡j wbw`©ó MwZ‡Z (k~b¨ gva¨‡g †m‡K‡Û 3 jvL wK‡jvwgUvi)| d‡j, Avgiv GKwU b¶Î GLb †h Ae¯’vq Av‡Q Avgiv †mUv †`LwQ bv| †`LwQ GwU hLb Av‡jv †Q‡owQj †m mgqKvi Ae¯’v| †hgb †e‡UjwRDm (Av`ª©v) b¶ÎwU Avgv‡`i †\_‡K 650 Av‡jvKel© `~‡i Av‡Q| d‡j G‡K Avgiv GLb †hgbUv †`LwQ †mUv Gi 650 eQi Av‡Mi †Pnviv| g‡b Kiæb, gnvwe‡k¦i Rb¥ n‡q‡Q `k wewjqb eQi Av‡M| G‡¶‡Î Avgiv c„w\_ex †\_‡K 10 wewjqb Av‡jvKe‡l©i †P‡q †ewk `~‡ii †Kv‡bv b¶Î †`Le bv| ¯’v‡bi wn‡m‡e gnvwek¦ Amxg n‡ZB cv‡i| wKš‘ Gi eqm hw` wbw`©ó nq, Zvn‡j Avgiv †Kv‡bvfv‡eB GKwU wbw`©ó `~i‡Z¡i evB‡i †`L‡Z cve bv| d‡j, wbw`©ó eq‡mi Amxg msL¨K b¶‡Îi wgwjZ Av‡jvI wbw`©óB n‡e| Ges Lye m¤¢e †mUv n‡e AwZ bMY¨|

ZvcMZxq `„wó‡KvY †\_‡KI GKB djvdj cvIqv hvq| gnvk~b¨‡K Zvcxq wewKiY w`‡q cwic~Y© K‡i w`‡q GKB ZvcgvÎvq wb‡q Avmvi R‡b¨ b¶Î‡`i Amxg mg‡qi cÖ‡qvRb| KviY, gnvwe‡k¦ k~b¨ ¯’v‡bi cwigvY †Zv wekvj| ZvcMZxq mvg¨ve¯’vq †cŠuQvi R‡b¨ cÖ‡qvRbxq mgq gnvwe‡k¦i R‡b¥i ci †\_‡K GLbI AwZevwnZ nqwb|

me¸‡jv cÖgvY ej‡Q GKwU K\_vB| gnvwe‡k¦i eqm wbw`©ó| AZx‡Zi wbw`©ó †Kv‡bv mg‡q Gi Rb¥ n‡q‡Q| eZ©gv‡b gnvwek¦ Lye mwµq n‡jI fwel¨‡Zi wbw`©ó †Kv‡bv w`b Awbevh©fv‡e G‡K eiY Ki‡Z n‡e Zvcxq g„Zy¨| mv‡\_ mv‡\_ ˆZwi nq A‡bK¸‡jv cÖkœ| KLb NU‡e †kl cwiYwZ? †mUv †Kgb n‡e? †mUv wK ax‡i ax‡i n‡e, bvwK nVvr K‡i n‡e? GUv fvev wVK n‡e wK bv †h Zvcxq g„Zy¨ ej‡Z weÁvbxi GLb hv †ev‡Sb, †Kv‡bvfv‡e †mUv fyj n‡q hv‡e?

**Abyev`‡Ki †bvU**

1| †h cÖwµqv ïay GKw`‡KB P‡j, †cQb w`‡K wd‡i Av‡m bv, †mUvB AcÖZ¨vMvgx cÖwµqv|

2| GbU«wc I mg‡qi Zxi wb‡q we¯ÍvwiZ Rvb‡Z cwiwkó-M coyb: mgq †Kb †cQ‡b P‡j bv|

3| G‡K e‡j wecixZ eM©xq m~Î| Gi gv‡b n‡jv GKwU gvb wØ¸Y n‡j Aci gvb Pvi fv‡Mi GK fvM n‡q hv‡e| wZb ¸Y n‡j n‡e bq fv‡Mi GK fvM|

4| †Kv‡bv e¯Íy †\_‡K wbM©Z wewKiY kw³i cwigvY‡K e‡j `xwß| Avevi GKwU e¯Íy‡K c„w\_ex‡Z e‡m hZUv D¾¡j †`Lvq Zvi bvg AvcvZ D¾¡jZv| AvcvZ D¾¡jZv †`‡L e¯Íyi cÖK…Z `xwß †evSv hvq bv| KviY †ewk `~‡ii b¶Î †\_‡K Avmv Av‡jv wecixZ eM©xq m~‡Îi Kvi‡Y c„w\_exi Kv‡Q Avm‡Z Avm‡Z ¤­vb n‡q hvq| G Kvi‡Y ev¯Í‡e †ewk D¾¡j (gv‡b `xwß †ewk) b¶ÎI c„w\_exi AvKv‡k Kg D¾¡j b¶‡Îi †P‡q g…`y †`Lv‡Z cv‡i|

Z…Zxq Aa¨vq

cÖ\_g wZb wgwbU

BwZnvmwe`‡`i g‡Zv Km‡gvjwR÷ivI Rv‡bb, fwel¨Z Rvb‡Z n‡j ZvKv‡Z nq AZx‡Zi w`‡K| Av‡Mi Aa¨v‡q Avwg e¨vL¨v K‡iwQ, Kxfv‡e ZvcMwZwe`¨vi m~Î gnvwe‡k¦i wbw`©ó eq‡mi Bw½Z w`‡”Q| cÖvq mKj weÁvbx GKgZ †h cÖvq `k †\_‡K wek wewjqb eQi Av‡M GKwU e…nr we‡ùvi‡Yi (weM e¨vs) gva¨‡g gnvwe‡k¦i Rb¥| Ges gnvwe‡k¦i fwel¨r wbqwZ Kx n‡e †mUvI wVK n‡q †M‡Q GB NUbvi mv‡\_ mv‡\_| gnvwe‡k¦i ïiæ Kx K‡i n‡qwQj Ges cÖv\_wgK `kvq GwU †Kvb cÖwµqvi ga¨ w`‡q wM‡qwQj †mUv †R‡b fwel¨r m¤ú‡K© fv‡jv aviYv cvIqv hvq|

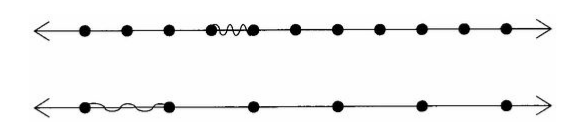
cvðvZ¨ ms¯‹…wZi Lye GKwU †gŠwjK wek¦vm n‡jv gnvwek¦Uv memgq wQj bv| wMÖK `vk©wbKiv wPišÍb gnvwe‡k¦i K\_v ej‡jI cvðv‡Z¨i me¸‡jv eo ag©B e‡j‡Q, Ck¦i AZx‡Zi wbw`©ó †Kv‡bv mg‡qB gnvwek¦ ˆZwi K‡i‡Qb|

gnvwe‡k¦i AvKw¯§K m~Pbv m¤ú‡K© ˆeÁvvwbK cÖgvY LyeB †Rviv‡jv| me‡P‡q cÖZ¨¶ cÖgvY cvIqv wM‡qwQj `~ieZ©x Qvqvc\_¸‡jv †\_‡K Avmv Av‡jvi AvPiY we†kølY K‡i| 1920 Gi `k‡K Av‡gwiKvb †R¨vwZwe©` GWDBb nvej ch©‡e¶Y K‡i †`L‡jb, `~ieZ©x Qvqvc\_¸‡jv †\_‡K Avmv Av‡jv wbKUeZ©x‡`i Zyjbvq wKQyUv jvj n‡q hv‡”Q| Zvui Av‡M †f‡÷v w¯­dvi bv‡g GKRb †beyjv we‡klÁ G wel‡q `xN© w`b a‡i KvR K‡i wM‡qwQ‡jb| KvR Ki‡Zb A¨vwi‡Rvbvi d¬¨vM÷¨vd gvbgw›`‡i (observatory)| Avi nvej e¨envi K‡iwQ‡jb 100 BwÂi gvD›U DBjmb †Uwj‡¯‹vc| Gici h‡Zœi mv‡\_ jvj n‡q hvIqvi cwigvY cigwvc Ki‡jb I MÖv‡d AvuuK‡jb| †`L‡jb, GLv‡b GKwU wbqg KvR Ki‡Q| †h Qvqvc\_ Avgv‡`i †\_‡K hZ `~‡i Av‡Q, Zv‡K ZZ †ewk jvj †`Lv‡”Q|

Av‡jvi is Gi Zi½‰`‡N©i mv‡\_ m¤úwK©Z| mv`v Av‡jvi eY©vwj‡Z bxj is Gi Ae¯’vb †QvU Zi½‰`‡N©i cÖv‡šÍ Avi jvj Gi Ae¯’vb n‡jv j¤^v Zi½‰`‡N©i cÖv‡šÍ| †h‡nZy `~‡ii Qvqvc\_¸‡jvi Av‡jv jvj n‡q hv‡”Q, Zvi gv‡b Zv‡`i Av‡jvi Zi½‰`N¨© †Kv‡bvfv‡e j¤^v n‡q hv‡”Q| nvej Lye h‡Zœi mv‡\_ A‡bK¸‡jv Qvqvc‡\_i eY©vwji ˆewkó¨m~PK †iLvi Ae¯’vb wPwýZ K‡i G AvPiY m¤ú‡K© wbwðZ n‡jb| wZwb ej‡jb, Av‡jvK Zi½ eo n‡q hvevi KviY n‡jv gnvwek¦ cÖmvwiZ n‡”Q| AwZ ¸iæZ¡c~~Y© G e³‡e¨i gva¨‡gB nvej AvaywbK Km‡gvjwRi m~Pbv Ki‡jb|

m¤cÖmviYkxj gnvwe‡k¦i aviYv A‡bK‡B wVKfv‡e eyS‡Z cv‡ib bv| c„w\_ex †\_‡K †`L‡j g‡b nq, `~‡ii me Qvqvc\_ Avgv‡`i †\_‡K `~‡i m‡i hv‡”Q| wKš‘ Gi gv‡b GB bq †h c„w\_ex gnvwe‡k¦i †K‡›`ª Av‡Q| cÖmvi‡Yi cÖK…wZ cy‡iv gnvwek¦ Ry‡o (M‡o) GKB iKg| cÖwZwU Qvqvc\_, ev Av‡iv fv‡jvfv‡e ej‡j cÖwZwU Qvqvc\_cyÄ ev ¯ÍeK (cluster of galaxies) G‡K Aci †\_‡K `~‡i m‡i hv‡”Q| G wPÎ fv‡jvfv‡e †evSvi R‡b¨ Qvqvc\_cyÄ¸‡jv gnvk~b¨ w`‡q Qy‡U hv‡”Q — Gfv‡e wPšÍv bv K‡i g‡b Kiæb, Qvqvc\_cy‡Äi ga¨eZ©x ¯’vb dy‡j DV‡Q ev j¤^v n‡q hv‡”Q|

¯’vb cÖmvwiZ n‡”Q– K\_vwU we¯§qKi †kvbv‡Z cv‡i| wKš‘ 1915 mv‡j AvBb÷vBb Zvui mvwe©K Avwc¶KZv ZË¡ cÖKv‡ki ci †\_‡KB weÁvbxiv G aviYvi mv‡\_ cwiwPZ| G ZË¡ Abymv‡i gnvKl© Avm‡j ¯’v‡bi (mwVK K‡i ej‡j ¯’vbKv‡ji) eµZv ev weK…wZi ewntcÖKvk| GK A‡\_© ¯’vb n‡jv w¯’wZ¯’vcK| GwU Gi gv‡S Dcw¯’Z c`v‡\_©i gnvKl©xq a‡g©i Ici wfwË K‡i †‡euK †h‡Z ev cÖmvwiZ n‡Z cv‡i| ch©‡e¶Y †\_‡K G aviYvi c‡¶ h‡\_ó cÖgvY cvIqv wM‡q‡Q|



wPÎ 3.1

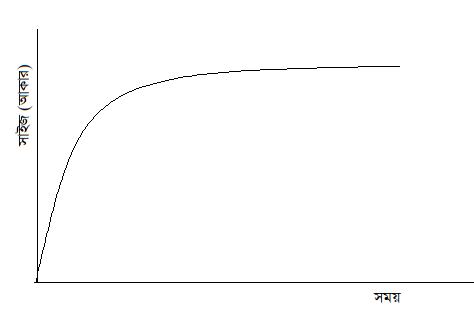
[m¤cÖmviYkxj gnvwe‡k¦i GKwU GKgvwÎK bgybv| we›`y¸‡jv Øviv Qvqvc\_cyÄ wb‡`©k Kiv n‡”Q| Avi w¯’wZ¯’vcK myZv w`‡q ¯’vb †evSv‡bv n‡q‡Q| myZv‡K j¤^v Kiv n‡j we›`y¸‡jv `~‡i m‡i| Gi d‡j myZvi Ici w`‡q Pjgvb †Kv‡bv Zi‡½i Zi½‰`N¨©I eo n‡e| nve‡ji Avwe®‹…Z †jvwnZ miYI1 Gfv‡eB KvR K‡i|]

GKwU mvaviY D`vni‡Yi gva¨‡g m¤cÖmviYkxj ¯’v‡bi †gŠwjK aviYv ey‡S †bIqv hvq| g‡b Kiæb, GKwU w¯’wZ¯’vcK myZvi Ici A‡bK¸‡jv we›`y Av‡Q (†`Lyb wPÎ 3.1)| we›`yM‡jv Øviv Qvqvc\_cyÄ wb‡`©k Kiv n‡”Q| Gevi g‡b Kiæb, Avcwb myZvwU‡K `yB cÖvšÍ †\_‡K a‡i Uvb w`‡q j¤^v K‡i †dj‡jb| cÖwZwU we›`y G‡K AciwU †\_‡K m‡i hv‡”Q| Avcwb †h we›`yi K\_vB wPšÍv Kiæb bv †Kb, Zvi cv‡ki we›`y¸‡jv‡K `~‡i mi‡Z †`Lv hv‡”Q| Zvi Ici cÖmviY me w`‡K GKB iKg| †Kv‡bv we‡kl †K›`ª ej‡Z wKQy †bB| Aek¨ Avwg GUv‡K GLv‡b †hfv‡e Gu‡KwQ, Zv‡Z GKwU we›`y †K‡›`ª Av‡Q| wKš‘ †h cÖwµqvq GLv‡b cÖmviY NU‡Q, Zvi mv‡\_ GB †K›`ªxq we›`yi †Kv‡bv m¤úK© †bB| we›`ymn myZvwU hw` Amxg mvB‡Ri n‡Zv A\_ev myZvwU hw` e…ËvKvi n‡Zv, Z‡e GB †K›`ªwU Avi \_vK‡Zv bv|

†h-†Kv‡bv wbw`©ó we›`y †\_‡K wPšÍv Ki‡j †`Lv hvq, Zvi wbKUZg we›`y¸‡jv c‡ii wbKU we›`y¸‡jv †\_‡K A‡a©K MwZ‡Z `~‡i mi‡Q| Ges ZviI c‡ii wbKU we›`yM‡jv †\_‡K AviI A‡a©K MwZ‡Z mi‡Q| Gfv‡eB Pj‡Q| GKwU we›`y hZ `~‡i Av‡Q, †mwU ZZ `ªæZ m‡i hv‡”Q| G ai‡bi cÖmvi‡Yi †¶‡Î `~‡i m‡i hvIqv gv‡b mi‡Yi nvi `~i‡Z¡i mgvbycvwZK| m¤úK©Uv †ek kw³kvjx| QwewU †`‡L Avgiv m¤cÖmviYkxj ¯’v‡b we›`y¸‡jv, gv‡b Qvqvc\_cy‡Äi ga¨eZ©x ¯’v‡b PjvPjiZ Av‡jvK Zi½i K\_v Kíbv Ki‡Z cvwi| ¯’v‡bi mv‡\_ mv‡\_ Zi½I cÖmvwiZ n‡”Q| Gi gva¨‡g gnvRvMwZK †jvwnZ mi‡Yi e¨vL¨v cvIqv hvq| nvej †`L‡jb, †jvwnZ mi‡Yi cwigvY `~i‡Z¡i mgvbycvwZK| wVK Qwe‡Z †hgbUv †`Lv‡bv n‡q‡Q †mfv‡e|

gnvwek¦ hw` m¤cÖmviYkxj n‡qB \_v‡K, Zvn‡j AZx‡Z wbðqB GwU AviI Romo wQj| nve‡ji ch©‡e¶Y †\_‡K cÖmvi‡Yi nvi cwigvc Kiv hvq| cieZ©x‡Z ch©‡e¶‡Yi gvb AviI A‡bK DbœZ nq| nviI †ei Kiv nq AviI fv‡jvfv‡e| gnvRvMwZK wPÎwU‡K †cQ‡bi w`‡K Pvwj‡q w`‡j Avgiv †`Le, †Kv‡bv GK `~i AZx‡Z me¸‡jv Qvqvc\_ G‡K Ac‡ii mv‡\_ wg‡k wQj| eZ©gvb mg‡qi cÖmvi‡Yi nvi †R‡b Avgiv Abygvb Ki‡Z cvwi †h GB wgwkÖZ Ae¯’v wQj eû wewjqb eQi Av‡M| Z‡e `ywU Kvi‡Y †mB mgqwU mwVK K‡i ejv m¤¢e bq| cÖ\_gZ, wewfbœ Kvi‡Y mwVK K‡i cwigvc Kiv m¤¢e nq bv| bvbvfv‡e fyj n‡qB hvq| Aek¨ AvaywbK †Uwj‡¯‹v‡ci gva¨‡g Av‡Mi †P‡q †ewk msL¨K Qvqvc\_ wb‡q KvR Kiv m¤¢e n‡”Q| wKš‘ Gi c‡iI cÖmvi‡Yi nvi GLbI AwbwðZ| †mUv Kgc‡¶ `yB ¸Y ch©šÍ Kg-‡ewk n‡Z cv‡i| GUv GLbI weZ‡K©i eo GKwU welq|2

wØZxqZ, gnvwe‡k¦i cÖmviY nvi me mgq GKB \_v‡K bv| Gi R‡b¨ `vqx n‡jv gnvKl© ej| gnvKl© ej Qvqvc\_¸‡jvi g‡a¨ †Zv KvR K‡iB, GUv KvR K‡i gnvwe‡k¦i me ai‡bi c`v\_© Ges kw³i g‡a¨I| gnvKl© Mvwoi †eªB‡Ki g‡Zv AvPiY K‡i| Gi Kvi‡Y Qvqvc\_¸‡jv evB‡ii w`‡K Qy‡U †h‡Z evav cvq| d‡j, mg‡qi mv‡\_ mv‡\_ cÖmviY nvi ax‡i ax‡i K‡g Av‡m| Zvi gv‡b, AZx‡Z wbðqB gnvwek¦ AviI `ªæZ cÖmvwiZ nw”Qj| MÖv‡d hw` mg‡qi wecix‡Z gnvwe‡k¦i GKwU Av`k© GjvKvi mvBR †`Lv‡bv nq, Zvn‡j 3.2 bs wP‡Îi g‡Zv GKwU mvaviY †iLv cvIqv hvq| MÖv‡d †`Lv hv‡”Q, gnvwe‡k¦i m~Pbv N‡U‡Q Lye wbweo Ae¯’v †\_‡K| Zvici †\_‡K cÖmviY NU‡Q Lye `ªæZ †e‡M| Ges mg‡qi mv‡\_ mv‡\_ gnvwe‡k¦i AvqZb hZ †e‡o‡Q, c`v‡\_©i NbZ¡I wbqwgZ wfwË‡Z ZZB K‡g †M‡Q| †iLvwU a‡i †cQb w`‡K G‡Mv‡Z G‡Mv‡Z m~Pbv ch©šÍ †M‡j (wP‡Îi 0 Ae¯’v‡b) †`Lv hvq, gnvwe‡k¦i ïiæ n‡q‡Q k~b¨ mvBR †\_‡K| Avi †m mgq cÖmviY nvi wQj Amxg| Ab¨ K\_vq, Avgiv AvR †hme Qvqvc\_ †`LwQ, G¸‡jv †h c`v\_© w`‡q ˆZwi †m¸‡jvi m~Pbv n‡q‡Q Zxeª MwZi GKwUgvÎ we›`y †\_‡K| Z\_vKw\_Z weM e¨vs Gi GwU GKwU Av`k©vwqZ weeiY|



wPÎ 3.2

[wP‡Î †hgbUv †`Lv‡bv n‡jv A‡bKUv †mfv‡eB gnvwe‡k¦i cÖmviY nvi mg‡qi mv‡\_ mv‡\_ wbqwgZ wfwË‡Z K‡g Av‡m| mij G bgybvq mg‡qi A‡¶i k~b¨ we›`y‡Z cÖmviY nvi Amxg| G we›`ywUB weM e¨vs‡qi mgq wb‡`©k Ki‡Q|]

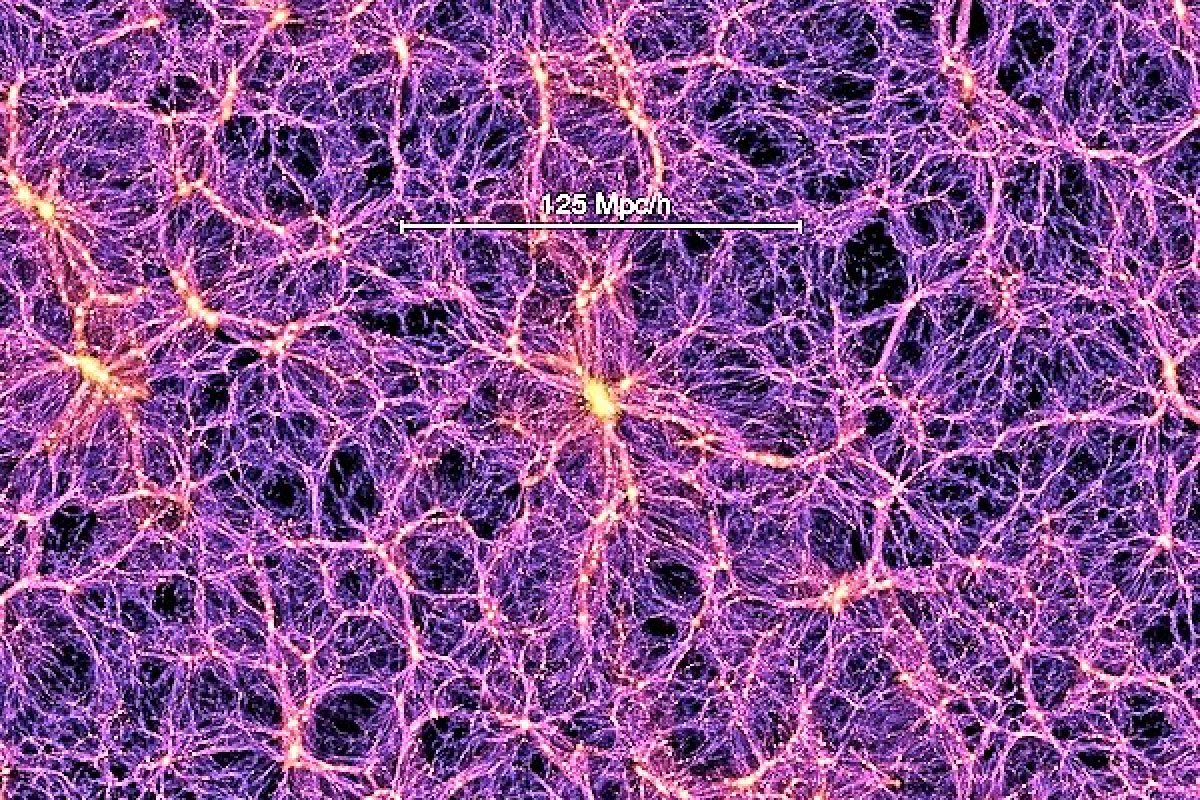
wKš‘ †iLvwU‡K †cQbUv ch©šÍ †U‡b hvIqvi wPšÍvUv KZUyKy †hŠw³K? A‡bK Km‡gvjRw÷ g‡b K‡ib, KvRUv wVKB Av‡Q| †h‡nZy Avgiv AvkvB KiwQ †h gnvwe‡k¦i GKwU ïiæ Av‡Q (Av‡Mi Aa¨v‡q Av‡jvwPZ KviY¸‡jvi mvnv‡h¨) AZGe, wbwðZfv‡e g‡b n‡”Q †mUv weM e¨vsB n‡e e‡j| hw` †mUvB nq, Zvn‡j †iLvi m~Pbv we›`ywU †hb‡Zb †Kv‡bv we‡ùviY bq| g‡b ivL‡Z n‡e, GLv‡bi MÖvdwU‡Z †Lv` ¯’v‡biB cÖmviY †`Lv‡bv n‡q‡Q| AZGe, k~b¨ AvqZ‡bi A\_© ïay GUvB bq †h c`v\_© Amxg Nb‡Z¡i ¯’v‡b ¸wU‡q Av‡Q| Gi AviI A\_© n‡jv, ¯’vb ¸wU‡q Av‡Q k~b¨Zvi (nothing) gv‡S| Ab¨ K\_vq, weM e¨vs GKB mv‡\_ ¯’vb Ges c`v\_© I kw³i m~Pbv| GLv‡b GKwU ¸iæZ¡c~Y© K\_v eyS‡Z n‡e| G aviYv Abymv‡i Av‡M †\_‡K Ggb †Kv‡bv k~b¨¯’vb wQj bv, †hLv‡b weM e¨vs N‡UwQj|

mgq m¤ú‡K©I GKB K\_v ejv P‡j| c`v‡\_©i Amxg NbZ¡ Ges ¯’v‡bi Amxg m‡¼vPb mg‡qiI GKwU mxgvbv †eu‡a †`q| KviY, gnvKl© mgq Ges ¯’vb `y‡Uv‡KB j¤^v K‡i †`q| GUvI AvBb÷vB‡bi mvwe©K Av‡cw¶KZv Z‡Ë¡i GKwU djvdj| cix¶vg~jKfv‡e Gi mivmwi cÖgvYI cvIqv †M‡Q| weM e¨vs‡qi cwi‡ek ej‡Q, ¯’v‡bi weK…wZ wQj Amxg| d‡j weM e¨vs‡qi Av‡Mi mgq (Ges ¯’v‡bi) Gi aviYv GLvb †\_‡K cvIqv hv‡”Q bv| d‡j Avgiv wm×všÍ wb‡Z eva¨ nw”Q †h weM e¨vsB n‡jv mKj †fŠZ wRwbm —¯’vb, Kvj, c`v\_© I kw³i—P~ovšÍÍ m~Pbv| ÒweM e¨vs Gi c~‡e© Kx N‡UwQj?Ó Ggb cÖ‡kœi †Kv‡bv AeKvk †bB (hw`I A‡b‡KB cÖkœwU K‡i \_v‡Kb)| A\_ev Ggb cÖkœ †h †KbB ev we‡ùviYwU N‡UwQj? c~e© ej‡ZB wKQy wQj bv| Avi †hLv‡b mg‡qiB Aw¯ÍZ¡ †bB †mLv‡b mvaviY A‡\_© Kvh©KviY ej‡ZI wKQy \_v‡K bv|

gnvwe‡k¦i m~Pbv m¤ú‡K© weM e¨vs Z‡Ë¡i e³e¨¸‡jv A™¢~Z| Z‡e weM e¨vs‡qi cÖgv‡Yi R‡b¨ hw` gnvwe‡k¦i cÖmvi‡Yi IciB wbf©i Kiv nZ, Zvn‡j m¤¢eZ A‡bK Km‡gvjwR÷B G‡K †g‡b wb‡Zb bv| wKš‘ 1965 mv‡j ZË¡wUi c‡¶ ¸iæZ¡c~Y© AviI cÖgvY Gj| Rvbv †Mj, cy‡iv gnvwek¦ Zvcxq wewKi‡Y cwic~Y©| gnvk~b¨ †\_‡K Avmv G wewKiY weM e¨vs‡qi Aí mgq c‡ii| Avm‡Q AvKv‡ki me w`K †\_‡K GKB ZxeªZv wb‡q| Ab¨ wKQy Øviv GwU evavMÖ¯’ nq bv ej‡jB P‡j| d‡j GwU Avgv‡`i mvg‡b Avw`g gnvwe‡k¦i Ae¯’vi GKwU wPÎ Zy‡j ai‡Q| GB Zvcxq wewKi‡Yi eY©vwji mv‡\_ ZvcMZxq mvg¨ve¯’vq †cŠuQv GKwU Pywjøi DËv‡ci ûeû wgj i‡q‡Q| G ai‡bi wewKiY‡K c`v\_©weÁvbxiv e‡jb K…òe¯Íy wewKiY3| d‡j Avgiv eyS‡Z cviwQ, cÖv\_wgK gnvwek¦ Ggb GKwU mvg¨ve¯’vqB wQj| me©Î ZvcgvÎv wQj GKB iKg|

GB cUf~wg Zvcxq wewKiY cwigvc K‡i Rvbv †Mj, Gi ZvcgvÎv n‡jv cig k~b¨ ZvcgvÎvi †P‡q cÖvq wZwb wWwMÖ †ewk (cig k~b¨ ZvcgvÎv n‡jv gvBbvm 273 wWwMÖ †mjwmqvm)| wKš‘ mg‡qi mv‡\_ mv‡\_ ax‡i ax‡i ZvcgvÎvi cwieZ©b nq| cÖmvi‡Yi mv‡\_ mv‡\_ GKwU mij m~Î †g‡b gnvwek¦ VvÐv n‡Z \_v‡K| e¨vmva© wØ¸Y n‡j ZvcgvÎv A‡a©‡K †b‡g Av‡m| GB kxZjxKiY cÖfve Avi Av‡jvi †jvwnZ miY GKB wRwbm| Zvcxq wewKiY Avi Av‡jv—`y‡UvB Zwo”Py¤^Kxq Zi½ Øviv MwVZ| Ges gnvwe‡k¦i cÖmvi‡Yi mv‡\_ mv‡\_ Zvcxq wewKi‡Yi Zi½‰`N¨©I eo n‡Z \_v‡K| D”P ZvcgvÎvi †P‡q wbgœ ZvcgvÎvi wewKi‡Yi Zi½‰`N¨© (M‡o) A‡c¶vK…Z eo nq| Avevi, D‡ëv K‡i †`L‡j Avgiv †`wL, AZx‡Z gnvwek¦ Aek¨B A‡bK †ewk DËß wQj| GB wewKi‡Yi m~Pbv N‡UwQj weM e¨vs‡qi wZb j¶ eQi c‡i| †h mgq kxZj n‡Z n‡Z gnvwe‡k¦i ZvcgvÎv †b‡g G‡mwQj cÖvq 3000 wWwMÖ †mjwmqv‡m| GB mg‡qi Av‡M g~jZ nvB‡W«v‡Rb w`‡q MwVZ Avw`g M¨vm wQj AvqwbZ c­vRgv4 AvKv‡i| G Kvi‡Y †m mgq G M¨v‡mi †fZi w`‡q Zwo”Py¤^Kxq wewKiY mÂvwjZ n‡Z cviZ bv| ZvcgvÎv Kg‡j c­vRgv mvaviY (A-AvqwbZ) nvB‡W«v‡Rb M¨v‡m ciwYZ n‡jv| wewKiY Gi ga¨ w`‡q mÂvwjZ n‡Z cv‡i| d‡j wewKiY Gevi gy³fv‡e Qwo‡q co‡Z ïiæ Kij|

cUf~wg wewKiY GKUy Avjv`v| †mUv ïay Gi eY©vwji K…òe¯Íyi g‡Zv AvPi‡Yi R‡b¨B bq| AvKv‡ki me w`‡K GwU `viæYfv‡e GKB iKg| gnvk~‡b¨i Avjv`v w`‡K GB wewKi‡Yi ZvcgvÎvi cv\_©K¨ gvÎ GK j¶ fv‡Mi GK fvM| GUv †\_‡K †evSv hvq, eo gvcKvwV‡Z wPšÍv Ki‡j gnvwek¦ †hvM¨fv‡e mgag©x| KviY, ¯’v‡bi †Kv‡bv GKwU AÂ‡j ev wbw`©ó †Kv‡bv w`‡K hw` c`v\_© wbqgZvwš¿Kfv‡e cywÄf~Z n‡Zv, Zvn‡j ZvcgvÎvi cv\_©K¨ †`Lv †hZ| Ab¨ w`‡K Avgiv Rvwb, gnvwek¦ cy‡ivcywi mylg bq| c`v\_© GKxf~Z n‡q Qvqvc\_ ˆZwi n‡q Av‡Q| wewfbœ Qvqvc\_ wg‡j Avevi ˆZwi nq K¬v÷vi ev ¯ÍeK| GB K¬v÷viiv Avevi ˆZwi K‡i mycviK¬v÷vi| eû wgwjqb Av‡jvKe‡l©i gvcKvwV‡Z gnvwe‡k¦i AvK…wZ A‡bKUv †dbvi g‡Zv| wecyj cwigvY k~b¨Zvi gv‡S gv‡S Qvqvc\_ Zš‘i Dcw¯’wZ|



wPÎ: 3.2.1

(Qvqvc\_ Zš‘i (Galaxy filament) †Pnviv eo gvcKvwV‡Z 3.2.1 wP‡Îi g‡Zv| GwU n‡jv gnvwe‡k¦i Rvbv KvVv‡gv¸‡jvi g‡a¨ me‡P‡q eo| ˆ`N¨© n‡Z cv‡i 16 †KvwU †\_‡K 26 †KvwU Av‡jvKel© ch©šÍ| -Abyev`K)

eo †¯‹‡j gnvwe‡k¦i GB ¸”Qe×Zv cÖviw¤¢K gm…Y Ae¯’v †\_‡KB †Kv‡bvfv‡e Rb¥ wb‡q‡Q| Gi †c‡Q‡b A‡bK¸‡jv †fŠZ KviY \_vK‡Z cv‡i| Z‡e me‡P‡q fv‡jv e¨vL¨v n‡jv axi gnvKl©xq AvKl©Y| weM e¨vs ZË¡ mwVK n‡q \_vK‡j ¸”Qe× nIqvi cÖwµqvi cÖv\_wgK Ae¯’vi wKQy cÖgvY gnvRvMwZK cUf~wg wewKi‡Yi g‡a¨ \_vKvi K\_v| 1992 mv‡j †Kve (COBE ev Cosmic Background Explorer) bv‡g bvmvi GKwU K…wÎg DcMÖ‡ni gva¨‡g Rvbv hvq, wewKiY cy‡ivcywi gm…Y bq| AvKv‡ki GK w`K †\_‡K Av‡iK w`‡K G‡Z my¯úó Q›`cZb †`Lv hv‡”Q| A\_ev †`Lv hv‡”Q ZxeªZvi DVv-bvgv| GB ¶y`ª ¶y`ª Q›`cZb¸‡jvB mycviK¬v÷vi‡`i MVb cÖwµqvi wbwe©N&b m~Pbv K‡iwQj| G wewKiY Avw`g ¸”Qe×Zvi wPý Av¯’vi mv‡\_ a‡i †i‡L‡Q| †mUvI Avevi eû Kvj hveZ| Gi MÖvd ej‡Q, AvR Avgiv †h m…k…•Lj ¯^Zš¿ gnvwek¦ †`LwQ, GwU me mgq Ggb wQj bv| ïiæ‡Z gnvwek¦ wQj cÖvq cy‡ivcywi mylg Ae¯’vq| GKwU j¤^v weeZ©‡bi gva¨‡g c`v\_© cyÄxf~Z n‡Z n‡Z cieZ©x‡Z Qvqvc\_ I b¶‡Îi Rb¥ nq|

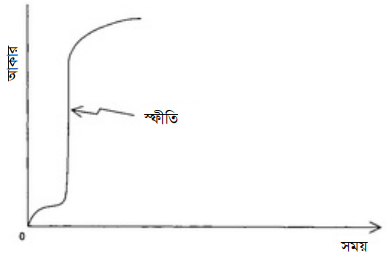
DËß Nb Ae¯’v †\_‡K gnvwe‡k¦i Rb¥ nIqvi c‡¶ Av‡iKwU P~ovšÍÍ cÖgvYI Av‡Q| AvR‡Ki w`‡bi Zvcxq wewKi‡Yi ZvcgvÎv †R‡b Avgiv mn‡RB wnmve K‡i †dj‡Z cvwi †h R‡b¥i cÖvq GK eQi ci gnvwe‡k¦i meLv‡b ZvcgvÎv wQj cÖvq GK nvRvi wWwMÖ †mjwmqvm| GB ZvcgvÎv GZUvB †ewk †h G‡Z †hŠwMK cigvYyi †K‡›`ªi c‡¶I wU‡K \_vKv m¤¢e bq| †mB mgq e¯Íy Aek¨B Gi me‡P‡q †gŠwjK Dcv`v‡b wef³ wQj| d‡j G mgq †cÖvUb, wbDU«b I B‡jKU«‡bi g‡Zv †gŠwjK5 KwYKviv wePiY KiwQj \_‡i \_‡i| wKš‘ ZvcgvÎv GKUy Kg‡j wbDK¬xq wewµqv NUv m¤¢e n‡jv| we‡kl K‡i †cÖvUb I wbDU«b gy³fv‡e †Rvovq †Rvovq hy³ nevi my‡hvM †cj| †kl ch©šÍ GB †Rvov¸‡jvB hy³ n‡q wnwjqvg cigvYyi †K›`ª (wbDwK¬qvm) MVb K‡i| wnmve K‡i †`Lv †M‡Q, GB wbDK¬xq cÖwµqv¸‡jv PjwQj cÖvq wZb wgwbU a‡i (Gi Ici wfwË K‡iB w÷‡fb DBbevM© eB‡qi bvg w`‡qwQ‡jb `¨ dv÷© w\_ª wgwbUm)| GUyKyb mg‡qi g‡a¨ cÖvq Pvi fv‡Mi GK fvM cwigvY c`v\_© wnwjqv‡g cwiYZ nq| G‡Z K‡i Dcw¯’Z me¸‡jv wbDU«b KYv †kl n‡q hvq| d‡j Avi †Kv‡bv Dcvq bv †`‡L evwK me Ahy³ †cÖvUb¸‡jv nvB‡W«v‡Rb6 wbDwK¬qv‡m cwiYZ nq| Zvi gv‡b ZË¡ ej‡Q, gnvwe‡k¦ cÖvq 75 fvM nvB‡W«v‡Rb I 25 fvM wnwjqvg \_vKv DwPr| eZ©gvb mg‡qi wnmve-wbKv‡ki mv‡\_ GB e³‡e¨i Lye fv‡jv wgj cvIqv †M‡Q|

Avw`g †mB wbDK¬xq wewµqvq m¤¢eZ mvgvb¨ cwigvY wWD‡Uwiqvg7 , wnwjqvg-3 Ges wjw\_qvgI ˆZwi n‡qwQj| Z‡e fvix †gŠj¸‡jv weM e¨vs‡qi mgq ˆZwi nqwb| gnvRvMwZK c`v\_©¸‡jvi g‡a¨ G‡`i cwigvY GK kZvs‡kiI Kg| G¸‡jv cÖ¯ÍZ n‡qwQj AviI A‡bK c‡i| b¶‡Îi Af¨šÍ‡i| †mUv Kxfv‡e n‡qwQj Zv Avgiv PZy\_© Aa¨v‡q †`Le|

me wgwj‡q gnvwe‡k¦i cÖmviY, gnvRvMwZK cUf~wg wewKiY Ges ivmvqwbK †gŠ‡ji Av‡cw¶³ cÖvPyh©- GB welq¸‡jv weM e¨vs Z‡Ë¡i c‡¶ †Rviv‡jv cÖgvY| Z‡e A‡bK cÖ‡kœi Reve GLbI ARvbv| †hgb, gnvwek¦ wVK GB nv‡iB †Kb cÖmvwiZ n‡”Q? gv‡b, weM e¨vs †Kb GZ weM (eo) wQj? cÖv\_wgK gnvwek¦ †Kb GZUv mylg (me w`‡K GKB iKg) wQj? Gnvk~‡b¨i me w`‡K †KbBev cÖmviY nvi GZUv mv`„k¨c~Y© wQj? †Kve (COBE) †h GKUy e¨wZµg Nb‡Z¡i AÂj Lyu‡R †c‡q‡Q ZviB ev DZ&m Kx wQj? Qvqvc\_ I Qvqvc\_ ¸”Q ˆZwi‡Z wKš‘ GUyKy e¨wZµ‡gi Lye `iKvi wQj|

GB eo avuav¸‡jv mgvav‡bi j‡¶¨ mv¤cÖwZK mg‡q eo eo D‡`¨vM †bIqv n‡q‡Q| D”P-kw³i KYvc`v\_©we`¨vi mv‡\_ weM e¨vs ZË¡‡K GKxf~Z Kiv n‡”Q| GKUv welq Av‡MB e‡j ivwL| ˆeÁvvwbK `„wó‡KvY †\_‡K GB ÔbZyb Km‡gvjwRÕ wKš‘ Av‡M Av‡jvwPZ welq¸‡jvi †P‡q GKUy Kg wbf©i‡hvM¨| we‡kl K‡i KwYKvi †h cwigvY kw³ cÖZ¨¶fv‡e ch©‡e¶Y Kiv n‡q‡Q Zvi †P‡q A‡bK †ewk kw³‡Z msNwUZ cÖwµqv wb‡q Av‡jvPbv Kie Avgiv| Avi GB cÖwµqv¸‡jv msNwUZ n‡qwQj gnvwe‡k¦i R‡b¥i c‡ii †m‡K‡Ûi AwZ ¶y`ª GK fMœvsk mg‡qi g‡a¨| †mB mg‡qi Ae¯’v m¤¢eZ GZUvB Pig wQj †h eZ©gv‡b MvwYZK bgybv (model) Qvov Avgv‡`i nv‡Z wKQyB †bB| GB bgybvi wfwË wbQKB ZvwË¡K wKQy aviYv|

GB bZyb Km‡gvjwRi GKwU Abygvb n‡jv Bb‡d¬kb ev ùxwZ (inflation) bv‡gi GKwU cÖwµqv| GwUi g~j e³e¨ n‡jv, GK †m‡K‡Ûi cÖ\_g fMœvs‡ki †Kv‡bv GK mg‡qi g‡a¨ gnvwek¦ nVvr K‡i eo n‡q wekvj AvKvi aviY K‡i| welqwU eyS‡Z n‡j 3.2 wPÎwU Avevi †`Lyb| †iLvwU me mgq wb‡Pi w`‡KB †eu‡K Av‡m| Zvi gv‡b, ¯’v‡bi mvBR eo n‡Z \_vK‡jI Zv nq µ‡gB Av‡Mi P‡q Aí nv‡i| Ab¨ w`‡K, ùxwZi mgq cÖmviY N‡UwQj µgk Av‡Mi †P‡q `ªæZ †e‡M| G Ae¯’vwU †`Lv‡bv n‡q‡Q 3.3 bs wP‡Î (mwVK gvcKvwV‡Z bq)| cÖ\_‡g cÖmviY \_vgwQj, wKš‘ ùxwZ ïiæ n‡Z n‡Z GwU `ªæZ †e‡o hvq| wKQy mg‡qi R‡b¨ †iLvwU Dc‡ii w`‡K QyU‡Z \_v‡K| †k‡l †iLvwU Avevi ¯^vfvweK Ae¯’vq wd‡i Av‡m| wKš‘ Gi g‡a¨B ¯’v‡bi mvnR 3.2 wP‡Îi Ae¯’v‡bi Zyjbvq A‡bK A‡bK eo n‡q hvq (GLv‡b hv †`Lv‡bv n‡q‡Q Zvi †P‡q A‡bK †ewk)|



wPÎ 3.3

[ùxwZi ¯^iƒc| GKwU we‡ùvi‡Yi gva¨‡g ïiæ nIqvi c‡i AwZ Aí mg‡qi g‡a¨ gnvwek¦ nVvr K‡i wekvj eo n‡q hvq| Dj¤^ A¶wU‡K Lye †ewk m¼ywPZ K‡i †`Lv‡bv n‡q‡Q| ùxwZ `kvi c‡i cÖmvi‡Yi nvi µgk Kg‡Z \_v‡K| 3.2 wP‡Îi g‡ZvB|]

wKš‘ gnvwe‡k¦i AvPiY †Kb Ggb n‡jv? GLv‡b gv\_vq ivL‡Z n‡e †h †iLvi bx‡Pi w`‡Ki MwZUv †cQ‡b `vqx n‡jv gnvKl©xq AvKl©Y ej| GwU cÖmviY‡K \_vwg‡q w`‡Z Pvq| d‡j Dc‡ii w`‡K MwZ‡K GK ai‡bi A¨vw›UMª¨vwfwU ev wecixZ gnvKl© Z\_v weKl©Y e‡ji cÖfve a‡i †bIqv †h‡Z cv‡i| hvi d‡j gnvwe‡k¦i mvBR µgk eo n‡”Q| wecixZ gnvK‡l©i aviYv‡K Lye A™¢yZ g‡b n‡Z cv‡i| wKš‘ mv¤cÖwZK wKQy Abygvbwbf©i Z‡Ë¡i g‡Z G‡Kev‡i cÖv\_wgK gnvwe‡k¦i ZvcgvÎv I Nb‡Z¡i Pig Ae¯’vq Ggb wKQy N‡U \_vK‡ZI cv‡i|

†mUv Kxfv‡e Zv ejvi Av‡M Avwg ej‡Z PvB Kxfv‡e ùxwZ ZË¡ Ic‡i DwjøwLZ wKQy gnvRvMwZK avuavi mgvavb Ki‡Z cv‡i| cÖ\_gZ, µgk `ªæZ nv‡ii cÖmviY †\_‡K weM e¨vs †Kb GZ eo wQj Zvi GKwU e¨vL¨v cvIqv hvq| A¨vw›UMª¨vwfwU cÖfvewU †ek Aw¯’wZkxj I Zvr¶wYK cÖwµqv| Zvi gv‡b, gnvwe‡k¦i mvBR eo nq m~PKxq nv‡i (exponentially)| MvwYwZKfv‡e ej‡j G K\_vi gv‡b `vuovq, GKwU wbw`©ó cwigvY mg‡q GKwU wbw`©ó cigwvY ¯’v‡bi AvKvi wØ¸Y nq| aiv hvK, G mgqwUi bvg GKwU wUK| Zvn‡j `ywU wUK c‡i mvBR n‡e Pvi¸Y| wZb wU‡Ki c‡i AvU¸Y| `k wU‡Ki c‡i ¯’vbwU cÖmvwiZ n‡e 10 nvRvi ¸‡YiI †ewk| wnmve K‡i †`Lv †M‡Q, ùxwZ hyM cieZ©x cÖmviY nvi eZ©gvb mg‡q ch©‡e¶‡Y cÖvß cÖmviY nv‡ii mv‡\_ wg‡j †M‡Q| (GUv Øviv Avm‡j Kx †evSv‡Z Pvw”Q Zv Avwg lô Aa¨v‡q mwe¯Ív‡i eje)

ùxwZi Kvi‡Y mvBR †e‡o hvIqv †\_‡K gnvwe‡k¦i mylg nevi †cQ‡bi KviYUvI mn‡RB e¨vL¨v Kiv hvq| ¯’v‡bi cÖmvi‡Yi Kvi‡Y cÖv\_wgK †h‡Kv‡bv welgZv DavI n‡q hv‡e| †ejyb‡K dywj‡q eo Ki‡j †hfv‡e Gi fvuR¸‡jv DavI n‡q hvq †mfv‡eB| GKBfv‡e, cÖv\_wgK ch©v‡q wfbœ wfbœ w`‡K cÖmvi‡Yi †h wfbœZv wQj ZvI ùxwZi cÖfv‡e wKQy mgq c‡i wgwj‡q hvq| KviY, ùxwZ me w`‡K mgvb †Z‡R KvR K‡i| Zvn‡j †Kve †h mvgvb¨ welgZv †cj Zvi e¨vL¨v Kx? Gi KviY m¤¢eZ ùxwZ GKB mg‡q mKj RvqMvq \_v‡gwb (Gi KviYI GKUy c‡i ejwQ)| d‡j wKQy AÂj Ab¨ AÂ‡ji †P‡q GKUy †ewk dy‡j-‡du‡c wM‡qwQj| d‡j Nb‡Z¡I n‡q wM‡qwQj wKQy ZviZg¨|

Gevi wKQy msL¨v wb‡q K\_v ewj| ùxwZ Z‡Ë¡i me‡P‡q mij iƒcwU‡Z ùxwZi (A¨vw›UM¨vwfwU) kw³ Lye †ewk kw³kvjx| hv gnvwek¦‡K GK †m‡K‡Ûi cÖvq 10 j¶ †KvwU †KvwU †KvwU †KvwU fv‡Mi GK fvM mg‡qi g‡a¨ wØ¸Y eo K‡i †d‡j| AwZ ¶y`ªvwZ¶y`ª GB mgqwU‡KB Avwg GKUy Av‡M GK wUK e‡jwQjvg| gvÎ 100 wU wU‡Ki c‡iB GKwU cigvYyi wbDwK¬qv‡mi mvB‡Ri ¯’vb dy‡j-‡du‡c wM‡q GK jvL Av‡jvKel© PIov AÂj n‡q hvq| Av‡M e‡j Avmv gnvRvMwZe in‡m¨i e¨vL¨vq GUv cy‡ivcywi h‡\_ó|

AwZcvigvYweK KYvc`v\_©we`¨vi wewfbœ Z‡Ë¡i mvnv‡h¨ ùxwZi D‡`ªKKvix A‡bK¸‡jv m¤¢ve¨ cÖwµqv Avwe®‹…Z n‡q‡Q| GB me¸‡jv cÖwµqvB †Kvqv›Uvg f¨vKyqvg bv‡g GKwU aviYvi Ici wbf©ikxj| GUv eyS‡Z n‡j Av‡M †Kvqv›Uvg c`v\_©we`¨v m¤ú‡K© wKQy K\_v †R‡b Avm‡Z n‡e| †Kvqv›Uvg Z‡Ë¡i m~Pbv N‡UwQj Av‡jv, Zvc BZ¨vw` Zwo”Py¤^Kxq wewKi‡Yi ag© m¤ú‡K© GKwU Avwe®‹v‡ii ga¨ w`‡q| GB wewKiY ¯’v‡bi †fZi w`‡q Zi½ AvKv‡i Pj‡jI GwU Avevi Ggbfv‡eI AvPiY Ki‡Z cv‡i hv‡Z g‡b nq GwU Avm‡j KYv w`‡q MwVZ| Av‡jvi wbM©gb I †kvlY N‡U kw³i ¶y`ª ¶y`ª c¨v‡KU ev ¸”Q (‡Kvqv›Uv) AvKv‡i| GB ¸”Q¸‡jvi bvg †dvUb| Zi½ I KYvgq AvPi‡Yi GB mgv‡ek cvigvYweK I AwZcvigvYweK RM‡Zi me e¯Íyi †¶‡ÎB †`Lv hvq| d‡j, B‡jKU«b, †cÖvUb, wbDU«b BZ¨vw` †h mË¡v¸‡jv‡K mvaiYfv‡e KYv g‡b Kvi nq, Zv‡`i mevB-B, GgbwK cy‡iv cigvYyI we‡kl we‡kl cwiw¯’wZ‡Z Zi‡½i g‡Zv AvPiY Ki‡Z cv‡i|

‡Kvqv›Uvg Z‡Ë¡i GKwU cÖavb Ask n‡jv I‡qb©vi nvB‡Rbev‡M©i AwbðqZv bxwZ| GwU Abymv‡i †Kvqv›Uvg e¯Íy‡`i me¸‡jv ˆewk‡ó¨i R‡b¨ mymsÁvqwZ gvb \_vK‡e bv| †hgb GKwU B‡jKU«‡bi GKB mv‡\_ GKwU wbw`©ó Ae¯’vb I wbw`©ó fi‡eM \_vK‡Z cv‡i bv| GKwU wbw`©ó gyn~‡Z© Gi kw³i gvbI wbw`©ó \_vK‡Z cv‡i bv| GLv‡b KvR K‡i kw³i gv‡bi AwbðqZv| Avgv‡`i wPi‡Pbv eo RM‡Z †Zv kw³ me mgq msiw¶Z8 \_v‡K (Gi m…wó ev webvk †bB)| wKš‘ †Kvqv›Uvg RM‡Z bxwZwU‡K ¯’wMZ K‡i ivLv hvq| GK gyn~Z© †\_‡K Ab¨ gyn~‡Z© ¯^Zù~Z© I Abby‡gqfv‡e kw³i cwigvY e`‡j †h‡Z cv‡i| hZ Aí mgq we‡ePbv Kiv n‡e, GB ˆ`e †Kvqv›Uvg welgZvI ZZ †ewk n‡e| mwZ¨ ej‡Z, KYvwU k~b¨ †\_‡KB kw³ avi Ki‡Z cv‡i, hw` wK bv Avevi Lye `ªæZB †mB kw³ cwi‡kva K‡i †`Iqv nq| nvB‡Rbev‡M©i AwbðqZvi bxwZi m~² MvwYwZK fvl¨ g‡Z eo AvKv‡i avi Kiv kw³ `ªæZ wdwi‡q w`‡Z nq| Avi †QvU F‡Yi †gqv` nq †ewk|

kw³i GB AwbðqZv †\_‡K wKQy `viæY djvdj †ewi‡q Av‡m| GgbI m¤¢vebv Av‡Q nVvr K‡i k~b¨ †\_‡K †dvU‡bi g‡Zv GKwU KYv ˆZwi n‡q †Mj| wgwj‡q †Mj LvwbK c‡iB| GB KYv¸‡jvi Aw¯ÍZ¡ wU‡K \_v‡K avi Kiv kw³i Ici wbf©i K‡i| Ges †mB Kvi‡Y GB Aw¯ÍZ¡ wbf©i K‡i mg‡qi IciI| Avgiv G‡`i‡K †`wL bv KviY Giv nq LyeB ¶Y¯’vqx| wKš‘ Avgiv hv‡K k~b¨ ¯’vb e‡j g‡b Kwi †mUv Avm‡j G ai‡bi ¶Y¯’vqx KYvq cwic~Y©| ïay †dvUbB bq, Ggb KYvi g‡a¨ i‡q‡Q B‡jKU«b, †cÖvUb I Ab¨ mevB| Avgv‡`i cwiwPZ I ¯’vqx KYv¸‡jv †\_‡K Avjv`v Kivi R‡b¨ GB ¶Y¯’vqx KYv‡`i‡K ejv nq fvP©yqvj KYv| ¯’vqx‡`i bvg †hLv‡b ev¯Íe KYv|

A¯’vwq‡Z¡i K\_v ev` w`‡j fvP©yqvj KYvi mv‡\_ ev¯Íe KYvi †Kv‡bv cv\_©K¨ †bB| Ges evB‡i †\_‡K kw³ mievin K‡i nvB‡RbevM© FY cwi‡kv‡ai e¨e¯’v Ki‡j fvP©yqvj KYv‡`i‡K ev¯Íe KYvqI iƒcvš‘wiZ Kiv m¤¢e| Ges mwZ¨ ej‡Z, G‡K ZLb GKB ai‡bi Ab¨ ev¯Íe KYv †\_‡K Avjv`v K‡i †PbvI m¤¢e bq| †hgb GKwU fvP©yqvj B‡jKU«b mvaviYZ gvÎ 10-21 †m‡KÛ mgq ¯’vqx nq| ¯^ívqyi Rxe‡b GwU wKš‘ w¯’i e‡m \_v‡K bv| webvk nevi Av‡M Av‡M AwZµg K‡i †dj‡Z cv‡i 10-11 †mw›UwgUvi c\_ (†hLv‡b GKwU cigvYy 10-8 †mw›UwgUvi PIov)| GB mg‡qi g‡a¨B hw` fvP©yqvj B‡jKU«bwU †Kv\_vI †\_‡K kw³ MÖnY Ki‡Z cv‡i (‡hgb aiæb Zwo”Py¤^Kxq †¶Î †\_‡K), Zvn‡j Avi G‡K wejyß n‡Z n‡e bv| GwU ZLb wejKyj ¯^vfvweK B‡jKU«b wn‡m‡e wb‡Ri Aw¯ÍZ¡ wUwK‡q ivL‡Z cv‡i|

Avgiv GB fvP©yqvj KYv‡`i‡K †`L‡Z bv †c‡jI Rvwb †h k~b¨ ¯’v‡b G‡`i Aw¯ÍZ¡ Av‡Q| KviY G‡`i kbv³‡hvM¨ j¶Y Giv †i‡L hvq| †hgb fvP©yqvj †dvU‡bi GKwU cÖfve n‡jv, GwU cigvYyi kw³ ¯Í‡i9 kw³i mvgvb¨ cwieZ©b ˆZwi K‡i| GQvovI B‡jKU«‡bi †PŠ¤^K åvg‡KI mgvb cwigvY cwieZ©b NUvq| eY©vjxex¶Y c×wZ‡Z B‡Zvg‡a¨B GB †QvU wKš‘ ¸iæZ¡c~Y© cwieZ©b¸‡jv wbLyuZfv‡e cwigvc Kiv n‡q‡Q|

wKš‘ Av‡iKwU welq Gwo‡q †Mj fyj n‡q hv‡e| KviY n‡jv AwZcvigvYweK KwYKviv wKš‘ gy³fv‡e PjvPj K‡i bv| GUv wbf©i K‡i A‡bK¸‡jv e‡ji Ici| †Kvb cÖKvi ej KvR Ki‡e †mUv wbf©i Ki‡e KYvi cÖK…wZi Ici| G e‡ji cÖfv‡e wKš‘ Dc‡i †`Iqv †Kvqv›Uvg f¨vKyqv‡gi mij wPÎwU GK`g cv‡ë hvq| GB ej KYv‡`i ¯^ ¯^ fvP©yqvj KYv‡`i g‡a¨I KvR K‡i| AZGe n‡Z cv‡i G‡Ki †ewk ai‡bi f¨vKyqvg Ae¯’vi Aw¯ÍZ¡ i‡q‡Q| GKvwaK m¤¢ve¨ †Kvqv›Uvg Ae¯’vi (†÷U) Aw¯ÍZ¡ †Kvqv›Uvg c`v\_©we`¨vi GKwU cwiwPZ w`K| Gi me‡P‡q cwiwPZ D`vniY n‡jv cigvYyi wewfbœ kw³ ¯Íi| cigvYyi wbDwK¬qvm‡K cÖ`w¶YiZ B‡jKU«b ïay wbw`©ó kw³i wKQy mymsÁvwqZ Ae¯’v‡ZB Aw¯ÍZ¡evb \_vK‡Z cv‡i| me‡P‡q bx‡Pi ¯Í‡ii bvg MÖvDÛ †÷U| GUv w¯’wZkxj Ae¯’v| D”PZi Ae¯’v¸‡jv D‡ËwRZ I Aw¯’wZkxj| †Kv‡bv B‡jKU«b D”PZi Ae¯’vq P‡j †M‡j GwU GK ev GKvwaK av‡c cybivq bx‡Pi ¯Í‡i Aew¯’Z MÖvDÛ †÷‡U P‡j Avm‡e| mymsÁvwqZ Aa©vqy (half life) wewkó D‡ËwRZ Ae¯’v Gfv‡eB ¶q n‡Z \_v‡K|

f¨vKyqv‡gi †¶‡ÎI GKB bxwZ KvR K‡i| G‡Z GK ev GKvwaK D‡ËwRZ †÷U \_vK‡Z cv‡i| GB †÷U¸‡jvi kw³i cwigvY wfbœ wfbœ| Aek¨ Zv‡`i‡K †`L‡Z GKB iKg †`Lv‡e| Avi hvB †nvK, meB †Zv Lvwj! me©wbgœ kw³ ¯Íi ev MÖvDÛ †÷U‡K A‡bK mgq ejv nq cÖK…Z f¨vKyqvg| KviY, GUvB n‡jv w¯’wZkxj Ae¯’v| Ges GwUB Avgv‡`i eZ©gv‡bi †`Lv gnvwe‡k¦i k~b¨ ¯’vb wn‡m‡e KvR K‡i| D‡ËwRZ f¨vKyqvg‡K ejv nq bKj f¨vKyqvg|

Z‡e e‡j ivLv fvj, bKj f¨vKyqvg GLb ch©šÍ wbQKB ZvwË¡K GKwU aviYv| Ges G‡`i ˆewkó¨I g~jZ wbf©i K‡i †Kvb ZË¡ w`‡q G‡`i‡K wePvi Kiv n‡”Q Zvi Ici| Z‡e mv¤cÖwZK ZË¡¸‡jv‡Z G‡`i aviYv mnRvZfv‡eB P‡j Av‡m| G ZË¡¸‡jvi j¶¨ n‡jv cÖK…wZi PviwU †gŠwjK ej‡K GKxf~Z Kiv| ej¸‡jv n‡jv gnvKl©, Avgv‡`i cwiwPZ Zwo”Py¤^Kxq ej Ges ¯^í-cvj­vi `ywU wbDK¬xq ej, hviv `ye©j I mej ej wn‡m‡e cwiPwZ| GK mgq Aek¨ ZvwjKvUv AviI j¤^v wQj| Zwor I †PŠ¤^K ej‡K GK mgq Avjv`v fvev nZ| GKxf~Z Kivi KvR ïiæ nq Ewbk kZ‡Ki ïiæi w`‡K| mv¤cÖwZK `kK¸‡jv‡Z G Kv‡R fv‡jv AMÖMwZ n‡q‡Q| GLb Rvbv n‡q †M‡Q †h Zwo”Py¤^Kxq Ges `ye©j wbDK¬xq ej GKB my‡Zvq Mvu\_v| G‡K GK K\_vq ejv n‡”Q ZwoZ&`ye©j ej (electroweak force)| eû c`v\_©we` wek¦vm K‡ib, mej ejI ZwoZ&`ye©j e‡ji mv‡\_ wg‡j hv‡e| Ggb wgj ˆZwi‡Z m¶g ZË¡¸‡jv‡K ejv nq Mª¨vÛ BDwbdv‡qW w\_Iwi| GUv nIqv Lye m¤¢e †h Mfxi †Kv‡bv ch©v‡q me¸‡jv †dvm© ev ej GKwUgvÎ mycvi-†dv‡m© G‡m wgwjZ n‡e|

ùxwZ cÖwµqvi me‡P‡q fv‡jv e¨L¨v¸‡jv cvIqv hvq wewfbœ Mª¨vÛ BDwbdv‡qW w\_Iwi †\_‡KB| G ZË¡¸‡jvi GKwU g~j ˆewkó¨ n‡jv bKj f¨vKyqvg †÷‡Ui kw³ A‡bK †ewk| gvÎ GK NbwgUvi ¯’v‡bi kw³ 1087 Ryj10 Ggb Ae¯’vq cigvYyi g‡Zv †QvÆ AvqZ‡bi RvqMvqI 1062 Ryj kw³ \_vK‡e| †hLv‡b GKwU D‡ËwRZ cigvYyi kw³ gvÎ 10-18 Ryj| d‡j cÖK…Z f¨vKyqvg‡K D‡ËwRZ n‡Z A‡bK A‡bK †ewk kw³ cÖ‡qvRb| Ges eZ©gvb gnvwe‡k¦ bKj f¨vKyqv‡gi †`Lv cvIqvi AvkvI †bB| Z‡e weM e¨vs‡qi g‡Zv Pig Ae¯’vq welq¸‡jv m¤¢e|

bKj f¨vKyqvg †÷‡U †h wecyj cwigvY kw³ \_v‡K Zvi \_v‡K Zxeª gnvKl©xq cÖfveI| KviY, AvBb÷vBb Avgv‡`i †`wL‡q‡Qb, kw³iI fi Av‡Q| d‡j mvaviY e¯Íyi g‡Zv GiI gnvKl©xq AvKl©Y \_vK‡e| †Kvqv›Uvg f¨vKyqv‡gi Zxeª kw³ Lye Zxeª AvKl©Yag©x| GK NbwgUvi bKj f¨vKyqv‡gi kw³ 1067 Ub f‡ii mgvb| ch©‡e¶Y‡hvM¨ cy‡iv gnvwe‡k¦i fiI AviI Kg (1050 Ub)| GB Zxeª gnvKl© ùxwZi c‡¶ K\_v e‡j bv| ùxwZi R‡b¨ `iKvi †Kv‡bv iKg GKwU A¨vw›UMª¨vwfwU| wKš‘ bKj f¨vKyqv‡gi wekvj kw³i R‡b¨ `iKvi GKB iKg wekvj cwigvY bKj f¨vKyqvg Pvc (false-vacuum pressure)| GB PvcUvB wKš‘ Avmj welq| Avgiv mvaviYZ Pvc‡K gnvK‡l©i DZ&m g‡b Kwi bv| wKš‘ Avm‡j †mwU DZ&m wn‡m‡e KvR K‡i| evB‡ii w`‡K hvwš¿Y ej cÖ‡qvM Ki‡jI Pvc Avevi †fZ‡ii w`‡KI gnvKl©xq Uvb ˆZwi K‡i| Avgv‡`i m`v-cwiwPZ e¯Íy‡`i †¶‡Î Zvi f‡ii Zyjbvq Pv‡ci gnvKl©xq cÖfve Lye bMY¨| †hgb, c„w\_ex‡Z Avcbvi IR‡bi GKk †KvwU fv‡Mi GK fv‡MiI K‡gi †cQ‡b `vqx n‡jv c„w\_exi Af¨šÍixY Pvc| wKš‘ ZeyI GUv wKš‘ ev¯Íe| Ges †Kv‡bv wm‡÷‡g Pvc AZ¨waK n‡j fiRwbZ gnvKl©xq cÖfv‡ei †P‡qI GwU †ewk K‡i Abyf~Z n‡e|

bKj f¨vKyqv‡gi †¶‡Î kw³11 †hgb wekvj, †Zgwb wekvj Zvi Pvc| wKš‘, ¸iæZ¡c~Y© welq n‡jv Pvc GLv‡b FYvZ¥K| d‡j bKj f¨vKyqvg av°v †`q bv, eis Uv‡b| FYvZ¥K Pvc ˆZwi K‡i FYvZ¥K gnvKl©xq Uvb| gv‡b A¨vw›UMª¨vwfwU| d‡j bKj f¨vKyqv‡gi gnvKl© wb‡q kw³i AvKl©Yag©x I Pv‡ci weKl©Yag©x cÖfv‡ei g‡a¨ Zxeª cÖwZ‡hvwMZv P‡j| wRZ nq Pv‡ciB| Ges weKl©‡Yi wbU cÖfve GZ †ewk †h GwU gyn~‡Z©i g‡a¨ gnvwek¦‡K Dwo‡q w`‡Z cv‡i| ùxwZi Ggb Zxeª av°vi d‡jB gnvwek¦ cÖwZ 10-34 †m‡K‡Ûi g‡Zv ¶y`ª mg‡q cÖPÐ MwZ‡Z wØ¸Y eo n‡qwQj|

bKj f¨vKyqvg mnRvZfv‡e Aw¯’wZkxj| mKj D‡ËwRZ †Kvqv›Uvg †÷‡Ui g‡Zv GwUI ¶q n‡q MÖvDÛ †÷‡U, gv‡b cÖK…Z f¨vKyqv‡g Avm‡Z Pvq| m¤¢eZ K‡qK WRb ÔwUKÕ cvi n‡j GwU GUv Ki‡Z m¶g nq| †Kvqv›Uvg cÖwµqv nevi Kvi‡Y Gi g‡a¨ Awbevh©fv‡e KvR K‡i AwbðqZv I ˆ`e cwieZ©b, †hUv GKUy Av‡M nvB‡Rbev‡M©i AwbðqZv bxwZi K\_v ej‡Z wM‡q Av‡jvPbv Kiv n‡q‡Q| Zvi gv‡b, ¯’v‡bi me w`‡K ¶q GKB nv‡i NU‡e bv| wewfbœ w`‡K Zv n‡e Avjv`vfv‡e| wKQy wKQy ZvwË¡‡Ki g‡Z †Kve (COBE) †h e¨wZµg Lyu‡R †c‡q‡Q Zvi KviY GB wfbœZv Qvov Avi wKQyB bq|

bKj f¨vKyqvg ¶q n‡q †M‡j gnvwek¦ Zvi ¯^vfvweK cÖmviY ïiæ Kij| gv‡b ax‡i ax‡i Kgj cÖmvi‡Yi nvi| bKj f¨vKyqv‡g Ave× kw³ Aegy³ n‡jv| GUv †ei n‡jv Zvc AvKv‡i| ùxwZi Kvi‡Y †h wekvj cÖmviY NUj, Zv‡Z gnvwe‡k¦i ZvcgvÎv cig k~‡b¨i Lye KvQvKvwQ n‡jv| nVvr ùxwZ †\_‡g hvIqvq ZvcgvÎv Avevi †e‡o 1028 wWwMÖ n‡q †Mj| GB wecyj Zvc AvRI i‡q †M‡Q| Aek¨ †mUvi ZxeªZv A‡bK K‡g †M‡Q| GiB bvg gnvRvMwZK cUf~wg Zvc wewKiY| f¨vKyqvg GbvwR© Aegy³ nevi cvkvcvwk Av‡iKwU NUbvI NUj| †Kvqv›Uvg f¨vKyqv‡gi A‡bK¸‡jv KYv G †\_‡K wKQy kw³ MÖnY K‡i ev¯Íe KYvq DbœxZ n‡jv| AviI wKQy cÖwµqv I cwieZ©b †k‡l GB Avw`g KYv¸‡jvi aŸsmve‡kl †\_‡K 1050 Ub c`v\_© ˆZwi n‡jv| GB c`v\_© †\_‡KB Avcwb, Avwg, Qvqvc\_ I gnvwe‡k¦i evwKUvi m…wó|

eo eo A‡bK Km‡gvjwR÷B g‡b K‡ib ùxwZi aviYvB gnvwe‡k¦i BwZnv‡mi mwZ¨Kvi wPÎ cÖ`vb K‡i| hw` GwU Avm‡jB mwVK n‡q \_v‡K, Zvn‡j gnvwe‡k¦i †gŠwjK KvVv‡gv Ges †fŠZ Dcv`vbmg~n †Kgb n‡e Zv wVK n‡q wM‡qwQj R‡b¥i gvÎ 10-32 †m‡KÛ c‡iB| ùxwZi c‡i gnvwe‡k¦i AwZcvigvYweK ¯Í‡i N‡UwQj AviI bvbvb cwieZ©b| cÖv\_wgK c`v\_© †\_‡K ˆZwi n‡jv KYv I cigvYy| Avgv‡`i mg‡qi gnvRvMwZK e¯Íy¸‡jv G‡`i w`‡qB Mov| Z‡e c`v‡\_©i AwaKvsk evowZ cÖwµqvKiY m¤úbœ n‡qwQj gvÎ cÖvq wZb wgwb‡Ui g‡a¨|

cÖ\_g wZb wgwb‡Ui mv‡\_ †kl wZb wgwb‡Ui m¤úK© Kx? GKwU ey‡j‡Ui fvM¨ †hgb Gi j¶¨gvÎvi Ici Lye †ewk wbf©i K‡i, †Zgwb gnvwe‡k¦i cwiYwZI Gi cÖv\_wgK Ae¯’vi Ici `viæYfv‡e wbf©ikxj| Avgiv mvg‡b †`Le, cÖv\_wgK m~Pbv †\_‡K gnvwe‡k¦i cÖmviY I weM e¨vs †\_‡K D™¢~Z c`v‡\_©i cÖK…wZ gnvwe‡k¦i P~ovšÍÍ fwel¨r‡K Kxfv‡e cÖfvweZ K‡i| gnvwe‡k¦i ïiæ I †kl GKB my‡Zvq †Mu‡\_ Av‡Q k³fv‡e|

**Abyev`‡Ki †bvU**

1. †Kv‡bv e¯Íy `~‡i m‡i †M‡j †mwU †\_‡K Avmv Av‡jvi is jvj n‡q hvIqv‡KB †jvwnZ miY e‡j| cÖ‡Z¨K is‡qi Av‡jvi wbw`©ó cvj­vi Zi½‰`N¨© \_v‡K| e¯Íy `~‡i m‡i †M‡j AvMZ Av‡jvi K¤úv¼ K‡g hvq I Zi½‰`N¨© †e‡o hvq| Avi `„k¨gvb Av‡jv¸‡jvi g‡a¨ jv‡ji Zi½‰`N¨©B me‡P‡q eo| ZvB `~‡i hvIqv e¯Íy‡K jvj †`Lvq| GiB bvg †jvwnZ miY|

2. me©‡kl wnmve g‡Z gnvwe‡k¦i cÖmviY nvi cÖwZ †m‡K‡Û cÖwZ †gMvcvi‡m‡K 74 wK‡jvwgUvi| GK cvi‡mK n‡jv 3.3 Av‡jvKe‡l©i mgvb| Avi †gMvcvi‡mK cvi‡m‡Ki 10 j¶ ¸Y| AZGe cÖmvi‡Yi nviwUi A\_© n‡jv Avgv‡`i †\_‡K cÖwZ 3.3 †gMvcvi‡mK ev 33 j¶ AvjKel© `~‡ii GKwU Qvqvc\_‡K Avgiv cÖwZ †m‡K‡Û 74 wK‡jvwgUvi †ewk †Rv‡i mi‡Z †`Le|

3. †h e¯Íy Zvi Ici AvMZ mKj wewKiY †kvlY K‡i †bq Zv‡K K…òe¯Íy e‡j| Ab¨vb¨ e¯Íyi mv‡\_ Zyjbv Kivi R‡b¨ wbQK GKwU ZvwË¡K bgybv GwU| cÖK…wZ‡Z wbLyuZ K…òe¯Íyi Aw¯ÍZ¡ †bB|

4. c`v\_©weÁv‡b c­vRgv‡K ejv nq c`v‡\_©i PZy\_© Ae¯’v| G Ae¯’vq M¨vm \_v‡K AvqwbZ Ae¯’vq| gv‡b cigvYy‡Z B‡jKU«b I †cÖvUb msL¨v mgvb \_v‡K bv| GB Ae¯’vq c`v\_© Lye Zwor mycwievnx nq| Ges †m Kvi‡Y Zwor I Py¤^Kxq AvPi‡Yi cÖvavb¨ \_v‡K|

5. †cÖvUb I wbDU«b Aek¨ wVK †gŠwjK KwYKv bq, MwVZ †KvqvK© w`‡q|

6. nv‡B«Wv‡R‡bi me‡P‡q mij iƒcwU‡Z GKwUgvÎ †cÖvUb \_v‡K| †Kv‡bv wbDU«b \_v‡K bv|

7. 2 wU †cÖvUb m¤^wjZ nvB‡W«vR‡bi Av‡iKwU iƒc wWD‡Uwiqvg|

8. kw³i msi¶YkxjZv bxwZ Abymv‡i, gnvwe‡k¦i †gvU kw³i cwigvY wbw`©ó| kw³i m…wó ev webvk †bB| G‡K †Kej GK iƒc †\_‡K Ab¨ GK ev GKvwaK iƒ‡c iƒcvšÍwiZ Kiv †h‡Z cv‡i|

9. gv‡b cigvYyi K¶c‡\_| mvaviY `„wó‡KvY †\_‡K fve‡j cigvYyi †K›`ªxq Ae¯’v‡bi wbDwK¬qv‡mi Pviw`‡Ki wewfbœ K¶c‡\_ B‡jKU«b¸‡jv ew›UZ \_v‡K|

10. GKwU Av‡cj‡K GK wgUvi D”PZvq Zyj‡j †gvUvgywU GK Ryj cwigvY kw³ LiP nq| Ab¨fv‡e ej‡j, 100 Ryj kw³ w`‡q 20 Iqv‡Ui GKwU evwZ 5 †m‡KÛ Pvjv‡bv hvq| Gevi wPšÍv Kiæb Zvn‡j 1087 Ryj KZ wekvj|

11. GLv‡b ivL‡Z n‡e, kw³ wKš‘ f‡iiB Av‡iK iƒc| ZvB kw³iI gnvKl©xq Uvb \_vK‡e|

PZy\_© Aa¨vq

b¶‡Îi g„Zy¨

1987 mv‡ji †deªyqvwi gv‡mi 23 wK 24 ZvwiL iv‡Zi K\_v| KvbvwWqvb †R¨vwZwe©` Bqvb †kjUb KvR KiwQ‡jb jvm K¨v¤úvbvm ch©‡e¶Y‡K‡›`ª| RvqMvUv wPjxq Avw›`‡Ri P~ovq| GKRb ˆbk mnKvix wKQy mg‡qi R‡b¨ evB‡i G‡jb| Ajm †Pv‡L ZvKv‡jb AvKv‡kj w`‡K| iv‡Zi AvKvk Zvi bL`c©‡Y| d‡j A¯^vfvweK `„k¨Uv †Pv‡L co‡Z mgq jvMj bv| jvR© g¨v‡RjvwbK K¬vDW M¨vjvw·i bxnvwiKvi `v‡Mi cÖv‡šÍ GKwU bZyb b¶Î| D¾¡jZv AZ †ewk bq| Kvjcyiæ‡li †Kvgie‡Üi (Orion belt) ZviKv¸‡jvi KvQvKvwQ D¾¡j| me‡P‡q eo K\_v n‡jv, Av‡Mi w`b b¶ÎUv ILvbUvq wQj bv|

mnKvix mv‡ne e¨vcviUv †kjUb‡K ej‡jb| K‡qK NÈvi g‡a¨ LeiUv ivó« n‡q †Mj| †kjUb Avi Zvi wPjxq mnKvwi GKwU mycvi‡bvfv Avwe®‹vi K‡i †d‡j‡Qb| 1604 mv‡j †Rvnv‡bm †KcjviI Lvwj †Pv‡L GKwU mycvi‡bvfv †`‡LwQ‡jb| Zvic‡i Lvwj †Pv‡L GB cÖ\_g Avevi †Kv‡bv mycvi‡bvfv aiv coj| Gi ciciB †ek K‡qKwU †`‡ki †R¨vwZwe©`iv jvR© g¨v‡RjvwbK K¬vD‡Wi †cQ‡b hš¿cvwZ Kv‡R jvMv‡Z ïiæ Ki‡jb| c‡ii gvm¸‡jv‡Z Ô1987GÕ bv‡gi mycvi‡bvfvwUi LyuwUbvwU Lye m~²fv‡e we†kølY Kiv n‡jv|

‡kjU‡bi PvÂj¨Ki Avwe®‹v‡ii K‡qK NÈv Av‡M wfbœ GKwU RvqMvq Av‡iKwU A¯^vfvweK NUbv wjwce× nw”Qj| G RvqMvUv Rvcv‡b| f~wgi A‡bKUv Mfx‡i KvwgIKv `¯Ív Lwb| GK eyK ¯^cœ wb‡q wKQy c`v\_©we` GLv‡b GK `xN©‡gqv`x cix¶v Pvjvw”Q‡jb| Zvu‡`i j¶¨ wQj e¯Íyi Ab¨Zg †gŠwjK Dcv`vb †cÖvUb KwYKvi P~ovšÍÍ w¯’wZkxjZv cix¶v Kiv| 1970 Gi `k‡K iwPZ Mª¨vÛ BDwbdv‡qW w\_Iwi Abymv‡i †cÖvUb Lye Aw¯’wZkxj n‡Z cv‡i, hv GK ai‡bi †ZRw¯ŒqZvi d‡j mgq mgq ¶q n‡q \_vK‡Z cv‡i| GUv mwZ¨ n‡j gnvwe‡k¦i fwel¨Z wba©vi‡Y Gi ¸iæZ¡c~Y© f~wgKv \_vK‡e| GUv Avgiv c‡ii Aa¨v‡q †`Le|

‡cÖvU‡bi ¶q cix¶vi R‡b¨ Rvcv‡bi cix¶Kiv GKwU U¨vsK‡K 2000 Ub AwZweï× cvwb w`‡q c~Y© Ki‡jb| Gi Pvicv‡k ivL‡jb D”P-ms‡e`bkxj †dvUb wW‡UKUi| wW‡UKU‡ii KvR wQj Av‡jvi SjK Lyu‡R †ei Kiv| GLv‡b Ggb Av‡jv ïay D”P MwZi †cÖvUb ¶‡qi gva¨‡gB Avm‡Z cv‡i| cix¶vi R‡b¨ f~wgi Mfx‡ii ¯’vb †e‡Q †bIqv n‡qwQj gnvRvMwZK wewKi‡Yi cÖfve Kgv‡bvi R‡b¨| Ab¨\_vq AcÖZ¨vwkZ m‡¼Z †c‡Z †c‡Z AKvh©Ki n‡q IVZ wW‡U±i|

†deªyqvwii 22 ZvwiL| nVvr K‡i KvwgIKv wW‡U±i¸‡jv GMv‡iv †m‡K‡Ûi e¨eav‡b AšÍZ mgvb msL¨K m‡¼Z w`j| Gw`‡K c„w\_exi Ab¨ cÖv‡šÍ InvB‡qvi më gvB‡b GKB iKg GKwU wW‡U±‡i aiv coj AvUwU m‡¼Z| GK mv‡\_ GZ¸‡jv ¶q n‡q hv‡e GUv G‡Kev‡iB Awek¦vm¨| Aek¨B Ab¨ †Kv‡bv e¨vL¨v \_vK‡e Gi| c`v\_©we`iv kxN«B †m e¨vL¨vUv †c‡qI †M‡jb| Zvu‡`i wW‡U±‡i aiv cov †cÖvUb ¶‡qi KviY Ab¨ GKwU ¯^vfvweK cÖwµqv| †mUv n‡jv wbDwU«‡bvi AvNvZ|

wbDwU«‡bviv GK ai‡bi AwZcvigvYweK KYv| mvg‡bI G‡`i K\_v AviI Avm‡e| ZvB GLbB LvwbKUv we¯ÍvwiZ †R‡b †bIqv `iKvi| 1931 mv‡j DjdM¨vs cvDwj cÖ\_g G‡`i Aw¯Í‡Z¡i aviYv †`b| G ZvwË¡K c`v\_©we‡`i Rb¥ Aw÷«qvq| †ZRw¯Œq cÖwµqvi †eUv ¶q bvgK A¯úó w`KwU e¨vL¨vi R‡b¨ G aviYv †`b wZwb| GKwU mvaviY †eUv ¶q cÖwµqvq GKwU wbDU«b †f‡O wM‡q GKwU †cÖvUb I GKwU B‡jKU«b Drcbœ nq| B‡jKU«b A‡c¶vK…Z nvjKv KYv n‡jI D‡jøLL‡hvM¨ cwigvY kw³ mv‡\_ wb‡q †ei n‡q hvq| wKš‘ mgm¨v n‡jv cÖwZwU ¶q cÖwµqvq B‡jKU«b wfbœ wfbœ cwigvY kw³ wb‡q †ei nq| wbDU«‡bi ¶q †\_‡KI cÖvß †gvU kw³ †\_‡KI wKQyUv Kg| †h‡nZy me †¶‡ÎB †gvU kw³i cwigvY a«ye, g‡b n‡”Q P~ovšÍÍ kw³ cÖv\_wgK kw³ †\_‡K Avjv`v| GUv nevi K\_v bq| KviY, kw³ msiw¶Z \_vK‡e- GUv c`v\_©we`¨vi GKwU †gŠwjK bxwZ| ZvB cvDwj cÖ¯Íve Ki‡jb, H nviv‡bv kw³UyKy Ab¨ †Kv‡bv A`„k¨ KYv wb‡q P‡j hv‡”Q| KYvwU‡K kbv‡³i cÖv\_wgK †Póv mdj nqwb| GUv Rvbv n‡q †M‡j †h GB KYv‡`i Aw¯ÍZ¡ \_vK‡jI †f`b¶gZv n‡e AZ¨waK| Avgiv Rvwb, ˆe`¨ywZKfv‡e PvR©hy³ †h‡Kv‡bv KYv e¯Íy Øviv Ave× n‡e| d‡j cvDwji cÖ¯ÍvweZ KYvwU‡K Zwor cÖkg n‡Z n‡e| †Kv‡bv PvR© \_vK‡e bv) GR‡b¨B Gi bvg †`Iqv n‡jv wbDwU«‡bv| (wbDU«vj (neutral) A\_©B cÖkg)

‡m mgq †KD wbDwU«‡bvi †`Lv bv †c‡jI ZvwË¡Kiv Gi AviI A‡bK¸‡jv ˆewkó¨ †R‡b †Mjb| GKwU ˆewkó¨ n‡jv wbDwU«‡bvi fi wb‡q|

`ªæZMvgx KwYKv‡`i †¶‡Î fi wb‡q GKUy mveav‡b K\_v ej‡Z nq| KviY, e¯Íyi fi wbw`©ó bq| wbf©i K‡i †e‡Mi Ici| †hgb GK †KwR IR‡bi GKwU wmmvi e‡ji K\_v fvev hvK| GwU †m‡K‡Û 2 j¶ 60 nvRvi wK.wg. †e‡M Pj‡j Gi fi n‡q hv‡e 2 †KwR| GLv‡b bv‡Ui ¸iæ Avm‡j Av‡jvi †eM| †Kv‡bv e¯Íyi †eM Av‡jvi †e‡Mi hZ Kv‡Q hv‡e, Zvi fi ZZ †ewk n‡e| f‡ii GB e…w×i †kl †bB †Kv‡bv| fi Gfv‡e e`‡j hv‡”Q e‡j weåvwšÍ Gov‡bvi j‡¶¨ AwZcvigvYweK KYv‡`i fi ejvi mgq c`v\_©we`iv wbðj f‡ii K\_v e‡jb| KYvwU Av‡jvi KvQvKvwQ †e‡M ågY Ki‡j Gi cÖK…Z fi wbðj f‡ii eû¸Y n‡q †h‡Z cv‡i| KYv Z¡iKh‡š¿i †fZi cÖ`w¶YiZ B‡jKU«b I †cÖvUb‡`i fi Zv‡`i wbR wbR wbðj f‡ii eû¸YI n‡Z cv‡i|

wbDwU«‡bvi wbðj fi Rvbvi Dcvq GKwU Av‡Q Aek¨| A‡bK †¶‡Î †eUv ¶q cÖwµqvi mgq B‡jKU«b wbM©Z n‡ZB cy‡iv kw³ e¨q n‡q hvq| wbDwU«‡bvi R‡b¨ wKQyB evwK \_v‡K bv| Zvi gv‡b Awbevh©fv‡eB wbDwU«‡bv‡K wU‡K \_vK‡Z nq †Kv‡bv kw³ QvovB| GLb, AvBb÷vB‡bi weL¨vZ E = mc2 m~Î Abymv‡i fi Ges kw³ mgZyj¨| Zvi gv‡b, kw³ †bB gv‡b fiI †bB| Zvi A\_© `vuovq, m¤¢eZ wbDwU«‡bvi wbðj fi Lye Aí| k~b¨I n‡Z cv‡i| wbðj fi mwZ¨B k~b¨ n‡j wbDwU«‡bv Pj‡e Av‡jvi MwZ‡Z| Avi Zv bv n‡jI Gi †eM Av‡jvi †e‡Mi Lye KvQvKvwQB n‡e|

AwZcvigvYweK KwYKv‡`i N~Y©‡bi mv‡\_ Av‡iKwU welqI RwoZ Av‡Q| wbDU«b, †cÖvUb I B‡jKU«b mevB‡K me mgq Nyi‡Z †`Lv hvq| N~Y©‡bi gvÎv wbw`©ó| Ges wZbwUi †¶‡ÎB gvÎvUv mgcwigvY| N~Y©b n‡jv GK ai‡bi †KŠwYK fi‡eM| †KŠwYK fi‡e‡Mi msi¶YkxjZv bv‡g GKwU m~Î Av‡Q| kw³i msi¶YkxjZv bxwZi g‡ZvB GwUI GKwU †gŠwjK m~Î| GKwU wbDU«b ¶q n‡j ¶q nIqv As‡kI Gi N~Y©b AweK…Z \_vK‡e| B‡jKU«b Avi †cÖvUb hw` GKB w`‡K †Nv‡i, Z‡e Zv‡`i N~Y©‡bi †hvMdj n‡e wbDU«‡bi N~Y©‡bi wØ¸Y| Z‡e Zviv hw` wfbœ w`‡K †Nv‡i, †m‡¶‡Î †hvMdj n‡e k~b¨| NUbv hvB †nvK, GKwU †cÖvUb ev GKwU B‡jKU«b GKv wbDU«‡bi mgvb n‡Z cv‡i bv| wKš‘ wbDwU«‡bvi K\_v wnmv‡e ai‡j fvimvg¨ nq| ïay a‡i wb‡Z n‡e wbDwU«‡bvi N~Y©‡bi gvÎvI Ab¨‡`i g‡Zv| †m‡¶‡Î ¶qK…Z wZbwU As‡ki `y‡Uv Nyi‡e GKB w`‡K, Avi Z…ZxqwU D‡ëvw`‡K|

d‡j wbDwU«‡bv kbv³ nevi Av‡MB c`v\_©we`iv ey‡S †dj‡jb, GB KYvi ˆe`¨ywZK PvR© \_vK‡e bv| Nyi‡e B‡jKU«‡bi g‡Zv GKB w`‡K| fi \_vK‡e bv ev \_vK‡jI †mUv n‡e ¯^í cwigvY| mvaviY e¯Íyi mv‡\_ wg\_w®Œqv Ki‡e GZB `ye©jfv‡e †h Zvi †Kv‡bv j¶YB †Pv‡L co‡e bv| GK K\_vq, GwU GK ai‡bi NyišÍ f~Z| d‡j GUv LyeB ¯^vfvweK †h cvDwji Abygv‡bi c‡i cix¶vMv‡i Gi Aw¯ÍZ¡ wbwðZ K‡i cÖgvY Ki‡Z cÖvq wek eQi †j‡M †M‡Q| eZ©gv‡b wbDK¬xq Pywjø‡Z Giv msL¨vq msL¨vq ˆZwi nq| d‡j jyKv‡bv ¯^fv‡ei n‡jI gv‡Sgv‡SB G‡`i‡K kbv³ K‡i †djv hvq|

GKB mv‡\_ KvwgIKv Lwb‡Z wbDwU«‡bvi nvbv Ges Ô1987GÕ mycvi‡bvfvi Avwef©ve †Kv‡bvg‡ZB KvKZvjxq NUbv wQj bv| weÁvbx‡`i g‡Z `y‡Uv NUbv GKB mv‡\_ NUvi g‡a¨ mycvi‡bvfv Z‡Ë¡i cÖgvY i‡q‡Q| GZ w`b a‡i †R¨vwZwe©Ávbxiv †Zv mycvi‡bvfv †\_‡KB GK SvuK wbDwU«‡bv Avmvi cÖZ¨vkv KiwQ‡jb|

jvwZb fvlvq †bvfv gv‡b bZyb| Z‡e Ô1987GÕ bv‡gi mycvi‡bvfvwU bZyb †Kv‡bv b¶‡Îi Rb¥ wQj bv| GwU Avm‡j wQj e…nr we‡ùvi‡Yi gva¨‡g cyivZb GK b¶‡Îi g„Zy¨| mycvi‡YvfvwUi DZ&m jvR© g¨v‡RjvwbK K¬vDW GKwU ¶y`ª Qvqvc\_| `~iZ¡ 1 j¶ 70 nvRvi Av‡jvKel©| GwU Avgv‡`i wgwéI‡q Qvqvc‡\_i GZUvB Kv‡Q †h GwU A‡bKUv wgwéI‡qi DcQvqvc\_ (satellite gallaxy)| `w¶Y †Mvjva© †\_‡K G‡K Lvwj †Pv‡LI †`Lv hvq| †Qvc †Qvc Av‡jvi GKwU `vM| b¶Î¸‡jv‡K Avjv`v K‡i †`L‡Z n‡j PvB eo †Uwj‡¯‹vc| †kë‡bi Avwe®‹v‡ii K‡qK NÈvi g‡a¨B A‡÷«jxq †R¨vwZwe©`iv †R‡b †dj‡jb, jvR© g¨v‡RjvwbK K¬vD‡Wi K‡qK k †KvwU b¶‡Îi g‡a¨ †KvbwU G we‡ùviY NwU‡q‡Q| GUv Kivi R‡b¨ Zvuiv AvKv‡ki H As‡ki Av‡Mi wKQy d‡UvMÖvwdK †c­U e¨envi K‡ib| b¶ÎwU wQj we3 mycviRvqv›U †kÖwYi1| GwU m~‡h©i Zyjbvq PIov wQj 40 ¸Y| bvgI Av‡Q GKwU| m¨vÛywjK-69 202 (Sanduleak -69 202)|

b¶‡Îi we‡ùviY NU‡Z cv‡i, GB welq wb‡q cÖ\_g M‡elYv Pvjvb †R¨vwZ©c`v\_©we` †d«W n‡qj, DBwjqvg dyjvi Ges †Rwd« I gviMv‡iU eviweR| GUv 1950 Gi `k‡Ki gvSvgvwSi K\_v| Ggb DËvj `kvq b¶Îiv Kx K‡i †cŠuQvq Zv Rvb‡Z n‡j eyS‡Z n‡e G‡`i †fZ‡i Pjv cÖwµqv¸‡jv| Avgv‡`i me‡P‡q †PbvRvbv b¶Î n‡jv m~h©| Ab¨ b¶‡Îi g‡ZvB †`‡L g‡b n‡”Q m~‡h© †Kv‡bv cwieZ©b †bB| Avm‡j wKš‘ m~h© cÖwZwbqZ g„Zy¨i mv‡\_ msMÖvg K‡i hv‡”Q| me b¶ÎB M¨vm w`‡q ˆZwi| GB M¨vm Romo \_v‡K gnvK‡l©i Kvi‡Y| Z‡e hy×‡¶‡Î gnvKl© GKv \_vK‡j b¶ÎwU wb‡Ri Zxeª AvKl©‡Y wb‡g‡li g‡a¨ ¸wU‡q †hZ| DavI n‡q †hZ K‡qK NÈvi g‡a¨| wKš‘ †mUv nq bv| KviY †fZ‡ii w`‡Ki GB e‡ji wecix‡Z evB‡ii w`‡K KvR K‡i Av‡iKwU ej| b¶‡Îi Af¨šÍ‡ii m¼ywPZ M¨v‡mi ewng©yLx Pvc| `y‡Uv‡Z ˆZwi nq fvimvg¨|

M¨v‡mi Pvc I ZvcgvÎvi g‡a¨ GKwU mij m¤úK© Av‡Q| mvaviYZ GKwU wbw`©ó AvqZ‡bi M¨vm‡K DËß Ki‡j ZvcgvÎvi Abycv‡Z Gi Pvc ev‡o| Avevi ZvcgvÎv Kg‡j K‡g hvq PvcI| b¶‡Îi †fZ‡i Zxeª Pv‡ci KviY Gi Zxeª ZvcgvÎv| eû wgwjqb wWwMÖ †mjwmqvm| GB Zv‡ci DZ&m n‡jv wbDK¬xq wewµqv| b¶‡Îi Rxe‡bi †ewkifvM mgq Ry‡o GKwU wewµqvB P‡j| †mUv n‡jv wdDkb (ms‡hvRb) wewµqvi gva¨‡g nvB‡W«v‡Rb‡K wnwjqv‡g iƒcvšÍi| cigvYy¸‡jvi wbDwK¬qv‡mi B‡jKU«biv ci¯úi‡K weKl©Y K‡i| d‡j GB weKl©Y‡K civf~Z Ki‡Z wewµqvi ZvcgvÎv n‡Z nq cÖPÐ| wdDk‡bi kw³ GKwU b¶Î‡K K‡qK k †KvwU eQi wUwK‡q ivL‡Z cv‡i| wKš‘ GK w`b bv GK w`b R¡vjvwb wVKB dywi‡q Av‡m| `ye©j n‡q c‡o wewµqvi MwZ| Gevi ewng©yLx Pvc `ye©j n‡q c‡o| wR‡Z hvq gnvKl©| b¶ÎwU Zvi Aewkó R¡vjvwb w`‡q gnvKl©RwbZ AšÍ:‡ùvUb (†fZ‡ii w`‡K ¸wU‡q hvIqv) cÖwZnZ K‡i Av‡iKUy mgq †eu‡P \_v‡K| wKš‘ c„ô †\_‡K cÖwZevi gnvk~‡b¨ kw³ wbw¶ß nevi mv‡\_ mv‡\_ AwšÍg mgq `ªæZ Nwb‡q Avm‡Z \_v‡K|

wnmve K‡i †`Lv †M‡Q, †h cwigvY nvB‡W«v‡Rb wb‡q m~‡h©i c\_ Pjv ïiæ n‡q‡Q Zv‡Z Zvi cÖvq GK nvRvi †KvwU eQi R¡jvi K\_v| GLb eqm cvuP k †KvwU eQi| gv‡b cÖvq A‡a©K R¡vjvwb †kl| (GLbI f‡qi wKQy †bB) GKwU b¶Î Kx nv‡i wbDK¬xq R¡vjvwb LiP Ki‡e Zv wbf©i K‡i Gi f‡ii Ici| fvix b¶Îiv R¡vjvwb LiP K‡i A‡bK `ªæZ| Zv bv K‡i †h Dcvq †bB| Giv eo Ges D¾¡j| d‡j wewKiY K‡i †ewk cwigvY kw³| evowZ IR‡bi Kvi‡Y M¨v‡mi NbZ¡ I ZvcgvÎv hvq †e‡o| d‡j †e‡o hvq wdDk‡bi nvi| †hgb 10 †mŠi f‡ii GKwU b¶Î Gi †ewkifvM nvB‡W«v‡Rb gvÎ GK †KvwU eQ‡iB †kl K‡i †dj‡Z cv‡i|

Ggb fvix GKwU b¶‡Îi fwel¨r †Kgb n‡Z cv‡i †`Lv hvK| †ewkifvM b¶‡Îi Rxeb ïiæ nq g~jZ nvB‡W«v‡Rb w`‡q| nvB‡W«v‡Rb wbDwK¬qvm gv‡b †Kej GKwU †cÖvUb| nvB‡W«v‡R‡bi Ô`nbÕ2 cÖwµqvq `y‡Uv nvB‡W«v‡Rb wbDwK¬qvm hy³ n‡q wnwjqvg †gŠ‡ji wbDwK¬qvm MwVZ nq| Gi cÖwZwU‡Z \_v‡K `ywU K‡i †cÖvUb I wbDU«b| (Gi we¯ÍvwiZ e¨vL¨v GKUy RwUj Avi †mUv Avgv‡`i AvcvZZ `iKviI †bB) wbDK¬xq kw³i m‡e‡Pq Kvh©Kix DZ&m n‡jv nvB‡W«v‡Rb Õ`nbÕ| Z‡e GUvB GKgvÎ DZ&m bq| Af¨šÍifv‡Mi ZvcgvÎv h‡\_ó †ewk n‡j wnwjqvg wbDwK¬qvm hy³ n‡q Kve©b MVb Ki‡Z cv‡i| ZviI c‡i wdDk‡bi gva¨‡g Aw·‡Rb, wbqb I Ab¨vb¨ †gŠj ˆZwi nq| G‡Ki ci GK wbDK¬xq wewµqv Pvwj‡q hvIqvi g‡Zv cÖ‡qvRbxq Af¨šÍixY ZvcgvÎv Drcbœ Kivi KvR fvix b¶Îiv Ki‡Z cv‡i| gv‡S gv‡S †m ZvcgvÎv GK k †KvwUi Ic‡iI nq|

wKš‘ kw³ ax‡i ax‡i Kg‡Z \_v‡K| cÖwZwU bZyb †gŠj ˆZwii mv‡\_ mv‡\_ wbM©Z kw³i cwigvY n«vm †c‡Z \_v‡K| R¡vjvwb `ªæZ †\_‡K `ªZZi LiP n‡Z \_v‡K| b¶‡Îi Dcv`vb e`‡j †h‡Z \_v‡K| ïiæ‡Z cÖwZ gv‡m, c‡i cÖwZ w`b Ges †kl‡gl cÖwZ NÈvq| Af¨šÍifvM `vuovq †cuqv‡Ri g‡Zv| GLv‡b ¯Íi¸‡jv n‡j DËvj cÖwµhvq µ‡g µ‡g M‡o IVv ivmvqwbK †gŠj¸‡jv| evB‡ii w`‡K Avevi b¶ÎwU dy‡j-‡du‡c eo n‡q hvq| n‡q hvq Avgv‡`i cy‡iv †mŠiRM‡Zi †P‡qI eo| G‡KB †R¨vwZwe©`iv e‡jb †jvwnZ AwZ`vbe (red supergiant)|

wbDK¬xq `nb cÖwµqvi BwZ N‡U †jvnv ˆZwii gva¨‡g| Gi wbDK¬xq MVbUv †ek w¯’wZkxj| wbDK¬xq wdDk‡bi gva¨‡g †jvnvi †P‡q fvix †gŠj MwVZ n‡Z b¶‡Îi wb‡RiB kw³ avi Ki‡Z nq| wbM©Z Kiv †Zv c‡ii K\_v| d‡j †jvnv ˆZwi n‡q †M‡Q gv‡b GKwU b¶‡Îi GLv‡bB mgvwß| †K›`ªxq AÂj hLb Avi Zvc Drcbœ Ki‡Z bv cvi‡e, `vevi ¸wU P‡j hv‡e gnvK‡l©i nv‡Z| b¶ÎwU n‡q c‡o Pigfv‡e fvimvg¨nxb| cwZZ nq wbR¯^ gnvKl©xq M‡Z©|

c‡ii NUbv Lye `ªæZ N‡U| b¶‡Îi †jvnvq Mov †K›`ª wbDK¬xq `n‡bi gva¨‡g Avi †Kv‡bv Zvc Drcv`b Ki‡Z cv‡i bv| d‡j a‡i ivL‡Z e¨\_© nq wb‡Ri IRb| GZ `ªæZ ¸wU‡q hvq †h cigvYy¸‡jv ch©šÍ `yg‡o-gyP‡o hvq| †kl ch©šÍ †K‡›`ªi NbZ¡ GZ †e‡o hvq †h GKwU AvO&¸‡ji gv\_vq †h cwigvY c`v\_© AvuuU‡e †mUvB cÖvq GK j¶ †KvwU Ub| G `kvq b¶ÎwUi †K›`ªgÐ‡ji e¨vm nq gvÎ `yB k wK‡jvwgUvi| wbDK¬xq c`v‡\_©i KvwV‡b¨i d‡j GwU jvdvjvwd Ki‡e| gnvKl© GZ kw³kvjx †h GB wekvj NUbv NU‡Z mgq jvM‡e K‡qK wgwj‡m‡KÛ| †K‡›`ª †hb bvU‡Ki †Kv‡bv †kl †bB| AvKw¯§Kfv‡e Zxeª Av‡jvo‡bi gva¨‡g bv¶wÎK c`v‡\_©i Avkcv‡ki ¯Íi¸‡jv G‡m cwZZ nq †K›`ªgÐ‡j| †m‡K‡Û AhyZ AhyZ †e‡M P‡j †fZ‡ii w`‡Ki GB MwZ| wU«wjqb wU«wjqb3 c`v\_© G‡m AvNvZ nv‡b Zxeª Nb †K›`ªgÐ‡j| †K›`ªgÐj nq nxivi †`qv‡ji †P‡qI `„p| Gici nq Zxeª msNl©| hvi d‡j evB‡ii w`‡K Qwo‡q c‡o GKwU kw³kvjx kK I‡qf|

kK I‡q‡fi mv‡\_ mv‡\_ wecyj cwigvY wbDwU«‡bvI wbM©Z nq| b¶‡Îi me©‡kl wbDK¬xq iƒcvšÍ‡ii mgq †fZ‡ii GjvKv †\_‡K AvKw¯§Kfv‡e †ei nq KYv¸‡jv| GB iƒcvšÍ‡ii cÖv°v‡jB b¶‡Îi cigvYyi B‡jKU«b I †cÖvUb wgwjZ n‡q MVb K‡i wbDU«b| d‡j b¶‡Îi †K›`ªgÐj wbDU«‡bi GK wekvj †Mvj‡K cwiYZ nq| kK I‡qf I wbDwU«‡bviv †hŠ\_fv‡e b¶‡Îi evB‡ii ¯Íi¸‡jvi w`‡K wecyj cwigvY kw³ cwienb K‡i| GB kw³ †kvlY K‡i b¶‡Îi evB‡ii ¯Íi we‡ùvwiZ nq| GK fqven wbDK¬xq we‡ùviY| K‡qK w`b hveZ b¶ÎwU nvRvi †KvwU m~‡h©i Av‡jv wewKiY K‡i| K‡qK mßvn ci Avevi ax‡i ax‡i wb®ú«f n‡q †h‡Z \_v‡K|

wgwéI‡qi g‡Zv Av`k© M¨vjvw·¸‡jv‡Z cÖwZ kZvãx‡Z `yB wK wZbwU mycvi‡bvfv †`Lv hvq| †R¨vwZwe©`iv we¯§qfiv †Pv‡L †m¸‡jv bw\_e× K‡i‡Qb| Gi g‡a¨ weL¨vZ GKwU †`Lv wM‡qwQj 1054 mv‡j| Pxbv I Avie †R¨vwZwe©`iv GwU ch©‡e¶Y K‡ib| Ae¯’vb wQj AvKv‡ki KK©U gÐjx‡Z| we`xY© †mB ZviKvwU‡K AvR cÖmviYkxj M¨v‡mi †Quov †g‡Ni g‡Zv jv‡M| bvg µ¨ve †beyjv ev KvuKov bxnvwiKv|

Ô1987GÕ mycvi‡bvfvi we‡ùvi‡Yi gva¨‡g gnvwe‡k¦ eû A`„k¨ wbDwU«‡bv Qwo‡q c‡o| GB wbtmi‡Yi ZxeªZv wQj gvivZ¥K| c„w\_exi cÖwZ eM© †mw›UwgUvi RvqMvq GK AhyZ †KvwU wbDwU«‡bv AvNvZ nv‡b| hw`I we‡ùviY¯’j †\_‡K c„w\_exi `~iZ¡ 1 j¶ 70 nvRvi Av‡jvKel©| Ab¨ GKwU Qvqvc\_ †\_‡K Avmv eû wU«wjqb KYv †h c„w\_exi gvby‡li kixi †f` K‡i P‡j †M‡Q Zv Zviv Rvb‡ZI cv‡iwb wKš‘ KvwgIKv I InvB‡qv †cÖvUb-¶q wW‡U±i¸‡jv 19wU wbDwU«‡bv‡K a‡i †d‡j| GB e¨e¯’v bv \_vK‡j wbDwU«‡bv¸‡jv mevi ARv‡šÍ P‡j †hZ| †hgbwU wM‡qwQj 1054 mv‡j|

mycvi‡bvfv gv‡bB GKwU b¶‡Îi g„Zy¨| Z‡e we‡ùvi‡Yi GKwU fv‡jv w`KI Av‡Q| wecyj cwigvY kw³ Aegy³ nevi d‡j b¶‡Îi evB‡ii ¯Íi¸‡jv DËß n‡q I‡V| DËvc GZ †ewk nq †h wKQy mg‡qi R‡b¨ AveviI wbDK¬xq wdDkb wewµqv n‡Z cv‡i| G wewµqv kw³ wbM©Z Kivi e`‡j †kvlY K‡i| me‡P‡q DËvj GB bv¶wÎK Pywjø‡ZB †jvnvi †P‡q fvix †gŠj¸‡jv cÖ¯ÍyZ nq| GB †hgb, †mvbv, wmmv, BD‡iwbqvg BZ¨vw`| Kve©b, Aw·‡R‡bi g‡Zv wbDK¬xq ms†kø‡li cÖv\_wgK ch©v‡q ˆZwi nvjKv †gŠj¸‡jvi mv‡\_ mv‡\_ GB fvix †gŠj¸‡jvI gnvKv‡k wbw¶ß nq| wg‡k hvq Ab¨ mycvi‡bvfv‡`i wbw¶ß Ggb AmsL¨ c`v‡\_©i mv‡\_| cieZ©x mg‡q GB fvix c`v\_©¸‡jv bZyb cÖR‡b¥i b¶Î I MÖ‡n cwiYZ nq| GB †gŠj¸‡jv cÖ¯ÍyZ ev wbw¶ß bv n‡j c„w\_exi g‡Zv †Kv‡bv MÖn ˆZwi nZ bv| cÖvY ˆZwii KvuPvgvj Kve©b I Aw·‡Rb, e¨vs‡K iw¶Z †mvbv, Qv‡`i wmmvi Av¯Íi, wbDK¬xq Pywjø‡Z BD‡iwbqv‡gi iW—c„w\_exi GB me wKQy n‡q‡Q b¶Î‡`i Rxe‡bi wewbg‡q| Avgv‡`i m~‡h©i R‡b¥i Av‡MB hv‡`i Rxe‡bi BwZ N‡UwQj| fve‡ZB †Kgb jv‡M, Avgv‡`i kixi †h Dcv`vb w`‡q ˆZwi Zv eû Kvj a‡i g…Z b¶‡Îi wbDK¬xq QvB w`‡q Mov|

mycvi‡bvfv we‡ùvi‡Y b¶Î m¤ú~Y© †kl n‡q hvq bv| Zygyj D‡ËRbvi ga¨ w`‡q †ewkifvM c`v\_© †ewi‡q †M‡jI m¼ywPZ †h †Kvi ev †K›`ªgÐj H NUbvi m~ÎcvZ K‡iwQj, †mwU †\_‡K hvq wb‡Ri Ae¯’v‡bB| Z‡e Gi wbqwZI †h Kx n‡e †mUv wbw`©ó K‡i ejv m¤¢e bq| †Kv‡ii fi hw` Lye Kg nq, GB aiæb GK †mŠi fi, Zvn‡j GwU †QvU kn‡ii mvB‡Ri GKwU wbDU«‡bi †Mvj‡K cwiYZ n‡e| Lye m¤¢e GB wbDU«b b¶ÎwU Db¥Ëfv‡e Nyi‡Z \_vK‡e| m¤¢eZ cÖwZ †m‡K‡Û 1000 evi| gv‡b Gi c„‡ô NyY©b †eM n‡e Av‡jvi †e‡Mi 10 kZvsk| Gi KviY n‡jv m‡¼vPb| hvi d‡j Aí N~Y©b wb‡q ïiæ nIqv b¶ÎwUI †Rv‡i Nyi‡Z \_v‡K| ei‡di Ici †¯‹wUs Kiv Ae¯’vq nvZ ¸wU‡q wb‡jI wVK GKB Kvi‡Y A‡c¶vK…Z †Rv‡i Nyiv hvq| Gfv‡e †Rv‡i AveZ©bkxj eû wbDU«b b¶Î †R¨vwZwe©`iv Lyu‡R †c‡q‡Qb| wKš‘ AveZ©b ax‡i ax‡i K‡g Av‡m| KviY, e¯ÍywU kw³ nviv‡Z \_v‡K| †hgb KvuKov bxnvwiKvi ga¨Lv‡b Aew¯’Z wbDU«b b¶ÎwU GLb †m‡K‡Û gvÎ 33 evi Ny‡i|

Z‡e †Kv‡ii fi hw` Av‡iKUy †ewk nq, GB aiæb K‡qK †mŠi fi, Zvn‡j GwU wbDU«b n‡qB nvZ ¸wU‡q e‡m \_vK‡Z cv‡i bv| gnvKl© G‡¶‡Î A‡bK kw³kvjx| wbDU«b w`‡q Mov e¯Íy eZ©gv‡b Rvbv me‡P‡q `„p e¯Íy| wKš‘ GB wbDU«bI evowZ m‡¼vPb †VKv‡Z cv‡i bv| NUbv Mov‡Z \_v‡K AviI `viæY cwiYwZi w`‡K| mycvi‡bvfvi †P‡qI DËvj| b¶‡Îi †Kvi ¸wU‡q †h‡ZB \_v‡K| GK wgwj‡m‡K‡ÛiI Kg mg‡q GwU GKwU eø¨vK †nvj ev K…òMnŸi evwb‡q †d‡j| nvwi‡q hvq `„k¨gvb RMr †\_‡K|

Zvi gv‡b, fvix b¶Î‡`i wbqwZ n‡jv wQbœwewQbœ n‡q hvIqv| Avi aŸsmve‡kl wn‡m‡e †\_‡K hvq GKwU wbDU«b b¶Î ev GKwU eø¨vK †nvj| Pvicv‡k Qwo‡q wQwU‡q \_v‡K wbw¶ß M¨v‡mi `j| †K Rv‡b KZ KZ b¶Î GLb ch©šÍ GB cwiYwZ eiY K‡i‡Q| wKš‘ ïay wgwéI‡q M¨vjvw·‡ZB Ggb wewjqb wewjqb bv¶wÎK aŸsmve‡kl c‡o \_vK‡Z cv‡i|

†QvU †ejvq Avwg Lye fq †cZvg †h m~h© nqZ we‡ùvwiZ n‡q †h‡Z cv‡i| Avm‡j wKš‘ f‡qi wKQy †bB| GwU KLbI mycvi‡bvfv n‡e bv| Gi fi AZ †ewk bq| fvix b¶‡Îi Zyjbvq nvjKv¸‡jvi wbqwZ GZ DËvj bq| cÖ\_g K\_v n‡jv, G‡¶‡Î wbDK¬xq cÖwµqvq R¡vjvwb e¨q nq A‡bK Kg MwZ‡Z| b¨~bZg bv¶wÎK f‡ii GKwU evgb b¶Î GK wU«wjqb eQi hveZ GKB nv‡i Av‡jv w`‡q †h‡Z \_vK‡Z cv‡i| Zvi Ici GKwU nvjKv b¶‡Îi Af¨šÍixY ZvcgvÎv GZ †ewk nIqv m¤¢e bq †h GwU †jvnvI ms†køl Ki‡e| d‡j G‡Z DËvj AšÍt‡ùvUb NU‡Z cv‡i bv|

m~h© ¯^í f‡ii b¶‡Îi GKwU Av`k© D`vniY| nvB‡W«v‡Rb R¡vjvwb LiP I wnwjqv‡g iƒcvšÍi n‡”Q Lye ax‡imy‡¯’| wnwjqvg g~jZ \_v‡K †K›`ªxq †Kv‡ii w`‡K| wbDK¬xq wewµqvi K\_v ej‡j †Kvi‡K wbwl&µqB ej‡Z n‡e| wdDkb msNwUZ nq †Kv‡ii c„‡ô| d‡j gnvKl©xq e‡ji m‡¼vPb †iva Kivi R‡b¨ m~‡h©i †h cigwvY Zvc cÖ‡qvRb †Kvi Zv ˆZwi‡Z †Kv‡bv f~wgKv ivL‡Z cv‡i bv| m‡¼vPb †VKv‡Z bZyb nvB‡W«v‡R‡bi mÜv‡b m~h©‡K Gi wbDK¬xq Kg©KvÐ evB‡ii w`‡K Qwo‡q w`‡Z nq| Gw`‡K wnwjqvg †Kvi µ‡gB †QvU n‡Z \_v‡K| Af¨šÍixY Gme cwieZ©‡bi d‡j mg‡qi mv‡\_ mv‡\_ m~‡h©i †Pnviv µgk e`‡j hv‡e| GwU dy‡j-‡du‡c DV‡e| wKš‘ c„ô wKwÂZ VvÐv n‡e| †`Lv hv‡e nvjKv jvj Avfv| G Ae¯’v Pj‡Z \_vK‡e hZ w`b bv m~h© †jvwnZ `vb‡e (red giant) cwiYZ nq| G mgq m¤¢eZ GwU eZ©gvb mg‡qi cvuP k ¸Y eo n‡e| †R¨vwZwe©`‡`i Kv‡Q †jvwnZ `vbe GKwU cwiwPZ bvg| AvKv‡ki †ek KwU cwiwPZ D¾¡j b¶ÎB GB †kÖwYi b¶Î| †hgb, Avj`v‡eivb (Aldebaran), Av`ªv (Betelgeuse) I ¯^vZx (Arcturus)| ¯^í f‡ii b¶Î‡`i mgvwßi ïiæ nq †jvwnZ `vbe `kvi gva¨‡g|

†jvwnZ `vbeiv A‡c¶vK…Z kxZj nq| Z‡e mvBR eo nevi Kvi‡Y G‡`i wewKiY c„ô nq wekvj| Zvi gv‡b mvwe©K `xwß ev (luminosity) J¾¡j¨I †ewk| G mgq Kcvj cyo‡e m~‡h©i MÖn¸‡jvi| AviI cÖvq Pvi k †KvwU eQi ci ewa©Z Zvc cÖevn AvNvZ nvb‡e G‡`i Ici| Zvi A‡bK Av‡MB c„w\_ex emevv‡mi A‡hvM¨ n‡q hv‡e| mvMi ïwK‡q hv‡e Avi D‡o hv‡e evqygÐj| Gici m~h© AviI we¯Í…Z n‡e| MÖvm Ki‡e eya MÖn‡K| Zvici ïµ| cwi‡k‡l c„w\_ex‡KI wb‡q wb‡e AvMÖvmx †c‡Ui †fZi| Avgv‡`i MÖnLvwb cwiYZ n‡e A½v‡i| GZ `nb mn¨ K‡iI wKš‘ hv‡e bv K¶c\_ †Q‡o| m~‡h©i jvj-Dò M¨v‡mi NbZ¡ GZ K‡g hv‡e †h †mUv k~b¨ ¯’v‡bi KvQvKvwQ n‡e| d‡j c„w\_exi MwZ n‡e cÖvq gm…Y|

gnvwe‡k¦ Avgv‡`i Aw¯Í‡Z¡i KviY m~‡h©i g‡Zv Ggb AmvaviY w¯’wZkxj b¶Î| †hwU K‡qK wewjqb eQi a‡i AweiZ R¡j‡Z cv‡i| †h mgqUv Rxe‡bi ¯ú›`b ˆZwi I weKv‡ki R‡b¨ h‡\_ó| wKš‘ †jvwnZ `vbe `kvq GB w¯’wZkxjZvi BwZ NU‡e| m~‡h©i g‡Zv b¶‡Îi Rxe‡bi c‡ii avc¸‡jv RwUj, Awbw`©ó I DËvj| nVvr K‡i e`‡j hvq AvPiY I †Pnviv| eq¯‹ b¶Îiv ¯úw›`Z n‡Z n‡Z ev M¨v‡mi †Lvjm Qvov‡Z Qvov‡Z wbhyZ wbhyZ eQi cvi K‡i w`‡Z cv‡i| b¶‡Îi †Kv‡ii wnwjqvg `nb msNwUZ K‡i Kve©b, bvB‡U«v‡Rb, Aw·‡Rb ˆZwi Ki‡Z cv‡i| d‡j b¶ÎwU AviI wKQy w`b †‡euP hvevi R‡b¨ cÖ‡qvRbxq kw³ †c‡q hvq| evB‡ii ¯ÍiwU‡K gnvk~‡b¨ wb‡¶c Kivi c‡i b¶ÎwUi Kv‡Q Kve©b-Aw·‡R‡b Mov †Kvi Qvov Avi wKQy \_v‡K bv|

RwUj Kvh©µ‡gi GB hyM †kl n‡j ¯^í I gvSvwi f‡ii b¶Îiv †kl ch©šÍ gnvK‡l©i Kv‡Q AvZ¥mgc©Y K‡i| nq m¼ywPZ| GB m‡¼vPb AcÖwZ‡iva¨| †kl ch©šÍ b¶‡Îi mvBR MÖ‡ni mgvb K‡i Z‡e Qv‡o| G Ae¯’vq e¯ÍywU‡K †R¨vwZwe©`iv e‡jb †k¦Z evgb (white dwarf)| mvBR †QvU nevi Kvi‡Y †k¦Z evgbiv Lye Aby¾¡jI| hw`I Zv‡`i c„ô ZvcgvÎv n‡Z cv‡i m~‡h©i †P‡qI †ewk| †Kv‡bvwU‡KB †Uwj‡¯‹vc Qvov c„w\_ex †\_‡K †`Lv hvq bv|

`~i fwel¨‡Z †k¦Z evg‡b cwiYZ nIqvUvB †jLv Av‡Q Avgv‡`i fv‡M¨| G Ae¯’vq †cŠuQvi ci eû wewjqb eQi a‡i DËß \_vK‡e m~h©| Gi wekvj Aeqe GZ k³ n‡e †h GwU Gi Af¨šÍixY Zvc Lye `¶Zvi mv‡\_ AvU‡K ivL‡e| Avgv‡`i Rvbv †miv Zvc †iva‡Ki †P‡qI fv‡jvfv‡e| wKš‘ †fZ‡ii wbDK¬xq Pywjø‡Z †h‡nZy wPiw`‡bi R‡b¨ jvjevwZ R¡‡j †M‡Q, ZvB †fZ‡i Avi †Kv‡bv evowZ R¡vjvwb Aewkó †bB| d‡j ZviKvwU †\_‡K ax‡i ax‡i kxZj gnvk~‡b¨i Mfx‡ii w`‡K †h Zvcxq wewKiY wbM©Z n‡”Q †mUv c~iY Kiv m¤¢e bq| Lye ax‡i evgb aŸsmve‡klwU kxZj I Aby¾¡j n‡q hv‡e| hw`I GK mgq Zv wQj Avgv‡`i †ZR¯^x m~h©| Avi GKwU cwieZ©b evwK| Gevi GwU µgk GKwU KwVb ùwU‡K (crystal) cwiYZ n‡e| `„pZv n‡e Amvgvb¨| †k‡l GwU G‡Kev‡iB wbt‡kl n‡q hv‡e| wbi‡e wg‡k hv‡e gnvk~‡b¨i AÜKv‡i|

**Abyev`‡Ki †bvU**

1. ZvcgvÎvi wfwË‡Z b¶‡Îi †kÖwYwefv‡M O, B, A, F, G, K I M eY©¸‡jv e¨envi Kiv nq| G µgvbymv‡i O †kÖwYi b¶Î me‡P‡q Dò| Avi M †kÖwYi b¶Î me‡P‡q Kg Dò|

2. mvaviY A‡\_© `nb ej‡Z †evSvq †Kv‡bv †gŠ‡ji mv‡Z Aw·‡R‡b wewµqvi gva¨‡g cy‡o hvIqv| Z‡e †mUv n‡jv GK ai‡bi ivmvqwbK wewµqv| GLv‡b K\_v n‡”Q wbDK¬xq wewµqv wb‡q| ivmvqwbK wewµqvq bZyb †Kv‡bv †gŠj Drcbœ n‡Z cv‡i bv| wKš‘ wbDK¬xq wewµqvq nq G KvRwUB|

3. GK wU«wjqb mgvb GK j¶ †KvwU, gv‡b 1,000,000,000,000|

cÂg Aa¨vq

AÜKvi Agvwbkv

AhyZ b¶‡Îi Av‡jv wb‡q R¡‡j AvKvkM½v Qvqvc\_ (Milky Way galaxy)| cÖwZwU b¶‡Îi Mjvq Syj‡Q g„Zy¨i c‡ivqvbv| AvR Avgiv hv‡`i‡K †`LwQ, GK nvRvi †KvwU eQ‡ii g‡a¨ Zv‡`i †ewkifvMB `„wó †\_‡K nvwi‡q hv‡e| gviv hv‡e R¡vjvwbi Afv‡e| KviY ZvcMwZwe`¨vi wØZxq m~Î|

AvKvkM½vq Zey b¶‡Îi Av‡jv \_vK‡e| KviY g„Zy¨i mv‡\_ mv‡\_ Avevi Zv‡`i RvqMvq bZyb b¶‡ÎiI Rb¥ nq| Qvqvc‡\_i mwc©j evû‡Z \_vKv M¨vmxq †gN m¼ywPZ nq, gnvK‡l©i cÖfv‡e ¸wU‡q Av‡m I Avjv`v Avjv`v GK ¸”Q b¶‡Îi Rb¥ †`q| Avgv‡`i m~h©I Ggb GKwU evû‡ZB Aew¯’Z| Kvjcyiæl ZvivgÐ‡ji w`‡K GK bRi ZvKv‡jI Ggb GKwU bv¶wÎK KviLvbv Lyu‡R cvIqv hvq| Kvjcyiæ‡li Z‡jvqv‡ii †K‡›`ªi †Nvjv‡U Av‡jvLvbv †Kv‡bv ZviKv bq| GwU GKwU †beyjv ev bxnvwiKv| wekvj GK M¨vmxq †gN| mv‡\_ Av‡Q D¾¡j bZyb bZyb b¶Î| `„k¨gvb Av‡jvi e`‡j Ae‡jvwnZ wewKiY w`‡q †R¨vwZwe©`iv GB bxnvwiKvq wKQy b¶Î‡K Zv‡`i R‡b¥i G‡Kev‡i ïiæi `kv¸‡jv‡Z ch©‡e¶Y K‡i‡Qb| Giv GLbI M¨vm I ay‡jvq †X‡K Av‡Q|

hZ w`b h‡\_ó M¨vm Av‡Q, Avgv‡`i Qvqvc‡\_i mwc©j evû¸‡jv‡Z b¶‡Îi Rb¥ n‡ZB \_vK‡e| Qvqvc‡\_i M¨vm¸‡jvi wKQy Ask cÖviw¤¢K `kvq Av‡Q| GLbI †h¸‡jv b¶‡Î cwiYZ n‡Z cv‡iwb| wKQy Ask Avevi mycvi‡bvfv we‡ùvi‡Yi gva¨‡g wewfbœ b¶Î †\_‡K G‡m‡Q| A\_ev G‡m‡Q bv¶wÎK evqy, †QvU †QvU So I Ab¨vb¨ cÖwµqvi gva¨‡g| wbtm‡›`‡n GB cÖwµqvi cybive…wË Awbw`©ó mgq a‡i Pj‡Z cv‡i| cyivZb b¶Îiv gviv wM‡q I m¼ywPZ n‡q †k¦Z evgb, wbDU«b b¶Î eø¨vK †nvj n‡q †M‡j Avi AvšÍtbv¶wÎK ¯’v‡b bZyb c`v\_© mieivn Ki‡Z cvi‡e bv| ax‡i ax‡i cÖviw¤¢K M¨vm¸‡jv me b¶Î n‡Z \_vK‡e| GK mgq ZvI †kl n‡q hv‡e| †k‡li w`‡Ki GB b¶Î¸‡jvI Rxe‡bi cvV PywK‡q gviv †M‡j Qvqvc\_ Lye Aby¾¡j n‡q hv‡e| Z‡e KvRUv ûU K‡i n‡q hv‡e bv| †QvU I bZyb b¶Îiv Zv‡`i wbDK¬xq `nb m¤ú~Y© K‡i ¸wU‡q †k¦Z evgb n‡Z eû wewjqb eQi mgq jvM‡e| wKš‘ cÖwµqv axi n‡jI wefxwlKvgq AbšÍ ivZ GKw`b †b‡g Avm‡eB|

wPi cÖmviYkxj gnvk~‡b¨ Qwo‡q wQwU‡q \_vKv evwK me Qvqvc‡\_i Kcv‡jI H GKB wRwbm †jLv Av‡Q| wbDK¬xq kw³i Kj¨v‡Y eZ©gvb gnvwek¦ R¡jR¡j K‡i Av‡jv w`‡”Q| wKš‘ GK w`b Av‡jvi GB g~j¨evb Drm dywi‡q hv‡e| Av‡jvi hyM wPiw`‡bi R‡b¨ we`vq n‡e|

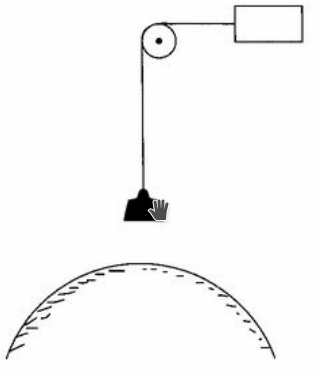
Z‡e gnvRvMwZK Av‡jv dywi‡q †M‡jB gnvwek¦ gviv hv‡e bv| KviY kw³i Drm Av‡Q Av‡iKwU, hv wbDK¬xq wewµqvi †P‡qI kw³kvjx| cvigvYweK ¯Í‡i wPšÍv Ki‡j cÖK…wZi `ye©jZg ej gnvKl©| wKš‘ gnvRvMwZK gvcKvwV‡Z GB ejwUB Avevi ivRv| Gi cÖfve n‡Z cv‡i Lye g…`y| wKš‘ †mUv bv‡Qvoev›`vi g‡Zv KvR K‡i †h‡Z \_v‡K| wewjqb wewjqb eQi hveZ b¶Îiv wbDK¬xq `n‡bi gva¨‡g wb‡R‡`i IRb‡K a‡i †i‡L‡Q| wKš‘ gnvKl© GZ w`b ïay IuZ‡c‡Z wQj|

GKwU cigvYyi wbDwK¬qv‡mi `ywU †cÖvU‡bi g‡a¨ wµqvkxj gnvKl© ej mej wbDK¬xq e‡ji GK k †KvwU †KvwU †KvwU †KvwU †KvwU †KvwU †KvwU fv‡Mi GK fvM (10-37)| wKš‘ gnvKl© ejwU µgea©gvb| cÖwZwU evowZ †cÖvUb evowZ IR‡bi †hvMvb †`q| Gi d‡j †kl ch©šÍ gnvKl© ej AvMÖvmx n‡q `vuovq| cÖej kw³i †cQ‡b GB Zxeª ejB g~j f~wgKv iv‡L|

gnvK‡l©i ¶gZv me‡P‡q fv‡jvfv‡e cÖ`k©b K‡i eø¨vK †nvj| GLv‡b Rq n‡q‡Q eø¨vK †nv‡ji| m‡¼vP‡bi d‡j b¶‡Îi AvqZb n‡q †M‡Q k~b¨| mg‡hi Amxg weK…wZi AvKv‡i Av‡kcv‡ki ¯’vbKv‡j †m NUbvi GKwU Qvc c‡o‡Q| eø¨vK †nvj wb‡q GKwU `viæY gvbm cix¶v (thought experiment) Av‡Q| g‡b Kiæb, A‡bK `~i †\_‡K GKwU †QvU, †hgb 100 MÖvg f‡ii e¯Íy‡K eø¨vK †nv‡j †d‡j †`Iqv n‡jv| e¯ÍywU `„wói Avov‡j nvwi‡q hv‡e Ges wPiZ‡i bvMv‡ji evB‡i P‡j hv‡e| Z‡e eø¨vK †nv‡ji KvVv‡gv GB NUbvi GKwU mv¶¨ enb Ki‡e| e¯ÍywU‡K †L‡q eø¨vK †nv‡ji mvBR Lye mvgvb¨ cwigvY eo n‡e| wnmve K‡i †`Lv †M‡Q, e¯ÍywU‡K A‡bK `~i †\_‡K †djv n‡j eø¨vK †nv‡ji fi hZUyKy evo‡e Zv e¯ÍywUi g~j f‡ii mgcwigvY| Zvi gv‡b, fi ev kw³i GZUyKyI Ab¨ †Kv‡bv w`‡K hv‡e bv|

Gevi Ab¨ GKwU cix¶v| fiwU‡K Gevi ax‡i ax‡i eø¨vK †nv‡ji w`‡K bvgv‡bv n‡”Q| GUv Kivi Rb¨ e¯ÍywUi mv‡\_ GKwU iwk jvMv‡Z n‡e| Gici †mUv‡K cywji Ici w`‡q Nywi‡q G‡b W«v‡gi mv‡\_ mshy³ Ki‡Z n‡e| W«v‡gi gva¨‡g Av‡¯Í Av‡¯Í iwki c¨vuP †Lvjv n‡e| (wPÎ 5.1 †`Lyb: Avgiv a‡i wbw”Q iwkwU cÖmvwiZ n‡e bv| †Kv‡bv IRbI \_vK‡e bv| ev¯Í‡e G `y‡Uvi †Kv‡bvwUB m¤¢e bq, wKš‘ RwUjZv Gov‡bvi R‡b¨ a‡i wb‡Z n‡”Q|) fiwU‡K bx‡P bvgv‡bv n‡j GwU kw³ mieivn Ki‡Z cvi‡e| †hgb W«v‡gi mv‡\_ hy³ ˆe`¨ywZK †Rbv‡iUi Pvjy K‡i GUv Kiv †h‡Z cv‡i| e¯ÍywU eø¨vK †nv‡ji c„‡ôi hZ †ewk wbKUeZ©x n‡e, Zvi Ici †nv‡ji gnvKl©xq Uvb ZZ kw³kvjx n‡e| wb‡Pi w`‡K Uvb hZ evo‡e, e¯ÍywU †Rbv‡iUi w`‡q ZZB †ewk KvR Kiv‡Z cvi‡e| e¯ÍywU eø¨vK †nv‡ji c„‡ô †cŠuQ‡Z †cŠuQ‡Z †Rbv‡iUi‡K Kx cwigvY kw³ mieivn Ki‡e Zv mn‡RB wnmve K‡i †ei Kiv hvq| Av`k© †¶‡Î Gi DËi n‡e, e¯ÍywUi mgMÖ wbðj fi-kw³| (wbðj fi m¤ú‡K© Rvb‡Z cwiwkó †`Lyb|)

AvBb÷vB‡bi weL¨vZ E=mc2 m~ÎwU g‡b Av‡Q wbðqB| m f‡ii GKwU e¯Í †\_‡K mc2 cwigvY kw³ cvIqv hvq| ZË¡ ej‡Q, eø¨vK †nvj e¨envi K‡i fv‡M¨i PvKv Nywi‡q †`Iqv m¤¢e| 100 MÖvg f‡ii e¯Íy †\_‡KB cvIqv hv‡e wZb k †KvwU wK‡jvIqvU-NÈv (gv‡b wZb k †KvwU BDwbU we`¨yZ-Abyev`K) we`¨yr| Zyjbvi R‡b¨ e‡j ivwL, m~h© hLb 100 MÖvg R¡vjvwb wdDk‡bi gva¨‡g cywo‡q Gi GK fv‡MiI Kg kw³ mieivn K‡i| gv‡b ZË¡ Abymv‡i, gnvKl©xq Dcv‡q †h kw³ cvIqv hv‡e Zv b¶‡Îi kw³ †RvMv‡bv Zvc-wbDK¬xq wdDk‡bi GK k ¸Y|



wPÎ 5.1

[Av`k© GB gvbm cix¶vq GKwU iwki mvnv‡h¨ GKwU e¯Íy‡K ax‡i ax‡i eø¨vK †nv‡ji c„‡ôi w`‡K bvgv‡bv nq| e¨envi Kiv nq GKwU cywj e¨e¯’v (Qwe‡Z †`Lv‡bv nqwb)| d‡j, wb‡Pi bvgv e¯ÍywU KvR Ki‡Z \_v‡K Avi e‡· kw³ cvVv‡Z \_v‡K| e¯ÍywU eø¨vK †nv‡j c„‡ôi hZB KvQvKvwQ n‡Z \_v‡K, cvVv‡bv †gvU kw³i cwigvY ZZB e¯ÍywUi mgMÖ fi-kw³i cwigv‡Yi mgvb n‡Z \_v‡K|]

GLv‡b †h `y‡Uv †KŠk‡ji K\_v ejv n‡jv Zvi `y‡UvB G‡Kev‡i Aev¯Íe| wbtm‡›`‡n eø¨vK †nv‡j e¯Íyiv c‡o weiwZnxbfv‡e| kw³ D×vi Kivi g‡Zv K‡i my›`i Dcv‡q cywj †\_‡K Sy‡j \_v‡K bv| ev¯Í‡e wbðj f‡ii k~b¨ I GK k fv‡Mi gvSvgvwS gv‡bi †Kv‡bv GKwU kw³ cvIqv hv‡e| cÖK…Z gvbUv wbf©i Ki‡e †fŠZ cwiw¯’wZi Ici| MZ K‡qK `k‡K †R¨vwZc©`v\_©we‡`iv wewfbœ iKg Kw¤úDUvi wmgy‡jkb1 I MvwYwZK g‡Wj we†kølY K‡i †`‡L‡Qb| D‡Ïk¨ n‡jv †cuwP‡q eø¨vK †nv‡ji †fZ‡i P‡j hvIqvi mgq M¨v‡mi Ae¯’v †Kgb nq Ges Kx cigwvY I Kxfv‡e kw³ wegy³ nq Zv Rvbv| GLv‡b †h †fŠZ cÖwµqv¸‡jv msNwUZ nq †m¸‡jv †ek RwUj| ZeyI GUv †evSv hv‡”Q †h Gme RvqMv †\_‡K wecyj cwigvY gnvKl©xq kw³ †ewi‡q Avm‡Z cv‡i|

GKwU ch©‡e¶Y †\_‡K Kiv m¤¢e nvRvi nvRvi wnmve-wbKvk| Gfv‡e e¯Íy wM‡j Lvevi mgq m¤¢ve¨ eø¨vK †nvj Lyu‡R cvIhvi R‡b¨ †R¨vwZwe©`iv eo AvKv‡i AbymÜvb Pvwj‡q‡Qb| GLb ch©šÍ AKvU¨fv‡e †Kv‡bv eø¨vK †nvj cvIqv hvqwb| Z‡e wmMbvm ev eKgÐjx‡Z Aew¯’Z GKwU wm‡÷g‡K †ek m¤¢vebvgq wn‡m‡e †`Lv hv‡”Q| bvg wmMbvm G·-1| AcwU‡Kj †Uwj‡¯‹v‡ci gva¨‡g GKwU e…nr I DËß bxj `vbe (blue giant) †kÖwYi ZviKv †`Lv †M‡Q| is bxj e‡jB bvg bxj `vbe n‡q‡Q| eY©vjx we†køl‡Yi gva¨‡g †evSv hv‡”Q ZviKvwU GKv bq| wbqg †g‡b †gvPo Lv‡”Q GwU| Zvi gv‡b, Av‡kcv‡ki †Kv‡bv e¯Íyi gnvKl© G‡K mgq mgq AvKl©Y Ki‡Q| Gi A\_©, wbwðZ K‡iB ejv P‡j, GB b¶ÎwU Ges Aci e¯ÍywU G‡K Aci‡K Lye KvQ †\_‡K cÖ`w¶Y Ki‡Q| wKš‘ AcwU‡Kj †Uwj‡¯‹v‡c Aci b¶ÎwU‡K †`Lv hv‡”Q bv| nq GwU †Kv‡bv eø¨vK †nvj, bqZ Lye Aby¾¡j †Kv‡bv ¶y`ª Zviv| d‡j g‡b hv‡”Q GwU eø¨vK †nvj n‡Z cv‡i| Z‡e wbwðZ K‡i ejv hv‡”Q bv2|

A`„k¨ e¯ÍywUi fi †\_‡K cvIqv hvq Av‡iKwU Bw½Z| GUv wbDU‡bi m~Î †\_‡KB e‡j †`Iqv m¤¢e| Gi R‡b¨ `iKvi ïay bxj `vbe ZvivwUi fi Rvbv| b¶‡Îi fi I is‡qi g‡a¨ Lye Nwbô m¤úK© Av‡Q e‡j †mUvI mn‡RB †ei K‡i †djv hvq| bxj Zviv‡`i DËvc Lye †ewk| d‡j Zv‡`i fiI †ewk| wnmve †\_‡K aviYv Kiv hvq A`„k¨ m½x ZviKvwUi fi K‡qK †mŠi f‡ii mgZyj¨| cwi®‹vi †evSv hv‡”Q, GwU mvaviY †QvU I Aby¾¡j †Kv‡bv Zviv bq| Zvi gv‡b GwU †Kv‡bv m¼ywPZ fvix b¶ÎB n‡e| †k¦Z evgb, wbDU«b b¶Î ev eø¨vK †nvj| wKš‘ wKQy †gŠwjK †fŠZ Kvi‡Y GZ fvix ¶y`ª †Kv‡bv e¯Íy †k¦Z evgb ev wbDU«b b¶Î n‡Z cv‡i bv| G‡¶‡Î \_vKvi K\_v Zxeª gnvKlxq †¶Î, hv e¯ÍywU‡K ¸wU‡q †dj‡Z PvB‡e| m¤ú~Y© m¼ywPZ n‡q eø¨vK †nvj n‡q hvIqv †VKv‡bv hv‡e hw` †Kv‡bv cÖKvi Af¨šÍixY Pvc KvR K‡i| †hUv gnvK‡l©i m‡¼vP‡bi wecixZ w`‡K KvR Ki‡e| wKš‘ m¼ywPZ e¯ÍywUi fi hw` nq K‡qK †mŠi f‡ii mgvb, Z‡e †Kv‡bv e‡ji c‡¶B Gi `yg‡o hvIqv †VKv‡bv m¤¢e bq| Ges b¶ÎwUi Af¨šÍifvM hw` `ygov‡bv †VKv‡bvi g‡Zv `„p n‡Zv, Zvn‡j e¯ÍywU‡Z k‡ãi †eM Av‡jvi †e‡Mi †P‡q †ewk n‡q †hZ| wKš‘ GUv we‡kl Av‡cw¶KZvi weiæ‡× hv‡”Q| d‡j †ewkifvM c`v\_© I †R¨vwZwe©‡`i g‡Z Gme cwiw¯’wZ‡Z eø¨vK †nv‡ji Rb¥ Awbevh©|

wmMbvm G·-1 wm‡÷‡g eø¨vK †nvj \_vKvi mc‡¶ wbwðZ cÖgvY G‡m‡Q Av‡iKwU m¤ú~Y© wfbœ ch©‡e¶Y †\_‡K| Gi bvg G·-1 †`Iqvi KviY wm‡÷g G·-‡i (iÄb iwk¥) Gi GKwU kw³kvjx Drm| K…wÎg DcMÖ‡n \_vKv †mÝ‡ii gva¨‡g kbv³ Kiv hvq †mB iwk¥| wmMbvm G·-1 Gi A`„k¨ e¯ÍywU‡K eø¨vK †nvj a‡i wb‡j ZvwË¡K bgybv GB G·-‡i‡K Lye fv‡jvfv‡e e¨vL¨v Ki‡Z cv‡i| eø¨vK †nv‡ji cwigvcK…Z gnvKl© †¶Î GZB kw³kvjx †h GwU bxj `vbe ZvivwU †\_‡K c`v\_© Lye‡j wb‡Z cv‡i| wQbZvB Kiv M¨vm P‡j hvq eø¨vK †nv‡ji w`‡K| wPiKv‡ji R‡b¨ we¯§…wZi AZ‡j| wm‡÷‡gi N~Y©‡bi Kvi‡Y cZbkxj c`v\_©¸‡jv eø¨vK †nv‡ji Pvicv‡k cvK Lv‡e| ˆZwi n‡e PvKwZi g‡Zv GKwU AvK…wZ| Ggb GKwU PvKwZi c‡¶ cy‡ivcywi w¯’wZkxj nIqv m¤¢e bq| KviY †K‡›`ªi w`‡K \_vKv c`v\_© cÖv‡šÍi w`‡K Aew¯’Z c`v‡\_©i Zyjbvq A‡bK `ªæZ cÖ`w¶Y Ki‡e| mv›`ª ej3 GB welg N~Y©b‡K gm…Y Kivi †Póv Ki‡e| d‡j M¨v‡mi DËvc †e‡o hv‡e| GZ †ewk †h †mUv mvaviY Av‡jvi e`‡j G·-‡i wbM©Z Ki‡e| G‡Z K‡i M¨v‡mi †h K¶xq kw³ e¨q n‡e Zvi d‡j Zv ax‡i ax‡i mwc©j c‡\_ eø¨vK †nv‡ji w`‡K cÖ‡ek Ki‡e|

d‡j wmMbvm G·-1 wm‡÷‡g eø¨vK †nvj \_vKvi cÖgvY †ek wKQy hyw³i Ici wfwË K‡i `vuwo‡q Av‡Q| Kv‡R jvM‡Q ch©‡e¶Y I ZË¡ `y‡UvB| †R¨vwZwe©`¨vi M‡elYv eZ©gvb mg‡q GgbB nq| GKwUgvÎ cÖgvY †Rviv‡jv f~wgKv ivL‡Z cv‡i bv| wmMbvm G·-1 I GKB iKg AviI A‡bK¸‡jv wm‡÷g wb‡q hvPvB-evQvB K‡i g‡b n‡”Q eø¨vK †nvj Av‡Q| wbt‡m‡›`‡n eø¨vK †nv‡ji Dcw¯’wZi e¨vL¨vwUB me‡P‡q wbf©i‡hvM¨ I wb‡f©Rvj|

AviI eo eø¨vK †nvjiv Gi †P‡qI `viæY Kg©KvÐ Ki‡Z cv‡i| eZ©gv‡b †ewki Qvqvc‡\_i †K‡›`ªB mycvig¨vwmf ev AwZfvix eø¨vK †nvj \_vKvi m¤¢vebv Lye †ewk| Gi cÖgvY n‡jv, Gme Qvqvc‡\_i †K›`ªgÐ‡ji Zviv¸‡jvi `ªæZ PjvPj| †`‡L g‡b n‡”Q Zviv¸‡jv GKwU Zxeª AvKl©Yag©x I Lye ¶y`ª e¯Íyi w`‡K P‡j hv‡”Q| wnmve-wbKvk †\_‡K G iKg m¤¢ve¨ e¯Íy‡`i fi GK †KvwU †\_‡K GK k †KvwU ch©šÍ cvIqv †M‡Q| d‡j Av‡kcv‡ki †h‡Kv‡bv wew”Qbœ e¯Íy‡K †MvMÖv‡m wMj‡e Giv| m¤¢eZ b¶Î, MÖn, M¨vm, ay‡jv‡KDB G `vbe‡`i \_vev †\_‡K evuP‡Z cv‡i bv| GB cZb cÖwµqvi Db¥v`bv †Kv‡bv †Kv‡bv †¶‡Î cy‡iv Qvqvc‡\_i KvVv‡gvB e`‡j †`q| mwµq Qvqvc\_ †K‡›`ªi (active galactic nuclei) eû iƒc‡f‡`i mv‡\_ cwiPq Av‡Q †R¨vwZwe©`‡`i| †Kv‡bv †Kv‡bv Qvqvc‡\_i †Pnviv †`‡L †Zv g‡b nq gvÎ we‡ùviY NUj| wKQy wKQy Avevi †eZvi Zi½, G·-‡i ev kw³i Ab¨ iƒ‡ci kw³kvjx Drm| Z‡e me‡P‡q †Pv‡L covi g‡Zv NUbv n‡jv, wKQy wKQy M¨vjvw· Avevi M¨v‡mi Zxeª †RU ev †dvqviv wb‡¶c K‡i| Ges GB †dvqvivi ˆ`N¨© nvRvi nvRvi GgbwK wgwjqb wgwjqb gvBj Ry‡oI we¯Í…Z \_v‡K| G‡`i †Kv‡bv †Kv‡bvwUi kw³i D`MxiY LyeB we¯§qKi| †hgb eû `~‡ii †Kv‡bv †Kv‡bv †Kvqvmvi gvÎ GK Av‡jvKel© PIov GjvKv †\_‡K nvRvi nvRvi M¨vjvw·i mgvb kw³ D`MxiY Ki‡Z cv‡i| d‡j `~i †\_‡K †`‡L G‡`i‡K b¶‡Îi g‡Zv jv‡M| †Kvqvmvi bvgUvB †Kvqvwm-‡÷jvi K\_vwUi msw¶ß iƒc| gv‡b b¶‡Îi g‡Zv e¯Íy|

eû †R¨vwZwe©Ávbxi wek¦vm, Zxeªfv‡e Av‡jvwoZ Gme e¯Íyi †K‡›`ª cwiPvj‡Ki Avm‡b e‡m Av‡Q AveZ©bkxj eo eo eø¨vK †nvj| hviv Zv‡`i Avkcvk †\_‡K c`v\_© wQbZvB K‡i P‡j‡Q| eø¨vK †nv‡ji Kv‡Q Avmv †h‡Kv‡bv Zviv nq eø¨vK †nv‡ji gnvK‡l©i cÖfv‡e wQbœwfbœ n‡q hv‡e A\_ev Ab¨ Zvivi mv‡\_ msNl© NwU‡q ZQbQ n‡q hv‡e| wQbœwfbœ c`v\_©¸‡jv m¤¢eZ DËß M¨v‡mi GKwU PvKwZ MVb Ki‡e, hv eø¨vK †nvj‡K †K›`ª K‡i Nyi‡e I µgk †fZ‡ii w`‡K cÖ‡ek Ki‡e| †hgbUv n‡q‡Q wmMbvm G·-1 Gi †¶‡Î| Z‡e GLv‡b PvKwZi mvBRUv n‡e AviI A‡bK †ewk eo| 1994 mv‡ji †g gv‡mi GKwU cÖwZ‡e`‡b ejv nq, nvej †¯úm †Uwj‡¯‹vc Gg87 M¨vjvw·i †K‡›`ª Lye `ªæZ N~Y©bkxj M¨v‡mi GKwU PvKwZ †`L‡Z †c‡q‡Q| ch©‡e¶‡Yi k³ Bw½Z n‡jv, ILv‡b Av‡Q GKwU mycvig¨vwmf eø¨vK †nvj|

m¤¢eZ eø¨vK †nv‡j cZbkxj M¨v‡mi PvKwZ †\_‡K wbM©Z wecyj cwigvY kw³ †nv‡ji NyY©b A¶ w`‡q †ewi‡q Av‡m| d‡j cÖvqB `yB wecixZ w`‡K `ywU wfbœ †RU ˆZwi n‡Z †`Lv hvq| GB kw³ wbM©gb I †RU ˆZwii cÖwµqv m¤¢eZ Lye RwUj| G‡Z Zwo”Py¤^KZ¡, mv›`ª I gnvKl©mn Ab¨vb¨ ej KvR K‡i| GB welqwU‡Z e¨vcK ZvwË¡K I ch©‡e¶YMZ M‡elYvi AeKvk Av‡Q|

wgwéI‡qi Kx Ae¯’v Zvn‡j? Avgv‡`i Qvqvc\_wUI wK GKBfv‡e Av‡jvwoZ n‡Z cv‡i? wgwéI‡hi †K›`ª cÖvq wÎk nvRvi Av‡jvKel© `~‡i Av‡Q| Ae¯’vb AvKv‡ki abygÐjx‡Z (Sagittarius)| Gi †fZ‡ii GjvKvmg~n wecyj cwigvY M¨vm I ay‡jv Øviv †X‡K Av‡Q| ZvB †R¨vwZ©weÁvbxiv Kv‡R jvwM‡q‡Qb G·-‡i, Mvgv iwk¥ I Ae‡jvwnZ Av‡jvi hš¿| Gfv‡e GKwU wbweo Nb I †ZR¯^x e¯Íy Lyu‡R cvIhv †Mj| bvg m¨vRvB‡Uwiqvm G ÷vi| e¨vm K‡qK k †KvwU wK‡jvgwUiv‡ii †ewk bq (gnvRvMwZK gvcKvwV‡Z †QvUB Lye)| ZeyI GwUB Qvqvc‡\_i me‡P‡q kw³kvjx †eZvi Drm| GKB RvqMvq Avevi Av‡Q GKwU kw³kvjx Ae‡jvwnZ DrmI| cv‡kB Av‡Q GKwU wfbœag©x G·‡i e¯Íy| cwiw¯’wZ Lye RwUj n‡jI g‡b n‡”Q GLv‡b AšÍZ GKwU fvix eø¨vK †nvj Av‡Q| †hwU ch©‡e¶‡Y cvIqv wKQy NUbvi †cQ‡b `vqx|

Z‡e eø¨vK †nvjwUi fi m¤¢eZ eo †Rvi GK †KvwU †mŠi f‡ii mgvb| Zvi gv‡b, mycvig¨vwmf eø¨vK †nvj‡`i g‡a¨ Ae¯’vb G‡Kev‡i bx‡Pi w`‡K| wKQy wKQy M¨vjvw·i †K›`ª †\_‡K Zxeª kw³ I c`v\_© wbM©g‡bi Ggb †Kv‡bv cÖgvY †bB| Z‡e n‡Z cv‡i †mLvbKvi eø¨vK †nvj GLb myß Ae¯’vq Av‡Q| fwel¨‡Zi †Kv‡bv GK mgq hw` GwU AviI †ewk cwigvY M¨v‡mi mieivn cvq, Zvn‡j nqZ R¡‡j DV‡e| Ab¨‡`i g‡Zv GZUv Av‡jvob nqZ GwU bvI Zyj‡Z cv‡i| mwc©j evû‡Z \_vKv MÖn I b¶‡Îi Ici GB cÖR¡j‡bi Kx cÖwZwµqv n‡e Zv ¯úó bq|

Av‡kcv‡ki AÂ‡ji c`v\_© dywi‡q hvIqv ch©šÍ eø¨vK †nvj wM‡j †bIqv Lvev‡ii wbðj f‡ii kw³ wbM©Z Ki‡Z \_vK‡e| mg‡qi mv‡\_ mv‡\_ AviI †ewk †ewk c`v\_© †c‡U hv‡e eø¨vK †nv‡ji| d‡j eø¨vK †nvj µgk eo n‡e| wL‡`I evo‡e mv‡\_ mv‡\_| GgbwK eû `~‡ii K¶c‡\_i b¶ÎivI †kl ch©šÍ Gi wkKv‡i cwiYZ n‡e| Gi KviY gnvKl©xq wewKiY| GB cÖwZwµqv Lye `ye©j n‡jI gnvwe‡k¦i P~ovšÍÍ cwiYwZ Gi IciB wbf©i K‡i|

1915 mv‡j mvwe©K Av‡cw¶KZv `vuo Kiv‡bvi wVK ciciB AvBb÷vBb gnvKl©xq †¶‡Îi GKwU D‡jøLL‡hvM¨ ˆewkó¨ Avwe®‹vi Ki‡jb| Z‡Ë¡i †¶Î mgxKiY¸‡jv we†kølY K‡i wZwb †`L‡jb, Zi‡½i g‡Zv GK ai‡bi gnvKl©xq Av‡jvo‡bi c~e©vfvm cvIqv hv‡”Q| k~b¨¯’v‡b †hwU Av‡jvi †e‡M Qwo‡q c‡o| GB gnvKl©xq wewKiY g‡b Kwi‡q †`q Av‡jv I †eZvi Zi‡½i g‡Zv Zwo”Py¤^Kxq wewKi‡Yi K\_v| Z‡e wecyj cwigvY kw³ enb Ki‡jI Zwo”Py¤^Kxq wewKi‡Yi mv‡\_ Gi cv\_©K¨ Av‡Q| gnvKl©xq wewKiY c`v\_©‡K Av‡jvwoZ K‡i Zyjbvg~jK Kg ZxeªZvq| †hLv‡b Zv‡ii Rv‡ji g‡Zv bvRyK e¯ÍyI †eZvi Zi½‡K †kvlY K‡i wb‡Z cv‡i, †mLv‡b gnvKl©xq Zi½ GZ `ye©j cÖwZwµqv K‡i †h c„w\_ex †f` K‡iI P‡j †h‡Z cv‡i| Ges ej‡Z †M‡j GKUyI ZxeªZv bv Kwg‡qB| Avcwb hw` †Kv‡bv gnvKl©xq †jRvi evbvb, Zvn‡j GK wK‡jvIqv‡Ui GKwU ˆe`¨ywZK KyÐjxi mgvb Kg©`¶Zvq GK †KUwj cvwb Mig Ki‡Z n‡j GK j¶ †KvwU wK‡jvIqvU kw³i iwk¥ jvM‡e| cÖK…wZi Rvbv ej¸‡jvi g‡a¨ gnvKl©xq Ab¨‡`i Zyjbvq A‡bK †ewk `ye©j e‡jB GLv‡bI NU‡Q Zvi cÖwZdjb| †hgb, GKwU cigvYyi ˆe`¨ywZK kw³ I gnvKl©xq kw³i AbycvZ cÖvq 10-40| Avgiv †h gnvKl© Abyfe KiwQ Zvi GKgvÎ KviY n‡jv ejwUi cÖfve µgea©gvb| d‡j MÖn‡`i g‡Zv e¯Íyi †¶‡Î Gi f~wgKvB cÖKU n‡q I‡V|

gnvKl© Zi‡½i cÖwZwµqv †h ïay AwZgvÎvq `ye©j Ggb bq, Gi DrcwËI N‡U bxi‡e bxi‡e| ZË¡ ej‡Q, G wewKiY Drcbœ nq fi Av‡jvwoZ n‡j| †hgb m~‡h©i Pviw`‡K c„w\_exi MwZ AweiZ mvwi mvwi gnvKl©xq Zi½ Drcbœ Ki‡Q| wKš‘ †gvU Drcbœ ¶gZv gvÎ GK wgwjIqvU| GB kw³ n«v‡mi d‡j c„w\_exi K¶c\_ GKUy GKUy K‡i †QvU n‡q hv‡”Q| Z‡e †mUv n‡”Q ax‡i| cÖwZ `k eQ‡i GK †mw›UwgUv‡ii GK †KvwU †KvwU fvM nv‡i|

Z‡e †hme fvix e¯Íy Av‡jvi Lye KvQvKvwQ †e‡M PjvPj K‡i Zv‡`i K\_v Avjv`v| gnvKl©xq wewKi‡Yi cÖwZwµqvi †cQ‡b `ywU welq KvR Ki‡Z cv‡i| GKwU n‡jv AvKw¯§K I DËvj NUbv| mycvi‡bvfv we‡ùviY| hvi gva¨‡g GKwU b¶Î ¸wU‡q eø¨vK †nv‡j cwiYZ nq| Ggb NUbvi d‡j Aí mg‡qi R‡b¨ gnvKl©xq wewKi‡Yi m‡¼Z ˆZwi n‡Z cv‡i| ¯’vwqZ¡ n‡Z cv‡i gvÎ K‡qK wgwj‡m‡KÛ| Ges mvaviYZ 1044 Ryj kw³ wbM©Z n‡Z cv‡i| (Gi mv‡\_ m~‡h©i Zvc Drcv`‡bi Zyjbv K‡i †`L‡Z cv‡ib| †mUv n‡jv †m‡K‡Û 3 × 1026 Ryj|

Av‡iKwU NUbv n‡jv D”P MwZi fvix e¯Íy‡`i G‡K Ac‡ii Pvicv‡k cÖ`w¶Y| †hgb, KvQvKvwQ Ae¯’v‡bi \_vKv `ywU b¶‡Îi evBbvwi wm‡÷g †\_‡K AbeiZ wecyj gvÎvq gnvKl© wewKiY wbM©Z n‡e| G cÖwµqv fv‡jv KvR Ki‡e hw` `ywU cÖ`w¶YiZ b¶Îiv m¼ywPZ e¯Íy nq| GB †hgb wbDU«b b¶Î ev eø¨vK †nvj| CMjgÐjxi (Aquila) `ywU wbDU«b b¶Î gvÎ K‡qK wgwjqb wK‡jvwgUvi `~i †\_‡K G‡K Aci‡K cÖ`w¶Y Ki‡Q| G‡`i gnvKl©xq †¶Î GZ kw³kvjx †h AvU NÈvi g‡a¨B GKwU N~Y©b m¤úbœ nq| d‡j b¶Î¸‡jv †gvUvgywU Av‡jvi KvQvKvwQ †eM wb‡qB Pj‡Q| GB `ªæZ MwZi Kvi‡Y gnvKl©xq Zi½ wbM©g‡bi nviI †ewk| d‡j cÖwZ eQi Zv‡`i K¶c\_ D‡jøLL‡hvM¨ nv‡i (cÖvq 75 gvB‡µv‡m‡KÛ) †QvU n‡”Q| GB nvi µgkB evo‡Z \_vK‡e| GLb †\_‡K 30 †KvwU eQi ci Zviv G‡K Ac‡ii Ici ûgwo †L‡q co‡e|

‡R¨vwZwe©`‡`i wnmve g‡Z, cÖwZ Qvqvc‡\_ cÖvq cÖwZ GK j¶ eQ‡i GKwU evBbvwi RMr Gfv‡e wg‡k hvq| Giv GZUv wbweo I G‡`i gnvKl©xq †¶Î GZUv kw³kvjx †h Giv †kl gyû‡Z© wg‡k hvIqvi Av‡Mi gyû‡Z© cÖwZ †m‡K‡Û G‡K Aci‡K nvRvi nvRvi evi Ny‡i Avm‡e| gnvKl© Zi‡½i wbM©gbI ûU K‡i †e‡o hv‡e| AvBb÷vB‡bi m~Î ej‡Q, GB †kl Ae¯’vq gnvKl©xq kw³i Drcv`b n‡e A‡bK †ewk| K¶c\_ Lye `ªæZ †QvU n‡q hv‡e| cvi¯úwiK gnvKl©xq Uv‡bi d‡j b¶‡Îi †Pnviv GK`g e`‡j hv‡e| d‡j G‡K Aci‡K ¯úk© Kivi mgq Zv‡`i‡K N~Y©vqgvb AwZKvq Pyiæ‡Ui g‡Zv †`Lv‡e| `y‡Uvi GKxfeb n‡e GK DËvj NUbv| `y‡Uv b¶Î †Rvov †j‡M GKwU RwUj I Db¥Ë f‡i cwiYZ n‡e| G †\_‡KI wbM©Z n‡e Kvwo Kvwo gnKl© Zi½| †kl ch©šÍ GwU cÖvq †Mvj‡Ki iƒc aviY Ki‡e| GKwU eo NÈvi g‡Zv K‡i wbw`©ó bKkvi K¤úb wb‡q evR‡e I Av‡›`vwjZ n‡e| GB ¯ú›`b †\_‡KI wKQy gnvKl© wewKiY †ei n‡e| d‡j e¯ÍywU AviI wKQy kw³ nviv‡e| Av‡¯Í Av‡¯Í GwU kvšÍ n‡q Avm‡e| Avi †k‡l bxie n‡q hv‡e|

kw³ ¶‡qi nvi Zyjbvg~jK axi n‡jI gnvwe‡k¦i KvVv‡gvi Ici gnvKl©xq wewKiY wbM©g‡bi eo `xN©‡gqv`x cÖfve KvR K‡i| d‡j weÁvbx‡`i R‡b¨ eo GKwU KvR n‡jv ch©‡e¶‡Yi gva¨‡g gnvKl©xq wewKi‡Yi aviYv¸‡jvi mZ¨Zv hvPvB Kiv| CMjgÐjxi evBbvwi wbDU«b b¶Î e¨e¯’v wb‡q we†kølY Pvwj‡q †`Lv †M‡Q, K¶c\_ †QvU n‡”Q AvBb÷vB‡bi ZË¡ †g‡bB| d‡j gnvKl©xq wewKiY wbM©g‡bi mc‡¶ GwU GKwU mivmwi cÖgvY| Z‡e AviI wbwðZ n‡Z n‡j c„w\_exi †Kv‡bv cix¶vMv‡i G‡K kbv³ Ki‡Z cvi‡Z n‡e| gnvKl© Zi½ aivi R‡b¨ eû M‡elbv `j hš¿ evwb‡q‡Qb| Z‡e AvR ch©šÍ †Kv‡bv hš¿B G Zi½ aivi g‡Zv ms‡e`bkxj n‡Z cv‡iwb| gnvKl©xq wewKi‡Yi wbwðZ cÖgvY †c‡Z n‡j Avgv‡`i‡K m¤¢eZ bZyb cÖR‡b¥i wW‡U±‡ii R‡b¨ A‡c¶v Ki‡Z n‡e4|

`y‡Uv wbDU«b b¶‡Îi wgj‡b GKwU eo wbDU«b b¶Î ev eø¨vK †nvj ˆZwi n‡Z cv‡i| GKwU wbDU«b b¶Î I GKwU eø¨vK †nvj ev `ywU eø¨vK †nvj wg‡j Aek¨B GKwU eø¨vK †nvj ˆZwi Ki‡e| evBbvwi wbDU«b b¶Î‡`i g‡ZvB G‡¶‡ÎI wKQy gnvKl©xq Zi½ kw³ ¶q n‡e| mv‡\_ \_vK‡e evRbv I K¤úb| gnvKl© Zi‡½i ¶gZv Kgvi mv‡\_ mv‡\_ G cÖwµqvI axi n‡q Avm‡e|

eø¨vK †nv‡ji wgjb †\_‡K †h gnvKl©xq kw³ msMÖn Kiv hv‡e Zvi ZvwË¡K Av‡jvPbv †ek AvKl©Yxq| 1970 Gi `k‡K GB ZvwË¡K welq¸‡jv wb‡q KvR K‡ib iRvi †cb‡ivR, w÷‡db nwKs, eª¨vÛb KvU©vi, †i‡gv ivwdwb, j¨vwi ¯§vi cÖgyL| hw` eø¨vK †nvj `ywU AN~Y©bkxj I GKB f‡ii nq, Zvn‡j †gvU fi-kw³i cÖvq 29 kZvsk msMÖn Kiv hv‡e| AvaywbK cÖhyw³ ev Ab¨ †Kv‡bv †KŠkj Kv‡R jvMv‡Z cvi‡j nqZ H kw³UyKy ïay gnvKl©xq wewKiY wn‡m‡e mxgve× \_vK‡e bv| Z‡e cÖvK…wZKfv‡e eø¨vK †nv‡ji wgjb N‡U †M‡j †ewkifvM kw³B wKš‘ GB cÖvq A`„k¨ iƒc a‡iB Avm‡e| eø¨vK †nvjiv hw` c`v\_©we`¨vi AvB‡b Aby‡gvw`Z m‡e©v”P nv‡i (cÖvq Av‡jvi †e‡M) G‡K Ac‡ii D‡ëv w`‡K Ny‡i wgwjZ nq, Zvn‡j 50 fvM fi-kw³ wbM©Z n‡e|

Aek¨ ZvwË¡Kfv‡e GZ †ewk cigwvYUvI m‡e©v”P mxgv bq| eø¨vK †nv‡ji Avevi ˆe`¨ywZK PvR©I \_vK‡Z cv‡i| GKwU PvwR©Z eø¨vK †nv‡ji ˆe`¨ywZK †¶Î †hgb \_v‡K, †Zgwb \_v‡K gnvKl©xq †¶Î| `ywU †¶ÎB kw³ aviY Ki‡Z cv‡i| abvZ¥K PvR©avix GKwU eø¨vK †nvj FYvZ¥K PvR©avix Aci GKwU eø¨vK †nv‡ji mv‡\_ wgwjZ n‡j wKQy kw³ wbM©Z nq| GB cÖwµqvq Zwo”Py¤^Kxq Ges gnvKl©xq `yB iKg kw³B †ewi‡q Av‡m|

GB wbM©g‡bi GKwU mxgv Av‡Q| KviY GKwU wbw`©ó f‡ii GKwU eø¨vK †nvj †Kej GKwU m‡e©v”P mxgvi ˆe`¨ywZK PvR© enb Ki‡Z cv‡i| GKwU AN~Y©bkxj eø¨vK †nv‡ji R‡b¨ †mB mxgv wba©vwiZ nq Gfv‡e: `y‡Uv AweKj GKB iKg eø¨vK †nv‡ji K\_v fveyb| G‡`i PvR© GKB| K…òMnŸi‡`i gnvKl©xq †¶‡Îi d‡j G‡`i g‡a¨ AvKl©Y KvR Ki‡e| Ab¨ w`‡K, Zwor e‡ji Kvi‡Y KvR Ki‡e weKl©Y (mgag©x PvR© weKl©Y K‡i)| PvR© I f‡ii AbycvZ GKwU m¼U gv‡b †cŠuQ‡j GB `yB wecixZag©x ej G‡K Ac‡ii mgvb n‡q hvq| d‡j K…òMnŸi‡`i g‡a¨ †Kv‡bv †bU ej \_vK‡e bv| GKwU K…òMnŸ‡ii m‡e©v”P Kx cwigvY ˆe`¨ywZK PvR© \_vK‡Z cvi‡e Zv GB k‡Z©i gva¨‡gB wba©vwiZ nq| nqZ fve‡Qb, K…òMnŸ‡ii PvR© Gi †P‡q †ewk Kivi †Póv Ki‡j Kx NU‡e? GUv Kivi GKwU Dcvq n‡jv K…òMnŸ‡i AviI †ewk PvR© cÖ‡ek Kwi‡q †`Iqv| Gi gva¨‡g ˆe`¨ywZK PvR© evo‡e| wKš‘ ˆe`¨ywZK weKl©Y †VKv‡Z †h KvR m¤úbœ n‡e Zv‡Z wKQy kw³ e¨q n‡e| GB kw³UyKyI K…òMnŸ‡i cÖ‡ek Ki‡e| †h‡nZy kw³I f‡ii Av‡iK iƒc (E=mc2 m~ÎwU g‡b Av‡Q wbðqB), d‡j K…ònŸi fvix I eo n‡q hv‡e| mn‡RB wnmve K‡i †`Lv‡bv hvq, GB cÖwµqvq fi Pv‡R©i †P‡q †ewk ev‡o| d‡j PvR© I f‡ii AbycvZ Avm‡j K‡g hvq| Avi GB mxgv AwZµg Kivi cÖ‡PóvI nq e¨\_©|

GKwU PvwR©Z K…òMnŸ‡ii ˆe`¨ywZK †¶Î Gi †gvU f‡ii wKQy As‡ki †hvMvb †`q| m¤¢ve¨ m‡e©v”P PvR© aviYKvix K…òMnŸ‡ii †¶‡Î ˆe`¨ywZK †¶Î †\_‡K Av‡m A‡a©K fi| hw` `ywU AveZ©bnxb K…òMnŸ‡ii g‡a¨ wecixZ wP‡ýi m‡e©v”P PvR© \_v‡K, Zvn‡j Zviv G‡K Aci‡K gnvKl©xq ej Øviv AvKl©Y Ki‡e, Avevi ˆe`¨ywZK ej ØvivI AvKl©Y Ki‡e| Zviv wgwjZ n‡q †M‡j †e`¨ywZK PvR© cÖkwgZ n‡q hv‡e| ˆe`¨ywZK PvR© †eiI K‡i †bIqv hv‡e| ZvwË¡Kfv‡e GUv H wm‡÷‡gi †gvU f‡ii 50 kZvsk ch©šÍ n‡Z cv‡i|

kw³ msMÖ‡ni cig m‡e©v”P mxgv AR©b Kiv m¤¢e n‡e hw` `ywU eø¨vK †nvjB AveZ©b Ki‡Z \_v‡K Avi hw` Zv‡`i ˆe`¨ywZK PvR© nq wecixZag©x| Zvn‡j †gvU fi-kw³i `yB-Z…Zxqvsk ch©šÍ wbM©Z n‡e| GUv wVK †h GB gvb¸‡jvi ¸iæZ¡ Av‡Q ïay ZvwË¡K `„wó‡KvY †\_‡KB| KviY ev¯Íe GKwU eø¨vK †nv‡ji A‡bK †ewk ˆe`¨ywZK PvR© \_vKvi m¤¢vebv Lye Kg| ZvQvov `ywU eø¨vK †nvj †h Av`k© Dcv‡qB wgwjZ n‡e †m m¤¢vebvI Kg| hw` bv †Kv‡bv DbœZ cÖhyw³i AwaKvix RvwZ †mUv NUv‡Z m¶g nq| Z‡e `ywU eø¨vK †nvj hw` Lye †ewk Av`k© Dcv‡q wgwjZ bvI nq ZeyI m¤¢eZ cÖvq Zvr¶wYKfv‡e kw³ wbM©Z n‡e| `ywU e¯Íyi wgwjZ fi-kw³i D‡jøLL‡hvM¨ GKwU Ask kw³B Gfv‡e wbM©Z n‡e| GUv‡K eû eQi a‡i Pj‡Z \_vKv b¶‡Îi wbDwK¬qvi wdDkb wewµqvi mv‡\_ Zyjbv Kiv †h‡Z cv‡i, hvi gva¨‡g b¶Î gvÎ GK kZvsk kw³ wbM©Z K‡i|

GB gnvKl©xq NUbv GKwU w`K †\_‡K LyeB ¸iæZ¡c~Y©| wdDkb wewµqvi R¡vjvwb †kl n‡q †M‡jB †h GKwU b¶Î G‡Kev‡i gviv hvq Zv wKš‘ bq| GKwU m¼ywPZ A½v‡i cwiYZ nevi ci GKwU D¾¡j M¨vmxq †MvjK AvKv‡i b¶ÎwU wdDkb wewµqvi †P‡qI A‡bK †ewk cwigvY kw³ wbM©Z Kivi ¶gZv iv‡L| G welqwU fv‡jv K‡i †evSv †M‡Q cÖvq wek eQi Av‡M| G aviYv Kv‡R jvwM‡q c`v\_©we` I eø¨vK †nvj k‡ãi RbK Rb ûBjvi GKwU mf¨Zvi K\_v Kíbv K‡i‡Qb, hviv Zv‡`i DË‡ivËi kw³i Pvwn`vi K\_v we‡ePbv K‡i wb‡R‡`i b¶‡Îi RMr †\_‡K †ewi‡q G‡m GKwU N~Y©bkxj eø¨vK †nv‡ji cv‡k evwo evwb‡q‡Q| cÖwZw`b Zviv Zv‡`i eR¨©¸‡jv U«v‡K fwZ© K‡i Lye wn‡me K‡i evbv‡bv c‡\_ eø¨vK †nv‡ji w`‡K cvwV‡q †`q| eø¨vK †nv‡ji Kv‡Q G‡m U«v‡Ki c`v\_©¸‡jv †X‡j †`Iqv nq| Gfv‡e wPiKv‡ji R‡b¨ eR¨©¸‡jvi mwVK e¨e¯’vcbv wbwðZ nq|

cZbkxj e¯Íy¸‡jv eø¨vK †nv‡ji w`‡K GwM‡q hvevi mgq †nv‡ji D‡ëv w`‡K AveZ©b K‡i| d‡j eø¨vK †nv‡ji N~Y©b wKwÂZ evavMÖ¯’ nq| Avi Zvi d‡j eø¨vK †nv‡ji GB N~Y©bkw³UyKy †ewi‡q Av‡m| d‡j DbœZ mf¨Zvi gvby‡liv Zv‡`i wkí-KviLvbvq †mB kw³ e¨envi Ki‡Z cv‡i5| d‡j GB c×wZi `y‡Uv jvf| me¸‡jv eR¨© wPiZ‡i we`vq n‡jv| wKš‘ we`vq nevi mgq w`‡q †Mj g~j¨evb A‡bKLvwb kw³| Gfv‡e H mf¨Zvi gvby‡liv cÖ‡qvR‡bi Av‡jv‡K GKwU g…Z b¶Î †\_‡K wecyj cwigvY kw³ mÂq Ki‡Z cv‡ib| hZUv kw³ b¶ÎwU Zvi cy‡iv Av‡jv‡Kv‡¾¡vj6 Rxe‡bI wbM©Z K‡iwb|

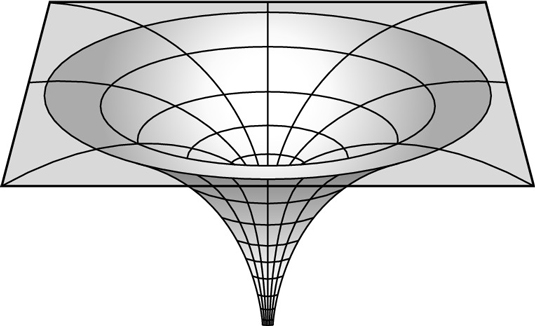
GUv wVK †h eø¨vK †nvj †\_‡K kw³ mÂ‡qi welqUv‡K weÁvb KíKvwnwb g‡b n‡”Q| Z‡e cÖvK…wZKfv‡eB cÖPyi cwigvY c`v‡\_©i Awbevh© wVKvbv wKš‘ eø¨vK †nvj| †mUv n‡Z cv‡i `yBfv‡e| nq c`v\_©¸‡jv Ggb GK b¶‡Îi Dcv`vb †hwU m¼ywPZ n‡q eø¨vK †nv‡j cwiYZ n‡Z hv‡”Q| A\_ev c`v\_©¸‡jv †Kv‡bvfv‡e eø¨vK †nv‡ji g‡a¨ P‡j hv‡e| eø¨vK †nvj wb‡q †jKPvi w`‡Z †M‡jB gvbyl Avgv‡K wR‡Ám K‡i, †Kv‡bv wKQy eø¨vK †nv‡j P‡j †M‡j Zvi Kx N‡U? Aí K\_vq DËi n‡jv, Avgiv Rvwb bv| ejv P‡j, eø¨vK †nvj m¤ú‡K© Avgv‡`i Rvbvi GKgvÎ Dcvq ZvwË¡K ch©v‡jvPbv I MvwYwZK g‡Wwjs| GKUy Av‡M †hUv ejjvg GUvI|

eø¨vK †nv‡ji msÁv Abymv‡iB wKš‘ Avgiv evB‡i †\_‡K Gi †fZ‡ii wKQy †`L‡Z cvB bv| AZGe, Avgv‡`i eø¨vK †nvj ch©šÍ ch©‡e¶‡Yi my‡hvM \_vK‡jI (†hUv Avm‡j Avgv‡`i †bB) Gi †fZiUvq Kx Pj‡Q †mUv Avgiv KLbI Rvbe bv| Z‡e G‡¶‡Î Av‡cw¶KZv ZË¡ Avgv‡`i‡K Avkvi Av‡jv †`Lvq| eø¨vK †nv‡ji Aw¯Í‡Z¡i K\_vI Rvwb‡qwQj GB ZË¡wUB| †Kv‡bv b‡fvPvix eø¨vK †nv‡ji †fZ‡i P‡j Kx NU‡e ZË¡wUi gva¨‡g Avgiv †mUv Abygvb Ki‡Z cvwi| GLb Avgiv GB ZvwË¡K djvdj¸‡jvi mvigg©B †`Le|

eø¨vK †nv‡ji c„ô Avm‡j wbQKB GKwU MvwYwZK KvVv‡gv| mwZ¨Kvi †Kv‡bv c„‡ôi wKš‘ †Kv‡bv Aw¯ÍZ¡ †bB| Av‡Q ïayB dvuKv ¯’vb| cZbkxj b‡fvPvix †fZ‡i cÖ‡e‡ki mgq we‡kl wKQyB †`L‡eb bv| Zvic‡iI c„‡ói wKš‘ GKwU wbw`©ó I wKQyUv PgKcÖ` †fŠZ (physical) Zvrch© Av‡Q| †nv‡ji †fZ‡i gnvKl© GZ kw³kvjx †h Av‡jvI †mLv‡b AvU‡K Av‡Q| †ei n‡Z B”QyK Av‡jvi †dvUb KYv wcwQ‡q †h‡Z ev a¨ nq| Zvi gv‡b, eø¨vK †nvj †\_‡K Av‡jv †ewi‡q Avm‡Z cv‡i bv| Avi G Kvi‡YB evB‡i †\_‡K eø¨vK †nvj‡K †`Lv hvq bv| Avi †Kv‡bv e¯Íy ev Z\_¨ Av‡jvi †P‡q †Rv‡i QyU‡Z cv‡i bv e‡j GKevi Gi mxgvbvq cÖ‡ek K‡i †dj‡j †Kv‡bv wKQyB Avi †mLvb †\_‡K †ei n‡Z cv‡i bv| †h mg¯Í NUbv eø¨vK †nv‡ji Af¨šÍ‡i NU‡e, Zv wPiKvjB evB‡ii `k©‡Ki `„wói Avov‡jB †\_‡K hv‡e| G Kvi‡Y eø¨vK †nv‡ji c„ô‡K7 ejv nq NUbv w`MšÍ (event horizon)| KviY GB w`MšÍ eø¨vK †nv‡ji †fZ‡i I evB‡i NUv NUbv‡K Avjv`v K‡i †`q| w`M‡šÍi †fZ‡ii NUbv Avgiv †`wL bv| †`wL evB‡ii NUbv| Z‡e `„wói Avovj nevi welqwU wKš‘ GKgyLx| eø¨vK †nv‡ji †fZ‡ii b‡fvPvix‡K Avgiv bv †`L‡jI b‡fvPvix wKš‘ †fZi †\_‡K evB‡ii gnvwek¦ †`L‡Z cv‡eb|

b‡fvPvix hZB †fZ‡i hv‡eb, gnvK‡l©i \_vev ZZB evo‡e| Gi GKwU cÖfve n‡jv kvixwiK weK…wZ| b‡fvPvixi cv cÖ\_‡g eø¨vK †nv‡j cÖ‡ek Ki‡j gv\_vi †P‡q cv Gi †K›`ª †ewk Kv‡Q \_vK‡e| d‡j gnvK‡l©i kw³ cv‡q †ewk Abyf~Z n‡e| d‡j, cv‡q bx‡Pi w`‡K Zxeª Uvb Abyf~Z n‡e| G Kvi‡Y b‡fvPvixi kixi ˆ`N¨© eivei cÖmvwiZ n‡q hv‡e| GKB mv‡\_ Ges GKB w`‡K wKš‘ b‡fvPvixi Nv‡oI Uvb co‡e| d‡j f`ª‡jvK wPKbI n‡q hv‡eb| GB †h j¤^v I wPKb n‡q hvevi cÖwµqv, G‡K A‡bK mgq ejv nq ù¨v‡NwUwd‡Kkb ev †mgvB cÖfve (spaghettification)|

ZË¡ ej‡Q, eø¨vK †nv‡ji †K‡›`ª gnvKl© n‡q hvq mxgvnxb| Avi gnvK‡l©i ewntcÖKvk †Zv N‡U ¯’vb-Kv‡ji eµZvi gva¨‡g| d‡j gnvKl© kw³kvjx nevi mv‡\_ mv‡\_ ¯’vb-Kv‡ji eµZvI n‡q hvq mxgvnxb| MwY‡Zi fvlvq G Ae¯’vi bvg †¯úmUvBg wms¸jvwiwU| GUv n‡jv ¯’vb-Kv‡ji Ggb GKwU mxgvbv ev cÖvšÍ hv‡Z ¯’vb-Kv‡ji mvaviY aviYvi †Kv‡bv ¯’vb †bB| eû c`v\_©we‡`i wek¦vm, eø¨vK †nv‡ji †fZ‡ii wms¸jvwiwU mwZ¨Kvi A‡\_©B ¯’vb-Kv‡ji Kei iPbv K‡i| †Kv‡bv e¯Íy GLv‡b †cŠu‡Q †M‡j aŸsm Awbevh©| Avm‡jB hw` †mUv nq, Zvn‡j b‡fvPvixi kixi P‡j hv‡e wms¸jvwiwU‡Z| Zxeª †mgvB cÖfv‡ei GB KvRwU‡Z mgq jvM‡e gvÎ GK b¨v‡bv‡m‡KÛ8|



wPÎ 5.2

[eµZvi G‡Kev‡i †K‡›`ª Av‡Q eø¨vK †nv‡ji wms¸jvwiwU| †`‡LB †evSv hv‡”Q, eø¨vK †nvj ¯’vb-Kvj‡K †hfv‡e evuwK‡q †`q, Zvi d‡j evB‡i †\_‡K †fZ‡i hvIqv hvq, wKš‘ †fZi †\_‡K evB‡i bq|]

Avgv‡`i AvKvkM½v Qvqvc‡\_ \_vKv m¤¢ve¨ eø¨vK †nv‡ji fi GK †KvwU †mŠif‡ii mgvb| Ggb f‡ii I AN~Y©bkxj †Kv‡bv eø¨vK †nv‡ji †¶‡Î NUbv w`MšÍ †\_‡K wms¸jvwiwU‡Z wM‡q cUj Zyj‡Z mgq jvM‡e cÖvq wZb wgwbU| GB †kl wZwb wgwbU (jv÷ w\_ª wgwbUm) †gv‡UI Avivg`vqK n‡e bv| ev¯Í‡e Avm‡j wms¸jvwiwU‡Z hvevi eû Av‡MB †mgvB cÖfv‡ei Kvi‡Y †ePviv gviv co‡eb| GB †kl mg‡q b‡fvPvix gnvkq †Kv‡bvfv‡eB cÖvYNvZx wms¸jvwiwU‡K †Pv‡L †`L‡Z cvi‡e bv| KviY GB we›`ywU †\_‡K †Kv‡bv Av‡jv Avm‡Z cv‡i bv| eø¨vK †nvjwUi fi hw` gvÎ GK †mŠif‡ii mgvb nq, Zvn‡j Gi e¨vmva© n‡e cÖvq wZb wK‡jvwgUvi| G‡¶‡Î NUbv w`MšÍ †\_‡K wms¸jvwiwU‡Z †cŠuQ‡Z mgq jvM‡e gvÎ K‡qK gvB‡µv‡m‡KÛ9|

cZbkxj b‡fvPvixi cÖm½ KvVv‡gv †\_‡K aŸsm n‡Z mgq jv‡M Lye Kg mgq| Z‡e eø¨vK †nv‡ji mg‡qi weK…wZUv Ggbfv‡e N‡U †h `~i †\_‡K †`L‡j b‡fvPvixi †k‡li w`‡Ki ågY‡K Lye ax‡i Pj‡Q e‡j g‡b n‡e| b‡fvPvix NUbv w`M‡šÍi hZ Kv‡Q hv‡eb, `~‡ii `k©‡Ki Kv‡Q b‡fvPvixi Av‡kcv‡ki NUbv¸‡jv ZZ †ewk ax‡i Pj‡Q e‡j g‡b n‡Z \_vK‡e| Ges Avm‡j g‡b n‡e b‡fvPvixi NUbv w`M‡šÍ †cŠuQ‡Z Amxg cwigvY mgq jvM‡Q| d‡j evB‡ii `ywbqvq †hUv‡K Amxg mgq g‡b n‡”Q, b‡fvPvix †mUvi wkKvi n‡”Qb gyn~‡Z©i g‡a¨B| GB w`K †\_‡K fve‡j eø¨vK †nvj Avm‡j gnvwe‡k¦i †kl cÖv‡šÍi GKwU `iRv| GKwU gnvRvMwZK AÜMwj| †ei nevi Ggb GK c\_ †h c\_ wb‡q hv‡e bv †Kv‡bv wVKvbvq| eø¨vK †nvj ¯’v‡bi Lye †QvÆ GKwU AÂj| mg‡qi †hLv‡b BwZ N‡U| hviv gnvwe‡k¦i cwiYwZ m¤ú‡K© Rvb‡Z B”QyK, GKwU eø¨vK †nv‡j Svuc w`‡q †mUv Zviv wb‡RivB †R‡b wb‡Z cvi‡eb|

GUv wVK †h gnvKl©B cÖK…wZi me‡P‡q `ye©j ej| wKš‘ Gi Zx¶&Y‡f`x I mw¤§wjZ wµqvi IciB wbf©i Ki‡Q fwel¨r| wew”Qbœ gnvRvMwZK e¯Íy wKsev mgMÖ gnvwek¦ `y‡Uvi R‡b¨B GB K\_v cÖ‡hvR¨| †h Zxeª gnvKl©xq AvKl©Y GKwU b¶‡Î ¸wU‡q †d‡j, †mB GKB gnvKl© KvR K‡i mvwe©Kfv‡e gnvwe‡k¦i AviI eo gvcKvwV‡ZI| GB AvKl©‡Yi dj Lye m~²fv‡e wbf©i K‡i AvKl©Y m…wói R‡b¨ Dcw¯’Z e¯Íyi cwigv‡Yi Ici| †mUv Rvb‡Z n‡j Avgv‡`i‡K gnvwe‡k¦i IRb cwigvc Ki‡Z n‡e|

**Abyev`‡Ki †bvU**

1. ev¯Í‡e Kiv Am¤¢e ev KwVb Ggb †¶‡Î we‡klZ Kw¤úDUv‡i mvnv‡h¨ welqwU wb‡q KvR Kivi bvg wmgy‡jkb| †hgb, Kw¤úDUvi †cÖvMÖv‡g eø¨vK †nv‡ji bgybv evbv‡bv| †Kv‡bv Z‡Ë¡i MÖnY‡hvM¨Zv wbY©q Kivi R‡b¨ A‡bK mgq Kw¤úDUvi wmgy‡jkb K‡i †WUv ˆZwi Kiv nq| MwYZ I cwimsL¨v‡bi Gi e¨envi Lye †ewk| Z‡e Kw¤úDUvi QvovI wmgy‡jkb nq| †hgb 2q wek¦hy‡×i mgq ˆmb¨‡`i Abykxjb Kiv‡bvi R‡b¨ Kv‡Vi bKj †Nvovi cÖPjb wQj| AvRKvj evmvq †`Šov‡bvi R‡b¨ †U«Wwgj Lye RbwcÖq| bKj †`Š‡oi G c×wZI wKš‘ GK ai‡bi wmgy‡jkb|

2. eZ©gv‡b wmMbvm G·-1 Gi eø¨vK †nvj nevi e¨vcv‡i e¨vcK ¯^xK…wZ i‡q‡Q|

3. cÖevnxi (Zij ev M¨vm) wewfbœ ¯Í‡ii g‡a¨ Nl©‡Yi d‡j D™¢~Z ej|

4. 2015 mv‡j gnvKl© Zi½ cÖ\_g mivmwi ch©‡e¶Y Kiv m¤¢e nq| wbwðZ n‡q †NvlYv †`Iqv nq 2016 mv‡j| 2017 mv‡j G wel‡q c`v\_©we`¨vq †bv‡ej cyi¯‹vi jvf K‡ib wKc \_b©mn wZbRb weÁvbx|

5. GUvi mv‡\_ wgj Av‡Q ev¯Í‡e cÖ‡qvM Kiv GKwU †KŠk‡ji| bvg Mª¨vwf‡Ukbvj w¯­skU| c„w\_ex †\_‡K `~i gnvKv‡k hvb †cÖi‡Yi mgq G‡K GK ev GKvwaK MÖ‡ni K¶c‡\_i Lye Kv‡Q cvwV‡q †`Iqv nq| Av‡M †\_‡K \_vKv wbR¯^ †e‡Mi Kvi‡Y MÖnwUi gnvKl© gnvKvkhvb‡K cy‡ivcywi AvU‡K †dj‡Z cv‡i bv| gnvKvkhvb c‡i Avevi mswkmœó e¯Íyi gnvKl© †¶Î †\_‡K †ewi‡q Av‡m| wKš‘ mv‡\_ wb‡q Av‡m e¯ÍywUi gnvKl©xq kw³i GKUv Ask| Gfv‡e wb‡Ri ¶gZv evwo‡q †bq hvb| Z‡e mswkmœó MÖ‡ni kw³ ¶q nq Lye bMY¨ cwigvY|

6. A\_©vr, b¶ÎwU hLb wdDkb wewµqvi gva¨‡g Av‡jv w`Z|

7. g‡b ivL‡Z n‡e, GB c„ô wKš‘ wbQK MvwYwZK GKUv mxgv| ev¯Íe †Kv‡bv c„ô bq|

8. GK b¨v‡bv‡m‡KÛ n‡jv GK †m‡K‡Ûi GKk †KvwU fv‡Mi GK fvM|

9. GK gvB‡µv‡m‡KÛ n‡jv GK †m‡K‡Ûi 10 j¶ fv‡Mi GK fvM|

lô Aa¨vq

gnvwe‡k¦i IRb cwigvc

cÖvqB ejv nq, Ic‡i †h hvq, Zv‡K bx‡P bvg‡ZB n‡e| AvKv‡ki w`‡K Qyu‡o gviv †Kv‡bv e¯Íy gnvK‡l©i Uv‡b AvUKv c‡o| eva¨ nq bx‡P †b‡g Avm‡Z| wKš‘ me mgq Zv nq bv| h‡\_ó †Rv‡i Pj‡j e¯ÍywUi c‡¶ c„w\_exi gnvKl© †\_‡K wPiZ‡i gyw³ †c‡q gnvk~‡b¨ P‡j hvIqv m¤¢e| wd‡i Avm‡Z n‡e bv Avi KLbI| †hme i‡K‡Ui mvnv‡h¨ wewfbœ MÖ‡n hvb cvVv‡bv nq †m¸‡jv GB †eM (gyw³ †eM) AR©b K‡i|

c„w\_exi †¶‡Î GB gyw³‡e‡Mi gvb †m‡K‡Û cÖvq 11 wK‡jvwgUvi| NÈvq 25 nvRvi gvBj| GB †eM KbKW© wegv‡bi wek ¸‡YiI †ewk| GB m¼U gvb c„w\_exi fi (G‡Z hZUyKy c`v\_© Av‡Q) I e¨vmva© `y‡Uvi IciB wbf©i Ki‡Q| GKwU wbw`©ó f‡ii e¯Íy hZ †QvU n‡e, Gi c„‡ô gnvKl© ZZ †ewk kw³kvjx n‡e| †mŠiRMr †\_‡K †ei n‡Z cvivi A\_© n‡jv m~‡h©i gnvKl©‡K Rq Kiv| G‡¶‡Î gyw³ †e‡Mi gvb †m‡K‡Û 618 wK‡jvwgUvi| Avgv‡`i wgwéI‡q ev AvKvkM½v Qvqvc\_ †\_‡K †ei n‡ZI †m‡K‡Û K‡qKk wK‡jvwgUvi †eM jvM‡e| Ab¨ w`‡K, GKwU wbDU«b b¶‡Îi g‡Zv Nb e¯Íy †\_‡K †ei n‡q †h‡Z †m‡K‡Û K‡qK AhyZ wK‡jvwgUvi †eM cÖ‡qvRb| Avi eø¨vK †nvj †\_‡K †ei n‡Z †Zv jvM‡e Av‡jvi †P‡q (‡m‡K‡Û 3 j¶ wK‡jvwgUvi) †ewk †eM|

Avi gnvwek¦ †\_‡K †ei n‡Z PvB‡j? 2q Aa¨v‡q Avwg e‡jwQ, gnvwe‡k¦i †Kv‡bv cÖvšÍ Av‡Q e‡j g‡b nq bv| d‡j, †ei nevi cÖkœB Av‡m bv| wKš‘ Avgiv hw` a‡i †bB cÖvšÍ Av‡Q Ges AviI aiv hvK, GB cÖvšÍ n‡jv Avgv‡`i `„wómxgvi †kl we›`y‡Z (cÖvq †`o nvRvi Av‡jvKel© `~‡i), Zvn‡j gyw³ †eM n‡e cÖvq Av‡jvi †e‡M mgvb| GB djvdj Lye Zvrch©c~Y©| KviY, †`‡L g‡b n‡”Q, m‡e‡P‡q `~‡ii Qvqvc\_iv Avgv‡`i †\_‡K cÖvq Av‡jvi †e‡M `~‡i m‡i hv‡”Q| †`‡L †Zv g‡b nq, Qvqvc\_iv GZ `~‡i mi‡Q †h Zviv nqZ gnvwek¦ †\_‡K †eiB n‡q hv‡e| †mUv bv n‡jI G‡K Aci †\_‡K wew”Qbœ †hb n‡eB| wd‡i Avm‡e bv KLbI|

‡`Lv hv‡”Q, cÖmviYkxj gnvwek¦ Avm‡j A‡bKUvB c„w\_ex †\_‡K wbw¶ß e¯Íyi g‡ZvB AvPiY Ki‡Q| hw`I gnvwe‡k¦i mywbw`©ó †Kv‡bv cÖvšÍ †bB| cÖmvi‡Yi MwZ Lye †ewk n‡j mi‡Z \_vKv Qvqvc\_¸‡jv gnvwe‡k¦i me c`v‡\_©i mw¤§wjZ gnvKl©xq eÜb †\_‡K Avjv`v n‡q hv‡e| Avi G‡Z K‡i cÖmviY Pj‡e wPiKvj| Ab¨ w`‡K, cÖmviY axi n‡j GK mgq gnvwe‡k¦i cÖmviY †\_‡g hve| gnvwek¦ m¼ywPZ n‡Z ïiæ Ki‡e| Qvqvc\_iv ZLb Avevi Ôbx‡Pi w`‡KÕ bvg‡Z ïiæ Ki‡e| †kl ch©šÍ NU‡e P~ovšÍÍ gnvRvMwZK wech©q| cZb n‡e gnvwe‡k¦i|

Gi g‡a¨ †KvbwU NU‡e? `ywU msL¨vi Zyjbvi g‡a¨ Gi DËiwU wbf©i Ki‡Q| GKwU n‡jv cÖmvi‡Yi MwZ| Av‡iKwU n‡jv gnvwe‡k¦i †gvU gnvKl©xq Uvb, hv‡K Avm‡j gnvwe‡k¦i IRb ejv P‡j| gnvKl©xq Uvb hZ †ewk n‡e, †m Uvb‡K AMÖvn¨ Ki‡Z n‡j gnvwek¦‡K ZZ †ewk `ªæZ cÖmvwiZ n‡Z n‡e| †R¨vwZwe©`iv †jvwnZ miY cÖfve1 ch©‡e¶Y K‡i mivmwi cÖmviY nvi †ei Ki‡Z cv‡ib| wKš‘ gnvwe‡k¦i fv‡M¨ Kx NU‡e †m cÖ‡kœi mgvavb nqwb| wØZxq ivwkwU, gv‡b gnvwe‡k¦i IRb wb‡q mgm¨vUv GLbI i‡q †M‡Q|

gnvwe‡k¦i IRb Kxfv‡e Rvbv m¤¢e? KvRUv‡K m‡\_ó KwVb g‡b n‡Z cv‡i| †evSvB hv‡”Q, GUv mivmwi Rvbvi †Kv‡bv Dcvq †bB| wKš‘ gnvKl© ZË¡ Kv‡R jvwM‡q Avgiv Gi IRb m¤ú‡K© aviYv †c‡Z cvwi| IR‡bi GKwU wbgœmxgv mn‡RB cvIqv hvq| MÖn‡`i Ici m~‡h©i gnvKl©xq Uvb cwigvc K‡i m~‡h©i IRb (fi) Rvbv hvq| Avgiv Rvwb, Avgv‡`i wgwéI‡q M¨vjvw·‡Z cÖvq GKk wewjqb (`k nvRvi †KvwU) b¶Î Av‡Q| G‡`i Mo fi Avgv‡`i m~‡h©i f‡ii mgvb| d‡j Gi gva¨‡g Avgiv Avgv‡`i M¨vjvw·i b¨~bZg f‡ii GKwU cÖv\_wgK wnmve cvB| Gevi Avgv‡`i‡K †`L‡Z n‡e gnvwe‡k¦ KZ¸‡jv M¨vjvw· Av‡Q| Giv msL¨vq GZ †ewk †h G‡`i‡K GK GK K‡i †MvYv hv‡e bv| Z‡e Abygvbwbf©i †ek fv‡jv GKwU wnmve n‡jv `k wewjqb (GK nvRvi †KvwU)| Zvn‡j me wgwj‡q `vuovq 1021 †mŠi fi| Ab¨ K\_vq 1048 Ub| GB M¨vjvw·¸‡jvi mgv‡e‡ki e¨vmva© c‡bi wewjqb AvjKel© a‡i wb‡j gnvwe‡k¦i gyw³‡e‡Mi b¨~bZg GKwU gvb cvIqv hv‡e| GB gvbwU `vuovq Av‡jvi †e‡Mi GK kZvsk| Avgiv hw` a‡i †bB †h gnvwe‡k¦i fi ïay b¶‡Îi fi wnmve K‡iB cvIqv hv‡e, Zvn‡j gnvwek¦ wb‡Ri gnvKl©xq Uvb‡K AMÖvn¨ K‡i wPiKvj cÖmvwiZ n‡Z \_vK‡e2|

A‡bK weÁvbxiB wek¦vm, gnvwe‡k¦i fv‡M¨ wVK GUvB NU‡e| Z‡e wKQy wKQy †R¨vwZwe©` I Km‡gvjwR÷ ej‡Qb f‡ii mgwó nqZ mwVKfv‡e wnmve Kiv nqwb| Avgiv †hme e¯Íy †`L‡Z cvw”Q ev¯Í‡e e¯Íy Av‡Q Zvi †P‡q †ewk| gnvwe‡k¦i me e¯Íy †Zv Avi D¾¡j bq| b¶Î, MÖn3 I eø¨vK †nvj‡`i g‡Zv Aby¾¡j e¯Íyiv Avgv‡`i `„wói Avov‡jB †\_‡K hvq| GQvovI i‡q‡Q cÖPyi cwigvY aywj I M¨vm| hv‡`i †ewkifvMB mn‡R †Pv‡L c‡o bv| AviI K\_v Av‡Q| M¨vjvw·i gvSLv‡bi ¯’vbI wKš‘ G‡Kev‡iB dvuKv bq| c`v\_© Av‡Q GLvbUvqI| Lye m¤¢e GLv‡b Av‡Q wecyj cwigvY nvjKv M¨vm|

Z‡e Av‡iKwU PgKcÖ` m¤¢vebvI K‡qK eQi a‡i †R¨vwZwe©`‡`i bRi †K‡o †i‡L‡Q| †h weM e¨vs‡qi gva¨‡g gnvwe‡k¦i m~Pbv, †mB we‡ùviYwUB Avgv‡`i †`Lv me e¯Íyi Drm| wKš‘ Avgiv †`wL bv Ggb wKQy e¯ÍyiI Drm †mB GKB we‡ùviY| gnvwek¦ hw` AwZcvigvYweK KYvi GK DËß Avavi wn‡m‡eB ïiæ n‡q \_v‡K, Z‡e mvaviY e¯Íyi Dcv`vb Avgv‡`i cwiwPZ B‡jKU«b, †cÖvUb I wbDU«b Qvov Ab¨me KYvI wecyj cwigvY ˆZwi n‡q \_vK‡e| KYvc`v\_©we`iv m¤cÖwZ cix¶vMv‡i GB KYv¸‡jv kbv³ K‡i‡Qb| GB KYv¸‡jv LyeB Aw¯’wZkxj| d‡j Giv Lye `ªæZB ¶q n‡q hvevi K\_v| Z‡e G‡`i wKQy wKQy nqZ AvRI Aewkó Av‡Q| gnvwe‡k¦i m~Pbvi aŸsmve‡kl wn‡m‡e|

GB aŸsmve‡kl¸‡jvi g‡a¨ wbDwU«‡bv me‡P‡q AvKl©Yxq| †mB f~Zy‡o KYv¸‡jv, hv‡`i‡K mycvi‡bvfvq Lye mwµq †`Lv hvq (†`Lyb PZy\_© Aa¨vq)| Avgiv hZUyKy Rvwb, Zv‡Z wbDwU«‡bviv ¶q n‡q Ab¨ wKQy‡Z cwiYZ n‡Z cv‡i bv| (Avm‡j wbDwU«‡bv Av‡Q wZb iK‡gi| GK ai‡b wbDwU«‡bv Ab¨ wbDwU«‡bv‡Z iƒcvšÍwiZ n‡Z cv‡i| GB w`KUv AvcvZZ Avgiv we‡ePbv †\_‡K ev` w`w”Q) d‡j weM e¨vs‡qi aŸsmve‡kl †\_‡K cvIqv gnvRvMwZK wbDwU«‡bv w`‡q gnvwek¦ ficyi \_vKvi K\_v| Avw`g gnvwe‡k¦ me ai‡bi AwZcvigvYweK KYv mgvbfv‡e ˆZwi n‡qwQj a‡i wb‡j wn‡me K‡i Rvbv m¤¢e KZ¸‡jv gnvRvMwZK wbDwU«‡bv \_vKv DwPr| wn‡me K‡i †`Lv †Mj, cÖwZ Nb †mw›UwgUv‡i wbDwU«‡bvi cwigvY nIqv DwPr 10 j¶| Ab¨ K\_vq, mvaviY e¯Íyi cÖwZwU KYvi wecix‡Z wbDwU«‡bvi msL¨v nIqv DwPZ cÖvq GKk †KvwU|

`viæY GB djvdjwU Avgv‡K memgq gy» K‡i‡Q| cÖwZ gyn~‡Z© Avcbvi †`‡ni g‡a¨ GKk wewjqb wbDwU«‡bv Dcw¯’Z Av‡Q| hvi cÖvq meB weM e¨vs‡qi aŸsmve‡kl| Aw¯Í‡Z¡i GK`g ïiæ †\_‡K Giv GLbI †gvUvgywU GKB Ae¯’vq Av‡Q| wbDwU«‡bviv Av‡jvi mgvb ev KvQvKvwQ MwZ‡Z P‡j| G Kvi‡Y Giv gyû‡Z©i g‡a¨ Avcbvi kix‡ii †fZi w`‡q P‡j hvq| cÖwZ †m‡K‡Û GKk wewjqb wbDwU«‡bv GB KvR K‡i| GB Aweivg PjvPj Avgiv †Lqvj Kwi bv, KviY wbDwU«‡bviv mvaviY e¯Íyi mv‡\_ Lye `ye©jfv‡e wµqv K‡i| d‡j G‡`i †Kv‡bv GKwU KYv Avcbvi †`‡ni g‡a¨ AvU‡K hv‡e †mB m¤¢vebv Lye mvgvb¨| wKš‘ AvcvZ`„wó‡Z k~b¨¯’v‡b GZ wbDwU«‡bvi Dcw¯’wZ gnvwe‡k¦i P~ovšÍÍ cwiYwZ‡Z eo cÖfve ivL‡Z cv‡i|

wbDwU«‡bviv Lye `ye©jfv‡e wµqv Ki‡jI Ab¨ me KYvi mv‡\_ Zv‡`i gnvKl©xq ej wKš‘ KvR K‡i| Zviv nqZ Av‡kcv‡ki Ab¨ KYv‡K Lye †ewk †Vjv-av°v w`‡Z cv‡i bv, wKš‘ Zv‡`i c‡iv¶ gnvKl©xq cÖwZwµqv gnvwe‡k¦i IRb gvc‡Z ¸iæZ¡c~Y© f~wgKv ivL‡Z cv‡i| Zv‡`i f~wgKv KZUyKy †mUv Rvb‡Z n‡j Rvb‡Z n‡e Zv‡`i fi|

gnvKl© wb‡q wnmve Ki‡Z †M‡j `iKvi nq cÖK…Z fi, wbðj fi bq| wbDwU«‡bv‡`i wbðj fi hw` KgI nq, Av‡jvi KvQvKvwQ †e‡M Pjvi Kvi‡Y G‡`i fi wKš‘ D‡jøL‡hvM¨ n‡q IV‡e| Avevi G‡`i fi k~b¨I n‡Z cv‡i| †m‡¶‡Î Giv Pj‡e Av‡jvi †e‡M| Zvn‡j Zv‡`i kw³i mv‡\_ Zyjbv K‡i cÖK…Z fi Rvbv hv‡e| Avi gnvRvMwZK aŸsmve‡kl wn‡m‡e cvIqv wbDwU«‡bvi †¶‡Î GB kw³i wnmve cvIqv hv‡e weM e¨vs †\_‡K cvIqv kw³i AbywgZ cwigvY †\_‡K| wKš‘ gnvwe‡k¦i cÖmvi‡Yi Kvi‡Y kw³ GKUy `ye©j n‡”Q| G Kvi‡Y g~j kw³i cwigvY‡K ms‡kvab K‡i wb‡Z n‡e| Z‡e GB ms‡kvab K‡i †bIqvi c‡iI †`Lv hv‡”Q, k~b¨ wbðj f‡ii wbDwU«‡bviv gnvwe‡k¦i †gvU IR‡b †Zgb †Kv‡bv f~wgKv ivL‡Z cvi‡Q bv|

Ab¨ w`‡K, wbDwU«‡bvi wbðj fi k~b¨ wK bv G e¨vcv‡i Avgiv wbwðZ bB| Avevi me ai‡bi wbDwU«‡bvi wbðj fi mgvb wK bv †mUvI Rvbv †bB Avgv‡`i| wbDwU«‡bv m¤ú‡K© eZ©gv‡b Avgiv hv Rvwb Zv‡Z G‡`i mmxg GKwU wbðj fi \_vKv Am¤¢e bq| AZGe, cix¶v Pvwj‡q †`L‡Z n‡e Avmj †KvbwU mwVK| PZy\_© Aa¨v‡qI Avgiv e‡jwQ, wbDwU«‡bvi fi \_vK‡jI †mUv Aek¨B Lye mvgvb¨ n‡e| fi n‡e cwiwPZ Ab¨ †h †Kv‡bv KYvi †P‡q Kg| wKš‘ gnvwe‡k¦ wbDwU«‡bvi msL¨v A‡bK †ewk nevi Kvi‡Y Lye mvgvb¨ wbðj fiI gnvwe‡k¦i †gvU IR‡b eo f~wgKv ivL‡e| welqwU Lye m~²fv‡e fvimvg¨ †g‡b P‡j| B‡jKU«‡bi (cwiwPZ KwYKv‡`i g‡a¨ me‡P‡q nvjKv) f‡ii 10 nvRvi fv‡Mi gvÎ GK fvM cwigvY fiI eo cÖfve ivL‡Z m¶g4| †m‡¶‡Î wbDwU«‡bv‡`i fi b¶‡Îi fi‡KI Qvwo‡q hv‡e|

GZ †QvU wbðj fi kbv³ Kiv Lye KwVb KvR| G welqK wewfbœ cix¶vi djvdj¸‡jvI wQj weåvwšÍKi I ci¯úiwe‡ivax| Z‡e GKwU welq Lye †KŠZ~n‡ji Rb¥ †`q| Ô1987GÕ mycvi‡bvfv †\_‡K cvIqv †M‡Q ¸iæZ¡c~Y© GKwU m~Î| Av‡MB e‡jwQ, wbDwU«‡bvi wbðj fi k~b¨ n‡j Zviv Aek¨B mevB Av‡jvi mgvb MwZ‡Z PjvPj Ki‡e| mevi MwZB wKš‘ mgvb n‡e G‡¶‡Î| wKš‘ G‡`i hw` Aí n‡jI wKQy wbðj fi \_v‡K, Zvn‡j fi bvbvb iKg n‡Z cv‡i| mycvi‡bvfv †\_‡K †ei nIqv wbDwU«‡bviv n‡e Lye †ZR¯^x| ZvB G‡`i wbðj fi wKQyUv \_vK‡jI Giv Pj‡e Av‡jvi Lye KvQvKvwQ MwZ‡Z| wKš‘ c„w\_ex‡Z G‡m †cŠuQv‡bvi Av‡M Giv A‡bK `xN© mgq a‡i PjvPj Kivi Kvi‡Y c„w\_ex‡Z G‡m †cŠuQ‡Z mgq LvwbKUv Kg-‡ewk jvM‡Z cv‡i| Ô1987GÕ mycvi‡bvfv †\_‡K Avmv wbDwU«‡bv‡`i †cŠuQv‡bvi mg‡qi ZviZg¨ we†kølY K‡i ejv hv‡e wbDwU«‡bvi m‡e©v”P wbðj fi KZ n‡Z cv‡i| Ges Gfv‡e GUv cvIqv †M‡Q B‡jKU«‡bi f‡ii 30 nvRvi fv‡Mi cÖvq GK fvM|

Z‡e `~f©v‡M¨i e¨vcvi n‡jv, welqUvq RwUjZv AviI Av‡Q| KviY wbDwU«‡bvi cÖKvi‡f` Av‡Q G‡Ki †ewk| †ewki fvM †¶‡Î wbðj fi †ei Kivi †¶‡Î weÁvbx cvDwji cÖ¯ÍvweZ wbDwU«‡bv wb‡q wnmve Kiv nq| wKš‘ c‡ii wØZxq Av‡iK ai‡bi wbDwU«‡bv cvIqv †M‡Q| Z…Zxq Av‡iK ai‡bi wbDwU«‡bvi K\_v weM e¨vs‡qi mg‡qi| GB wZb iK‡gi wbDwU«‡bvB e¨vcK AvKv‡i ˆZwi n‡q \_vK‡e| Gi g‡a¨ evwK `yB ai‡bi wbDwU«‡bvi f‡ii mxgv KZ n‡e Zv mivmwi ejv Lye KwVb| cix¶vg~jKfv‡e gv‡bi mxgvi cvj­v A‡bK eo| Z‡e ZvwË¡Kiv ej‡Qb, gnvwe‡k¦i f‡i wbDwU«‡bvi fi m¤¢eZ eo †Kv‡bv f~wgKv ivL‡Q bv| wbDwU«‡bvi fi †ei Kivi bZyb cix¶vg~jK c×wZi Av‡jv‡K GB aviYv e`‡jI †h‡Z cv‡i|

Avevi gnvwe‡k¦i IRb gvc‡Z †M‡j AviI gv\_vq ivL‡Z n‡e †h wbDwU«‡bv QvovI m¤¢ve¨ Ab¨ AviI gnvRvMwZK aŸsmve‡klI \_vK‡Z cv‡i| weM e¨vs‡qi mgq Ab¨vb¨ w¯’wZkxj I `ye©jfv‡e wµqv Kiv KYvI ˆZwi n‡q \_vK‡Z cv‡i| n‡Z cv‡i †m¸‡jvi fi AviI †ewk| (Z‡e fi Avevi †ewk n‡j A‡c¶vK…Z Aí f‡ii KYvi Zyjbvq Giv Kg ˆZwi n‡e| KviY †ewk f‡ii KYv ˆZwi‡Z †ewk fi jv‡M) G‡`i‡K mvaviYfv‡e ejv nq DB¤ú (WIMP)| K\_vUvi c~Y©i~c n‡jv `ye©j wg\_w®Œqvq Ask †bIqv fvix KYv (Weakly Interacting Massive Particles)| weÁvbx‡`i cÖ¯ÍvweZ DB¤ú KYvi msL¨v A‡bK| G‡`i Mvjfiv bvgI Av‡Q| GB †hgb Mª¨vwfUb, wnMwm‡bv, †dvwU‡bv| Giv Avm‡jB Av‡Q wK bv Zv †KD Rv‡b bv| Z‡e Avm‡jB \_vK‡j gnvwe‡k¦i IRb gvc‡Z G‡`i f~wgKv gv\_vq ivL‡ZB n‡e|

j¶¨Yxq e¨vcvi n‡jv, DB¤ú KYv‡`i Aw¯ÍZ¡ Av‡Q wK bv Zv mivmwiB cix¶v K‡i †djv hvq| mvaviY c`v‡\_©i mv‡\_ G‡`i wg\_w®Œqvi aib †\_‡K GUv Abygvb Kiv hv‡e| GB wg\_w®‹qv Lye `ye©j Zv mZ¨| Z‡e wecyj cwigvY DB¤ú KYvi fi D‡jøL‡hvM¨B n‡e| PjšÍ DB¤ú KYv kbv³ Ki‡Z D‡`¨vMI †bIqv n‡q‡Q| DËi-c~e© Bsj¨v‡Ûi GKwU je‡Yi Lwb I m¨vb dª¨vwÝ‡¯‹vi GKwU evu‡ai Kv‡Q GjvKv‡K cix¶vi ¯’vb wn‡m‡e evQvB Kiv n‡q‡Q| gnvwe‡k¦ G‡`i Dcw¯’wZ A‡bK †ewk a‡i wb‡j memgq Giv wecyj msL¨vq Avgv‡`i kixi (Ges c„w\_ex) †f` K‡i P‡j hv‡”Q| GB cix¶vi g~jbxwZ Lye `viæY| DB¤ú KYv cigvYyi wbDwK¬qv‡mi mv‡\_ av°v †L‡j †h kã n‡e, kbv³ Kiv n‡e †mB kã|

Gi Rb¨ hš¿ evbv‡bv n‡e Rv‡g©wbqvg ev wmwjK‡bi GKwU ùwUK w`‡q| hv GKwU kxZjxKiY e¨e¯’v w`‡q Ave…Z \_vK‡e| DB¤ú KYv ùwU‡Ki wbDwK¬qv‡m AvNvZ Ki‡j Gi fi‡e‡Mi Kvi‡Y wbDwK¬qvm †cQb w`‡K av°v Abyfe Ki‡e| G av°vi d‡j ùwUK j¨vwU‡m †QvÆ GKwU kã Zi½ ev K¤úb ˆZwi n‡e| Zi½ cÖmvwiZ n‡Z \_vK‡j Gi ZxeªZv GKwU K‡g Avm‡e| cwiYZ n‡e Zvckw³‡Z| µgk `ye©j n‡Z \_vKv kã Zi½ †\_‡K Drcbœ Zv‡ci m~² m‡¼Z kbv³ Kivi R‡b¨ G cix¶vi bKkv cÖ¯ÍyZ Kiv n‡q‡Q| ùwU‡Ki ZvcgvÎv Kwg‡q cÖvq cig k~b¨ ch©šÍ Avbv nq e‡j †h-‡Kv‡bv Zvc kw³i Avwef©ve‡KB wW‡U±i `viæY `¶Zvi m‡½ kbv³ K‡i †dj‡e|

ZvwË¡Kiv aviYv Ki‡Qb, wKQyUv Aí MwZ‡Z †QvUv †dvUvi AvK…wZi DB¤ú‡`i Svu‡Ki g‡a¨ Wy‡e Av‡Q Qvqvc\_¸‡jv| GB DB¤ú‡`i fi nqZ GKwU †\_‡K GK nvRvi †cÖvU‡bi f‡ii gvSvgvwS| Avi Mo fi †m‡K‡Û K‡qK nvRvi wK‡jvwgUvi| Avgv‡`i †mŠiRMr Avgv‡`i Qvqvc\_‡K wN‡i cvK LvIqvi mgq GB A`„k¨ RvqMv AwZµg K‡i| Avi c„w\_exi cÖwZ †KwR c`v\_© cÖwZ w`b GK nvRviwU ch©šÍ DB¤ú KYv we‡¶c Ki‡Z cv‡i| GB nv‡i wew¶ß n‡j DB¤ú KYv‡K mivmwi Lyu‡R cvIqv KwVb nIqvi K\_v bq|

GKw`‡K DB¤ú KYvi †LvuR Pj‡Q| Ab¨ w`‡K †R¨vwZwe©`iv gnvwe‡k¦i fi Rvbvi †PóvI K‡i hv‡”Qb| GKwU e¯Íy‡K †`Lv (ev †kvbv bv †M‡jI) Gi gnvKl©xq Uvb wKš‘ wb‡R‡K jywK‡q ivL‡Z cv‡i bv| †bcPyb MÖ‡ni Avwe®‹v‡ii K\_vB aiæb bv| †R¨vwZwe©`iv †Lqvj Ki‡jb, A‡Pbv GKwU e¯Íyi gnvKl©xq Uv‡b BD‡ibv‡mi K¶c‡\_ boPo NU‡Q| jyäK we GKwU Aby¾¡j †k¦Z evgb b¶Î| D¾¡j b¶Î jyäK‡K †K›`ª K‡i †Nv‡i †mwU| GB we jyäK‡KI wKš‘ Gfv‡eB cvIqv †M‡Q| Zvi gv‡b, e¯Íyi ch©‡e¶Y‡hvM¨ MwZ †Lqvj K‡i †R¨vwZwe©`iv A‡`Lv e¯ÍyiI wPÎ AvuK‡Z cv‡ib| (Avwg Av‡MB e‡jwQ, Kxfv‡e GB c×wZ‡Z wmMœvm-1 e¯ÍywU‡K eø¨vK †nvj wn‡m‡e Abygvb Kiv n‡qwQj|)

Avgv‡`i Qvqvc‡\_ b¶Îiv Kxfv‡e Pj‡Q †m wel‡q MZ GK ev `yB `k‡K Lye wbweofv‡e M‡elYv n‡q‡Q| mvaviYZ b¶Îiv wgwéI‡q ev AvKvkM½v Qvqvc‡\_i †K›`ª‡K wek †KvwU eQ‡ii †P‡q †ewk mgq wb‡q cÖ`w¶Y K‡i| Qvqvc‡\_i AvK…wZ wKQyUv PvKwZi g‡Zv| †K‡›`ªi w`‡K b¶‡Îi NbZ¡Uv GKUy †ewk| d‡j †mŠiRM‡Zi m~h© I MÖ‡ni m¤ú‡K©i g‡Zv cÖvq GKB iKg GKwU e¨vcvi Av‡Q GLv‡b| Z‡e †mŠiRM‡Z eya I ï‡µi g‡Zv c„w\_ex †\_‡KI †fZ‡ii w`‡Ki MÖn¸‡jv BD‡ibvm ev †bcPy‡bi g‡Zv evB‡ii w`‡Ki MÖn‡`i †P‡q †Rv‡i P‡j| Gi KviY n‡jv †fZ‡ii w`‡Ki MÖn¸‡jv m~‡h©i gnvKl©xq Uvb †ewk Abyfe K‡i| Avgiv nqZ Avkv Kie, Qvqvc‡\_i †¶‡ÎI e¨vcviwU GgbB n‡e| PvKwZi evB‡ii w`‡Ki b¶Î¸‡jv †K‡›`ªi w`‡Ki b¶Î‡`i Zyjbvq A‡bK ax‡i †Nviv DwPZ|

wKš‘ ch©‡e¶Y ej‡Q wfbœ K\_v| cy‡iv PvKwZ Ry‡oB b¶Î‡`i †eM cÖvq mgvb| e¨vL¨v wn‡m‡e ejv †h‡Z cv‡i, Qvqvc‡\_i fi nqZ †K‡›`ª cywÄf~Z bq| eis cy‡iv Qvqvc\_Ry‡o mgfv‡e we¯Í…Z| Qvqvc‡\_i †Pnviv †`‡L g‡b nq, fi †K‡›`ªB cywÄf~Z| Z‡e Av‡jvK¾¡j Ask nqZ c~Y©v½ wPÎ †`Lv‡”Q bv| GUv ¯úó †h cÖPyi cwigvY AÜKvi ev A`„k¨ e¯Íy i‡q‡Q| Gi eo GKwU As‡ki Ae¯’vb PvKwZi evB‡ii w`‡K| Avi GUvB †mw`‡Ki b¶‡Îi †eM evwo‡q w`‡q‡Q| Avevi PvKwZi D¾¡j Z‡ji evB‡i Lvwj †Pv‡L A`„k¨ WvK© g¨vUviI \_vK‡Z cv‡i cÖPyi| GUv n‡j AvKvkM½v XvKv \_v‡K wekvj fvix GK A`„k¨ ejq w`‡q| GB ejq AvšÍtQvqvc\_xq ¯’v‡bi A‡bK `~i ch©šÍ we¯Í…Z| Ab¨ Qvqvc‡\_I GKB iKg web¨vm †Pv‡L c‡o| wn‡me ej‡Q, (m~‡h©i Zyjbvq) D¾¡jZv †`‡L hZUv g‡b nq Qvqvc‡\_i `„k¨gvb Ask M‡o Zvi `k ¸‡Yi †ewk AÂj Ry‡o we¯Í…Z| me‡P‡q evB‡ii w`‡K AÂ‡j Avevi GB we¯Í…wZ cvuP nvRvi ¸Y ch©šÍI n‡Z cv‡i|

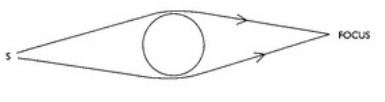
Qvqvc\_¸‡”Qi g‡a¨ Qvqvc‡\_i PjvP‡ji †¶‡ÎI GKB K\_v ejv hvq| cwi®‹vi K\_v: †Kv‡bv Qvqvc\_ h‡\_ó †e‡M Pj‡j †mwU Qvqvc\_ ¸‡”Qi Uvb wQu‡o †ewi‡q hv‡e| ¸‡”Qi me Qvqvc\_ GB †e‡M Nyi‡j ¸”Q µ‡gB wbt‡kl n‡q Avm‡e| †KvgvgÐ‡j Av‡Q K‡qKk Qvqvc\_ wb‡q Mov GKwU Av`k© Qvqvc\_ cyÄ| GwU wb‡q A‡bK †ewk M‡elYv n‡q‡Q| GB ¸‡”Q Qvqvc\_‡`i Mo MwZ‡eM GZUv †ewk †h G‡`i c‡¶ GK Ac‡ii mv‡\_ wg‡jwg‡k \_vKvi K\_v bq| GUv GKgvÎ m¤¢e hw` Qvqvc‡\_ D¾¡j e¯Íy‡`i f‡ii †P‡q AšÍZ K‡qKk ¸Y fi †ewk Dcw¯’Z \_v‡K| †Kvgv ¸”Q‡K AwZµg Ki‡Z GKwU mvaviY Qvqvc‡\_i gvÎ cÖvq GKk †KvwU eQi mg‡qi cÖ‡qvRb nq| d‡j GZ w`‡b ¸”QwU wQbœwfbœ n‡q hvevi K\_v| †mUv wKš‘ N‡Uwb| Dciš‘, ¸‡”Q KvVv‡gv †`‡L Lye fv‡jvfv‡e g‡b n‡”Q, GwU gnvK‡l©i eÜ‡b Ave× Av‡Q| †Kv‡bv GK ai‡bi WvK© g¨vUvi D‡jøL‡hvM¨ cwigv‡Y Dcw¯’Z Av‡Q nqZ| hv Qvqvc‡\_i MwZ‡K cÖfvweZ Ki‡Q|

gnvwe‡k¦i AwZ-eo-gvcKvwVi MVb †\_‡K A‡`Lv e¯Íy m¤ú‡K© AviI GKwU aviYv cvIqv hvq| AwZ-eo-gvcKvwV ej‡Z Avgiv eywS Qvqvc‡\_i K¬v÷vi (¸”Q) I mycviK¬v÷vi‡`i ¸”Qe× nevi cÖwµqv| Z…Zxq Aa¨v‡q Avgiv e‡jwQ, Qvqvc\_‡`i we¯Í…wZ A‡bKUv †dbvi g‡Zv| Qwo‡q cov Avu‡ki g‡Zv| wKsev wekvj k~b¨Zv‡K wN‡i \_vKv Pv`‡ii g‡Zv| weM e¨vs‡qi Gi c‡i hZUyKy mgq AwZevwnZ n‡q‡Q Zv‡Z Ggb ¸”Qe× I †dwbj KvVv‡gv M‡o IVvi K\_v bq| Z‡e GUv n‡Z cv‡i hw` †Kv‡bv Aby¾¡j e¯Íy evowZ gnvKl© mieivn K‡i| Kw¤úDUvi wmgy‡jk‡bi mvnv‡h¨ GLb ch©šÍ mij †Kv‡bv WvK© g¨vUv‡ii aviYv e¨envi K‡i G iKg †dwbj †Kv‡bv KvVv‡gv ˆZwi Kiv m¤¢e nqwb| n‡Z cv‡i AviI †Kv‡bv RwUj Dcv`vb i‡q‡Q gnvwe‡k¦|

WvK© g¨vUv‡ii inm¨ eyS‡Z weÁvbxiv GLb e¨wZµgx wKQy KYvi †LvuR Ki‡Qb| Z‡e WvK© g¨vUvi cwiwPwZ e¯Íyi AvKv‡iI \_vK‡Z cv‡i| †mUv n‡Z cv‡i MÖ‡ni AvKv‡ii Aby¾¡j b¶Î| Ggb AÜKvi e¯Íy nq‡Zv Avgv‡`i ARv‡šÍB Svu‡K Svu‡K Avgv‡`i Pvivcv‡ki gnKv‡k Ny‡i †eov‡”Q| m¤cÖwZ †R¨vwZwe©`iv `„k¨gvb e¯Íy‡`i mv‡\_ gnvKl©xq eÜ‡b Ave× AÜKvi e¯Íy‡`i‡K Lyu‡R cvIqvi GKwU Dcvq †ei K‡i‡Qb| G †KŠk‡j AvBb÷vB‡bi mvwe©K Av‡cw¶KZvi GKwU djvdj e¨envi Kiv nq| bvg gnvKl©xq eµZv (Gravitational lensing)|

Avgiv Rvwb, gnvKl© Av‡jv‡K evuwK‡q w`‡Z cv‡i| AvBb÷vBb e‡jwQ‡jb, `~‡ii b¶‡Îi Av‡jv m~‡h©i KvQ w`‡q Avmvi mgq wKQyUv †eu‡K hv‡e| Gi d‡j AvKv‡k b¶ÎwUi AvcvZ Ae¯’vb GKUy cv‡ë hv‡e| Av‡kcv‡k m~‡h©i Dcw¯’wZ I Abycw¯’wZi cÖfve j¶ K‡i GB c~e©vfvm hvPvB K‡i †`Lv hvq| KvRwU cÖ\_g K‡ib weªwUk †R¨vwZwe©` Av\_©vi GwWsUb| 1919 mv‡j| `viæYfv‡e wZwb Avwbb÷vB‡bi e³e¨wU cÖgvY K‡ib|

‡jÝI Av‡jvKiwk¥‡K evuwK‡q †`q| Gi d‡j Giv Av‡jv‡K †K›`ªxf~Z K‡i we¤^ (Qwe) ˆZwi Ki‡Z cv‡i| GKwU fvix e¯Íy h‡\_ó cÖwZmg n‡j †j‡Ýi g‡ZvB AvPiY Ki‡e| †K›`ªxf~Z Ki‡e `~‡ii Drm †\_‡K Avmv Av‡jv‡K| Ggb GKwU NUbv 6.1 wP‡Î †`Lv‡bv n‡q‡Q| Drm S †\_‡K Av‡jv GKwU †MvjKxq e¯Íyi Kv‡Q G‡m co‡j e¯Íyi gnvKl© Gi cv‡ki Av‡jv‡K evuwK‡q w`‡”Q| d‡j Av‡jvKiwk¥¸‡jv `~‡ii Av‡iKwU we›`y‡Z wM‡q wgwjZ n‡”Q| †ewkifMv e¯Íyi †¶‡ÎB †jwÝs ev eµZvi cÖfve Lye mvgvb¨| Z‡e wekvj `~i‡Z¡i †¶‡Î Av‡jvi Pjvi c‡\_i mvgvb¨UyKy eµZvI D‡jøL‡hvM¨ †dvKvm ˆZwi Ki‡e| e¯ÍyUv hw` c„w\_ex I `~ieZ©x Dr‡mi gvSLv‡b \_v‡K, Zvn‡j Dr‡mi Lye D¾¡j GKwU Qwe †`Lv hv‡e| Avevi wKQy e¨wZµgx cwiw¯’wZ‡Z `„wó‡iLv RvqMvg‡Zv co‡j Av‡jvi D¾¡j e…ËI †`Lv †h‡Z cv‡i| G‡K ejv nq AvBb÷vBb ejq (Einstein ring)| AviI RwUj e¯Íyi †¶‡Î †jwÝs‡qi d‡j GKwUi e`‡j A‡bK¸‡jv Qwe ˆZwi n‡e| gnvRvMvwZK gvcKvwV‡Z †R¨vwZwe©Ávbxiv gnvKl©xq eµZvi A‡bK¸‡jv D`vniY Lyu‡R †c‡q‡Qb| c„w\_ex I `~ieZ©x †Kvqvmv‡ii cÖvq wbLyuZ Ae¯’v‡b †Kvqvmv‡ii A‡bK¸‡jv Qwe ˆZwi nq| wKQy †¶‡Î †`Lv hvq e…ËPvc| wKQy‡¶‡Î Avevi †Kvqvmv‡ii cy‡iv e…ËI †`Lv hvq|



wPÎ 6.1

gnvKl©xq †jÝ|

[`~ieZ©x Drm S †\_‡K Avmv Av‡jv fvix e¯Íyi cÖfv‡e †eu‡K hvq| AbyK~j †¶‡Î GwU Av‡jv‡K †K›`ªxf~Z K‡i| †dvKvm we›`y‡Z \_vKv ch©‡e¶K e¯Íyi Pvicv‡k Av‡jvi GKwU ejq †`L‡Z cv‡eb|]

A`„k¨ MÖn I Aby¾¡j evgb b¶Î LyuR‡Z wM‡q †R¨vwZwe©`iv Ggb eµZvi mÜvb K‡ib| e¯ÍyUv c„w\_ex I `~‡ii †Kv‡bv b¶‡Îi gv‡S \_vK‡j eµZv †mB Lei e‡j †`‡e| `„wó‡iLv †\_‡K A‡`Lv e¯ÍywUi bovPovi Kvi‡Y b¶‡Îi D¾¡jZvq `„k¨gvb DVv-bvgv †Pv‡L co‡e| e¯ÍyUv wb‡R A`„k¨ n‡jI †jwÝs‡qi gva¨‡g Gi cÖfve †evSv hv‡e| GB †KŠkj Kv‡R jvwM‡q wKQy weÁvbx AvKvkM½v Qvqvc‡\_i n¨v‡jv‡Z (halo) A`„k¨ e¯Íyi †LvuR Ki‡Qb| Aek¨ `~ieZ©x b¶‡Îi mv‡\_ Ae¯’vb GKB †iLvq bv nevi m¤¢vebv Lye Kg n‡jI A`„k¨ e¯Íyi msL¨v †ewk n‡j gnvKl©xq eµZv †`Lv hv‡eB| 1993 mv‡ji K\_v| A‡÷«wjqv I hy³iv‡ó«i GKwU `j wbD mvD\_ Iqvj‡mi gvD›U †¯¿vg‡jv ch©‡e¶Y‡K›`ª †\_‡K jvR© g¨v‡RjvwbK K¬vDW Qvqvc‡\_i b¶Î‡`i †`LwQ‡jb| gnvKl©xq eµZvi cÖ\_g mwZ¨Kvi wb`k©b ZvuivB Lyu‡R cvb| GUv wQj Avgv‡`i Qvqvc‡\_i n¨v‡jv‡Z \_vKv GKwU evgb b¶‡Îi †jwÝs|

eø¨vK †nvjivI gnvKl©xq †jÝ wn‡m‡e KvR K‡i| Qvqvc‡\_i evB‡ii †eZvi Drm e¨envi K‡i Ggb eø¨vK †nvj‡K e¨vcKfv‡e †LvuRv n‡q‡Q| (Av‡jvK Zi‡½i g‡Zv GKBfv‡e †eZvi Zi½I †eu‡K hvq| ) Aek¨ m¤¢ve¨ e¯Íy cvIqv †M‡Q Lye KgB| GUv †\_‡K g‡b n‡”Q, bv¶wÎK ev AwZ-fvix eø¨vK †nvjiv nqZ WvK© g¨vUv‡ii Rb¨ Lye †ewk `vqx bq|

Z‡e me †jwÝs‡qi Rwi‡c me eø¨vK †nvj wKš‘ †`LvI hv‡e bv| Avevi GUvI m¤¢e †h weM e¨vs cieZ©x Pig Ae¯’vq AvYyex¶wYK (microscopic) eø¨vK †nv‡ji Rb¥ n‡q \_vK‡e| G‡`i AvKvi n‡e cigvYyi wbDwK¬qv‡mi †P‡q †QvU| G‡¶‡Î G‡`i fi n‡e GKwU mvaviY MÖnvYyi f‡ii mgvb| Gfv‡eI cÖPyi cwigvY fi A`„k¨ \_vK‡Z cv‡i| GB fi Qwo‡qI \_vK‡e cy‡iv gnvwe‡k¦| ïb‡Z AevK jvM‡jI GB A™¢yZ e¯Íy¸‡jvi f‡iiI GKwU wbw`©ó mxgv †ei Kiv m¤¢e| †KŠkjUvi bvg n‡jv nwKs cÖfve (Hawking effect)| 7g Aa¨v‡q Avgiv GUv wb‡q we¯ÍvwiZ Rvbe| ms‡¶‡c ejv hvq, AvYyex¶wYK eø¨vK †nvjiv we‡ùvwiZ n‡q GK SvuK ˆe`¨ywZK PvR©MÖ¯’ KYv ˆZwi Ki‡Z cv‡i| GB we‡ùviY N‡U GKwU wbw`©ó mg‡qi c‡i| GUv wbf©i K‡i eø¨vK †nv‡ji mvB‡Ri Ici| †QvU eø¨vK †nvjiv we‡ùvwiZ nq `ªæZ| GKwU MÖnvYyi mgvb f‡ii eø¨vK †nvj we‡ùvwiZ nq GK nvRvi †KvwU eQi cvi n‡j| Zvi gv‡b eZ©gvb mg‡qi KvQvKvwQ mgq| GB we‡ùvi‡Yi GKwU cÖfve n‡e nVvr K‡i †eZvi Zi‡½i m…wó| †eZvi †R¨vwZwe©`iv welqwU hvPvBI K‡i †`‡L‡Qb| Z‡e Ggb m¤¢ve¨ †Kv‡bv m‡¼Z cvIqv hvqwb| wn‡me K‡i †`Lv †M‡Q, cÖwZ 30 eQ‡i cÖwZ Nb Av‡jvKel© RvqMvq Ggb we‡ùviY GKwUi †ewk NUv m¤¢e bq5| Gi A\_© n‡jv, gnvwe‡k¦i †gvU f‡ii Lye mvgvb¨ GKwU AskB AvYyex¶wYK eø¨vK †nvj¸‡jv †\_‡K cvIqv hv‡e|

Av‡iKwU K\_v n‡jv, gnvwe‡k¦ WvK© g¨vUv‡ii cwigvY wb‡qI G‡KK †R¨vwZwe©‡`i G‡KK gZ| gnvwe‡k¦i cÖmviY †VKv‡Z hZUyKy NbZ¡ cÖ‡qvRb wVK Zvi †P‡q Kg b¨~bZg fi‡K ejv nq m¼U NbZ¡ (critical density)| wn‡me K‡i Gi fi cvIqv †M‡Q `„k¨gvb f‡ii cÖvq GKk ¸Y| †U‡bUy‡b n‡jI G cwigvY f‡ii Aw¯ÍZ¡ \_vKv m¤¢e| Avkv Ki‡Z n‡e, WvK© g¨vUv‡ii AbymÜvb †\_‡K kxN«B mywbw`©ó BwZevPK ev †bwZevPK dj cvIqv hv‡e| Avi hvB †nvK, gnvwe‡k¦i fwel¨r `vuwo‡q Av‡Q Gi Ici|

Avgv‡`i eZ©gvb Áv‡bi Av‡jv‡K Avgiv ej‡Z cvwi bv gnvwek¦ wPiKvj cÖmvwiZ n‡e wK bv| hw` GKmgq GwU m¼ywPZ n‡Z ïiæ K‡i, Z‡e cÖkœ `vuov‡e, †mUv KLb? GUv ej‡Z n‡j Rvb‡Z n‡e gnvwe‡k¦i fi m¼U f‡ii †P‡q KZUv †ewk| hw` GUv kZKiv GK fvM †ewk nq, Zvn‡j cÖvq GK wU«wjqb (ev GK j¶ †KvwU) eQi c‡i gnvwek¦ m¼ywPZ n‡Z ïiæ Ki‡e| Avevi hw` †mUv kZKiv 10 fvM †ewk nq, Zvn‡j m‡¼vPb ïiæ n‡q hv‡e GLb †\_‡K 10 nvRvi †KvwU eQi c‡iB6|

Z‡e †Kv‡bv †Kv‡bv ZvwË¡K Avevi g‡b K‡ib, ïay wn‡me-wb‡Kk K‡iB gnvwe‡k¦i fi †ei K‡i †djv m¤¢e| Zv‡`i g‡Z, Kó K‡i cÖZ¨¶ ch©‡e¶‡Yi †Kv‡bv cÖ‡qvRb †bB| wbQK hyw³i ¶gZv e¨envi K‡iB †h gvbyl gnvRvMwZK ÁvbI AvniY K‡i †dj‡Z cv‡i Ggb wek¦vm wMÖK `vk©wbK‡`iI wQj| AvaywbK hy‡MI wKQy Km‡gvjwR÷ gnvwe‡k¦i fi‡K MwY‡Zi Q‡K †P‡q‡Qb †eu‡a †dj‡Z †P‡q‡Qb| Zv‡`i g‡Z, Mfxi †Kv‡bv bxwZgvjv gnvwe‡k¦i f‡ii GKwU wbw`©ó gvb mieivn Ki‡e| G‡`i g‡a¨ me‡P‡q ZvK †j‡M hvq †mB wm‡÷g¸‡jv †`‡L, †h¸‡jv w`‡q gnvwe‡k¦i KYvi msL¨vi mwVK cwigvY mvswL¨K m~Î w`‡q †ei Kiv hvq|

ev¯ÍeZvi mv‡\_ m¤úK©nxb Ggb wPšÍv¸‡jv †`L‡Z-ïb‡Z `viæY n‡jI †ewkifvM weÁvbxivB G¸‡jv cQ›` K‡ib bv| Z‡e mv¤cÖwZK mg‡q Av‡iKwU †Rviv‡jv ZË¡ GKUy RbwcÖqZv †c‡q‡Q| GwU gnvwe‡k¦i fi m¤ú‡K© GKwU wbw`©ó c~e©vfvm w`‡Z cvi‡Q| ZË¡wU n‡jv Z…Zxq Aa¨v‡q Av‡jvwPZ ùxwZ ZË¡|

ùxwZ Z‡Ë¡i GKwU c~e©vfvm n‡jv gnvwe‡k¦ Dcw¯’Z e¯Íyi cwigvY wb‡q| aiv hvK, gnvwe‡k¦i m~Pbv N‡U‡Q m¼U fi Nb‡Z¡i †P‡q A‡bK †ewk ev A‡bK Kg gvb wb‡q| ùxwZ hyM ïiæ n‡j Nb‡Z¡i Avg~j cwieZ©b N‡U hvq| Z‡Ë¡i fvl¨ g‡Z, NbZ¡ m¼U Nb‡Z¡i gv‡bi Lye Kv‡Q P‡j Av‡m| gnvwek¦ hZ †ewk mgq a‡i ùxZ n‡Z \_v‡K, NbZ¡ ZZB m¼U gv‡bi KvQvKvwQ n‡Z \_v‡K| ZË¡wUi Av`k© bgybv Abymv‡i, ùxwZ hy‡Mi †gqv` wQj Lye mvgvb¨| ZvB, A‡jŠwKK wKQy bv N‡U \_vK‡j cÖv\_wgK Ae¯’vq gnvwe‡k¦i NbZ¡ m¼U Nb‡Z¡i wVK mgvb nIqvi K\_v bq| mvgvb¨ Kg-‡ewk n‡eB|

Z‡e ùxwZi mg‡q Nb‡Z¡i gvb m¼U gv‡bi w`‡K †h‡Z \_v‡K m~PKxq nv‡i7| d‡j Nb‡Z¡i P~ovšÍÍ gvb m¼U gv‡bi †P‡q GKUy †ewk n‡Z cv‡i| ùxwZ hyM hw` †m‡K‡Ûi Lye mvgvb¨ GK fMœvsk mgq cwigvYI wU‡K \_v‡K ZeyI GUvB nIqvi K\_v| GLv‡b m~PKxq ej‡Z †evSv‡bv n‡”Q, ùxwZi cÖvq cÖwZ GKK evowZ mg‡qi R‡b¨ weM e¨vs I gnvwe‡k¦i m‡¼vPb ch©v‡qi g‡a¨ mgq wØ¸Y n‡e| d‡j GK k GKK ùxwZ m‡¼vP‡b 10 nvRvi †KvwU eQi †`wi n‡e| Avevi GK k GKwU GKK ùxwZi R‡b¨ m‡¼vPb ïiæ n‡e 20 nvRvi †KvwU eQi c‡i| Ges GK k `k GKK ùxwZi R‡b¨ m‡¼vPb ïiæ n‡e GK j¶ †KvwU eQi c‡i|

ùxwZ hyM KZ¶Y ¯’vqx n‡qwQj? †KD †mUv Rv‡b bv| Z‡e †hme gnvRvMwZK avuavi K\_v Avwg e‡jwQ, †m¸‡jv‡K mwVKfv‡e e¨vL¨v Ki‡Z n‡j ùxwZi mgq b¨~bZg K‡qK GKK (cÖvq GK k, hw`I gvbwU Gw`K-‡mw`K n‡Z cv‡i) n‡ZB nq| Z‡e †Kv‡bv DaŸ© mxgv †bB| aiæb, KvKZvjxqfv‡e Ggb N‡U‡Q †h Avgv‡`i eZ©gvb ch©‡e¶Y‡K e¨vL¨v Kivi R‡b¨ ùxwZi †h b¨~bZg GKK `iKvi wVK ZZUvB n‡qwQj| †m‡¶‡ÎI ùxwZi c‡iI NbZ¡ m¼U f‡ii †P‡q A‡bK †ewk (ev Kg) n‡e| G‡¶‡Î fwel¨r ch©‡e¶Y †\_‡K m‡¼vPb hyM †ei Ki‡Z cvivi K\_v| A\_ev m‡¼vPb bv n‡q \_vKvi K\_v \_vK‡j †mUvI †evSv hv‡e| Z‡e ùxwZ b¨~bZg mg‡qi †P‡q AviI A‡bK †ewk mgq a‡i Pjvi m¤¢vebvB A‡bK †ewk| Gi d‡j Nb‡Z¡i gvb n‡e m¼U gv‡bi Lye KvQvKvwQ| Zvi gv‡b, gnvwek¦ m¼ywPZ n‡q \_vK‡jI †mUv AviI eû Kvj c‡ii K\_v| gnvwe‡k¦i eZ©gvb eq‡mi †P‡qI †ewk mgq jvM‡e Zv‡Z| †mUvB n‡q \_vK‡j gvbyl KL‡bvB wb‡Ri gnvwe‡k¦i fwel¨ZUvB Rvb‡e bv|

**Abyev`‡Ki †bvU**

1| µgk `~‡i mi‡Z \_vKv e¯Íyi GKwU djvdj n‡jv †jvwnZ miY cÖfve (red shift)| gnvwe‡k¦i cÖmvi‡Yi mv‡\_ mv‡\_ cÖvq me M¨vjvw· Avgv‡`i †\_‡K `~‡i m‡i hvq| G Kvi‡Y G‡`i †\_‡K Avmv `„k¨gvb Av‡jvi Zi½‰`N¨© eo n‡q hvq| `„k¨gvb Av‡jvi g‡a¨ jvj Av‡jvi Zi½‰`N¨© me‡P‡q eo| Avi me‡P‡q Kg bxj Av‡jvi| M¨vjvw·iv `~‡i mi‡Z mi‡Z G‡`i †\_‡K Avmv Av‡jv eY©vjxex¶Y h‡š¿ jvj w`‡K P‡j Av‡m| GUviB bvg †jvwnZ miY| Avevi D‡ëv w`‡K †Kv‡bv M¨vjvw· ev Ab¨ †Kv‡bv e¯Íy Kv‡Q Avm‡j Zvi Av‡jv P‡j hvq bxj w`‡K| ¯^vfvweKfv‡eB G‡K ejv nq bxj miY (blue shift)|

2| KviY gnvwe‡k¦i cÖmvi‡Yi Kvi‡Y eû M¨vjvw· GLbB Av‡jvi KvQvKvwQ, GgbwK †ewk †e‡MI, µgvMZ Qwo‡q co‡Q| gyw³‡eM Av‡jvi gvÎ GK kZvsk n‡j †m cÖmviY \_vgvi †Kv‡bv KviY †bB| gnvK‡l©i Uvb‡K AMÖvn¨ K‡i wcwQ‡q bv G‡m `~‡i P‡j hvevi R‡b¨ cÖ‡qvRbxq †eM‡KB wKš‘ gyw³‡eM ejv nq|

3| iv‡Zi AvKv‡k nvRvi nvRvi b¶Î †`L‡jI Lvwj †Pv‡L wKš‘ Avgiv gvÎ 5wU MÖn †`L‡Z cvB| gv‡b, †mŠiRM‡Zi me¸‡jv MÖnB wKš‘ Lvwj †Pv‡L †`Lv m¤¢e nq bv| g‡b n‡Z cv‡i, †Uwj‡¯‹vc w`‡qI A‡bK MÖn †`L‡Z cvB| Avm‡j †Uwj‡¯‹vc w`‡qI b¶Î‡`i Zyjbvq MÖn †Xi Kg †`Lv hvq| AvKv‡i †QvU nIqvi Kvi‡Y I wbR¯^ Av‡jv bv \_vKvq `~‡ii MÖn‡`i‡K †Uwj‡¯‹v‡c †c‡Z eû KvVLo †cvov‡Z nq| 2020 mv‡ji 1 A‡±vei ch©šÍ gvÎ 4,354 wU ewnMÖ©n Avwe®‹…Z n‡q‡Q| †hLv‡b b¶‡Îi Ae¯’vb D‡jøL Kiv wewfbœ ZvwjKv‡ZB j¶ j¶ b¶‡Îi bvg Av‡Q|

4| B‡jKU«‡bi cÖK…Z fi 9.109 × 10-31 †KwR| gv‡b `kwg‡Ki ci 30wU k~b¨ w`‡q 9109 wjL‡j †h msL¨vwU n‡e|

5| Nb wgUvi †hgb e¯Íy ev ¯’v‡bi AvqZb cwigv‡c e¨eüZ n‡Z cv‡i, †Zgwb Nb Av‡jvKel© GKK w`‡qI ¯’v‡bi AvqZb cwigvc Kiv hvq| Av‡jv GK eQ‡i hZUyKy hvq †mUv n‡jv GK Av‡jvKel©| Zvi gv‡b Av‡jvKel© mg‡qi GKK bq, eis `~i‡Z¡i GKK| Gevi Nb‡Ki g‡Zv GKwU K‡¶i K\_v wPšÍv Kiæb| Gevi GB K‡¶i ˆ`N¨©‡K GK Av‡jvKel© fveyb| Zvn‡j GB K¶wUi AvqZbB n‡e GK Nb Av‡jvKel©|

6| mv¤cÖwZK ch©‡e¶Y ej‡Q, gnvwek¦ Avevi ¸wU‡q hv‡e †m m¤¢vebv Lye Kg| Z‡e ¸wU‡q hv‡eB bv †mUv ejv hv‡”Q bv|

7| Avgiv MvwYwZK I R¨vwgwZK nv‡ii mv‡\_ cwiPwZ| m~PKxq nvi R¨vwgwZK nv‡iiB GKwU iƒc| MvwYwZK nvi ej‡Z †evSvq wbw`©ó mgq cici wbw`©ó cwigvY e…w× cvIqv| R¨vwgwZK nvi gv‡b cÖwZ evi evovi ci †h gvb `vuov‡e Zvi wfwË‡Z evov| Avi m~PKxq nviI R¨vwgwZK nvi| Z‡e G‡¶‡Î wbw`©ó mg‡qi cic‡ii e`‡j cÖwZ gyn~‡Z© e…w× N‡U| †hgb e¨vK‡Uwiqvi e…w×| AviI Rvb‡Z †`Lyb- statmania.info|

mßg Aa¨vq

wPiKvj GKwU `xN© mgq

Amxg wb‡q GKwU ¸iæZ¡c~Y© welq n‡jv, GwU ïayB GKwU eo msL¨v bq| ˆewkó¨MZfv‡e cÖKvÐiKg I AKíbxqfv‡e eo wKQyi †P‡q Amxg G‡Kev‡iB Avjv`v| aiæb, gnvwek¦ wPiKvj a‡i cÖmvwiZ n‡”Q, hvi †bB †Kv‡bv †kl| wPiKvj wU‡K \_vKvi A\_© n‡e Gi Avqy n‡e Amxg| Ggb †¶‡Î †h-‡Kv‡bv †fŠZ cÖwµqv (physical process) †Kv‡bv bv †Kv‡bv mgq NU‡eB| PvB Zv hZB axiMwZi wKsev Am¤¢ve¨ †nvK bv †Kb| †hgwbfv‡e GKwU evbi AbšÍKvj a‡i G‡jvcv\_vwo wK‡evW© Pvc‡Z \_vK‡j GKmgq bv GKmgq DBwjqvg †k·wcqv‡ii eB¸‡jv †jLv n‡q hv‡eB|

gnvKl© Zi½ wbM©g‡bi NUbv †\_‡K fvj GKwU D`vniY cvIqv hvq| GUv wb‡q Avgiv cÂg Aa¨v‡q K\_v e‡jwQ| ïay cÖKvÐ eo †Kv‡bv cÖwµqvi †¶‡ÎB gnvKl©xq wewKi‡Yi gva¨‡g kw³ ¶q †\_‡K `„k¨gvb †Kv‡bv cwieZ©b NU‡e| c„w\_ex m~‡h©i Pviw`‡K †Nvivi d‡j Zi½ wbM©Z nq cÖvq GK wgwjIqvU| c„w\_exi MwZi Ici Gi cÖfve ¶y`ªv`wc¶y`ª (infinitesimal)| wKš‘ GZUyKy kw³i ¶qI wU«wjqb wU«wjqb1 eQi a‡i Pj‡Z \_vK‡j GKmgq c„w\_ex mwc©j c\_ †e‡q m~‡h© wM‡q av°v Lv‡e| n¨vu, Zvi Av‡MB m~h© c„w\_ex‡K wM‡j †L‡q †djvi m¤¢vebvB †ewk| wKš‘ K\_v n‡jv, †h mgqKvjUv gvby‡li mg‡qi wn‡m‡e Lye bMY¨ wKš‘ Aí Aí K‡i n‡jI AweiZ \_v‡K, †mUvB GKmgq cÖKU n‡q D‡V †fŠZ e¨e¯’vi (physical system) fwel¨r wVK K‡i w`‡Z cv‡i|

GLb †\_‡K A‡bK A‡bK mgq c‡ii gnvwe‡k¦i Ae¯’vi K\_v GKUy wPšÍv Kwi| AvR †\_‡K GK nvRvi †KvwU-†KvwU-†KvwU (gv‡b 1 ci 24wU k~b¨) eQi c‡ii K\_vB aiæb bv| me b¶Î R¡vjvwb dywi‡q Av‡jvnxb n‡q †M‡Q| gnvwek¦Uv GLb AÜKvi| wKš‘ dvuKv bq| wekvj k~b¨Zvi GLv‡b-‡mLv‡b i‡q‡Q NyišÍ K…òMnŸiiv| i‡q‡Q `jQyU wbDU«b b¶Î| Avi i‡q‡Q Kv‡jv evgb (black dwarf)| I! Av‡Q wKQy MÖ‡ni Ae‡klI| GB mgq GB e¯Íy¸‡jv G‡K Ici †\_‡K \_vK‡e A‡bK A‡bK `~‡i| gnvwek¦ ZZw`‡b cÖmvwiZ n‡q Gi eZ©gvb AvKv‡ii 10 nvRvi wU«wjqb ¸Y n‡q‡Q|

gnvKl© ej †Lj‡e GK A™¢yZ †Ljv| cÖmvigvb gnvwek¦ PvB‡e me¸‡jv e¯Íy‡K G‡K Ici †\_‡K `~‡i mwi‡q †dj‡Z| wKš‘ e¯Íy‡`i cvi¯úwiK gnvKl©xq AvKl©Y Zvi c‡\_i KvuUv n‡q `vuov‡e| PvB‡e AviI Kv‡Q Avm‡Z| Gi d‡j wKQy wKQy e¯Íy gnvKl©xq eÜ‡b Ave×B \_vK‡e| Gi g‡a¨ i‡q‡Q Qvqvc\_cyÄ I eû eQ‡ii KvVv‡gv weK…wZi c‡iI †h Qvqvc\_iv wU‡K \_vK‡e| Z‡e GivI G‡`i Av‡kcv‡ki e¯Íy¸‡jv †\_‡K `~‡i m‡i hv‡e| gnvwe‡k¦i cÖmviY nvi KZ `ªæZ Kg‡e Zvi Ici wbf©i Ki‡e Kv‡Q †Vjv I Uvbv GB hy‡×i dj| gnvwe‡k¦ e¯Íyi NbZ¡ hZ Kg n‡e, Dc‡iv³ e¯Íy¸‡jv ZZ mn‡R Av‡kcv‡ki e¯Íy †\_‡K Avjv`v n‡q hv‡e| Nyi‡Z \_vK‡e gy³ I ¯^vaxbfv‡e|

gnvKl©xq eÜ‡b Ave× wm‡÷‡gi †¶‡Î gnvKl© ax‡i n‡jI Zvi Zxeª Avwac‡Z¨i ewntcÖKvk NUvq| gnvKl© Zi‡½i wbM©gb `ye©j n‡jI NvZ‡Ki g‡Zv µgk wm‡÷‡gi kw³ †kl K‡i †`q| hvi dj GKwU axi I mwc©j c‡\_i g„Zy¨| Gfv‡e ax‡i ax‡i GK g…Z Zviv Ab¨ g…Z Zviv ev K…òMne‡ii w`‡K AMÖmi n‡e| GK mgq Giv wM‡j Lv‡e G‡K Ici‡K| m~‡h©i K¶c\_ aŸsm Ki‡Z gnvKl© Zi‡½i mgq jvM‡e GK nvRvi †KvwU-‡KvwU-‡KvwU eQi| m~h© ZZ w`‡b n‡e GKwU Kv‡jv evgb b¶Î| †`L‡Z A½v‡ii g‡Zv| ax‡i ax‡i †h‡Z \_vK‡e Qvqvc‡\_i †K‡›`ªi w`‡K| †hLv‡b GK cÖKvÐ K…òMnei nv K‡i Av‡Q Zv‡K wM‡j Lvevi R‡b¨|

m~‡h©i g„Zy¨ Gfv‡eB n‡e GUv wbwðZ K‡i ejvi †Kv‡bv my‡hvM †bB| mwc©j c‡\_ GwM‡q hvevi mgq Ab¨ b¶‡Îi mv‡\_I Gi †`Lv n‡e| A‡bK mgq GwU P‡j Avm‡e †Kv‡bv evBbvwi wm‡÷‡gi Kv‡Q| †hLv‡b `y‡Uv ZviKv gnvKl©xq eÜ‡b NyicvK Lv‡”Q| Gici N‡U GK gRvi NUbv| hvi bvg gnvKl©xq wb‡¶cY (gravitational slingshot)| `y‡Uv e¯Íyi G‡K Ic‡ii Pvicv‡ki N~Y©b Gi mijZvi Rb¨ weL¨vZ| GB welqwUB †Kcjvi I wbDUb‡K e¨wZe¨¯Í †i‡LwQj| †h e¨¯ÍZv †\_‡KB Rb¥ AvaywbK weÁv‡bi| Zvuiv G‡¶‡Î KvR K‡iwQ‡jb m~h© I c„w\_ex e¯Íy `ywU wb‡q| GKwU Av`k© cwi‡e‡ki K\_v wPšÍv Ki‡j I gnvKl©xq wewKi‡Yi K\_v ev` w`‡j MÖnwUi GB MwZ wbqwgZ I ch©ve…Ë| gv‡b wbw`©ó mgq cici MwZ GKB iKg nq| Avcwb hZ mgqB A‡c¶v Kiæb bv †Kb, MÖn GKBfv‡e K¶c‡\_ Pj‡Z \_v‡K| Z‡e Z…Zxq GKwU e¯Íy hy³ n‡jB Ae¯’v Avg~j cv‡ë hvq| †mUv GK b¶Î I `yB wKsev wZb b¶Î hvB †nvK| MwZ GLb Avi mij I ch©ve…Ë n‡e bv| wZb e¯Íyi ga¨Kvi cvi¯úwiK AvKl©Y memgq RwUj Dcv‡q cv‡ë †h‡Z \_vK‡e| Gi d‡j GB e¨e¯’vi (system) kw³ Dcv`vb e¯Íy¸‡jvi g‡a¨ mgvbfv‡e fvM n‡e bv| GgbwK Zviv GKB iKg e¯Íy n‡jI bv| Pj‡Z \_v‡K eis GK RwUj b…Z¨| †hLv‡b GKwU e¯Íy I mv‡\_ Ab¨ GKwU e¯ÍyB kw³i cÖavb Ask `Lj K‡i| `xN© mg‡qi K\_v wPšÍv Ki‡j H e¨e¯’vi AvPiY Awbevh©fv‡e ˆ`e2 (random) | mwZ¨ ej‡Z, gnvKl©xq MwZwe`¨vi wZb e¯Íyi mgm¨v (three-body problem) wek…•Lj (chaotic) e¨e¯’viI GKwU fvj D`vniY| GgbI n‡Z cv‡i †h `ywU e¯Íy wg‡j Dcw¯’Z kw³i GZUvB wb‡q †d‡j †h Z…Zxq e¯ÍyUv e¨e¯’v †\_‡KB wQU‡K c‡o †¶cYv‡¯¿i g‡Zv| G Kvi‡YB G cÖwµqv‡K e‡j gnvKl©xq wb‡¶cY|

wb‡¶cY cÖwµqvi gva¨‡g b¶Î¯ÍeK †\_‡K wQU‡K †h‡Z cv‡i b¶Î| GgbwK Qvqvc\_ †\_‡KI wQU‡K †h‡Z cv‡i| `~i fwel¨‡Z g…Z b¶Î, MÖn I K…òMnŸi‡`i eo Ask Gfv‡e AvšÍtQvqvc\_xq ¯’v‡b wbw¶ß n‡e| nqZ G NUbvi gva¨‡g mv¶vr n‡e Ab¨ †Kv‡bv fvObiZ Qvqvc‡\_i mv‡\_| A\_ev GwU wPiKvj wekvj cÖmviYkxj k~b¨Zvi g‡a¨ NyicvK †L‡Z \_vK‡e| Z‡e GB cÖwµqv NU‡e Lye ax‡i| GUv NU‡Z gnvwe‡k¦i eZ©gvb eq‡mi GK k †KvwU ¸Y mgq jvM‡e| Aewkó e¯Íy¸‡jv Qvqvc‡\_i †K‡›`ªi w`‡K hvÎv Ki‡e| wgwjZ n‡q M‡o Zyj‡e wekvj ecyi (gigantic) K…òMnŸi|

cÂg Aa¨v‡q ejv n‡q‡Q, †R¨vwZwe©`iv †gvUvgywU wbwðZ, eZ©gv‡bB wKQy wKQy Qvqvc‡\_i †K‡›`ª wekvj wekvj K…òMnŸi Av‡Q| Giv N~b©bkxj M¨vm wM‡j Lv‡”Q| wewbg‡q wegy³ n‡”Q wecyj cwigvY kw³| mgq G‡j Ggb UvjgvUvj NUbvi wkKvi n‡e me Qvqvc\_| GUv Pj‡ZB \_vK‡e hZ¶Y bv K…òMnŸ‡ii cvk¦©eZ©x me e¯Íy nq `~‡i wQU‡K hv‡e bqZ K…òMnŸ‡ii †c‡U P‡j hv‡e| wQU‡K hvIqv e¯Íy Avevi wd‡iI Avm‡Z cv‡i| Avevi µgk nvjKv n‡q Avmv AvšÍtbv¶wÎK M¨v‡mi mv‡\_I wg‡k †h‡Z cv‡i| dy‡j-‡du‡c IVv K…òMnŸiwU Gevi †gvUvgywU wb\_i n‡q \_vK‡e| ïay †\_‡K †\_‡K `yB-GKwU wew”Qbœ wbDU«b b¶Î wKsev K…òMnŸi G‡m wg‡k hv‡e Gi mv‡\_| Z‡e K…òMnŸ‡ii Rxeb GLv‡bB †kl bq| 1974 mv‡j w÷‡db nwKs Avwe®‹vi Ki‡jb K…òMnŸi wVK K…ò bq| Zviv eis GKwU `ye©j Zv‡ci Avfv wewKiY K‡i|

GB nwKs wewKiY wVKfv‡e eyS‡Z n‡j jvM‡e †Kvqv›Uvg ZË¡| ZË¡Uv mnR bq| gnvwe‡k¦i ùxwZ ZË¡ wb‡q K\_v ejvi mgq Avwg Gi K\_v Av‡jvPbv K‡iwQ| nqZ g‡b Av‡Q, †Kvqv›Uvg Z‡Ë¡i GKwU cÖavb e³e¨ n‡jv nvB‡Rbev‡M©i AwbðqZv bxwZ| bxwZwU ej‡Q, †Kvqv›Uvg KYv‡`i me¸‡jv ˆewk‡ó¨i mymsÁvwqZ gvb \_v‡K bv| †hgb aiæb, GKwU wbw`©ó mg‡q GKwU †dvUb ev B‡jKU«b KYvi kw³i cwigv‡Yi wbw`©ó †Kv‡bv gvb \_vKv m¤¢e bq| mwZ¨ ej‡Z, GKwU AwZcvigvYweK KYv kw³ 'avi' Ki‡Z cv‡i| kZ© n‡jv Lye ¯^í mg‡qi g‡a¨ GB kw³ wdwi‡q w`‡Z n‡e|

Z…Zxq Aa¨v‡qB e‡jwQ, kw³i GB avi Kiv †\_‡K wKQy AvMÖ‡nvÏxcK djvdj cvIqv hvq| Gi g‡a¨ GKwU n‡jv AvcvZ `„wó‡Z k~b¨ ¯’v‡b ¯^ívqy ev fvP©yqvj KYvi Dcw¯’wZ| GUv †\_‡K cvIqv hvq GK A™¢yZ aviYv| †Kvqv›Uvg f¨vKyqvg| GUv Ggb GK f¨vKyqvg ('dvuKv ¯’vbÕ), †hwU dvuKv \_vKvi e`‡j Aw¯’i fvP©yqvj KYvi Dcw¯’wZ‡Z gyLi \_v‡K| GB Kvh©µg mvaviYZ †Pv‡L c‡o bv| Z‡e Gi †fŠZ cÖfve wKš‘ Av‡Q| Ggb GKwU djvdj cvIqv hvq f¨vKyqv‡gi GB Kvh©µg gnvKl©xq †¶Î Øviv cÖfvweZ n‡j|

fvP©yqvj KYv‡`i GKwU Pig cwi‡ek cvIqv hvq K…òMnŸ‡ii NUbv w`M‡šÍi Kv‡Q| Av‡MB e‡jwQ, avi Kiv kw³i mvnv‡h¨ fvP©yqvj KYviv Aí mg‡qi Rb¨ Aw¯ÍZ¡gvb \_v‡K| GKUy c‡iB kw³UyKy w`‡q w`‡Z nq| KYv‡`i‡KI aŸsm n‡q †h‡Z nq| GB mg‡qi g‡a¨ †Kv‡bv Kvi‡Y fvP©yqvj KYviv evB‡ii †Kv‡bv Drm †\_‡K kw³i eo †Kv‡bv mieivn †c‡j Zv‡`i FY cwi‡kva Kiv mnR n‡q †Mj| AZGe, FY cwi‡kv‡ai R‡b¨ Gevi Avi Zv‡`i‡K wejxb n‡q hvevi cÖ‡qvRb †bB| Gevi Giv Kg-‡ewk ¯’vqx Aw¯ÍZ¡ cv‡e|

nwKs‡qi g‡Z Ggb FY †bIqvi NUbvB N‡U eø¨vK †nv‡ji Kv‡Q| G‡¶‡Î cÖ‡qvRbxq kw³ †hvMvb †`Iqv `vZv n‡jv eø¨vK †nv‡ji gnvKl©xq †¶Î| KvRwU N‡U Gfv‡e: mvaviYZ fvP©yqvj KYviv ˆZwi nq †Rvovq †Rvovq| Avi MwZ \_v‡K wecixZ \_v‡K| NUbv w`M‡šÍi wVK evB‡i Ggb GK †Rvov bZyb KYvi K\_v wPšÍv Kiæb| aiæb, KYv‡`i MwZ Ggb †h GKwU KYv NUbv w`MšÍ †cwi‡q eø¨vK †nv‡ji g‡a¨ P‡j †Mj| hvIqvi mgq GwU eø¨vK †nv‡ji Zxeª gnvKl© †\_‡K cÖPyi kw³ jvf Ki‡e| nwKs †`L‡jb, GB kw³UyKy w`‡q cy‡iv FYUvB †kva K‡i †djv hvq| Gi gva¨‡g eø¨vK †nv‡ji †fZ‡ii I evB‡ii `ywU KYvB ev¯Íe KYvq cwiYZ nq| w`M‡šÍi evB‡ii wew”Qbœ KYvwUi fwel¨r AwbwðZ| n‡Z cv‡i, GwUI eø¨vK †nv‡ji w`‡K P‡j Avm‡e| Avevi D”P †e‡M eø¨vK †nvj †\_‡K D‡ëv w`‡KI †h‡Z cv‡i| cvwj‡q †h‡Z cv‡i eø¨vK †nv‡ji wÎmxgvbv †\_‡K| AZGe nwKs ej‡Qb, eø¨vK †nvj †\_‡K `~‡ii w`‡K Ggb SvuK KYv Aweivg cvjv‡Z \_vK‡e| G NUbviB bvg nwKs wewKiY|

AvYyex¶wYK eø¨vK †nv‡ji R‡b¨B nwKs wewKiY me‡P‡q kw³kvjx n‡e| GKwU fvP©yqvj B‡jKU«‡bi K\_v wPšÍv Kiæb| mvaviY Ae¯’vq GwU FY cwi‡kva Kivi Av‡M m‡e©v”P 10-11 †mw›UwgUvi c\_ †h‡Z cv‡i| Zvi gv‡b ïay Gi †P‡q †QvU gvÎvi (cÖvq cigvYyi †K‡›`ªi mgvb) eø¨vK †nvjB ïay mwZ¨Kvi A‡\_© B‡jKU«‡bi †dvqviv ˆZwi Ki‡Z cvi‡e| eø¨vK †nvj Gi †P‡q eo n‡j †ewkifvM fvP©yqvj B‡jKU«bB FY cwi‡kv‡ai Av‡M NUbv w`MšÍ †\_‡K †ei n‡Z cvi‡e bv|

GKwU fvP©yqvj KYv KZUv c\_ hv‡e †mUv wbf©i K‡i †mwU KZ mgq evuP‡e Zvi Ici| GUv Avevi wbf©i K‡i aviK…Z kw³i cwigv‡Yi Ici| nvB‡Rbev‡M©i AwbðqZv bxwZi gva¨‡g| FY hZ †ewk n‡e, KYvi Avqy n‡e ZZ Kg| kw³ avi Kivi eo GKwU Ask n‡jv KYvi wbðj fikw³| B‡jKU«‡bi †¶‡Î F‡Yi cwigvY AšÍZ B‡jKU«‡bi wbðj f‡ii mgvb n‡Z n‡e| †cÖvUb ev Ggb AviI †ewk wbðj f‡ii KYvi †¶‡Î F‡Yi cwigvY n‡e AviI eo| ZvB †gqv`KvjI n‡e Kg| Zvi gv‡b AwZµvšÍI c\_I n‡e Aí| Zvn‡j fveyb nwKs wewKi‡Yi gva¨‡g †cÖvUb ˆZwi Ki‡Z n‡j †Kgb cwi‡ek jvM‡e| jvM‡e Ggb GK eø¨vK †nvj, hv cigvYyi †K‡›`ªi gvÎvi †P‡qI †QvU| Ab¨ w`‡K wbDwU«‡bv ev Ggb AviI Kg wbðj f‡ii KYv ˆZwi n‡e Ggb eø¨vK †nv‡j hvi gvÎv cigvYyi †K‡›`ªi gvÎvi †P‡q eo| †dvU‡bi wbðj fi k~b¨| GUv †h-‡Kv‡bv AvKv‡ii eø¨vK †nvjB ˆZwi Ki‡Z cvi‡e| GgbwK gvÎ GK †mŠi f‡ii eø¨vK †nvjI nwKs cÖev‡ni gva¨‡g †dvUb, GgbwK m¤¢eZ wbDwU«‡bvI wbM©Z Ki‡e| Z‡e †m‡¶‡Î cÖev‡ni ZxeªZv n‡e Lye `ye©j|

GLv‡b '`ye©j' K\_vUvq GZUyKyI AZ¨yw³ †bB| nwKs †`L‡jb, eø¨vK †nvj w`‡q m…ó kw³i eY©vwj GKwU DËß e¯Íy †\_‡K wbM©Z wewKi‡Yi g‡ZvB nq| AZGe, nwKs cÖfv‡ei ZxeªZv cwigvc Kivi GKwU Dcvq n‡jv ZvcgvÎv| cigvYyi †K‡›`ªi AvKv‡ii (e¨vm 10-13 †mw›UwgUvi) GKwU eø¨vK †nv‡ji ZvcgvÎv A‡bK A‡bK †ewk| cÖvq GK nvRvi wWwMÖ| Ab¨ w`‡K †mŠi f‡ii GKwU eø¨vK †nv‡ji e¨vm gvÎ GK wK‡jvwgUvi| Avi ZvcgvÎv cig k~b¨3 ZvcgvÎvi 10 j¶ fv‡Mi GK fv‡MiI Kg| nwKs wewKi‡Yi gva¨‡g cy‡iv e¯ÍywU GK Iqv‡Ui GK nvRvi †KvwU-‡KvwU-‡KvwU fv‡MiI Kg cwigvY wewKiY D˜MxiY Ki‡e|

nwKs cÖfv‡ei A‡bK A™¢yZ ˆewkó¨ Av‡Q| Gi GKwU n‡jv eø¨vK †nv‡ji fi hZ Kg Kg nq, wewKi‡Yi ZvcgvÎv nq ZZ †ewk| Zvi gv‡b †QvU eø¨vK †nvjiv †ewk DËß nq| wewKi‡Yi gva¨‡g eø¨vK †nv‡ji kw³ Kg‡Z \_v‡K| d‡j K‡g fiI| Avi GwU µgk †QvU n‡q Av‡m| d‡j GwU AviI DËß nq| d‡j wewKiY nq AviI †ewk| Zvi gv‡b †QvU nq AviI `ªæZ MwZ‡Z| ¯^fveMZfv‡eB cÖwµqvwU Aw¯’wZkxj wKš‘ kw³kvjx| eø¨vK †nvj µgkB Av‡Mi †P‡q `ªæZ kw³ wbM©Z Ki‡Z \_v‡K I AvKv‡i †QvU n‡Z \_v‡K|

nwKs cÖfve ej‡Q, wewKiY w`‡Z w`‡Z †kl ch©šÍ me eø¨vK †nvj wbt‡kl n‡q hv‡e| †k‡li gyn~Z©¸‡jv n‡e †`Lvi g‡Zv| g‡b n‡e †hb GK cvigvYweK †evgvi we‡ùviY NU‡Q| Zxeª Zvc kw³i GK ¯^í¯’vqx SjK| Zvici? Zvici Avi wKQyB bv| ZË¡ AšÍZ †m K\_vB ej‡Q| Z‡e wKQy wKQy c`v\_©we` eø¨vK †nvj‡K †g‡b wb‡Z cvi‡Qb bv| †Kb GKwU Ro c`v\_© ¸wU‡q wM‡q eø¨vK †nvj n‡e? ZvI Avevi c‡i ïay Zvc wewKiY †i‡L wb‡R wgwj‡q hv‡e k~‡b¨!

Zv‡`i D‡Ø‡Mi KviY n‡jv, `ywU GK`g Avjv`v e¯Íy AweKj GKB iKg Zvc wewKi‡Yi Rb¥ w`‡Z cv‡i| d‡j g~j eø¨vK †nv‡ji Av‡Mi †Kv‡bv Z\_¨ msiw¶Z \_vK‡Q bv| Ggb DavI nIqvi cÖwµqv me ai‡bi msi¶YkxjZv bxwZi wec‡¶| Z‡e weKí GKwU e¨vL¨vI Av‡Q| nqZ DavI nIqvi Av‡M eø¨vK †nvj GKwU m~² aŸsmve‡kl †i‡L hvq| hv‡Z †Kv‡bvfv‡e wecyj cwigvY Z\_¨ iw¶Z \_v‡K| †m hvB †nvK, eø¨vK †nv‡ji f‡ii wekvj GKwU Ask Zvc I Av‡jv AvKv‡i wewKwiZ n‡q hv‡”QB|

nwKs cÖwµqv AfvebxqiKg ax‡i KvR K‡i| GK †mŠi f‡ii GKwU eø¨vK †nvjB wbt‡kl n‡Z 1066 eQi mgq †b‡e| Ab¨ w`‡K GKwU mycvig¨vwmf ev AwZfvix eø¨vK †nv‡ji mgq jvM‡e 1093 eQi| ZvI Avevi cÖwµqvwU ïiæB n‡e bv hZ¶Y bv gnvwe‡k¦i cUf~wg ZvcgvÎv †mB eø¨vK †nv‡ji ZvcgvÎvi bx‡P bv bv‡g| Ab¨\_vq Av‡kcv‡ki AÂj †\_‡K eø¨vK †nv‡ji w`‡K cÖevwnZ Zv‡ci ZxeªZv eø¨vK †nvj †\_‡K nwKs cÖfv‡ei gva¨‡g wbM©Z Zv‡ci †P‡q †ewk n‡e| weM e¨vs‡qi aŸsmve‡kl †\_‡K cÖvß gnvRvMwZK cUf~wg Zvc wewKi‡Yi eZ©gvb ZvcgvÎv cig k~‡b¨i wZb wWwMÖ Ic‡i| †mŠi f‡ii eø¨vK †nv‡ji †¶‡Î Zvc wewKi‡Yi wbtmiY I AvMg‡bi fvimvg¨ (mgvb-mgvb) nIqvi ZvcgvÎv K‡g Avm‡Z mgq jvM‡e 1022 eQi| nwKs wewKiY Ggb wKQy bq hv Avgiv wKQy¶Y e‡m †\_‡KB †`‡L †dj‡Z cvie|

Z‡e wPiKvj GKwU `xN© mgq| ZvB wPiKvj A‡c¶v Ki‡Z cvi‡j m¤¢eZ me eø¨vK †nvj, GgbwK AwZfvix‡`i‡KI DavI n‡Z †`Lv hv‡e| wPišÍb gnvRvMwZK Agvwbkvi Av‡jvi ¶Y¯’vqx SjK †`wL‡q eø¨vK †nvj Zvi g„Zy¨-‡e`bv cÖKvk Ki‡e| †KvwU †KvwU m~‡h©i mgvb †ZR¯^x e¯ÍyUvi we`vq NÈv!

evwK \_vKj Zvn‡j Kx?

me c`v\_© eø¨vK †nv‡j cwZZ nq bv| wbDU«b b¶Î I K…òevgb wb‡qI Avgv‡`i‡K fve‡Z n‡e| GQvovI Av‡Q wbtm½ MÖn, hviv GKvKx AvšÍtQvqvc\_xq ¯’v‡b Ny‡i †eovq| ïay wK ZvB? AviI Av‡Q M¨vm I a~wjKYvi nvjKv AveiY| †h¸‡jv KL‡bvI mg‡eZ n‡q b¶‡Î cwiYZ n‡Z cv‡iwb| AviI Av‡Q MÖnvYy, a~g‡KZy, DévwcÐ I wewfbœ †mŠie¨e¯’vi cyi‡bv cv\_iLÐ| Gme e¯Íyiv wK wPiKvj wU‡K \_vK‡e?

GLv‡b G‡m Avgiv ZvwË¡K mgm¨vq c‡o hvB| Avgv‡`i‡K Rvb‡Z n‡e mvaviY c`v\_©, gv‡b Avgiv gvbyliv Ges c„w\_ex †hme e¯Íy w`‡q Mov Zv wK G‡Kev‡i w¯’wZkxj? fwel¨‡Z Kx NU‡e Zvi P~ovšÍ djvdj wbf©i Ki‡Q †Kvqv›Uvg †gKvwb‡·i Ici| †Kvqv›Uvg cÖwµqv mvaviYZ cvigvYweK I AwZcvigvYweK e¨e¯’vi mv‡\_ m¤úwK©Z| Z‡e †Kvqv›Uvg c`v\_©we`¨vi bxwZ mewKQyi †¶‡ÎB cÖ‡hvR¨ nevi K\_v| cÖ‡hvR¨ nevi K\_v AvYyex¶wYK e¯Íyi †¶‡ÎI| eo e¯Íy‡`i †¶‡Î †Kvqv›Uvg djvdj AwZgvÎvq ¶y`ª| Z‡e `xN© mg‡q †mUvI eo cwieZ©b NUv‡Z m¶g|

†Kvqv›Uvg c`v\_©we`¨vi cÖavb ˆewkó¨ n‡jv AwbðqZv I m¤¢ebv| †Kvqv›Uvg RM‡Z wKQyB wbwðZ bq| Av‡Q ïay m¤¢vebv| Zvi gv‡b †Kv‡bv GKwU NUbv hw` m¤¢e n‡q \_v‡K, Zvn‡j h‡\_ó cwigvY mgq †c‡j GwU NU‡eB| Zvi m¤¢vebv hZB Kg †nvK| †ZRw¯ŒqZvi †¶‡Î Avgiv GB wbqgwUi cÖwZdjb †`wL| BD‡iwbqvg-238 Gi wbDwK¬qvm cÖvq m¤ú~Y© w¯’wZkxj| Z‡e GwU †\_‡KI GKwU Avjdv KYv wbw¶ß n‡q †\_vwiqvg ˆZwi n‡q hvevi †QvU GKwU m¤¢vebv †\_‡KB hv‡”Q| AviI mwVK K‡i ej‡j, cÖwZ GKK mg‡q GKwU wbw`©ó BD‡iwbqvg wbDwK¬qv‡mi †f‡O hvevi GKwU Lye †QvU m¤¢vebv Av‡Q| GUv NU‡Z M‡o mv‡o Pvi‡kv †KvwU eQi mgq jv‡M| Z‡e c`v\_©we`¨vi m~Î cÖwZ GKK mg‡qB GKwU wbw`©ó m¤¢vebv Pvq| d‡j †h-‡Kv‡bv BD‡iwbqv‡gi †K›`ªB GKmgq bv GKmgq fvO‡eB|

GKevi fveyb †Zv, Avjdv KYvi †ZRw¯Œq ¶q †Kb N‡U? KviY BD‡iwbqvg cigvYyi wbDwK¬qv‡m \_vKv †cÖvUb I wbDU«‡bi Ae¯’v‡b GKUyLvwb AwbðqZv Av‡Q| d‡j memgq ¶y`ª n‡jI GK ¸”Q KYv Aí mg‡qi Rb¨ wbDwK¬qv‡mi evB‡i Ae¯’vb Kivi GKwU m¤¢vebv Av‡Q| G Kvi‡Y wbDwK¬qvm †\_‡K Zviv `ªæZ `~‡i avweZ nq| GKBfv‡e KwVb c`v‡\_©i cigvYyi Ae¯’v‡bi e¨vcv‡iI GKwU AviI †QvU wKš‘ Ak~b¨ AwbðqZv Av‡Q| †hgb nxivi g‡a¨ GKwU Kve©b cigvYyi K\_v fveyb| GwU ùwU‡Ki j¨vwU‡mi g‡a¨ LyeB mymsÁvwqZ RvqMvq Ae¯’vb K‡i| `~i fwel¨‡Z gnvwe‡k¦i cÖZ¨vwkZ ZvcgvÎv k~‡b¨i Kv‡Q †cŠuQ‡jB GB Ae¯’vb Aw¯’wZkxj nIqvi K\_v| wKš‘ cy‡ivcywi bq| cigvYywUi Ae¯’v‡b memgqB GKwU ¶y`ª AwbðqZv Av‡Q| Gi gv‡b n‡jv, j¨vwUm †\_‡K cigvYywU †ewi‡q wM‡q Ab¨ †Kv\_vI P‡j hvevi GKwU ¶y`ª m¤¢vebv Av‡Q| Ggb cÖ¯’vb cÖwµqvi Kvi‡Y †Kv‡bv c`v\_©B, GgbwK nxivi g‡Zv KwVb c`v\_©I, mwZ¨Kvi A‡\_© KwVb bq| eis, hv‡K †`L‡Z KwVb g‡b nq †mwU Avm‡j A‡bK †ewk AvVv‡jv GKwU Zij c`v\_©| Ges A‡bK †ewk mgq †c‡j GwUI Zi‡ji g‡Zv cÖevwnZ n‡Z cvi‡e| KviY n‡jv †Kvqv›Uvg †gKvwb‡·i cÖfve| ZvwË¡K c`v\_©we` wd«g¨vb WvBmb wn‡me K‡i †`‡L‡Qb, cÖvq 1065 eQi c‡i h‡Zœi mv‡\_ KvUv cÖwZwU nxiKLÐ †MvjvKvi ¸wU‡Z cwiYZ n‡e| ïay ZvB bq, cÖwZ UyK‡iv cv\_iI cwiYZ n‡e gm…Y †Mvj‡K|

Ae¯’v‡bi AwbðqZvi Kvi‡Y wbDK¬xq iƒcvšÍiI N‡U †h‡Z cv‡i| D`vniY wn‡m‡e nxivi ùwU‡Ki `y‡Uv cÖwZ‡ekx cigvYyi K\_v fveyb| Lye Kg NU‡jI A‡bK mgq †`Lv hvq, GKwU cigvYyi wbDwK¬qvm ¯^Zù~Z©fv‡eB mvgvb¨ mg‡qi Rb¨ Gi cÖwZ‡ekx cigvYyi cv‡k Avwef©~Z nq| wbDwK¬qv‡mi AvKl©Yx ej nqZ ZLb `y‡Uv wbDwK¬qvm‡K †Rvov w`‡q g¨vM‡bwmqv‡gi GKwU wbDwK¬qvm evwb‡q †`‡e| Zvi gv‡b wbDK¬xq wdDkb (ms‡hvRb) NUvi R‡b¨ Lye D”P ZvcgvÎv bv n‡jI P‡j| kxZj ms‡hvRbI m¤¢e| Z‡e Gi R‡b¨ cÖ‡qvRb cÖPyi cwigvY mgq| WvBmb wn‡me K‡i †`‡L‡Qb, 101500 eQi (Zvi gv‡b 1 Gi c‡i 1500wU k~b¨) c‡i me c`v\_© iƒcvšÍwiZ n‡q me‡P‡q w¯’wZkxj wbDwK¬q AvK…wZ jvf Ki‡e| GUv n‡jv †jŠn|

Z‡e GUvI cv‡i †h wbDwK¬q e¯ÍywU GZUv mgq ch©šÍ wU‡K \_vK‡e bv| Gi KviY n‡jv Lye axiMwZi n‡jI AviI `ªæZMwZi wbDwK¬q iƒcvšÍi cÖwµqv| WvBm‡bi cwigv‡c †cÖvUb‡K (I wbDwK¬qv‡m \_vKv wbDU«b‡K) cy‡ivcywi w¯’wZkxj a‡i †bIqv n‡q‡Q| Ab¨ K\_vq, GKwU †cÖvUb eø¨vK †nv‡j cwZZ bv n‡j ev Ab¨ †Kv‡bvfv‡e D‡ËwRZ bv n‡j GwU wPiKvj wU‡K \_vK‡e| wKš‘ welqUv wK Avgiv wbwðZ K‡i ej‡Z cvwi? Avgvi QvÎRxe‡b GUv wb‡q Kv‡ivB m‡›`n wQj bv| †cÖvUbiv wQj Awebk¦i| Zviv wQj cy‡ivcywi w¯’wZkxj| Z‡e GKUyLvwb A¯^w¯ÍKi m‡›`n memgqB wQj| mgm¨vwUi mv‡\_ Rwo‡q Av‡Q cwRU«b bv‡g GKwU KYv| GwU B‡jKU«‡bi g‡ZvB| cv\_©K¨ GKwU RvqMvq| †cÖvU‡bi g‡ZvB Gi PvR© abvZ¥K (†hLv‡b B‡jKU«‡bi PvR© FYvZ¥K)| †cÖvU‡bi †P‡q Giv A‡bK nvjKv| d‡j, Ab¨ mewKQy wVK \_vK‡j †cÖvUbiv cwRU«b n‡q †h‡Z PvB‡e| c`v\_©we`¨vq †fŠZ e¨e¯’v¸‡jv (physical system) GKwU M~p bxwZ †g‡b P‡j| GB e¨e¯’v¸‡jv memgq b¨~bZg kw³i Ae¯’vq †h‡Z Pvq| Avi Aí fi gv‡b Aí kw³| GLb, †KDB ej‡Z cvi‡eb bv †Kb †cÖvUbiv GB KvRwU K‡i bv| ZvB c`v\_©we`iv Abygvb K‡i wb‡jb, cÖK…wZi †Kv‡bv m~Î nqZ G‡K †VwK‡q †i‡L‡Q| wKQyw`b Av‡MI welqwU GKg` `~‡e©va¨ wQj| Z‡e †Kvqv›Uvg †gKvwb‡·i m~Î Abymv‡i wbDwK¬q ej¸‡jv Kxfv‡e GK KYv‡K Ab¨ KYvq iƒcvšÍwiZ K‡i †m m¤ú‡K© aviYv wKQyUv cwi®‹vi nq 1970 Gi `k‡K| me©‡kl ZË¡¸‡jv Abymv‡i †cÖvU‡bi ¶‡qi wecix‡Z KvR Kiv m~Î cvIqv hv‡”Q| Z‡e Ggb †ewkifvM ZË¡B ej‡Q, m~ÎwU cy‡ivcywi djcÖm~ bq| GKwU †cÖvUb cwRU«‡b iƒcvšÍwiZ n‡q hvevi GKwU †QvULvU m¤¢vebv †\_‡KB hv‡”Q| evwK fiUyKyi wKQy Ask ˆe`¨ywZKfv‡e Avavb wbi‡c¶ †Kv‡bv KYvq cwiYZ n‡Z cv‡i| †hgb Z\_vKw\_Z cvBIb| wKQy Ask Avevi MwZ kw³ wn‡m‡e Dcw¯’Z \_vK‡Z cv‡i (¶‡qi †dj m…ó e¯Íy¸‡jv D”P †e‡M PjvPj Ki‡e)|

me‡P‡q mij GKwU ZvwË¡K bgybv Abymv‡i †cÖvUb ¶‡qi Rb¨ Mo mg‡qi cÖ‡qvRb 1028 eQi| GUv gnvwe‡k¦i eZ©gvb eq‡mi `k nvRvi-‡KvwU-‡KvwU ¸Y| G Kvi‡Y Avcbvi Kv‡Q nqZ g‡b n‡e †cÖvUb ¶‡qi welqwU ïaygvÎ KvM‡R Kj‡gB mxgve× \_vK‡e| wKš‘ g‡b ivL‡Z n‡e welqwUi mv‡\_ †Kvqv›Uvg †gKvwb· Rwo‡q Av‡Q| d‡j mnRvZfv‡eB GwU m¤¢vebv-wbf©i| 1028 eQi n‡jv c~e©vfvmK…Z Mo Avqy| me †cÖvU‡bi cÖK…Z Avqy bq| A‡bK †ewk †cÖvU‡bi K\_v we‡ePbv Ki‡j Avgv‡`i †Pv‡Li mvg‡bB GKwU †cÖvU‡bi ¶q †`Lvi fvj m¤¢vebv i‡q‡Q| mwZ¨ ej‡Z, 1028 wU †cÖvU‡bi K\_v we‡ePbv Ki‡j cÖvq cÖwZ eQi GKwU K‡i †cÖvUb ¶q nIqvi K\_v| Avi gvÎ 10 †KwR c`v‡\_©B Av‡Q 1028wU †cÖvUb|

Z‡e Avm‡j †hUv NUj, ZË¡Uv RbwcÖq nevi Av‡MB †cÖvU‡bi GB iKg Avqy \_vKvi m¤¢vebv cix¶vg~jKfv‡e evwZj n‡q hvq| wKš‘ ZË¡wUi wewfbœ iƒc‡f‡` AviI †ewk Avqyi K\_v ejv n‡q‡Q| 1030 ev 1032 eQi| ev AviI †ewk| wKQy wKQy ZË¡ †Zv 1080 eQi ch©šÍ Abygvb K‡i| Aí gvb¸‡jv cix¶vg~jKfv‡e hvPvB‡hvM¨| †hgb 1032 eQi ¶qKv‡ji A\_© n‡e Avcbvi cy‡iv Avqy®‹v‡j Avcwb kixi †\_‡K GKwU ev `ywU †cÖvUb nviv‡Z cv‡ib| wKš‘ Ggb `yj©f NUbv Kxfv‡e kbv³ Kiv m¤¢e?

Gi Rb¨ GKwU †KŠk‡ji AvkÖq †bIqv nq| nvRvi nvRvi Ub c`v\_© Ro Kiv nq| Gi ci Lye ms‡e`bkxj wW‡U±i w`‡q eû gvm hveZ G¸‡jvi Ici bRi ivLv nq| wW‡U±i‡K Ggbfv‡e ivLv wQj hv‡Z GKwU †cÖvUb ¶‡qi Drcv`KI m‡¼Z †`‡e| Z‡e `~f©v‡M¨i welq n‡jv †cÖvUb ¶q †LvuRv L‡ii Mv`vq myuB †LvuRvi g‡ZvB| KviY, Ggb ¶q gnvRvMwZK wewKi‡Yi cÖfv‡e NUv AviI Ggb eû †ewkmsL¨K NUbvi Avov‡j Pvcv c‡o hvq| c„w\_ex cÖwZ gyn~‡Z© gnvKvk †\_‡K Avmv D”Pkw³i KYvi AvNv‡Z RR©wiZ n‡”Q| Gi d‡j AwZcvigvYweK KwYKvi GKwU me©`v-Dcw¯’Z cUf~wg ˆZwi n‡”Q| GB e¨wZPvi Kgv‡bvi Rb¨ cix¶v Pvjv‡Z nq gvwUi bx‡P|

gvwUi AvagvB‡ji †ewk bx‡P G ai‡bi GKwU cix¶v‡K›`ª ¯’vcb Kiv nq| RvqMvUv InvB‡qvi wK¬fj¨v‡Ûi GKwU je‡Yi Lwb‡Z Aew¯’Z| 10 nvRvi Ub AwZgvÎvq weï× cvwb‡K NbvKvi U¨vs‡K †i‡L wW‡U±i w`‡q †NivI K‡i hš¿ wbg©vY Kiv nq| cvwb e¨env‡ii KviY Gi ¯^”QZv| d‡j wW‡U±i GKev‡i h\_vm¤¢e m‡e©v”P msL¨K †cÖvUb †`L‡Z cv‡e| eyw×Uv wQj Ggb: hw` fvj †Kv‡bv Z‡Ë¡i K\_v Abymv‡i cÖZ¨vwkZ Dcv‡q †Kv‡bv †cÖvU‡bi ¶q N‡U Zvn‡j GwU GKwU cwRU«‡bi cvkvcvwk ˆe`¨ywZKfv‡e wbi‡c¶ cvBIb ˆZwi Ki‡e| GUv Avgiv Av‡MI e¨vL¨v K‡iwQ| GB cvBIbI Avevi `ªæZ ¶q n‡q hv‡e| mvaviYZ G ¶q †\_‡K `ywU Lye †ZR¯^x †dvUb ev Mvgv iwk¥ ˆZwi n‡e| †k‡l GB Mvgv iwk¥ cvwbi wbDwK¬qv‡mi †`Lv cvq| cÖwZwU †\_‡K ˆZwi nq GKwU B‡jKU«b-cwRU«b †Rvo| GivI nq Lye †ZR¯^x| mwZ¨ ej‡Z, GB †MŠY B‡jKU«b I cwRU«b¸‡jv GZB †ZR¯^x nq †h Giv Av‡jvi KvQvKvwQ MwZ‡Z P‡j| GgbwK cvwb‡ZI|

k~b¨ gva¨‡g Av‡jv P‡j †m‡K‡Û 3 j¶ wK‡jvwgUvi MwZ‡Z| †Kv‡bv KYvB Gi †P‡q †ewk †e‡M Pj‡Z cv‡i bv| GLb, cvwb Av‡jvi MwZ‡K wKQyUv Kwg‡q †`q| †eM `vuovq 2 j¶ 30 nvRvi wK‡jvwgUvi| d‡j cvwb‡Z cÖvq 3 j¶ wK‡jvwgUvi †e‡M Pjv D”P MwZi †Kv‡bv AwZcvigvYweK KYv cvwb‡Z Av‡jvi †e‡Mi †P‡q †ewk †e‡M P‡j| †Kv‡bv AvKvkhvb k‡ãi †P‡q †ewk †e‡M Pj‡j Zxeª ¸g ¸g kã nq| Gi bvg mwbK eyg| GKBfv‡e †Kv‡bv gva¨‡gi †fZi w`‡q Av‡jvi †P‡q †ewk †e‡M Pjv †Kv‡bv PvwR©Z KYv †mB gva¨‡g GKwU ¯^Zš¿ Zwo”Py¤^Kxq kKI‡qf ˆZwi Ki‡e| Gi bvg †P‡ib‡Kvf wewKiY| cÖwµqvwUi iæk Avwe®‹vi‡Ki bv‡gB bvgwU †`Iqv| G Kvi‡Y InvBIi cix¶vi Kv‡R wb‡qvwRZ weÁvbxiv †P‡ib‡Kvf Sj‡Ki †Lvu‡R GK ¸”Q Av‡jvKms‡e`x wW‡U±i ¯’vcb K‡ib| †cÖvU‡bi ¶q‡K gnvRvMwZK wbDwU«‡bv I Ab¨vb¨ †fRvj AwZcvigvYweK aŸsmve‡kl †\_‡K Avjv`v Kivi R‡b¨ weÁvbxiv wbw`©ó GKwU m‡¼‡Zi †LvuR K‡ib| G‡Ki ci GKB GKBmv‡\_ Avmv †P‡ib‡Kvf Av‡jvK m‡¼‡Zi †Rvov| GUv wbM©Z n‡e B‡jKU«b-cwRU«‡bi †Rvov wfbœw`‡K MwZkxj n‡j|

`~f©vM¨RbKfv‡e K‡qK eQ‡ii AbymÜv‡bi c‡iI InvBIi cix¶v †\_‡K †cÖvUb ¶‡qi c‡¶ †Rviv‡jv cÖgvY cvIqv hvqwb| Aek¨ PZy\_© Aa¨v‡q †hgb ejv n‡q‡Q, G cix¶vq mycvi‡bvfv Ò1974GÓ †\_‡K Avmv wbDwU«‡bv aiv c‡o| (weÁv‡b GgbUv nignv‡gkvB N‡U| GKwU wRwbm LyuR‡Z wM‡q AcÖZ¨vwkZfv‡e Ab¨ wRwbm cvIqv hvq) GB eBwU †jLvi mgq ch©šÍ5 Avjv`v †KŠk‡j wbwg©Z Ab¨ cix¶vi djvdjI bv‡evaK| Gi A\_© n‡Z cv‡i, †cÖvUbiv ¶qB nq bv| Avevi GI n‡Z cv‡i, Giv ¶q nq, Z‡e G‡`i Avqy®‹vj 1032 eQ‡ii †ewk| eZ©gvb mg‡qi cix¶Y DcKiY w`‡q Gi †P‡q axiMwZi ¶q nvi cwigvc Kiv m¤¢e bq| ZvB wbKU fwel¨‡Z †cÖvUb ¶‡qi e¨vcv‡i †Kv‡bv fvj djvdj cvIqvi m¤¢ebvI †`Lv hv‡”Q bv|

A‡bK¸‡jv gnvGKxf~Z †¶Î ZË¡ (Grand unified theory) welqK ZvwË¡K Kv‡Ri gva¨‡g †cÖvUb ¶‡qi AbymÜvb ïiæ| j¶¨ wQj mej (mej e‡ji KvR n‡jv wbDwK¬qv‡mi g‡a¨ †cÖvUb I wbDU«b‡`i‡K †Mu‡\_ ivLv) I `ye©j wbDK¬xq ej (`ye©j wbDK¬xq ej †eUv †ZRw¯ŒqZvi Rb¨ `vqx) Ges Zwo”Py¤^Kxq ej‡K †Rvov †`Iqv| GB ej¸‡jvi m~² wgkÖ‡YI †cÖvUb ¶q NU‡e| Z‡e GB gnvGKfxeb fyj n‡q \_vK‡jI Ab¨ Dcv‡qI †cÖvUb ¶q nIqvi m¤¢vebv Av‡Q| GUv n‡Z cv‡i cÖK…wZi PZy\_© †gŠwjK ej gnvK‡l©i gva¨‡g|

gnvKl© Kxfv‡e †cÖvUb ¶q NUvq †mUv †`L‡Z n‡j GKwU welq gv\_vq ivL‡Z n‡e| †cÖvUb wKš‘ mwZ¨Kvi A‡\_© †gŠwjK KYv bq| †bB †Kv‡bv we›`ym`„k AvK…wZ| GwU Avm‡j GKwU †hŠwMK KYv| †KvqvK© bv‡g AviI wZbwU †QvU KYv w`‡q GwU ˆZwi| †ewkifvM mg‡qB †cÖvU‡bi e¨vm nq GK †mw›UwgUv‡ii cÖvq 10 j¶ †KvwU fv‡Mi GK fv‡Mi mgvb| GUv n‡jv †KvqvK©‡`i ga¨Kvi Mo `~iZ¡| Z‡e †KvqvK©iv w¯’i \_v‡K bv| †cÖvU‡bi g‡a¨ AweiZ Ae¯’vb e`jv‡Z \_v‡K| GiI KviY †Kvqv›Uvg MwZwe`¨vi AwbðqZv| gv‡Sg‡a¨B `ywU †KvqvK© G‡K Ic‡ii Lye Kv‡Q P‡j Av‡m| AviI Kg NU‡jI A‡bK mgq wZbwU †KvqvK©B Lye Kv‡Q P‡j Av‡m| Ggwb‡Z †KvqvK©‡`i ga¨Kvi gnvKl© ej G‡Kev‡iB Aby‡j­L‡hvM¨| Z‡e GUv Am¤¢e bq †h KYv¸‡jv GZUv Kv‡Q Avm‡e †h Zv‡`i ga¨Kvi gnvKl© ej Ab¨ me wKQyi †P‡q kw³kvjx n‡e| GUv mwZ¨ n‡q \_vK‡j †KvqvK©iv Ro n‡q GKwU ¶y`ª eø¨vK †nvj ˆZwi Ki‡Z cv‡i| cÖK…Z A‡\_© †Kvqv›Uvg †gKvwb‡·i †Kvqv›Uvg Uv‡bwjs‡qi cÖfv‡e †cÖvUb wb‡Ri gnvK‡l©i fv‡iB ¸wU‡q hvq| Gi d‡j cÖvß ¶y`ª eø¨vK‡nvjwU nq Lye Aw¯’wZkxj| nwKs cÖwµqvi K\_v g‡b K‡i †`Lyb| †cÖvUb ¶q †\_‡K cÖvß eø¨vK‡nvjI mv‡\_mv‡\_B Avevi DavI n‡q hvq| ˆZwi nq GKwU cwRU«b| GB Dcv‡q †cÖvUb ¶‡qi Rb¨ cÖ‡qvRbxq mgq GLbI mwVKfv‡e cwigvc Kiv m¤¢e nqwb| Z‡e mgqUv 1045 eQi †\_‡K 10220 eQi ch©šÍ n‡Z cv‡i|

`xN© mgq ci †cÖvUb ¶qB n‡q †M‡j gnvwe‡k¦i `~i fwel¨‡Zi Ici Zvi eo cÖfve \_vK‡e| me c`v\_© n‡q hv‡e Aw¯’wZkxj| Ges me‡k‡l DavI| MÖn‡`i g‡Zv KwVb e¯Íyiv eø¨vK‡nv‡jI cwZZ bv n‡jI wPiKvj \_vK‡e bv| Lye `ªæZB µgk wgwj‡q hv‡e| †cÖvU‡bi Avqy®‹vj 1032 n‡j Zvi A\_© n‡e c„w\_ex cÖwZ †m‡K‡Û GK j¶-‡KvwU †cÖvUb nviv‡”Q| GB nv‡i Pj‡Z \_vK‡j †gvUvgywU 1033 eQi c‡i Avgv‡`i c„w\_ex wbt‡kl n‡q hv‡e| Aek¨ Zvi Av‡MB Ab¨ Kvi‡Y c„w\_ex aŸsm n‡q †M‡j wfbœ K\_v|

Z‡e wbDU«b b¶Î wKš‘ GB cwµqv †\_‡K gy³| wbDU«bivI wZbwU †KvqvK© w`‡q MwVZ| †h cÖwµqvq †cÖvUb aŸsm nq †gvUvgywU †mfv‡eB wbDU«bI AviI nvjKv KYvq cwiYZ n‡Z cv‡i| (wew”Qb wbDU«b KYv †h‡Kv‡bv Ae¯’v‡ZB Aw¯’wZkxj Ges 15 wgwb‡Ui g‡a¨B ¶q n‡q †h‡Z cv‡i|) †k¦Z evgb b¶Î, cv\_i, a~jv, a~g‡KZy, M¨v‡mi nvjKv †gN Ges Ab¨me gnvKvk cÖhyw³I GKBfv‡e Kv‡ji M‡f© nvwi‡q hv‡e| Avgiv eZ©gv‡b †h 1048 Ub c`v\_©‡K cy‡iv gnvwe‡k¦ Qwo‡q \_vK‡Z †`LwQ †mUvI GKmgq wbt‡kl n‡q hv‡e| nq eø¨vK‡nv‡ji g‡a¨ cwZZ n‡e| bq‡Zv ax‡i ax‡i wbDK¬xq ¶q cÖwµqvi gva¨‡g †kl n‡e|

‡cÖvUb I wbDU«bivI ¶q n‡j Aek¨B ˆZwi nq aŸsmve‡kl| d‡j gnvwek¦ cy‡ivcywi c`v\_©nxb n‡q hv‡e Ggb †Kv‡bv K\_v †bB| Gi GKwU D`vniY Av‡MI †`Iqv n‡q‡Q| †cÖvUb ¶‡qi m¤¢ve¨ GKwU Dcvq n‡jv GKwU cwRU«b I GKwU wbi‡c¶ cvBIb ˆZwi nIqv| cvBIb Lye Aw¯’wZkxj| Lye `ªæZ ¶q n‡q `y‡Uv †dvU‡b cwiYZ nq| A\_ev B‡jKU«b-cwRU«b †Rvov| `yB †¶‡ÎB †cÖvUb ¶‡qi d‡j gnvwek¦ µgvMZ †ewk †ewk cwRU«b w`‡q ficyi n‡Z \_vK‡e| c`v\_©wew`‡`i wek¦vm, gnvwe‡k¦ abvZ¥K (cÖavbZ †cÖvUb) I FYvZ¥K PvR©avix (cÖavbZ B‡jKU«b) KYvi msL¨v mgvb| Gi A\_© n‡jv, me¸‡jv †cÖvUb ¶q n‡q †M‡j B‡jKU«b I cwRU«‡bi cwigvY mgvb n‡e| GLb, cwRU«b n‡jv B‡jKU«‡bi cÖwZKYv| B‡jKU«b I cwRU«‡bi †`Lv n‡j G‡K Ici‡K †kl K‡i †`q| cix¶vMv‡i GB cÖwµqvwU Abvqv‡m K‡i †`Lv nq| KYv `ywUi mv¶v‡Zi d‡j †dvUb KYv AvKv‡i cÖPyi cwigvY kw³ Aegy³ nq|

`~i fwel¨‡Zi gnvwe‡k¦ Dcw¯’Z cwRU«b I B‡jKU«b G‡K Ici‡K cy‡ivcywi aŸsm K‡i †`‡e bvwK GKwU KYvi wKQy Ask evwK †\_‡K hv‡e †mUv Rvb‡Z A‡bK wnmve-wbKvk Kiv n‡q‡Q| aŸsm nIqvi NUbv ûU K‡i N‡U bv| eis GKwU B‡jKU«b I cwRU«b cÖ\_‡g wb‡R‡`i‡K cwR‡U«vwbqvg bv‡g GKwU ¶y`ª cigvYy‡Z mw¾Z K‡i| GLv‡b `yR‡bB Zv‡`i †hŠ\_ fi‡K›`ª‡K6 cÖ`w¶Y K‡i| wb‡R‡`i ga¨Kvi ˆe`¨ywZK AvKl©‡Yi cÖfv‡e bvP‡Z bvP‡Z †e‡R hvq g„Zy¨NÈv| Gfv‡e KYv¸‡jv mwc©j c\_ †e‡q GKmgq g„Zy¨i `yqv‡i †cŠu‡Q hvq| mwc©j c‡\_ KYv¸‡jv KZ mgq \_vK‡e Zv cwR‡U«vwbqvg 'cigvYywU' ˆZwi nevi mgq B‡jKU«b I cwRU«‡bi g‡a¨ cÖv\_wgK †h `~iZ¡ wQj Zvi Ici wbf©i K‡i| cix¶vMv‡i cwRU«wbqvg ¶q n‡Z GK †m‡K‡Ûi Lye ¶y`ª GKwU Ask mgq e¨q nq| wKš‘ evB‡ii gnvk~‡b¨ KYv¸‡jv‡K wb‡q bvK Mjv‡bvi g‡Zv †Zgb †KD †bB| d‡j G‡`i K¶c\_ n‡Z cv‡i A‡bK wekvj| cwigvc K‡i †`Lv †M‡Q, B‡jKU«b I cwRU«b †\_‡K cwR‡U«vwbqvg ˆZwi n‡Z 1071 eQi mgq jv‡M| Z‡e †ewkifvM †¶‡Î G‡`i K¶c\_ eû wU«wjqb Av‡jvKel© PIov nq| KYv¸‡jv GZUv ax‡i Pj‡e †h GK †mw›UwgUvi `~iZ¡ AwZµg Ki‡Z mgq jvM‡e eû wgwjqb eQi| B‡jKU«b I cwRU«b GZUvB axiMwZi n‡q hv‡e †h mwc©j c‡\_ Pj‡Z 10116 eQ‡ii g‡Zv `xN© mgq jvM‡e| ZeyI GB cwR‡U«vwbqv‡gi P~ovšÍ wbqwZ wKš‘ GwU ˆZwi nIqvi mgqB wba©vwiZ n‡q †M‡Q|

A™¢yZ e¨vcvi n‡jv me B‡jKU«b I cwRU«b‡K wKš‘ aŸsm n‡Z nq bv| †h mgq a‡i B‡jKU«b I cwRU«biv Zv‡`i wecixZ wPý LyuR‡Z \_v‡K †m mg‡qB Zv‡`i NbZ¡ wbw`©ó nv‡i Kg‡Z \_v‡K| Gi †cQ‡b `y‡Uv KviY KvR K‡i| GKwU n‡jv aŸsm nIqvi cÖwµqvwUB| Avi Av‡iKwU n‡jv gnvwe‡k¦i wPišÍb cÖmviY| mg‡qi mv‡\_ mv‡\_ bZyb bZyb cwR‡U«vwbqvg ˆZwi KwVb n‡q c‡o| d‡j Aewkó c`v‡\_©i mvgvb¨ aŸsmve‡kl Kg‡Z \_vK‡j GwU KL‡bvB cy‡ivcywi †kl n‡q hvq bv| memgqB †Kv\_vI bv †Kv\_vI B‡jKU«b ev cwRU«‡bi †e‡Rvo msL¨v cvIqv hv‡e| hw`I Ggb cÖwZwU KYvB µgvMZ eo n‡q IVv k~b¨ ¯’v‡bi g‡a¨ GKv GKv Ae¯’vb K‡i|

axiMwZi GZme gvivZ¥K cÖwµqv¸‡jv †k‡l gnvwek¦ †Kgb n‡Z cv‡i Zvi GKwU †gvUvgywU wPÎ Avgiv Abygvb Ki‡Z cvwi| cÖ\_gZ \_vK‡e weM e¨vs‡qi aŸsmve‡kl| memgq Dcw¯’Z \_vKv gnvRvMwZK cUf~wg| G‡Z i‡q‡Q †dvUb I wbDwU«‡bv| Avevi Avgv‡`i GLbI A‡Pbv cy‡ivcywi w¯’wZkxj †Kv‡bv KYvI \_vK‡Z cv‡i| gnvwe‡k¦i cÖmvi‡Yi mv‡\_ mv‡\_ GB KYv¸‡jvi kw³ Kg‡Z \_vK‡e| hZ¶Y bv G‡`i cUf~wg Lye nvjKv n‡q hvq| gnvwe‡k¦i mvaviY c`v\_©¸‡jv wbt‡kl n‡q hv‡e| me¸‡jv eø¨vK‡nvjI †kl n‡q hv‡e| eø¨vK‡nv‡ji †ewkifvM fi †dvU‡b cwiYZ n‡e| Avi wKQy Ask \_vK‡e wbDwU«‡bv AvKv‡i| Avi LyeB mvgvb¨ GKwU Ask \_vK‡e B‡jKU«b, †cÖvUb, wbDU«b I AviI fvix KYv iƒ‡c| G¸‡jv wbM©Z n‡qwQj eø¨vK †nv‡ji G‡Kev‡i AwšÍg we‡ùvi‡Yi av°vq| fvix KYv¸‡jvi mevB Lye `ªæZ ¶q nq| Avi wbDU«b I †cÖvUb ¶q nq AviI ax‡i| d‡j G‡`i mv‡\_ †hvM †`q wKQy B‡jKU«b I cwRU«b KYviv| Avgiv AvR‡K †h mvaviY c`v\_© †`LwQ GB KYv¸‡jvB n‡jv Zvi me©‡kl ¯§…wZwPý|

Zvi gv‡b `~i fwel¨‡Zi gnvwek¦ n‡e †dvUb, wbDwU«‡bv Ges µgvMZ Kg‡Z \_vKv B‡jKU«b I cwRU«‡bi GKwU AwPšÍbxq ai‡bi nvjKv m¨y‡ci g‡Zv| GB KYv¸‡jvi mevB ax‡i ax‡i AviI `~‡i mi‡Z \_vK‡e| GLb ch©šÍ Avgiv hZUyKy Rvwb, Gi c‡i Avi †Kv‡bv †fŠZ cwµqv msNwUZ n‡e bv| Ggb †Kv‡bv Zvrch©c~Y© NUbv NU‡e bv hv‡Z gnvwe‡k¦i eÜ¨v‡Z¡i Aemvb NU‡Z cv‡i| hvÎvc‡\_i †k‡l G‡mI gnvwek¦ †hb †cj wPišÍb Rxeb| A\_ev wPišÍb g„Zy¨ ej‡jB nqZ mwVK ejv n‡e|

Ebwesk kZ‡Ki c`v\_©we`¨vq Zvcxq g„Zy¨ (heat death) bv‡g GKwU aviYv cÖPwjZ wQj| Avgv‡`i Av‡jvPbvq Avmv kxZj, AÜKvi, ˆewkó¨nxb cÖvq k~b¨ GB wbim wPÎB AvaywbK Km‡gvjwRi Zvcxq g„Zy¨i me‡P‡q KvQvKvwQ weeiY| gnvwek¦ GB Ae¯’vq Avm‡Z GZ †ewk mgq jvM‡e †h GUv Kíbv KivI gvby‡li c‡¶ Am¤¢e| ZeyI GwU Amxg mg‡qi AwZkq ¶y`ª GKwU AskB gvÎ| Av‡MB e‡jwQ, wPiKvj GKwU `xN© mgq|

GUv mwZ¨ †h gnvwe‡k¦i ¶q cÖwµqv m¤úbœ n‡Z †h mg‡qi cÖ‡qvRb †mwU gvbexq mg‡qi gvcKvwV‡Z A‡bK A‡bK †ewk| GZB †ewk †h †m mgqUv Avm‡j Avgv‡`i Kv‡Q A\_©nxb| ZeyI Avgiv AvMÖnf‡i cÖkœ Kwi, ÒAvgv‡`i cieZ©x cÖR‡b¥i fv‡M¨ Kx NU‡e? Zviv wK Awbevh©fv‡e Ggb GK gnvwe‡k¦ ew›` n‡e hv Lye ax‡i n‡jI AcÖwZ‡iva¨fv‡e Zv‡`i Pvicv‡k APj n‡q hv‡e? `~i fwel¨‡Zi gnvwek¦ m¤ú‡K© weÁv‡bi c~e©vfvm Lye †ewk cÖwZkÖywZkxj bq| d‡j g‡b n‡”Q †Kv‡bv ai‡bi Rxe‡bi R‡b¨B AbyK~j †Kv‡bv cwi‡ek \_vK‡e bv| Z‡e g„Zy¨ AZ mnRI bq|

**Abyev`‡Ki †bvU**

1| GK wU«wjqb = GK j¶ †KvwU| gv‡b 1 Gi ci 12wU k~b¨ w`‡Z n‡e| A\_©vr, 1,000,000,000,000|

2| †h NUbvi djvdj Av‡M †\_‡K wbw`©ó K‡i ejv hvq bv Zv‡K ˆ`e ev i‍¨vÛg NUbv e‡j|

3| cig k~b¨ ZvcgvÎv: 0 †Kjwfb ev gvBbvm 273.16 wWwMÖ †mjwmqvm‡K cig k~b¨ ZvcgvÎv ejv nq| ZvwË¡Kfv‡e GUvB gnvwe‡k¦i m¤¢ve¨ b~b¨Zg ZvcgvÎv|

4| k~b¨ gva¨‡g Av‡jvi †eM 3 j¶ wK‡jvwgUvi n‡jI cvwb‡Z GB †eM A‡bKUv Kg| cvwbi Nb‡Z¡i Ici GUv wbf©i Ki‡jI †eMUv †gvUvgywU †m‡K‡Û cÖvq 2 j¶ 30 nvRvi wK‡jvwgUvi| wKš‘ B‡jKU«b I cwRU«biv cvwb‡ZI k~b¨ gva¨‡g Av‡jvi †e‡Mi KvQvKvwQ †e‡M P‡j|

5| GB eBwUi Av‡jvP¨ Ask Abyev‡`i mgqI (†deªyqvwi, 2020) †cÖvUb ¶‡qi cix¶vg~jK cÖgvY cvIqv hvqwb|

6| †Kv‡bv GKwU wm‡÷‡gi me¸‡jv As‡ki Mo Ae¯’vb‡K fi‡K›`ª e‡j| †hgb, e…‡Ëi †¶‡Î Gi †K›`ªB fi‡K›`ª| GKB K\_v cÖ‡hvR¨ †Mvj‡Ki †¶‡ÎI| Avgiv A‡bK mgq ewj, evBbvwi ÷vi ev †RvovZviviv G‡K Ici‡K †K›`ª K‡i †Nv‡i| Avm‡j wKš‘ Zviv `yR‡bi †hŠ\_ fi‡K›`ª‡K wN‡i cvK Lvq| †mB fi‡K›`ª mvaviYZ `y‡Uv Zvivi gvSvgvwS †Kv‡bv ¯’vb nq| Avevi Avgiv Rvwb, c„w\_ex,I e…wn¯úwZi g‡Zv MÖniv m~h©K‡R wN‡i cvK Lvq| Z‡e ev¯ÍeZv n‡jv e…n¯úwZ Avm‡j wVK m~h©‡K †K›`ª K‡i †Nv‡i bv| †Nv‡i m~‡h©i cwiwai evB‡ii GKwU we›`y‡K wN‡i|

Aóg Aa¨vq

axi MwZi Rxeb

1972 mv‡j K¬ve Ae †ivg bv‡g GKwU msMVb gvby‡li fwel¨r m¤ú‡K© `¨ wjwgUm Uy †MÖv\_ GKwU †bwZevPK c~e©vfvm cÖKvk K‡i| Zviv Avmbœ wewfbœ `~‡h©vM welqK A‡bK¸‡jv Avk¼v cÖKvk K‡i G‡Z| Gi ga¨ Ab¨Zg wQj Rxevk¥ R¡vjvwb welqK| Zv‡`i g‡Z, Aí K‡qK `k‡Ki g‡a¨ c„w\_exi me Rxevk¥ R¡vjvwb dywi‡q hv‡e| gvbyl fq †cj| †Z‡ji `vg †Mj †e‡o| weKí R¡vjvwb wb‡q M‡elYv MwZ †cj| GLb Avgiv 1990 Gi `k‡K AvwQ1| wKš‘ Rxevk¥ R¡vjvwb dywi‡q hvIqvi j²Y GLbI wKš‘ †`Lv hv‡”Q bv| d‡j f‡qi e`‡j GLb mevi g‡b i‡q‡Q cwiZ…wß| `~f©v‡M¨i e¨vcvi n‡jv, mij MvwYwZK wnmve ej‡Q, m¤ú‡`i mmxg cwigvY wPiKvj hveZ wbw`©ó nv‡i Kg‡Z \_vK‡Z cv‡i bv| AvR †nvK, Kvj †nvK, R¡vjvwb NvUwZi gy‡LvgywL Avgv‡`i‡K n‡ZB n‡e| c„w\_exi RbmsL¨v m¤ú‡K©I GKB K\_v Lv‡U| Awbw`©ó mgq a‡i GUv Ae¨vnZ \_vK‡Z cv‡i bv|

†R‡iwgqv ag©xq †Mvôxi wKQy wKQy gvbyl g‡b K‡i, Avmbœ R¡vjvwb m¼U I AwZRbmsL¨vi d‡j gvbyl G‡Kev‡i aŸsm n‡q hv‡e| Z‡e Rxevk¥ R¡vjvwb wbt‡kl n‡q †M‡jB gvby‡liI Aemvb N‡U hv‡e GUv ejv hv‡e bv| Avgv‡`i Pvicv‡k R¡vjvwbi wecyj Drm i‡q‡Q| Aek¨ †mUv Kv‡R jvMv‡bvi g‡Zv eyw×gËv \_vKv PvB| me‡P‡q D‡jøL‡hvM¨ welq n‡jv, Avgv‡`i hZUyKy kw³ `iKvi m~‡h©i Av‡jv‡Z Zvi †P‡q †ewk kw³ i‡q‡Q| Av‡iKwU eo mgm¨vI Av‡Q| nqZ RbmsL¨vi e…w× Avgiv Kgv‡bvi Av‡MB Lv`¨vfv‡e †mUv Ggwb‡ZB K‡g hv‡e| Gi R‡b¨ ˆeÁvvwbK †KŠk‡ji †P‡q mvgvwRK, A\_©‰bwZK I ivR‰bwZK †KŠkj †ewk cÖ‡qvRb| Z‡e Avgvi wek¦vm, Rxevk¥ R¡vjvwb dywi‡q †M‡j kw³i †h NvUwZ ˆZwi n‡e †mUvi mgvavb Kiv †M‡j Ges Avgv‡`i MÖ‡ni ev¯Íy¸Z I MÖnvYyi AvNvZRwbZ ¶wZ Kwg‡q Avbv †M‡j gvby‡li fwel¨r D¾¡j| gvbeRvwZi fwel¨Z‡K mxwgZ Kivi g‡Zv ¯úó †Kv‡bv wbqg cÖK…wZ‡Z †Pv‡L co‡Q bv|

Av‡Mi Aa¨vq¸‡jv‡Z Avwg e‡jwQ Kxfv‡e Am¤¢e `xN© mgq c‡i gnvwe‡k¦i KvVv‡gv e`‡j hv‡e| mvaviYZ Gi gva¨‡g axiMwZi †fŠZ cÖwµqvi cÖfv‡e gnvwek¦ wb‡Ri ˆewkó¨¸‡jv nviv‡e| c„w\_ex‡Z gvby‡li Aw¯ÍZ¡ Av‡Q cÖvq 50 j¶ eQi n‡jv (GUv wbf©i K‡i gvby‡li msÁvi Ici)| Avi mf¨Zvi m~Pbv K‡qK nvRvi eQi Av‡M| GLb †\_‡K AviI `yB ev wZb k †KvwU eQi c„w\_ex evm‡hvM¨ \_vK‡e| Z‡e RbmsL¨v Aek¨B K‡g hv‡e| mgqUv GZ `xN© †h †mUv Kíbv KivI KwVb n‡q `vuovq| G‡K GZB eo g‡b nq †h †mUv‡K ev¯Í‡e Amxg mgq e‡j g‡b nq| ZeyI Avgiv †`‡LwQ, gnvwe‡k¦i weeZ©‡bi R‡b¨ †h `xN© mg‡qi cÖ‡qvRb nq †m Zyjbvq GK k †KvwU eQiI Lye bwm¨| AviI wewjqb wewjqb eQi c‡iI Avgv‡`i Qvqvc‡\_i Ab¨ †Kv\_vI c„w\_exi g‡Zv Avevm \_vK‡ZB cv‡i|

Avgiv Kíbv Ki‡ZB cvwi Avgv‡`i eskaiiv GZ mgq nv‡Z †c‡q gnvk~‡b¨ Qy‡U †eov‡e| evbv‡e me ai‡bi we¯§qKi hš¿cvwZ| m~h© c„w\_ex‡K cywo‡q †djvi Av‡M Av‡M cvjv‡bvi h‡\_ó mgq Zviv cv‡e| Lyu‡R wb‡Z cvi‡e Ab¨ GK MÖn| Zvici Av‡iKwU| Zvici Av‡iKwU| gnvk~‡b¨ Qwo‡q co‡j RbmsL¨vI evo‡e| GUv †R‡b wK Avgiv Avk¦¯Í nw”Q †h wesk kZ‡K Avgv‡`i wU‡K \_vKvi jovB †kl ch©šÍ e¨\_© bvI n‡Z cv‡i?

wØZxq Aa¨v‡q Avwg e‡jwQ, evU«©vÛ iv‡mj ZvcMwZwe`¨vi wØZxq m~‡Îi djvdj wb‡q nZvkv”Qvbœ wQ‡jb| hš¿Yvf‡i wZwb wj‡LwQ‡jb, †h‡nZy †mŠiMRMr GK mgq aŸsm n‡q hv‡”Q, ZvB gvby‡li Aw¯ÍZ¡I GKmgq wbõj n‡e| iv‡mj ¯úó Abyfe K‡iwQ‡jb, Avgv‡`i evm¯’v‡bi ¯úó Awbevh© g„Zy¨ †Kv‡bvfv‡e gvbeRxeb‡K A\_©nxb wKsev cÖnm‡b cwiYZ K‡i‡Q| GUv wbwðZ GB wek¦vm Zv‡K bvw¯ÍK evbv‡bvi c‡\_ Ae`vb †i‡L‡Q| eø¨vK‡nv‡ji gnvKl©xq kw³ m~‡h©i eû¸Y †ewk Ges †mŠiRMr ZQbQ n‡q hvIqviI j¶ j¶ †KvwU eQi ch©šÍ wU‡K \_vK‡e Rvb‡j wK wZwb Av‡iKUy fvj Abyfe Ki‡Zb? Avm‡j mgqUv KZ `xN© †mUv g~L¨ bq| g~j welq n‡jv, AvR †nvK, Kvj †nvK, gnvwek¦ GK mgq ev‡mi A‡hvM¨ n‡q hv‡e| G Kvi‡Y †KD †KD g‡b K‡ib, Avgv‡`i Aw¯ÍZ¡ A\_©nxb|

mßg Aa¨v‡qi †k‡l gnvwe‡k¦i `~i fwel¨‡Zi GKwU wPÎ Zy‡j aiv n‡qwQj| nqZ Avgiv a‡i wb‡Z cvwi, AviI Kg cwieZ©b‡hvM¨ I †ewk ˆewi cwi‡ek ˆZwi n‡e bv ej‡jB P‡j| Z‡e Avgv‡`i fvebvB †h mwVK †mUv a‡i †bIqv hv‡e bv| Avevi nZvkI nIqv hv‡e bv| B‡jKU«b I cwRU«b w`‡q Mov GK cvZjv m¨y‡ci g‡Zv gnvwe‡k¦ evm Kiv gvby‡li c‡¶ wbtm‡›`‡n KwVb n‡e| Z‡e Avgv‡`i K\_v †mLv‡b bq| Aek¨B gvbe cÖRvwZ Agi wK bv Avgiv †mUv wb‡q K\_v ejwQ bv| Avgv‡`i eskaiiv wU‡K \_vK‡Z cvi‡e wK bv †mUv ejwQ| Avi Avgv‡`i eskaiiv †h gvbylB n‡e Zvi m¤¢ebvI Kg|

Rx‡ei weeZ©‡bi2 gva¨‡g c„w\_ex‡Z †nv‡gv m¨vwc‡qÝ‡`i Avwef©ve N‡U‡Q| wKš‘ Avgv‡`i Kvh©µ‡gi gva¨‡g weeZ©b cÖwµqv Ley `ªæZ e`‡j hv‡”Q| cÖvK…wZK wbe©vPb cÖwµqvq Avgiv n¯Í‡¶c K‡i †d‡jwQ| wgD‡Ukb ev cwie¨w³‡KI wbqš¿Y Kiv w`b w`b mnR n‡q hv‡”Q| wRbMZ cwieZ©‡bi gv‡a¨g Lye `ªæZB nqZ Avgiv B‡”Qg‡Zv ¸Y I kvixwiK ˆewk‡ó¨m¤úbœ gvbyl evbv‡Z cvie| ˆRecÖhyw³i GB m¤¢vebv¸‡jv gvÎ K‡qK `k‡Ki g‡a¨ ˆZwi n‡q‡Q| GKevi fveyb, nvRvi nvRvi ev j¶ eQ‡ii weÁvb I cÖhyw³i PP©vi gva¨‡g Kx m¤¢e n‡Z cv‡i|

gvÎ K‡qK `k‡KB gvbyl MÖn †\_‡K †ei n‡q wbKU gnvKv‡k cvwo w`‡Z m¶g n‡q‡Q| Avgv‡`i cieZ©x cÖRb¥ nqZ c„w\_ex Qvwo‡q †mŠiRM‡Zi AviI `~i-`~iv‡šÍ Qwo‡q co‡e| Zvici hv‡e Qvqvc‡\_i Ab¨ b¶‡Î| A‡bK mgq gvbyl fyj K‡i g‡b K‡i, G KvR Ki‡Z Amxg mgq jvM‡e| Avm‡j Zv bq| emwZ Movi cÖwµqvwU nqZ n‡e evievi MÖnvšÍ‡ii gva¨‡g| emwZ¯’vcbKvixiv c„w\_ex †Q‡o K‡qK Av‡jvKel© `~‡ii Ab¨ †Kv‡bv Dchy³ MÖ‡n VvuB †b‡e| Av‡jvi KvQvKvwQ †e‡M Pj‡Z cvi‡j Zv‡Z mgq jvM‡e gvÎ K‡qK eQi| Avgv‡`i eskaiiv Av‡jvi GK fv‡Mi g‡Zv h‡\_ó MwZ AR©b Ki‡Z bv cvi‡jI åg‡Y mgq jvM‡e gvÎ K‡qK k eQi| bZyb GKwU emwZ cy‡ivcywi M‡o Zyj‡Z nqZ AviI K‡qK k eQi jvM‡e| ZZ¶‡Y bZyb †Kv‡bv MÖ‡ni mÜv‡b GK `j AwfhvÎx‡K cvwV‡q †`Iqvi wPšÍv Kiv hv‡e| AviI K‡qK k eQi c‡i †mB MÖ‡nI emwZ M‡o IV‡e| Gfv‡eB Pj‡Z \_vK‡e| cwj‡bkxqiv ga¨ cÖkvšÍ gnvmvMixq AÂ‡ji Øxc¸‡jv‡Z Gfv‡eB emwZ wbg©vY K‡iwQj|

Qvqvc\_‡K AwZµg Ki‡Z Av‡jvi GK j¶ eQi mgq jv‡M| Av‡jvi †e‡Mi GK fvM †e‡M Pj‡j Zv‡Z mgq jvM‡e GK †KvwU eQi| GB hvÎvc‡\_ GK j¶ MÖ‡n emwZ¯’vcb Kiv †M‡j Ges cÖwZwUi R‡b¨ `yB k eQi jvM‡j cy‡iv Qvqvc‡\_ emwZ Mvuo‡Z Qvqvc\_ cvi nevi mg‡qi wZb¸‡Yi †ewk mgq jvM‡e bv| Z‡e gnvKvk ev f~ZvwË¡K gvcKvwVi Zyjbvq GK †KvwU eQi Lye Aí mgq| m~h© cy‡iv Qvqvc\_‡K GKevi Ny‡i Avm‡Z cÖvq 20 †KvwU eQi mgq †bq| Gi AšÍZ 17 ¸Y mgq a‡i c„w\_ex‡Z cÖv‡Yi Aw¯ÍZ¡ Av‡Q| m~‡h©i eva¨©‡Ki Kvi‡Y c„w\_ex wec‡` co‡Z gvÎ `yB bv w`b k †KvwU eQi jvM‡e| d‡j AviI wZb †KvwU eQ‡i Lye Aí cwieZ©bB NU‡e| Zvi gv‡b ej‡Z Pvw”Q, c„w\_exi ey‡K cÖhyw³MZ mf¨Zv M‡o DV‡Z hZUyKy mgq †j‡M‡Q, cy‡iv Qvqvc‡\_ emwZ Mo‡Z Zvi Lye mvgvb¨ fMœvs‡ki mgvb mgq jvM‡e|

emwZ M‡o †Zvjv Avgv‡`i GB eskaiiv †Kgb n‡e? Kíbvi †Nvov‡K B‡”Qg‡Zv QyU‡Z w`‡j Avgiv aviYv Ki‡Z cvwi, wRbMZ cwieZ©‡bi gva¨‡g Zviv KvwO&¶Z MÖ‡ni cwi‡e‡ki mv‡\_ wb‡R‡`i gvwb‡q wb‡Z cvi‡e| GKwU mij D`vniY wPšÍv Kwi| aiv hvK, GcmvBjb GwiWvwb b¶‡Îi Pvicv‡k N~Y©vqgvb c„w\_exi g‡Zv GKwU MÖn cvIqv †Mj| †`Lv †Mj, Gi evqygÐ‡j Aw·‡Rb Av‡Q gvÎ 10%| Zvn‡j Awaevmx‡`i †`n‡K cwieZ©b K‡i †jvwnZ i³KwYKv evov‡Z n‡e| MÖnwUi c„‡ôi gnvKl© †ewk n‡j Awaevmx‡`i †`nKvVv‡gv‡K AviI kw³kvjx Ki‡Z n‡e| nvo‡KI k³ Ki‡Z n‡e| Gfv‡eB mewKQy e`‡j wb‡Z n‡e|

GB åg‡Yi R‡b¨ hv hv jvM‡e Zv‡Z mgm¨vI nIqvi K\_v bq| hw` Zv‡Z K‡qK k eQi jv‡M ZeyI bq| gnvKvkhvb‡K ¯^qsm¤ú~Y© K‡i evbv‡bv †h‡Z cv‡i| hv wbR¯^ e¨e¯’vcbvq AwfhvÎx‡`i‡K K‡qK cÖRb¥ a‡i Avevmb w`‡Z m¶g n‡e| Avevi AwfhvÎx‡`i‡K åg‡Yi mgq Zxeª VvÐv cwi‡e‡k Rwg‡q ivLv †h‡Z cv‡i3| mwZ¨ ej‡Z, †QvU GKwU hv‡b Aí wKQymsL¨K Kg©xmn j¶ j¶ wngvwqZ wbwl³ †Kvl cvVv‡bvB †ewk hyw³m½Z n‡e| MšÍ‡e¨ †cŠuQv‡bvi ci †m¸‡jv †\_‡K Rb¥ †b‡e gvbyl| G‡Z K‡i bZyb MÖ‡n Zvr¶wYKfv‡e GK `j Awaevmx cvIqv hv‡e| wecyj cwigvY eq¯‹ Rb‡Mvôx‡K `xN© mgq a‡i cwien‡bi e¨e¯’vcbvi cÖ‡qvRb n‡e bv|

Av‡iKwU welq: Avgv‡`i‡K a‡i wb‡Z n‡”Q, GB `xN© mg‡q A‡bK wKQy nIqv m¤¢e| d‡j fwel¨‡Z emwZ Mvuov gvbyl¸‡jv †h †Pnviv-myiZ ev gvbwmKZvq †h gvby‡li g‡ZvB n‡e †mUv fveviI †Kv‡bv KviY †bB| hw` gvbyl‡K cÖ‡qvRb Abymv‡i e`‡j †bIqv †bIqv hvq, Zvn‡j cÖwZwU Awfhv‡bB cÖ¯ÍvweZ bKkv Abymv‡i cÖvYx evwb‡q †bIqv hvq| hv‡Z \_v‡K D‡Ï‡k¨i mv‡\_ m½wZc~Y© kixi I g‡bi mgš^q|

emwZ¯’vcbKvix‡`i‡K mvaviY msÁvi RxweZ cÖvYxI n‡Z n‡e bv| GLbB gvby‡li g‡a¨ wmwjKb-wP‡ci gvB‡µvcÖ‡mmi ¯’vcb Kiv m¤¢e n‡”Q| GB cÖhyw³ AviI DbœZ n‡j ˆRe I K…wÎg ˆe`¨ywZK hš¿vs‡ki wgkÖY n‡ZB cv‡i| hv‡Z K‡i kvixie…wËK Kv‡Ri cvkcvwk gw¯Í®‹I wVKfv‡e KvR Ki‡e| †hgb aiæb, gvby‡li gw¯Í‡®‹i R‡b¨ †evë-Ab ¯§…wZ ˆZwi Kiv †h‡Z cv‡i| A‡bKUv Kw¤úDUv‡ii †hfv‡e AwZwi³ †g‡gvwi jvMv‡bv nq| D‡ëvfv‡e Avevi GgbI n‡Z cv‡i †h ˆRe c`v\_©i R‡b¨ hš¿vsk ˆZwii †P‡q wnmve-wbKvk Kivi cÖwZ Af¨¯Í nIqv †ewk Kvh©Kix n‡e| Zvi gv‡b Kw¤úDUv‡ii hš¿vsk¸‡jv‡K ˆRe Dcv‡q weKwkZ Kiv hv‡e| wWwRUvj Kw¤úDUv‡ii e`‡j wbDivj †bU P‡j Avmvi m¤¢vebv AviI †ewk| GgbwK GLbB wWwRUvj Kw¤úDUv‡ii wbDivj †bU e¨envi Kiv n‡”Q| Gi gva¨‡g gvby‡li eyw×gËv‡K DÏxwcZ Kiv n‡”Q| c~e©vbygvb Kiv n‡”Q A\_©‰bwZK wewfbœ Kg©Kv‡Ði AvPiY| gw¯Í‡®‹i wUm¨yi GKwU Ask wb‡q Zv w`‡q ïiæ †\_‡KB ˆRe wbDivj †bU evbv‡bvUvB nqZ AviI †ewk A\_©c~Y© n‡e| ˆRe I K…wÎg †bZIqv‡K©i GKwU eÜb ˆZwi n‡e LyeB hyw³m½Z| b¨v‡bvcÖhyw³i Avwef©v‡ei mv‡\_ mv‡\_ RxweZ I g„Z, cÖvK…wZK I K…wÎg, gw¯Í®‹ I Kw¤úDUv‡ii cv\_©K¨ µ‡gB †QvU n‡q Avm‡e|

eZ©gv‡b Gme Abygvb ˆeÁvvwbK KíKvwnwb‡ZB ïay cvIqv hvq| G¸‡jv‡K ˆeÁvvwbK ev¯Í‡e cwiYZ n‡Z cv‡i? Avi hvB †nvK, Avgiv †Kv‡bv wKQy Abygvb Ki‡Z cvwi e‡jB †h †mUv mwZ¨ n‡q hv‡e Ggb †Kv‡bv K\_v †bB| Z‡e cÖvK…wZK cÖwµqvi †¶‡Î Avgiv †hgb bxwZ cÖ‡qvM K‡iwQ †mUv Ki‡Z cvwi cÖhyw³MZ cÖwµqvi †¶‡ÎI| h‡\_ó †ewk mgq cvIqv †M‡j hv hv NU‡Z cv‡i Zvi meB NU‡e| hw` gvbyl ev Zv‡`i eskaiiv h‡\_ó Drmvnx \_v‡K (GUv nqZ A‡bK hw`-wKš‘i e¨vcvi), Zvn‡j c`v\_©we`¨vi m~Î Qvov Avi wKQyB cÖhyw³‡K †VwK‡q ivL‡Z cvi‡e bv| GK cÖR‡b¥i weÁvbx‡`i Rb¨ gvbe wR‡bvg cÖKí Kómva¨ GK KvR| wKš‘ kZ kZ, nvRvi nvRvi ev j¶ j¶ cÖRb¥ GB KvR Ki‡Z \_vK‡j KvRwU n‡q hv‡e Abvqv‡mB|

Avkvev`xB nIqv hvK| aiæb Avgiv †eu‡P hve| Avi Avgv‡`i cÖhyw³i Dbœqb m‡e©v”P wkL‡i †h‡Z \_vK‡e| gnvwek¦ wb‡q M‡elYvi †¶‡Î Gi f~wgKv Kx n‡e? aiæb, D‡Ï‡k¨i mv‡\_ m½wZc~Y© eyw×gvb Rxe evbv‡bv m¤¢e n‡jv| Gi d‡j GLb †hme ˆewi RvqMvq cÖwZwbwa cvVv‡bv m¤¢e n‡”Q bv †mLv‡bI †mUv Kiv hv‡e| GB cÖvYx¸‡jv gbyl¨-wbwg©Z cÖhyw³iB dmj n‡jI Giv wb‡Riv wKš‘ gvbyl n‡e bv|

GB A™¢yZ cÖvYx¸‡jvi fwel¨r wb‡q Avgv‡`i wK wPwšÍZ nIqv DwPZ? gvby‡li e`‡j G ai‡bi `vbe P‡j Avm‡Z cv‡i fve‡jB A‡b‡Ki g‡a¨ weiw³ KvR K‡i| wU‡K \_vKvi Rb¨ wRbcÖ‡KŠk‡ji gva¨‡g wbwg©Z ˆRe †ive‡Ui Kv‡Q RvqMv †Q‡o w`‡Z n‡j nqZ †`IqvB DwPZ| ZeyI gvby‡li Aemvb hw` Avgv‡`i‡K nZvk K‡i, Zvn‡j Avgv‡`i wb‡R‡`i‡K cÖkœ Kiv DwPZ Avgiv gvby‡li wVK †Kvb wRwbmwU msi¶Y Ki‡Z PvB| Aek¨B Avgv‡`i kvixwiK AvK…wZ bq| AvR †\_‡K 10 j¶ eQi c‡i Avgv‡`i eskai‡`i cv‡qi AvO&¸j bvI \_vK‡Z cv‡i ïb‡j wK Avgv‡`i Lvivc jvM‡e? ev cv †QvU n‡q †M‡j? wKsev gv\_v ev gw¯Í®‹ eo n‡q †M‡j? Avgv‡`i kvixwiK AvK…wZ †Zv MZ K‡qK kZvãx‡Z A‡bK cv‡ë‡Q| GLbI wewfbœ †Mv‡Îi gvby‡li g‡a¨ e¨vcK ˆewPZª¨ Av‡Q|

Avgvi g‡b nq, wKQy GKUv ej‡Z ej‡j †ewkifvM gvbyl gvbweK †PZbv‡K ¸iæZ¡ †`‡e| Avgv‡`i ms¯‹…wZ, g~j¨‡eva, ¯^Zš¿ gvbwmK MVb BZ¨vw`| Avgv‡`i ˆkwíK, ˆeÁvvwbK I eyw×e…wËK AR©‡bi †¶‡Î GgbUvB †`Lv †M‡Q| GB wRwbm¸‡jv Aek¨B msi¶Y K‡i ivLvi g‡Zv| Avgiv Avgv‡`i eskai‡`i Kv‡Q gvbweKZv †i‡L hvIqv wbwðZ Ki‡Z cvi‡j kvixwiK AvK…wZ‡Z Kx G‡m hvq? me‡P‡q ¸iæZ¡c~Y© wRwbmUv †Zv AwR©Z n‡”QB|

gnvk~b¨gq Ny‡i †eov‡bv gvby‡li g‡Zv cÖvYx ˆZwi Kiv m¤¢e wK bv †mUv eomo Abygvb bv K‡i ejvi Dcvq †bB| Ab¨ wKQy bv n‡jI GUv n‡Z cv‡i †h gvbyl GZ eo Kv‡Ri Rb¨ cÖ‡qvRbxq DÏxcbvUyKy nvwi‡q †dj‡e| A\_ev A\_©‰bwZK, cwi‡ekMZ ev Ab¨ †Kv‡bv `~‡h©v‡Mi d‡j GB MÖnwU‡K †Q‡o hvevi HKvwšÍK B”Qv ev¯Íevq‡bi Av‡MB Avgv‡`i g„Zy¨ NU‡e| Avevi GI n‡Z cv‡i, c„w\_exi evB‡ii eyw×gvb cÖvYxiv Avgv‡`i †P‡q GK avc GwM‡q †M‡Q| evm‡hvM¨ †ewki fvM MÖnB nqZ Iiv `Lj K‡i †d‡j‡Q (Z‡e Aek¨B c„w\_ex‡K `Lj Ki‡Z cv‡iwb)| Z‡e cy‡iv gnvwe‡k¦ Qwo‡q c‡o cÖhyw³i mvnv‡h¨ Zv wbqš¿Y Kivi KvRwU wK Avgv‡`i †Kv‡bv eskai Ki‡e bvwK †Kv‡bv wfbMÖ‡ni cÖvYxiv Ki‡e †mUv ejv hv‡”Q bv| Avevi axiMwZ‡Z gnvwe‡k¦i webvk‡K Ggb DbœZ cÖRvwZ Kxfv‡e †gvKv‡ejv Ki‡e †m cÖkœI gv\_vq Avmv ¯^vfvweK|

mßg Aa¨v‡qB e‡jwQ, gnvwek¦ ¶qcÖvß n‡e AZ¨šÍ axiMwZ‡Z| d‡j c„w\_exi eZ©gvb Ae¯’vi Ici wfwË K‡i eû `~‡ii fwel¨‡Zi cÖhyw³ †Kgb n‡e †mUv Abygvb Kiv A\_©nxb| GK j¶ †KvwU eQi GKwU cÖhyw³MZ mgv‡Ri K\_v †Zv wPšÍv KivI KwVb| g‡b n‡Z cv‡i, Zviv †h‡Kv‡bv wKQy AR©b Ki‡Z cvi‡e| wKš‘ GKwU cÖhyw³ hZB DbœZ †nvK, Zv‡K c`v\_©we`¨vi †gŠwjK m~Î¸‡jv gvb‡ZB n‡e| †hgb aiæb, Av‡cw¶KZv ZË¡ mwVK| †Kv‡bvwKQyB Av‡jvi †P‡q †ewk †e‡M †h‡Z cv‡i bv| d‡j j¶ †KvwU eQi a‡i †Póv Pvwj‡q †M‡jI Av‡jvi †e‡Mi GB evav cvi nIqv m¤¢e n‡e bv| AviI ¸iZ¡c~Y© K\_v n‡jv, fvj wKQy Ki‡Z †M‡jB wKQy bv wKQy kw³ e¨q nq| d‡j gnvwe‡k¦i gy³ kw³i Drm µ‡gB Lvwj n‡q hv‡”Q| hv cÖhyw³ mgv‡Ri Rb¨ GK weivU mgm¨v| †m hZ DbœZ mf¨ZvB †nvK bv †Kb|

m‡e©v”P †kÖYxi eyw×gvb Rx‡ei †¶‡Î †gŠwjK cÖvK…wZK bxwZ¸‡jv cÖ‡qvM K‡i Avgiv hvPvB Ki‡Z cvwi, gnvwe‡k¦i ¶‡qi d‡j `~i fwel¨‡Z cÖvYx‡`i wU‡K \_vK‡Z mwZ¨Kv‡ii †gŠwjK †Kv‡bvB mgm¨v n‡e wK bv| GKwU Rxe‡K eyw×gvb n‡Z n‡j G‡K AšÍZ Z\_¨ cÖwµqvKiY Ki‡Z cvi‡ZB n‡e| Gi R‡b¨ gnvwe‡k¦i †fŠZ Ae¯’v‡K †Kgb n‡Z n‡e Zv Rvbv `iKvi|

Z\_¨ cÖwµqvKi‡Yi GKwU ˆewkó¨ n‡”Q G‡Z kw³ LiP nq| G Kvi‡YB †h IqvW© cÖ‡mm‡i Avwg GB eBwU UvBc KiwQ †mwU cÖavb ˆe`¨wZK mieiv‡ni mv‡\_ hy³ Av‡Q| cÖwZ weU Z‡\_¨i R‡b¨ Kx cwigvY kw³ LiP n‡e †mUv wbf©i K‡i ZvcMZxq cÖwµqvi Ici| cÖ‡mm‡ii cwi‡e‡ki ZvcgvÎvi KvQvKvwQ ZvcgvÎvq KvR Ki‡j LiP nq me‡P‡q Kg| gvby‡li gw¯Í®‹ I †ewkifvM Kw¤úDUv‡ii Kg©`¶Zv LyeB Kg| Zvc AvKv‡i †ewi‡q hvq cÖPyi cwigvY evowZ kw³|

D`vniY¯^iƒc, †`‡ni Zv‡ci eo GKwU Ask gw¯Í®‹B ˆZwi K‡i| M‡j hvIqv †\_‡K evuPv‡Z A‡bK Kw¤úDUv‡iB kxZjxKiY e¨e¯’v ivL‡Z nq| GB Zvc AcP‡qi g~j KviY LyuR‡j Z\_¨ cÖwµqvKi‡Yi †KŠkjUvB cvIqv hv‡e| wVK GB Kvi‡YB Avevi Z\_¨ nvwi‡qI hvq| †hgb aiæb GKwU Kw¤úqUvi w`‡q wnmve Kiv n‡jv 1 +2 = 3| Zvn‡j `yB weU Z\_¨ (1 I 2) mwi‡q GK weU Z\_¨ (3) cvIqv †Mj| wnmve †kl nIqvi c‡i Kw¤úDUvi Av‡Mi Z\_¨ †d‡j w`‡Z cv‡i| d‡j `yB we‡Ui e`‡j GK weU Z\_¨ \_vKj| mwZ¨ ej‡Z, Kw¤úDUv‡ii †g‡gvwii Pvc Kgv‡Z G ai‡bi evowZ Z\_¨ memgqB †d‡j w`‡Z nq| msÁvbymv‡iB gy‡Q †djvi GB cÖwµqv A‡diZ‡hvM¨| Gi d‡j wKš‘ †e‡o hvq GbU«wc4| d‡j †evSv hv‡”Q, G‡Kev‡i †gŠwjK Kvi‡Y Z\_¨ msMÖn I cÖwµqvKi‡Yi Kvi‡Y Awbevh© I A‡diZ‡hvM¨ Dcv‡q we`¨gvb kw³ K‡g hv‡”Q| Avi evo‡Q gnvwe‡k¦i GbU«wc|

gnvwek¦ kxZj n‡Z n‡Z Zvcxq g„Zy¨i w`‡K GwM‡q †M‡j eyw×gvb Rxeiv Kx Kx Amyweavi m¤§yLxb n‡e Zv wb‡q wd«g¨vb WvBmb †f‡e‡Qb| ïay wPšÍv Kivi R‡b¨I GB Rxe‡`i‡K GKwU wbw`©ó nv‡i kw³ LiP Ki‡Z nq| cÖ\_g Amyweav †nvj Rxe‡`i ZvcgvÎv cwi‡e‡ki ZvcgvÎvi †P‡q †ewk n‡Z n‡e| Zv bv n‡j AwZwi³ Zvc Zv‡`i kixi †\_‡K †ei n‡Z cvi‡e bv| wØZxq welqwU n‡jv, GKwU †fŠZ e¨e¯’v Kx nv‡i cwi‡e‡k kw³ weKxY© Ki‡e Zv c`v\_©we`¨vi m~Î †g‡b Pj‡Z eva¨| mn‡RB †evSv hv‡”Q, Rxeiv †h nv‡i AwZwi³ Zvc †\_‡K gy³ n‡e Zvi †P‡q †ewk nv‡i †m ai‡bi Zvc kix‡i ˆZwi n‡j †ewk w`b †eu‡P \_vKv m¤¢e n‡e bv| d‡j Kx nv‡i Zvc LiP n‡e Zvi GKwU wbgœmxgv wba©vwiZ Av‡QB| d‡j GKwU Awbevh© cÖ‡qvRb n‡jv, kw³i gy³ GKwU Drm \_vK‡ZB n‡e| hv‡Z Zv‡ci GB cÖevn Aweivg Pj‡Z cv‡i| WvBm‡bi g‡Z gnvwe‡k¦i `~i fwel¨‡Z G ai‡bi mKj DrmB wbt‡kl n‡q hv‡e| Zvi gv‡b mKj eyw×gvb RxeB GKmgq kw³i m¼‡Ui gy‡L co‡e|

GLb, eyw×gvb Rxeiv `yB Dcv‡q Avqy evov‡Z cv‡i| GKwU n‡jv, hZw`b m¤¢e †eu‡P \_vKv| Av‡iKwU n‡jv, wPšÍv I AwfÁZv AR©‡bi nvi evov‡bv| WvBmb G‡¶‡Î GKwU †hŠw³K Abygvb K‡i‡Qb| GKwU Rx‡ei R‡b¨ mgq AwZevwnZ nIqvi wbR¯^ AwfÁZv H Rx‡ei Z\_¨ cÖwµqvKi‡Yi nv‡ii Ici wbf©i K‡i| cÖwµqv hZ `ªæZ Pj‡e, GKK mg‡q ZZ `ªæZ wPšÍv I Abyf~wZ m¤úbœ n‡e| mgqI ZZ `ªæZ Pj‡e e‡j g‡b n‡e| ievU© †dviIqv‡W©i W«vMb'm GM mv‡qÝ wdKk‡b GB Abygvb †ek imvZ¥Kfv‡e e¨envi Kiv n‡q‡Q| GLv‡b GK `j eyw×gvb Rx‡ei Mí ejv n‡q‡Q| Giv evm K‡i GKwU wbDU«b b¶‡Îi c„‡ô| Aw¯ÍZ¡&e wUwK‡q ivL‡Z Giv ivmvqwbK cÖwµqvi e`‡j wbDK¬xq cÖwµqvi Ici wbf©i K‡i| Giv Z\_¨ cÖ‡mm K‡i A‡bK `ªæZ| gvbyl GK †m‡K‡Û hv K‡i, Zviv †mB mg‡q eû eQ‡ii KvR K‡i †d‡j| gvby‡li mv‡\_ cÖ\_g mv¶v‡Zi mgq Zviv †ek Avw`g wQj| wKš‘ wgwb‡Ui g‡a¨ Zviv cwiw¯’wZ ey‡S †d‡j I gvbyl‡K civwRZ K‡i|

`~f©v‡M¨i e¨vcvi n‡jv, `~i fwel¨‡Z †eu‡P \_vKvi R‡b¨ GB †KŠkj MÖnY Ki‡j Amyweav Av‡Q| Z\_¨ hZ `ªæZ cÖ‡mm n‡e, kw³ Li‡Pi nviI ZZ `ªæZ n‡e| kw³i †hvMvbI ZZ `ªæZ Lvwj n‡q| nqZ fve‡Qb, Gi d‡j Avgv‡`i eskaiiv †Zv Zvn‡j aŸsm n‡q hv‡e| †m Zv‡`i ˆ`wnK AvK…wZ hvB †nvK bv †Kb| wKš‘ †mUv bvI n‡Z cv‡i| WvBmb †`wL‡q‡Qb, GKwU †KŠkj K‡i `y‡Uvi g‡a¨ mgš^q Kiv hv‡e| gnvwe‡k¦i ¶‡qi mv‡\_ fvimvg¨ i¶v Ki‡Z cÖvYxiv Zv‡`i Kg©Kv‡Ði nvi Av‡¯Í Av‡¯Í Kwg‡q Avb‡e| †hgb aiæb, µ‡gB †ewk mg‡qi R‡b¨ Zviv kxZwb`ªvq Ae¯’vb Ki‡e| cÖwZwU kxZwb`ªvi mgq Av‡Mi mwµq †gqv‡`i Kv‡Ri d‡j m…ó Zvc †ewi‡q hv‡e| Avi Rgv n‡e cÖ‡qvRbxq kw³| hv e¨envi Kiv hv‡e c‡ii mwµq †gqv‡`|

GB †KŠkj MÖnY Kiv Rxe‡`i AwZevwnZ mgq mwZ¨Kvi mg‡qi ¶y`ª †\_‡K ¶y`ªZi Ask n‡Z \_vK‡e| KviY G‡`i wbwl&µq Ae¯’v µ‡gB eo n‡Z \_vK‡e| wKš‘ Avwg A‡bK¶Y a‡iB ejwQ, wPiKvj GKwU `xN© mgq| d‡j wecixZgyLx `ywU †MÖv‡Zi gv‡S Avgiv evuav| m¤ú` µ‡gB dywi‡q hv‡e| Avi mgq µ‡gB †e‡o Pj‡e Amx‡gi w`‡K| GB mxgv¸‡jv‡K mij Dcv‡q cix¶v K‡i WvBmb †`‡L‡Qb, †gvU m¤ú‡`i cwigvY mmxg n‡jI †gvU Av‡cw¶K mgq Amxg n‡Z cv‡i| wZwb AmvaviY GKwU Z\_¨ w`‡q‡Qb| eZ©gv‡b c„w\_ex‡Z hZ gvbyl Av‡Q GZ msL¨K Rxe 6×1030 Ryj kw³ w`‡qB Av¶wiK A‡\_© AbšÍKvj evuP‡Z cvi‡e| m~h© AvU NÈv R¡j‡jB GB cwigvY kw³ cvIqv hvq|

Z‡e mwZ¨Kv‡ii AgiZ¡ †c‡Z n‡j Amxg cwigvY Z\_¨ cÖ‡mm Ki‡Z cvi‡jB Pj‡e bv| GKwU Rx‡ei gw¯Í‡®‹i Ae¯’vi msL¨v mmxg n‡j †m ïay mmxg msL¨K Avjv`v wPšÍv Ki‡Z cvi‡e| wPiKvj †eu‡P \_vK‡Z n‡j GKB wPšÍvB A‡bKevi Ki‡Z n‡e| G ai‡bi †eu‡P \_vKv‡K aŸsmcÖvß GK cÖRvwZi g‡ZvB A\_©nxb g‡b nq| GUv †\_‡K evuP‡Z PvB‡j H m¤cÖ`vq ev gnvcÖvYxUv‡K µgk eo n‡Z \_vK‡Z n‡e| A‡bK `~‡ii fwel¨‡Z GUv Ki‡Z hvIqv A‡bK KwVb KvR n‡e| KviY e¯Íy‡K †h MwZ‡Z gw¯Í‡®‹i Ask evbv‡bv hv‡e Zvi †P‡q †ewk MwZ‡Z e¯Íy ev®úxf~Z n‡q hv‡e| eyw×e…wËK Kg©Kv‡Ði cwiwa evwo‡q wb‡Z †ec‡ivqv I weP¶Y †Kv‡bv Rxe nqZ memgq nv‡Zi mvg‡b c‡o \_vKv `~j©f¨ gnvRvMwZK wbDwU«‡bv †\_‡K kw³ AvniY Ki‡e|

WvBm‡bi K\_vevZ©vi A‡bKvsk Ry‡oB †fZ‡i †fZ‡i a‡i †bIqv n‡q‡Q, GB mKj Rxe‡`i gvbwmK wPšÍvi MwZ wWwRUvj Kw¤úDUv‡ii wnmv‡ei MwZi mgvb n‡q hv‡e| `~i fwel¨‡Zi Rxe‡`i fwel¨r wb‡q Kiv wewfbœ Abygv‡bI Avm‡j ZvB a‡i †bIqv nq| wWwRUvj Kw¤úDUvi Aek¨B mmxg Ae¯’vm¤úbœ GKwU †gwkb| d‡j Gi Kv‡Ri m¤¢ve¨ cwiwa mxwgZ| Z‡e A¨vbvjM Kw¤úDUvi bv‡g Ab¨ ai‡bi hš¿I Av‡Q| wWwRUvj Kw¤úDUv‡ii wKQy mxgve×Zv A¨vbvjM Kw¤úDUv‡i †bB| wWwRUvj Kw¤úDUvi ïay mmxg cwigvY Z\_¨ Rgv I cÖ‡mm Ki‡Z cv‡i| aiæb, A¨vbvjM Kw¤úDUv‡ii g‡Zv K‡i Z\_¨ Gb‡KvW Kiv n‡jv| aiæb †h Ro e¯Íyi †Kv‡Yi Ae¯’v‡bi gva¨‡g †mUv Kiv n‡jv| G‡¶‡Î Kw¤úDUv‡ii aviY¶gZv‡K Amxg g‡b n‡e| d‡j, GKwU gnvcÖvYx A¨vbvjM Kw¤úDUv‡ii g‡Zv K‡i KvR Ki‡Z cvi‡j GwU ïay AmxgmsL¨K wPšÍvB Ki‡Z cvi‡e bv, nqZ AmxgmsL¨K Avjv`v wPšÍvI Ki‡Z cvi‡e|

wKš‘ mvwe©Kfv‡e gnvwek¦ A¨vbvjM bvwK wWwRUvj Kw¤úDUv‡ii g‡Zv †mUv Avgiv Rvwb bv| †Kvqv›Uvg wdwR· ej‡Q, gnvwek¦ wb‡RI †Kvqv›UvwqZ ev wQbœvwqZ| gv‡b As‡k As‡k wef³| A\_©vr, GwU wbiwew”Qbœ ZviZ‡g¨i e`‡j wew”Qbœ wew”Qb As‡k me¸‡jv ˆewkó¨ aviY K‡i Av‡Q| Z‡e GwU ïayB GKwU aviYv| Avgiv gvbwmK I Ro gw¯Í‡®‹i ga¨Kvi m¤úK©I mwVKfv‡e eywS bv| Avgiv †Zv GLv‡b †Kvqv›Uvg wdwR‡·i aviYv wb‡q K\_v ejjvg| Zvi mv‡\_ wPšÍv I AwfÁZv¸‡jvi m¤úK© bvI †Zv \_vK‡Z cv‡i|

Z‡e gb †hgbB †nvK bv †Kb, `~i fwel¨‡Zi Rxeiv †h †kl ch©šÍ R¡vjvwbi m¼‡U co‡e Zv‡Z †Kv‡bv m‡›`n †bB| gnvwe‡k¦i me kw³ GKw`b wbt‡kl n‡eB| ZeyI GUv‡K †gvKv‡ejv K‡i Zviv GK ai‡bi AgiZ¡ jvf Ki‡Z cv‡i| WvBm‡bi Zy‡j aiv wP‡Î Rxe‡`i cÖ‡qvR‡bi cÖwZ gnvwe‡k¦i †Kv‡bv bRiB \_vK‡e bv| Zv‡`i Kg©KvÐI gnvwek¦‡K µgvMZ Kg cÖfvweZ Ki‡Z \_vK‡e| Acwimxg mgq a‡i Rxeiv \_vK‡e wbwl&µq| ¯§…wZ \_vK‡e| wKš‘ ¯§…wZ‡Z bZyb wKQy hy³ n‡e bv| gyg~l©y gnvwe‡k¦i w¯’i AÜKv‡i DV‡e bv †Kv‡bv Av‡jvob| GKUy eyw× LiP K‡i Iiv nqZ GLbI AmxgmsL¨K wPšÍv Ki‡Z cvi‡e| AmxgmsL¨K AwfÁZvi mva wb‡Z cvi‡e| Avi Kx B ev Avkv Kivi Av‡Q?

eZ©gvb mg‡q `xN© w`b a‡i P‡j Avmv Ab¨Zg fyj aviYv n‡jv gnvRvMwZK Zvcxq g„Zy¨| ZvcMwZwe`¨vi wØZxq m~Î Abymv‡i AvcvZ`„wó‡Z gnvwek¦ GK mgq Gi ˆewkó¨¸‡jv nvwi‡q †dj‡e| iv‡mj I AviI †KD †KD GB aviYv‡K e¨envi K‡i bvw¯ÍKZv, bvw¯Íev` (nihilism) I nZvkvi `k©b cÖgv‡Y e¨¯Í n‡q‡Qb| eZ©gv‡b Avgv‡`i Km‡gvjwRi Ávb AviI DbœZ n‡q‡Q| GLb Avgiv GKUy wfbœ wPÎ †`LwQ| gnvwek¦ nqZ aŸsm n‡q hv‡”Q| wKš‘ Gi Dcv`vb †kl n‡q hv‡”Q bv| n¨vu, ZvcMwZwe`¨vi wØZxq m~‡Îi cÖ‡qvM NU‡Q| wKš‘ Gi Kvi‡Y ms¯‹…wZi g„Zy¨ NU‡e ejvi Dcvq †bB|

Avm‡j WvBmb †hgb e‡j‡Qb, ev¯Í‡e cwiw¯’wZ GZUv Lvivc bvI n‡Z cv‡i| GZ¶Y ch©šÍ Avwg a‡i wb‡qwQ, cÖmvwiZ I kxZj n‡Z n‡ZI gnvwek¦ Kg-‡ewk mylg (GKB iKg) \_v‡K| wKš‘ GUv fyjI n‡Z cv‡i| gnvKl© eû iKg Aw¯’wZkxjZvi Rb¥ †`q| eZ©gv‡b eo †¯‹‡j wPšÍv Ki‡j Avgiv gnvwek¦‡K mylg ev me w`‡K GKBiKg †`wL| `~i fwel¨‡Z nqZ †mwU AviI RwUj †Kv‡bv`x‡K †gvo wb‡Z cv‡i| †hgb aiæb, Avjv`v w`‡K cÖmvi‡Yi nvi mvgvb¨ ZviZ‡g¨i dj eo n‡q †`Lv w`‡Z cv‡i| eo eo eø¨vK‡nvjiv wb‡R‡`i gnvKl©xq AvKl©‡Yi gva¨‡g gnvRvMwZK cÖmvi‡Yi cÖfve D‡c¶v K‡i GKxf~Z n‡q †h‡Z cv‡i| GB Ae¯’vi Kvi‡Y GKwU `viæY jovB evua‡e| g‡b K‡i †`Lyb, GKwU eø¨vK‡nvj hZ †QvU n‡e, Gi ZvcgvÎv ZZ †ewk| GwU ev®úxf~ZI n‡q hvq ZZ ZvovZvwo| `y‡Uv eø¨vK‡nvj wgwjZ n‡j mgwš^Z eø¨vK‡nvjwU AvKv‡i eo n‡e| Zvi gv‡b Gi ZvcgvÎv n‡e Kg| d‡j Gi ev®úxfeb eo GKwU mgm¨vi gy‡L co‡e| Zvn‡j, `~i fwel¨‡Zi gnvwek¦ m¤ú‡K© g~j cÖkœ n‡jv, eø¨vK‡nvj‡`i GKxfeb Zv‡`i e®úxfeb †VKv‡Z h‡\_ó f~wgKv ivL‡Z cvi‡e wK bv| hw` cv‡i, Zvn‡j memgqB wKQy eø¨vK‡nvj nwKs wewKi‡Yi gva¨‡g R¡vjvwb mieivn Ki‡Z cvi‡e| DbœZ cÖhyw³i †Kv‡bv RvwZ †mB R¡vjvwb e¨envi K‡i nqZ kxZwb`ªvi cÖ‡qvRb †\_‡K gyw³ cv‡e| c`v\_©we` Wb †cBR I i‍¨vÛvj g¨vKwKi wnmve Abymv‡i cÖmviY I m‡¼vP‡bi cÖfve Dwbk-wek n‡e| gnvwe‡k¦i cÖmviY nvi Kx nv‡i Kg‡e †mUvi Ici GB jovB‡qi djvdj Lye †ewk wbf©i Ki‡Q| †Kv‡bv †Kv‡bv bgybv Abymv‡i eø¨vK‡nvj‡`i GKxfebB Rqx nqB|

WvBm‡bi weei‡Y AviI GKwU welqI gv\_vq ivLv nqwb| GgbI †Zv n‡Z cv‡i †h wb‡R‡`i Avqy evov‡bv Avgv‡`i eskaiiv gnvwe‡k¦i eo †¯‹‡ji KvVv‡gv cv‡ë †djvi †Póv Ki‡Z cv‡i| †R¨vwZc©`v\_©we` Rb e¨v‡iv I dª¨vsK wUcjvi Ggb wKQy Dcvq wb‡q †f‡e‡Qb| DbœZ cÖhyw³m¤úbœ †Kv‡bv m¤cÖ`vq nqZ wb‡R‡`i R‡b¨ AbyK~j †Kv‡bv gnvKl©xq web¨vm ˆZwi Ki‡Z b¶‡Îi PjvP‡j mvgvb¨ cwieZ©b NUv‡Z cv‡i| †hgb aiæb, wbDK¬xq A¯¿ e¨envi K‡i MÖnvYyi K¶c\_ cv‡ë †djv hv‡e| Gi gva¨‡g GwU †Kv‡bv MÖ‡ni gnvKl©xq kw³ AR©b K‡i m~‡h© wM‡q av°v jvMv‡Z cvi‡e| GB av°vi d‡j Qvqvc‡\_ m~‡h©i K¶c\_ mvgvb¨ cv‡ë hv‡e| GB cÖfve †QvU| wKš‘ ax‡i ax‡i Gi djvdj j¶¨Yxq n‡q IV‡e| m~h© hZ `~‡i mi‡e, ZZB `ªæZ `~‡i mi‡Z \_vK‡e| eû Av‡jvKe‡l©i g‡Zv `~i‡Z¡ GB ¯’vbP¨ywZi d‡j m~h© Ab¨ †Kv‡bv b¶‡Îi KvQvKvwQ P‡j †M‡j eo NUbv †`Lv †h‡Z cv‡i| nvjKv GKwU av°v †\_‡K nqZ Qvqvc‡\_ m~‡h©i MwZc‡\_ P‡j Avm‡e Avg~j cwieZ©b| A‡bK¸‡jv b¶‡Îi MwZc\_ cvëv‡j bvbvb iK‡gi gnvRvMwZK e¯Íy ˆZwi Kiv hv‡e| e¨envi Kiv hv‡e RvwZi Kj¨v‡Y| Avi djvdj µ‡gB eo n‡q hvq e‡j Gi gva¨‡g GLv‡b-‡mLv‡b GK-AvaUy cwieZ©b K‡i K‡i †h‡Kv‡bv AvKv‡i e¨e¯’v‡KB wbqš¿Y Kiv hv‡e| h‡\_l `xN© mgq †c‡j Avgv‡`i eskaiiv wb‡R‡`i R‡b¨ cÖPyi mgq nv‡Z cv‡e| cy‡iv Qvqvc\_I Gfv‡e `L‡j Avbv †h‡Z cv‡i|

eo AvKv‡ii GB gnvRvMwZK Kjv‡KŠkj¸‡jv‡K cÖvK…wZK I ˆ`e NUbvi mv‡\_ jovB Ki‡Z n‡e| mßg Aa¨v‡qB ejv n‡q‡Q, b¶Î I Qvqvc\_iv gnvKl©xq eÜ‡b Ave× ¸”Q †\_‡K wQU‡K co‡Z \_vK‡e| e¨v‡iv I wUcjvi †`‡L‡Qb, MÖnvYy‡K wbqš¿‡Yi gva¨‡g GKwU Qvqvc\_‡K cybwe©b¨vm Ki‡Z 1022 eQi mgq jvM‡e| wKš‘ cÖvK…wZK `~N©Ubv 1019 eQ‡ii g‡a¨B N‡U| Zvi gv‡b †`Lv hv‡”Q, jovB‡qi dj P‡j hv‡”Q cÖK…wZi c‡¶| Ab¨ w`‡K, Avgv‡`i eskaiiv nqZ MÖnvYyi †P‡q eo AvKv‡ii wRwbm‡KI wbqš¿Y Ki‡Z cvi‡e| GQvovI GB cÖwµqv¸‡jv e¯Íy¸‡jvi K¶c‡\_i †e‡Mi IciI wbf©i K‡i| Avgiv cy‡iv Qvqvc\_ wb‡q fve‡j †`Le, gnvwe‡k¦i cÖmvi‡Yi mv‡\_ mv‡\_ GB †eM¸‡jv K‡g Av‡m| d‡j G¸‡jv‡K K…wÎgfv‡e wbqš¿Y Ki‡ZI mgq †ewk †j‡M hv‡e| Z‡e `y‡Uv cÖfve GKB nv‡i Kg‡e bv| †`‡L g‡b n‡”Q, mg‡qi mv‡\_ mv‡\_ cÖvK…wZK `~N©Ubvi nvi gnvwek¦‡K cywbwe©b¨vm Kivi nv‡ii †cQ‡b c‡o hv‡e| G‡Z K‡i `viæY GKwU m¤¢vebv ˆZwi n‡”Q| µ‡gB m¤ú` dywi‡q †h‡Z \_vKv gnvwe‡k¦i Ici eyw×gvb Rxe‡`i wbqš¿YI µ‡gB evo‡Z \_vK‡e| GKUv mgq cy‡iv cÖK…wZ P‡j Avm‡e cÖhyw³i AvIZvq| cÖvK…wZK Avi K…wÎg wRwb‡mi g‡a¨ cv\_©K¨B Avi \_vK‡e bv|

WvBm‡bi we†køl‡Yi Av‡iKwU eo Abygvb n‡jv, wPšÍv Ki‡Z †M‡j kw³ LiP n‡eB| gvby‡li wPšÍb cÖwµqvi †¶‡Î e¨vcviUv mwZ¨| K‡qKw`b AvM ch©šÍI a‡i †bIqv nZ, †h‡Kv‡bv iKg Z\_¨ cÖ‡mm Ki‡Z †M‡jB GKwU b¨~bZg cwigvY ZvcMZxq g~j¨ w`‡ZB nq| we¯§‡qi e¨vcvi n‡jv, GUv memgq mZ¨ bq| Kw¤úDUvi weÁvbx Pvj©m †e‡bU I †ivjd i‍¨vb‡WŠi †`wL‡q‡Qb, bxwZMZfv‡e cÖZ¨vMvgx (wecixZ w`‡KI KvR Ki‡Z m¶g) wnmveI m¤¢e| Gi A\_© n‡jv, wKQy wKQy †fŠZ e¨e¯’v AcPq QvovI Z\_¨ cÖ‡mm Ki‡Z cv‡i (welqwU GLbI ev¯Í‡e Kiv m¤¢e nqwb)| Ggb GKwU wm‡÷‡gi K\_v wPšÍv Kiv †h‡Z cv‡i, †hwU †Kv‡bv ai‡bi we`¨yr ms‡hv‡Mi cÖ‡qvRb QvovB AmxgmsL¨K wPšÍv m¤úbœ Ki‡Z cvi‡e| GUv wVK †evSv hv‡”Q bv †h G ai‡bi GKwU wm‡÷g wK GKB mv‡\_ Z\_¨ msMÖn I cÖ‡mm Ki‡Z cvi‡e wK bv| KviY cwi‡ek †\_‡K †Kv‡bv Ak~b¨ Z\_¨ wb‡Z †M‡j †Kv‡bv bv †Kv‡bv fv‡e kw³ AcPq n‡Z †`Lv hvqB| KviY †Mvj‡g‡j kã †\_‡K †ei K‡i wb‡Z nq mwVK m‡¼Z| d‡j evB‡ii RMZ m¤ú‡K© GB mij Rx‡ei †Kv‡bv aviYv \_vK‡e bv| Z‡e AZx‡Zi gnvwe‡k¦i K\_v Zv‡`i g‡b \_vK‡e| †mB Rxe Avevi ¯^cœI †`L‡Z cvi‡e nqZ|

GK kZvãxi †ewk mgq a‡i weÁvbxiv gnvwe‡k¦i g„Zy¨ cÖwµqv wb‡q wbweofv‡e KvR Ki‡Qb| GbU«wci gva¨‡g m…ó AcP‡qi gva¨‡g Avgv‡`i evm¯’vb gnvwek¦ †h wbw`©ó nv‡i ¶q n‡q hv‡”Q †mwU weÁvb gn‡ji GKwU mvaviY wek¦vm| wKš‘ GB wek¦vm KZUv cÖwZwôZ? Avwg wK wbwðZ K‡i ej‡Z cvwi me †fŠZ cÖwµqv Awbevh©fv‡e wek…•Ljv I ¶‡qi Rb¥ †`q?

Rxewe`¨v Kx e‡j? †h †Rviv‡jvfv‡e wKQy RxeweÁvbx WviDBbxq weeZ©b‡K mg\_©b K‡ib †mLvb †\_‡K wKQy m~Î cvIqv hvq| Avgvi g‡b nq, †fŠZ e‡ji gva¨‡g cwiPvwjZ †h cÖwµqvwU †gŠwjKfv‡e my¯úófv‡e aŸsmvZ¥K nIqvi K\_v †mwU MVbg~jK nIqvi Kvi‡Y A¯^w¯Í‡eva Kivi Kvi‡YB Zviv GB g‡Z wek¦vmx n‡q‡Qb| m¤¢eZ c„w\_ex‡Z cÖv‡Yi m~Pbv N‡U‡Q Avw`g AvVv‡jv Kv`v †\_‡K| eZ©gvb cÖvYxRMr wekvj I RwUj ev¯Íyms¯Ív‡bi Ask| GKwU RwUj I AZ¨šÍ ˆewP‡Zª¨ ficyi GK wekvj Rv‡j AYyRxeiv cvi¯úwiK wµqv-cÖwZwµqv Ki‡Q| RxeweÁvbxiv Aek¨ weeZ©‡bi wbqgZvwš¿K AMÖMwZi c‡¶i †h‡Kv‡bv cÖgvY‡K A¯^xKvi K‡ib| nqZ †mUv K‡ib Hk¦wiK D‡Ïk¨ cÖKvk cvIqvi f‡q| Z‡e weÁvbx I mvaviY gvbyl mevB fvj K‡iB Rv‡bb, c„w\_ex‡Z cÖv‡Yi D™¢‡ei ci †\_‡K Kg-‡ewk GKB w`K eivei wKQy GKUvi DbœwZ N‡U‡Q| †mB DbœwZ‡K my¯úófv‡e wPwýZ KivB n‡jv mgm¨vi KvR| wVK †Kvb wRwbmwU DbœZ n‡q‡Q|

wU‡K \_vKv m¤úwK©Z GZ¶‡Yi Av‡jvPbvq Z\_¨ (ev k…•Ljv) I GbU«wci g‡a¨ ¸iæZ¡ †`Iqv n‡q‡Q| †`Lv †M‡Q, GbU«wcB memgq Rqx nq| wKš‘ Z\_¨B wK †mB wRwbm †hUv wb‡q Avgv‡`i wPwšÍZ nIqv DwPZ? Avi hvB †nvK, m¤¢ve¨ meiKg wPšÍv wb‡q wbqgZvwš¿Kfv‡e KvR Kiv †dvbeyK covi g‡ZvB †ivgvÂKi KvR| AwfÁZvi gvbB n‡jv ¸iæZ¡c~Y© welq| AviI mvwe©Kfv‡e ej‡j msM…nxZ I e¨eüZ Z‡\_¨i gvb|

Avgiv hZ `~i Rvwb, Kg-‡ewk ˆewkó¨nxb Ae¯’vq gnvwe‡k¦i Rb¥ n‡q‡Q| mg‡qi mv‡\_ mv‡\_ G‡m‡Q mg…w× I †fŠZ e¨e¯’vi ˆewPZª¨| Zvi gv‡b gnvwe‡k¦i BwZnvm Avm‡j msMwVZ RwUjZv ˆZwii BwZnvm| ï‡b G‡K c¨vivW· g‡b nq| Av‡jvPbvi ïiæ‡ZB e‡jwQjvg, ZvcMwZwe`¨vi wØZxq m~Î Abymv‡i gnvwe‡k¦i g„Zy¨ n‡”Q| GwU cÖv\_wgK mg‡qi wbgœ GbU«wci Ae¯’v †\_‡K m‡e©v”P GbU«wci P~ovšÍ Ae¯’vi w`‡K AcÖwZ‡iva¨ MwZ‡Z GwM‡q hv‡”Q| g„Zy¨ n‡”Q m¤¢vebv¸‡jvi| Zvn‡j cwiw¯’wZ fvj n‡”Q bvwK Lvivc n‡”Q?

Avm‡j wKš‘ †Kv‡bv c¨vivW· †bB| KviY msMwVZ RwUjZv GbU«wc †\_‡K wfbœ wRwbm| GbU«wc bv wek…•Ljv n‡jv FYvZ¥K Z\_¨ ev k…•Ljv| Avcwb hZ †ewk Z\_¨ e¨envi Ki‡eb, gv‡b hZ †ewk web¨vm ˆZwi Ki‡eb, ZZ †ewk GbU«wc ˆZwi n‡q hv‡e| GK RvqMvi k…•Ljv Ab¨ RvqMvi wek…•Ljv evwo‡q †`q| wØZxq m~ÎUv GgbB| GbU«wc memgq Rqx nq| Z‡e msMwVZ nIqv I RwUjZv ej‡Z memgq web¨vm Avi Z\_¨‡KB †evSvq bv| G¸‡jv n‡jv wbw`©ó ai‡bi web¨vm I Z\_¨| †hgb aiæb, GKwU e¨vK‡Uwiqv I GKwU ùwU‡Ki g‡a¨ ¸iæZ¡c~Y© cv\_©K¨ Avgiv eyS‡Z cvwi| `y‡UvB web¨¯Í \_v‡K| Z‡e web¨¯Í \_v‡K wfbœ Dcv‡q| GKwU ùwU‡Ki Rvdwi‡Z \_v‡K k…•Ljve× mylgZv| `viæY my›`i n‡jI wKš‘ wVKB weiw³Ki| Ab¨ w`‡K wKš‘ m¤ú~Y©i~‡c msMwVZ GKwU e¨vK‡Uwiqv `viæY AvKl©Yxq|

g‡b n‡e GB welq¸‡jv e¨w³ †\_‡K e¨w³‡Z Avjv`v n‡e| Z‡e MwY‡Zi gva¨‡g G¸‡jv‡K k³ wfwË †`Iqv hvq| mv¤cÖwZK eQi¸‡jv‡Z M‡elYvi bZyb GKwU kvLvi D™¢e N‡U‡Q| msMwVZ RwUjZvi g‡Zv aviYv¸‡jv‡K msL¨vi gva¨‡g cÖKvk KivB Gi D‡Ïk¨| GwU msMwVZ nIqvi mvaviY bxwZgvjvI cÖwZwôZ Ki‡Z Pvq| †m¸‡jv‡K ¯’vb K‡i w`‡Z Pvq c`v\_©weÁv‡bi cÖPwjZ wbq‡gi cv‡k| GB kvLvwU GLbI G‡Kev‡i cÖv\_wgK Ae¯’vq Av‡Q| wKš‘ web¨vm I wek…•Ljv m¤ú‡K© cÖ\_vMZ A‡bK Abygvb‡KB GwU ûgwKi gy‡L †d‡j w`‡”Q|

Avgvi `¨ KmwgK R¨vKcU eB‡q Avwg e‡jwQ, gnvwe‡k¦ nqZ ZvcMwZwe`¨vi wØZxq m~‡Îi cvkvcvwk GK ai‡bi ÒRwUjZvi ea©bkxj m~ÎÓKvR Ki‡Q| GB `yB m~‡Îi g‡a¨ †Kv‡bv we‡iva †bB| ev¯Í‡e GKwU †fŠZ e¨e¯’vi MVbMZ RwUjZv evo‡j GbU«wc ev‡o| †hgb, Rx‡ei weeZ©‡bi d‡j bZyb I AviI †ewk RwUj cÖvYxi D™¢e N‡U| Z‡e Zvi Av‡M wKš‘ msNwUZ nq aŸsmvZ¥K †fŠZ I Rxe‰eÁvwbK wewfbœ cÖwµqv (‡hgb mwVKfv‡e Awf‡hvwRZ n‡Z bv cviv wgDU¨v›U‡`i5 AKvj g„Zy¨)| GgbwK ZylvidjK ˆZwii mgqI AcÖ‡qvRbxq Zvc ˆZwi nq| Avi Gfv‡eB †e‡o P‡j gnvwe‡k¦i GbU«wc| Z‡e Av‡MB e¨vL¨v K‡iwQ, memgq †h †Kv‡bv wKQy msMwVZ n‡jB GbU«wc evo‡e Zv bq| KviY msMwVZ nIqv GbU«wci wecixZ bq|

Avwg AZ¨šÍ Lywk †h AviI A‡bK M‡elK GKB wm×v‡šÍ G‡m‡Qb| RwUjZvi ÒwØZxq m~ÎÓ‡K cÖwZwôZ Kivi GKwU †PóvI Pj‡Q| Gi mv‡\_ ZvcMwZwe`¨vi wØZxq m~‡Îi †Kv‡bv we‡iva †bB| Z‡e RwUjZvi m~ÎwU gnvRvMwZK cwieZ©b m¤ú‡K© wfbœ K\_v ej‡Q| GwU ej‡Q, g~jZ ˆewkó¨nxb Ae¯’v †\_‡K gnvwek¦ ax‡i ax‡i AviI we¯ÍvwiZ RwUj Ae¯’vi w`‡K GwM‡q hv‡e (GK A‡\_© Av‡M DwjøwLZ M‡elYv Abymv‡i †mwU AviI myKwVb n‡e)|

gnvwe‡k¦i †kl Ae¯’vi K\_v wPšÍv Ki‡j RwUjZvi e…w× welqK m~‡Îi ¸iæZ¡ A‡bK †ewk| msMwVZ RwUjZv GbU«wci wecixZ bv n‡j FYvZ¥K GbU«wci ¯^íZvi Kvi‡Y RwUjZvi mxgv evavMÖ¯Í nIqvi K\_v bq| RwUjZv evo‡j †h GbU«wc ev‡o, †mUv nqZ wbZvšÍB NUbvµ‡g N‡U †M‡Q| GUv nqZ web¨v¯Í nIqv ev Z\_¨ cÖ‡mm Kivi †¶‡Î †hgb N‡U †Zgb †gŠwjK †Kv‡bv wbqg bq| GUv mZ¨ n‡q \_vK‡j Avgv‡`i eskaiiv nqZ dywi‡q Avm‡Z \_vKv m¤ú‡`i AcPq QvovB AviI †ewk msMwVZ RwUj Ae¯’v AR©b Ki‡Z cvi‡e| nqZ Zviv Zv‡`i B‡”Qg‡Zv Z\_¨ cÖ‡mm Ki‡Z cvi‡e bv| wKš‘ Zv‡`i gvbwmK I kvixwiK Kg©Kv‡Ði m¶gZvi mg…w×i AR©‡b †Kv‡bv wewawb‡la \_vK‡e bv|

GB Aa¨vq I me©‡kl Aa¨v‡q Avwg gnvwe‡k¦i MwZ axi n‡q hvIqvi GKwU wPÎ Zy‡j aivi †Póv K‡iwQ| Z‡e MwZ axi n‡q †M‡jI nqZ KL‡bvB MwZ \_vg‡e bv| AviI e‡jwQ mv‡qÝ wdKk‡bi A™¢yZ cÖvYx‡`i mvgvb¨ DcKiY w`‡q †eu‡P \_vKvi †Póvi Mí| †hLv‡b wPiKvj Zv‡`i‡K gy‡LvgywL n‡Z nq cÖwZK~jZvi| ZvcMwZwe`¨vi wbg©g wØZxq m~Î weiæ‡× Zv‡`i‡K wb‡R‡`i gw¯Í‡®‹i m…RbkxjZv cÖ`k©b Ki‡Z n‡e| wU‡K \_vKvi Rb¨ Zv‡`i‡K AvcÖvY †Póv Pvjv‡Z n‡e| †m cÖ‡Póv †h e¨\_© n‡eB GgbwU ejvi †Rv †bB| Zv‡`i G Ae¯’vi K\_v †f‡e †Kv‡bv †Kv‡bv cvVK nqZ Avb›` cv‡”Qb| †KDev Avevi welY&YI n‡”Qb| Avgvi wb‡Ri cÖwZwµqvUv wgkÖ|

Z‡e mewKQyB Abygvb Kiv n‡q‡Q GUv a‡i wb‡q †h gnvwek¦ cÖmvwiZ n‡ZB \_vK‡e| Avgiv †`‡LwQ, GUv Avm‡j wbQKB gnvwe‡k¦i A‡bK¸‡jv m¤¢ve¨ cwiYwZi g‡a¨ GKwU| cÖmviY h‡\_ó `ªæZ nv‡i K‡g †M‡j GKw`b nqZ eÜB n‡q hv‡e| ïiæ n‡Z cv‡i m‡¼vPb| Avi NU‡e GK gnvm‡¼vPb| †m‡¶‡Î Avgv‡`i wU‡K \_vKvi m¤¢vebv †Kgb?

**Abyev`‡Ki †bvU**

1| eBwU 1990 Gi `k‡K †jLv n‡qwQj| Z‡e Av‡jvP¨ e³e¨ GLbI mZ¨|

2| weeZ©b wb‡q weZK© m¤ú‡K© cwiwkó As‡k ms‡¶‡c Av‡jvPbv Kiv n‡q‡Q|

3| A‡bKUv mvc ev e¨vO‡qi kxZwb`ªvi g‡Zv| G‡Z K‡i †eu‡P \_vKvi R‡b¨ wbqwgZ Lvevi MÖn‡Yi c‡qvRb nq bv| mwÂZ Pwe© †\_‡K cÖ‡qvRbxq cywó cvIqv hvq| G mgq ür¯ú›`b I wecv‡Ki nvi K‡g hvq|

4| c`v\_©we`¨vq GbU«wc ej‡Z †evSvq kw³ iƒcvšÍ‡ii A¶gZv| Ab¨ A‡\_© G‡jv‡g‡jv Ae¯’vi GKwU cwigvc| †hgb †Kv‡bv Zv‡K A‡bK eB Qwo‡q wQwU‡q \_vK‡j ejv hv‡e ¸wQ‡q ivLv †Kv‡bv Zv‡Ki †P‡q Gi GbU«wc †ewk| G‡jv‡g‡jv eB¸‡jv †MvQv‡bv n‡j Zv‡K GbU«wc Kg‡e| wKš‘ mvgwMÖKfv‡e gnvwe‡k¦i GbU«wc KLbI K‡g bv| KviY, H iæg †MvQv‡Z †M‡j gvbyl ev hš¿ †h KvR Ki‡e Zv‡Z mvgwMÖKfv‡e GbU«wc evo‡eB| d‡j wKQy kw³ AcPq n‡eB| wKQy kw³ AiƒcvšÍi‡hvM¨ n‡q hv‡eB| Avi Bbdi‡gkb w\_Iwi‡Z GbU«wc ej‡Z †evSvq GKwU NUbv‡K cÖKvk Ki‡Z M‡o †h cwigvY weU Z\_¨ cÖ‡qvRb| Zey `y‡Uv Avm‡jB GKB aviYvi wfbœ cÖKvk|

5| wWGbG Gi wR‡bvg wmKy‡qÝ cv‡ë hvIqvi gva¨‡g m…ó bZyb Rxe‡K wgDU¨v›U e‡j|

beg Aa¨vq

`ªæZ MwZi Rxeb

wPiKvj ch©šÍ †eu‡P \_vKvi R‡b¨ gvbyl ev Gwj‡qb‡`i m…RbkxjZv KL‡bvB h‡\_óv n‡e bv, hw` bv ÒwPiKvjÓ e‡j wKQy GKUv \_v‡K| gnvwek¦ GKwU wbw`©ó ch©šÍB hw` wU‡K \_v‡K, Zvn‡j †Zv A¨vigv‡MWb Gov‡bvi †Kv‡bv Dcvq †bB| lô Aav‡q¨ Avwg †`wL‡qwQ, gnvwe‡k¦i P~ovšÍ cwiYwZ Kxfv‡e Gi †gvU f‡ii Ici wbf©i K‡i| gnvwek¦ nq wPiKvj cÖmvwiZ n‡e| A\_ev GKmgq Avevi ¸wU‡q †h‡Z \_vK‡e| ch©‡e¶Y ej‡Q, gnvwe‡k¦i fi GB `yB m¼U mxgviB Lye KvQvKvwQ| GKmgq gnvwek¦ Avevi ¸wU‡qB †h‡Z ïiæ Ki‡j Av‡Mi Aa¨v‡q Avgiv eyw×gvb Rx‡ei †h AwfÁZvi K\_v e‡jwQ †mUv GK`g wfbœ iKg n‡q hv‡e|

gnvRvMwZK m‡¼vP‡bi cÖv\_wgK Ae¯’vq f‡qi †Zgb wKQyB †bB| GKwU ej †hgb Gi MwZc‡\_i P~ovq I‡V, †Zgwb gnvwek¦I Lye ax‡i †fZ‡ii w`‡K cZb ïiæ Ki‡e| AvcvZZ Avgiv a‡i wbw”Q, gnvwek¦ `k nvRvi †KvwU eQi c‡i m‡e©v”P we›`y‡Z †cŠuQ‡e| ZLbI cÖPyi b¶Î R¡j‡Z \_vK‡e| AcwUK¨vj †Uwj‡¯‹vc w`‡q Avgv‡`i eskaiiv ZLbI Qvqvc‡\_i MwZc\_ †`L‡Z cvi‡e| †`Lv hv‡e, Qvqvc\_¸”Qiv µgk ax‡i `~‡i mi‡Q| GKmgq `~‡i miv eÜ K‡i Avevi G‡K Ac‡ii w`‡K Avm‡Z \_vK‡e| Avgv‡`i eZ©gv‡b †`Lv Qvqvc\_¸‡jv †m mgq AviI Pvi¸Y `~‡i \_vK‡e| gnvwe‡k¦i eqm evovi Kvi‡Y †m mg‡qi †R¨vwZwe©`iv Avg‡`i †P‡q `k¸Y †ewk `~‡ii wRwbm †`L‡Z cvi‡e1|d‡j Avgv‡`i †P‡q Zv‡`i ch©‡e¶Y‡hvM¨ gnvwe‡k¦ Qvqvc‡\_i msL¨v A‡bK A‡bK †ewk n‡e|

cy‡iv gnvwek¦ cvwo w`‡Z Av‡jvi eû wewjqb eQi mgq †j‡M hvq| d‡j GLb †\_‡K 100 wewjqb (`k nvRvi †KvwU) eQi c‡ii †R¨vwZwe©`iv gnvwe‡k¦i m‡¼vPb †`Lvi R‡b¨ Lye †ewk mgq cv‡eb bv| cÖ\_‡g Zviv †`L‡eb, A‡c¶vK…Z Kv‡Qi Qvqvc\_iv M‡oi Ici `~‡i bv m‡i KvQvKvwQ n‡”Q| wKš‘ `~‡ii Qvqvc‡\_i Av‡jv ZLbI †jvwnZ miY2 cÖ`k©b Ki‡e| `yB k †\_‡K GK nvRvi †KvwU eQ‡ii g‡a¨i †Kv‡bv GK mg‡qB ïay m‡¼vPb `„k¨gvb n‡e| Z‡e gnvRvMwZK cUf~wg Zvc wewKi‡Yi m~² cwieZ©b AviI mn‡R †evSv hv‡e| Avcbv‡`i wbðqB g‡b Av‡Q, GB cUf~wg wewKiY weM e¨vs‡qi aŸsmve‡kl| eZ©gv‡b Gi ZvcgvÎv cig k~b¨ ZvcgvÎvi wZb wWwMÖ Ic‡i| gv‡b 3 wWwMÖ †Kjwfb| gnvwe‡k¦i cÖmvi‡Yi mv‡\_ mv‡\_ GB ZvcgvÎv Kg‡Q| `k nvRvi eQi c‡i GwU K‡g 1 wWwMÖ †Kjwfb n‡e| cÖmvi‡Yi m‡e©v”P we›`y‡Z ZvcgvÎv me‡P‡q Kg n‡e| m‡¼vPb ïiæ nIqv gvÎB ZvcgvÎv Avevi evo‡Z ïiæ Ki‡e| gnvwe‡k¦i eZ©gvb mg‡qi Nb‡Z¡ †cŠuQ‡j AveviI ZvcgvÎv n‡e 3 wWwMÖ †Kjwfb| G‡Z mgq jvM‡e AviI `k nvRvi †KvwU eQi| gnvwe‡k¦i DÌvb I cZb mg‡qi mv‡c‡¶ †gvUvgywU cÖwZmg3|

gnvwek¦ ivZvivwZ ¸wU‡q hv‡e bv| mwZ¨ ej‡Z, `yB k †\_‡K GK nvRvi †KvwU eQi a‡i Avgv‡`i eskaiiv my›`ifv‡e Rxebhvcb Ki‡Z cvi‡e| †mUv m‡¼vPb ïiæ n‡jI Ae¨vnZ \_vK‡e| wKš‘ aiæb m‡¼vPb ïiæ n‡Z AviI A‡bK †ewk mgq jvMj| GB †hgb GK nvRvi-‡KvwU-‡KvwU-‡KvwU eQi| GUv n‡j wKš‘ cwiw¯’wZ GZUv AbyK~‡j \_vK‡e bv| G‡¶‡Î cÖmviY m‡e©v”P we›`y‡Z †cŠuQvi Av‡MB b¶Îiv wb®ú«f n‡q hv‡e| wPiKvj cÖmvwiZ n‡Z \_vKv gnvwe‡k¦ †eu‡P \_vKv cÖvYxiv †h mgm¨vq coZ, †mB GKB mgm¨v GLv‡bI n‡e|

GLb †\_‡K hZ eQi ciB m‡¼vPb ïiæ †nvK bv †Kb, GKBmsL¨K eQi c‡i gnvwek¦ Avevi eZ©gvb AvKv‡ii mgvb n‡e| Z‡e †`L‡Z A‡bKUv Avjv`v n‡e| m‡¼vPb `k nvRvi eQi c‡i n‡jI GLbKvi †P‡q A‡bK †ewkmsL¨K eø¨vK †nvj \_vK‡e| b¶Î \_vK‡e A‡bK Kg| evm‡hvM¨ MÖn \_vK‡e cÖ‡qvR‡bi †P‡q †ewk|

gnvwe‡k¦i AvKvi cybivq eZ©gvb AvKv‡ii mgvb n‡Z n‡Z m‡¼vPb n‡e A‡bK `ªæZ MwZ‡Z| cÖvq mv‡o wZb k †KvwU eQ‡i Gi AvKvi A‡a©K n‡q hv‡e| µ‡gB m‡¼vPb nvi AviI †e‡o hv‡e| Z‡e Avmj †Ljv ïiæ n‡e Gi cÖvq GK nvRvi †KvwU eQi c‡i| G mgq gnvRMvwZK cUf~wg Zvc wewKi‡Yi ZvcgvÎv eo ûgwK n‡q †`Lv †`‡e| ZvcgvÎv 300 wWwMÖ †Kjwfb n‡j Zv‡ci ¶wZKi cÖfve †\_‡K evuPv c„w\_exi R‡b¨ KwVb n‡q hv‡e| GwU Pigfv‡e Mig n‡Z \_vK‡e| cÖ\_‡gB M‡j hv‡e wnggyKyU (ice-cap) ev Zylvi‡¯ªvZ| Gici mgy‡`ªi cvwb ev®ú n‡Z ïiæ Ki‡e|

4 †KvwU eQi c‡i cUf~wg wewKi‡Yi ZvcgvÎv c„w\_exi eZ©gvb Mo ZvcgvÎvi mgvb n‡e| c„w\_exi g‡Zv MÖn¸‡jv ev‡mi R‡b¨ m¤ú~Y© Abyc‡hvMx n‡q co‡e| Aek¨ c„w\_ex Zvi Av‡MB emev‡mi Abychy³ n‡q hv‡e| KviY m~h© cÖmvwiZ n‡q †jvwnZ `vbe (red giant) n‡e| GB mgqUvq Avgv‡`i eskaiiv hvIqvi R‡b¨ Avi †Kv‡bv RvqMv Lyu‡R cv‡e bv| †Kv‡bv wbivc` evm¯’vb \_vK‡e bv| Zvc weKi‡Y fwZ© \_vK‡e gnvwek¦| me RvqMvi ZvcgvÎv n‡e 300 wWwMÖ †mjwmqvm, hv AviI evo‡Z \_vK‡e| wb‡R‡K Mig cwi‡e‡k gvwb‡q †bIqv ev wngvwqZ cwi‡ek ˆZwi K‡i Zvc †\_‡K i¶v Ki‡Z cviv †Kv‡bv †R¨vwZwe©` †`L‡eb, gnvwek¦ cvM‡ji g‡Zv MwZ‡Z ¸wU‡q hv‡”Q| K‡qK wgwjqb eQ‡iB AvKvi n‡q hv‡”Q A‡a©K| ZZw`b ch©šÍ wU‡K \_vKv †Kv‡bv Qvqvc\_‡K Avi Avjv`v K‡i †Pbv hv‡e bv| ZZw`b Zviv G‡K Ac‡ii mv‡\_ wg‡k hv‡e| Z‡e ZLbI A‡bK dvuKv ¯’vb \_vK‡e| b¶Î‡`i g‡a¨ msN‡l©i NUbv NU‡e bv ej‡jB P‡j|

AwšÍg gyn~Z© Kv‡Q P‡j G‡j gnvwe‡k¦i Ae¯’v Lye `ªæZ weM e¨vs‡qi mvgvb¨ c‡ii mg‡qi g‡Zv n‡q †h‡Z \_vK‡e| †R¨vwZwe©` gvwU©b wiR m‡¼vPbkxj gnvwe‡k¦i GKwU Ava¨vwZ¥K w`K wb‡q KvR K‡i‡Qb| c`v\_©we`¨vi wKQy mvaviY bxwZgvjv cÖ‡qvM K‡i wZwb m‡¼vP‡bi GKwU P~ovšÍ wPÎ ˆZwi Ki‡Z †c‡i‡Qb| †kl ch©šÍ gnvRvMwZK Zvcxq wewKiY GZ Zxeª n‡e †h iv‡Zi AvKvk †eiwmK jvj is wewKiY Ki‡e| ax‡i ax‡i gnvwek¦ n‡q IV‡e GK me©MÖvmx gnvRvMwZK Pywjø| hv me ai‡bi fO&¸i cÖvY‡K †kl K‡i †`‡e, †m †hLv‡bB jywK‡q \_vKyK bv †Kb| GB ZvcgvÎvq MÖn‡`i evqygÐjI wU‡K \_vK‡e bv| µ‡gB jvj wewKiY njy` I †k‡l mv`v n‡q hv‡e| cy‡iv gnvwe‡k¦ Dcw¯’Z cÖPÐ GB Zvcxq wewKiY GKmgq b¶‡Îi Aw¯ÍZ¡‡KB ûgwK‡Z †dj‡e| wewKi‡Yi gva¨‡g kw³ ¶q Ki‡Z bv †c‡i b¶Îiv wb‡R‡`i Af¨šÍ‡i Zvc Rgv Ki‡e| GKmgq NUv‡e we‡ùviY| DËß M¨vm ev c­vRgv Øviv ¯’vb fwZ© n‡e| Gi wewKiY n‡e cÖPÐ Zxeª| memgq Gi DòZv AviI evo‡ZB \_vK‡e|

cwieZ©‡bi MwZ evo‡Z \_vK‡e| cwiw¯’wZ n‡q IV‡e AviI Pig| µ‡gB Aí Aí mg‡qi g‡a¨B gnvwe‡k¦ j¶¨Yxq cwieZ©b †`Lv hv‡e| cÖ\_‡g GK j¶ eQi, c‡i GK nvRvi, c‡i GK k eQ‡iB D‡jøL‡hvM¨ cwieZ©b NU‡e| hv †k‡l ûU K‡i †gvo †b‡e fqven GK wech©‡qi w`‡K| ZvcgvÎv †e‡o cÖ\_‡g wgwjqb I c‡i wewjqb wWwMÖ‡Z †cŠuQ‡e| †h c`v\_© eZ©gv‡b e¨vcK RvqMv `Lj K‡i Av‡Q Zv ¸wU‡q †QvÆ RvqMvq ¯’vb †b‡e| GKwU Qvqvc‡\_i me fi gvÎ K‡qK Av‡jvKel© PIov ¯’v‡b AvkÖq †b‡e| †kl wZb wgwbU P‡j Gj e‡j|

‡kl ch©šÍ ZvcgvÎv GZ evo‡e †h cigvYyi wbDwK¬qvmI †f‡O hv‡e| e¯Íy †f‡½ wM‡q †gŠwjK KYv‡`i GKwU mylg m¨y‡c cwiYZ n‡e| Avcwb hZ¶‡Y GB c„ôvwU co‡eb Zvi †P‡q Kg mg‡q weM e¨vs I eû cÖR‡b¥i b¶‡Îi gva¨‡g fvix ivmvqwbK e¯Íy m…wói KvRwU Av‡Mi Ae¯’vq wd‡i †Mj| cigvYyi †h wbDwK¬qvmiv wU«wjqb wU«wjqb eQi a‡i wU‡K wQj AvR Zviv †kl n‡q †Mj wPiZ‡i| GK eø¨vK †nvjiv Qvov Avi me ai‡bi KvVv‡gv A‡bK Av‡MB wejxb n‡q †M‡Q| gnvwe‡k¦ weivR Ki‡Q GK gvwR©Z wKš‘ Aïf mvij¨| Avqy Av‡Q gvÎ K‡qK †m‡KÛ|

µ‡gB `ªæZ nv‡i gnvwe‡k¦i m‡¼vP‡bi mv‡\_ mv‡\_ ZvcgvÎvI evo‡Q A‡bK `ªæZ nv‡i| wVK KZUv evo‡Q †mUv KviI Rvbv †bB| e¯Íy GZ k³ n‡q ¸wU‡q †M‡Q †h †cÖvUb I wbDU«‡bi Avi Avjv`vfv‡e †Kv‡bv Aw¯ÍZ¡ †bB| Av‡Q ïay †Kvqv‡K©i m¨yc| m‡¼vP‡bi nvi wKš‘ ZLbI evo‡Q|

Gevi P~ovšÍ gnvRvMwZK wech©‡qi mgq G‡m‡Q| Avi gvÎ K‡qK gvB‡µv‡m‡KÛ evwK| eø¨vK †nvjiv G‡K Ac‡ii mv‡\_ GKxf~Z n‡Z ïiæ Ki‡e| ¸wU‡q hvIqvi mgq gnvwe‡k¦i mvaviY Ae¯’v †\_‡K eø¨vK †nv‡ji †fZ‡ii Ae¯’v Aek¨ wfbœ n‡e| Giv GLb wbQKB ¯’vbKv‡ji Ggb AÂj hviv GKUy Av‡Mfv‡MB †kl cwiYwZ‡Z P‡j G‡m‡Q| hv‡`i mv‡\_ c‡i †hvM w`‡”Q gnvwe‡k¦i evwK Ask|

G‡Kev‡i †kl mg‡q gnvKl© me‡P‡q cÖfvekvjx kw³‡Z cwiYZ nq| GwU wbg©gfv‡e ¯’vb I Kvj‡K `yg‡o-gyP‡o †d‡j| ¯’vbKv‡ji eµZv µ‡gB `ªæZ nv‡i evo‡Z \_v‡K| µ‡gB eo †\_‡K eo AÂ‡ji ¯’vb m¼ywPZ n‡q †QvU †\_‡K †QvU AvqZ‡bi ¯’v‡b RvqMv †bq| cÖPwjZ ZË¡ ej‡Q, †fZ‡ii w`‡Ki GB AšÍt‡ùvUb Amxg kw³ AR©b K‡i| d‡j me e¯Íy `yg‡o-gyP‡o †Pv‡Li mvg‡b †\_‡K DavI n‡q hvq| aŸsm K‡i †`q cÖwZwU †fŠZ e¯Íy‡K| GgbwK ¯’vb I KvjI †invB cvq bv| mewKQyi ¯’vb nq ¯’vbKv‡ji wms¸jvwiwU‡Z|

GUvB †kl cwiYwZ|

Avgiv GLb ch©šÍ hZUv eywS, GB gnvaŸm ïay e¯ÍyiB BwU NUvq bv, BwZ NUvq mKj wKQyiB| gnvaŸ‡mi mgq Kvj wb‡RI Aw¯ÍZ¡nxb n‡q hvq| d‡j Zvi c‡i Kx NU‡e †m cÖ‡kœi †Kv‡bv gv‡b nq bv| †hgwbfv‡e A\_©nxb weM e¨vs‡qi Av‡M Kx N‡U‡Q wR‡Ám †mUv Kiv| ÒcieZ©xÓ ej‡Z Avm‡j wKQyB †bB| Kv‡Ri Afve nIqvi g‡ZvI mgq †bB| dvuKv \_vKvi g‡ZvI †bB †Kv‡bv ¯’vb| weM e¨vs‡qi mgq k~b¨ †\_‡K Aw¯Í‡Z¡ Avmv gnvwek¦ gnvaŸ‡mi gva¨‡g Avevi wgwj‡q hv‡e k~‡b¨B| GwU †h GZ gnvKvj a‡i weivRgvb wQj Zvi †Kv‡bv ¯§…wZwPýI †bB|

Ggb GKwU m¤¢vebv †`‡L wK Avgv‡`i gb Lvivc Kiv DwPZ? Avm‡j †KvbwU Lvivc: wPiKvj cÖmvwiZ n‡Z n‡Z ˆewkó¨nxb n‡q hvIqv GK AÜKvi k~b¨Zv, bvwK ¸wU‡q wM‡q we¯§…wZi AZj MnŸ‡i wgwj‡q hvIqv GK gnvwek¦? †hLv‡b gnvwek¦ †\_‡K mgqB nvwi‡q hv‡e †mLv‡b Agi‡Z¡i m¤¢vebvB ev †Kgb?

wPiKvj cÖmvwiZ n‡Z \_vKv `~i fwel¨‡Zi gnvwe‡k¦i †P‡q gnvaŸ‡mi †¶‡ÎB †Zv cÖv‡Yi wU‡K \_vKv †ewk KwVb g‡b n‡”Q| GLv‡b kw³i ¯^íZv †Kv‡bv mgm¨v bq| eis kw³i AvwaK¨B mgm¨v Ki‡Q| Z‡e wech©q P‡j Avmvi Av‡M Avgv‡`i eskaiiv nqZ cÖ¯ÍywZi R‡b¨ GK k †KvwU ev GgbwK GK j¶ †KvwU eQi mgq cv‡e| GB mg‡q cÖvY cy‡iv gnvwe‡k¦ Qwo‡q †h‡Z cv‡i| m‡¼vPbwkj gnvwe‡k¦i me‡P‡q mij bgybvq ¯’v‡bi †gvU AvqZb Avm‡j mmxg| Gi KviY n‡jv ¯’vb †eu‡K \_v‡K| Avi GwU GKwU †Mvj‡Ki c„‡ôi g‡Zv K‡i wÎgvwÎK RM‡Z wb‡Ri mv‡\_ hy³ \_vK‡Z cv‡i| d‡j †evSv KwVb bq †h eyw×gvb Rx‡eiv cy‡iv gnvwe‡k¦ Qwo‡q c‡o Gi Ici wbqš¿Y cÖwZôv Ki‡Z cv‡i| Zvi gv‡b wb‡R‡`i nv‡Z \_vKv meiKg im` wb‡q Zviv gnvaŸm‡K †gvKv‡ejv Kivi R‡b¨ cÖ¯ÍyZ \_vK‡e|

cÖ\_g `„wó‡Z †`‡L †evSv hv‡”Q bv †Kb Zviv wU‡K \_vKvi wPšÍv Ki‡e| gnvaŸ‡mi ci hw` †eu‡P \_vKv Am¤¢eB nq, Zvn‡j hš¿Yv‡K Avi evwo‡qB ev Kx jvf? wU«wjqb wU«wjqb eQ‡ii cyi‡bv gnvwe‡k¦ †kl aŸs‡mi 10 jvL eQi Av‡Mi g„Zy¨I hv, 1 †KvwU eQi c‡ii g„Zy¨I Zv| Z‡e Avgv‡`i fy‡j †M‡j Pj‡e bv, mgq wKš‘ Av‡cw¶K| Avgv‡`i eskai‡`i wbR¯^ mgq wKš‘ Zv‡`i wecvKwµqv I Z\_¨ cÖ‡mm Kivi MwZi Ici wbf©i Ki‡e| ZvB AveviI ej‡Z n‡”Q, kvixwiK AvK…wZ‡K Lvc LvB‡q wb‡Z cÖPyi mg‡q cv‡”Q e‡j Zviv nqZ †Kv‡bvfv‡e AgiZ¡ AR©‡b m¶g n‡e|

ZvcgvÎv evovi A\_© KYv‡`i PjvPjI evo‡e| †fŠZ cÖwµqv¸‡jvI Pj‡e `ªæZ MwZ‡Z| g‡b ivL‡Z n‡e, eyw×gvb Rx‡ei R‡b¨ Avek¨Kxq cÖ‡qvRb n‡jv Z\_¨ cÖ‡mm Ki‡Z cviv| ZvcgvÎv evo‡Z \_vKv gnvwe‡k¦ wKš‘ Z\_¨ cÖ‡mm Kivi MwZI evo‡e| †h Rxe GK k †KvwU wWwMÖi ZvcMZxq cÖwµqv‡KI Kv‡R jvMv‡Z wkL‡e, Zvi Kv‡Q gnvwe‡k¦i Avmbœ g„Zy¨‡K g‡b n‡e eû eQi c‡ii NUbv| hZUyKy mgq evwK Av‡Q †mUv‡K hw` g‡bi g‡a¨ Amxg g‡b nq, Zvn‡j mgvwß wb‡q wPšÍv Kivi †Zv `iKviB †bB| m‡¼vPb evo‡Z evo‡Z gnvaŸm µ‡gB `ªæZZvi mv‡\_ hZB wbKUeZ©x n‡e, ZvwË¡Kfv‡e mgq µ‡gB ZZ ax‡i Pj‡e e‡j g‡b n‡e| wPšÍvi MwZ †e‡o hvIqvi mv‡\_ mv‡\_ A¨vigv‡MW‡bi w`‡KI wbKUeZ©x nIqvi †eM evo‡e| h‡\_ó im` \_vK‡j GB Rxe¸‡jv mwZ¨Kvi A‡\_©B mgq wKb‡Z cvi‡e|

†KD nqZ fve‡Z cv‡ib, m‡¼vPbkxj gnvwe‡k¦ evm Kiv †Kv‡bv gnvcÖvYx GK`g †kl gyn~‡Z©i mmxg mg‡q AmxgmsL¨K Avjv`v wPšÍv I AwfÁZv m¤úbœ Ki‡Z cvi‡e wK bv| Rb e¨v‡iv I dª¨vsK wUcjvi GB cÖkœwU‡K we†kølY K‡i‡Qb| †kl w`‡Ki ch©vq¸‡jvi †fŠZ Ae¯’vi Ici cÖkœwUi DËi Lye †ewk wbf©ikxj| †hgb aiæb, †k‡li wms¸jvwiwUi w`‡K GwM‡q hvIqvi mgq gnvwek¦ †gvUvgywU mylg \_vKj| Zvn‡j wKš‘ GKwU mgm¨v n‡q hv‡e| wPšÍvi ZB hvB †nvK bv †Kb, Av‡jvi MwZ wKš‘ cvëv‡”Q bv| Av‡jv wKš‘ †m‡K‡Û GK Av‡jvK‡m‡K‡Ûi4 †ewk c\_ †h‡Z cvi‡e bv| †Kv‡bv †fŠZ cÖwZwµqv m‡e©v”P KZ `ªæZ cÖevwnZ n‡Z cv‡i Zv‡Z Av‡jvi MwZ GKwU mxgv †eu‡a †`q| d‡j †evSvB hv‡”Q, GK`g †kl †m‡K‡Û gnvwe‡k¦i GK Av‡jvK‡m‡K‡Ûi †ewk `~‡ii `ywU RvqMvi g‡a¨ †hvMv‡hvM nIqv m¤¢e bq| (GUvI NUbv w`M‡šÍi GKwU D`vniY, †hgwbfv‡e eø¨vK‡nv‡j GKwU wbw`©ó mxgvi evB‡i †Kv‡bv Z\_¨ †cŠuQ‡Z cv‡i bv|) gnvwe‡k¦i mgvwß wbKUeZ©x n‡Z \_vK‡j †hvMv‡hvM‡hvM¨ AÂj I Zv‡Z Dcw¯’Z KYvi msL¨v K‡g k~b¨‡Z †b‡g Av‡m| GKwU wm‡÷g‡K Z\_¨ cÖ‡mm Ki‡Z n‡j wm‡÷‡gi me As‡ki g‡a¨ †hvMv‡hvM \_vK‡Z n‡e| cwi®‹vi †evSv hv‡”Q, Av‡jvi †eM wbw`©ó nIqvq †k‡li mg‡qi †h‡Kv‡bv Ògw¯Í®‹Ó‡K †QvU evwb‡q †dj‡e| Ges Gi d‡j nqZ Ggb GKwU gw¯Í‡®‹i Avjv`v Avjv`v Ae¯’v ev wPšÍvi msL¨vI K‡g hv‡e|

GB evav‡K `~i Ki‡Z n‡j gnvRvMwZK m‡¼vP‡bi †kl ch©vq¸‡jv‡K mylgZv †\_‡K gy³ \_vK‡Z n‡e| Ges mwZ¨ ej‡Z GUvI GKwU m¤¢ve¨ NUbv| gnvKl©xq m‡¼vPb wb‡q we¯ÍvwiZ we†kølY Pvwj‡q †`Lv †M‡Q, gnvwe‡k¦i AšÍt‡ùvU‡bi mv‡\_ mv‡\_ wewfbœ w`‡K AšÍt‡ùvU‡bi nvi wfbœ wfbœ n‡e| Drmy‡Ki e¨vcvi n‡jv, GK w`‡K `ªæZ I Av‡iK w`‡K ax‡i gnvwe‡k¦i m‡¼vPbUvB ïay welq bq| e¨vcvi n‡jv, ¯ú›`b ïiæ n‡j me‡P‡q `ªæZ AšÍt‡ùvU‡bi w`KI cv‡ë hvq| ev¯ÍeZv n‡jv, wejywßi Av‡Mi mg‡q µ‡gB †e‡o Pjv Db¥v`bv I RwUjZvi d‡j gnvwek¦ Gw`K-Iw`K †`vj †L‡Z \_v‡K|

e¨v‡iv I wUcjvi aviYv Ki‡Qb, RwUj Gme ¯ú›`‡bi Kvi‡Y cÖ\_‡g GK w`‡Ki NUbv w`MšÍ nvwi‡q hv‡e| c‡i nviv‡e Ab¨ GK w`‡Ki NUbv w`MšÍ| d‡j me w`‡Ki AÂjB nv‡Zi bvMv‡j \_vK‡e| gnvgw¯Í®‹¸‡jv‡Z n‡Z n‡e eyw×‡Z ficyi| ¯ú›`‡bi Kvi‡Y GK w`‡K Ab¨ w`‡Ki †P‡q AšÍt‡ùvUb `ªæZ NU‡Z \_vK‡j †hvMv‡hv‡Mi w`KI e`‡j †dj‡Z n‡e| cÖvYxiv Zvj wgwj‡q Pj‡Z cvi‡j ¯ú›`b †\_‡KB wPšÍv cÖ‡mm Kivi cÖ‡qvRbxq kw³ wgj‡e| GQvovI mij MvwYwZK bgybv †\_‡K †`Lv hv‡”Q, gnvaŸ‡mi gva¨‡g mgvwßi Av‡Mi mmxg mg‡q AmxgmsL¨K ¯ú›`b n‡e| Gi gva¨‡g ZvwË¡Kfv‡e Amxg cwigvY Z\_¨ cÖ‡mm Kivi my‡hvM n‡e| Zvi gv‡b gnvcÖvYx‡`i wnmv‡e mg‡qi cwigvY n‡e Amxg| d‡j Zv‡`i g‡bi †fZ‡i RMZUvi KLbI BwZ NU‡e bv| hw`I gnvaŸ‡mi gva¨‡g †fŠZ RMr nVvr K‡i †bB n‡q hv‡e|

Amxg ¶gZvi GKwU gw¯Í®‹ Kx Ki‡Z cv‡i? wUcjv‡ii g‡Z GwU Gi wb‡Ri Aw¯Í‡Z¡i me¸‡jv w`K wb‡q wePvi-we†kølY Ki‡Z cvi‡e bv| cy‡iv gnvwek¦‡KI eyS‡Z cvi‡e bv| wKš‘ Z\_¨ cÖ‡m‡mi ¶gZv Amxg nIqvq GwU fvP©yqvj ev¯ÍeZvq KvíwbK RM‡Z wePiY K‡i †h‡Z cvi‡e| Gfv‡e GwU g‡bvRM‡Z AmxgmsL¨K m¤¢ve¨ gnvwek¦‡K aviY Ki‡Z cvi‡e| †kl wZb wgwbU ïay Amxg ch©šÍB we¯Í…Z n‡e bv, G mgq Amxg iK‡gi QÙ ev¯ÍeZvI ˆZwi Kiv hv‡e|

Z‡e `ytLRbK welq n‡jv, (wKQyUv cvMjv‡U) GB aviYv¸‡jv Lye wbw`©ó †fŠZ bgybvi Ici wbf©ikxj| nqZ †m¸‡jv G‡Kev‡iB Aev¯Íe| GQvov G¸‡jv‡Z †Kvqv›Uvg cÖfve‡KI D‡c¶v Kiv n‡q‡Q, †h cÖfve nqZ †kl mg‡qi gnvKl©xq AšÍt‡ùvUb‡K me‡P‡q †ewk wbqš¿Y Ki‡e| †mB cÖfv‡ei Kvi‡Y nqZ Z\_¨ cÖ‡m‡mi nv‡iI GKwU P~ovšÍ mxgv evuav \_vK‡e| †m‡¶‡Î Avgiv Avkv Kie, gnvcÖvYx ev mycviKw¤úDUvi †hb AšÍZ Aw¯ÍZ¡‡K h‡\_ó cwigvY eyS‡Z †c‡i nv‡Z \_vKv mg‡q wb‡Ri mgvwß‡K mn‡R †g‡b wb‡Z cv‡i|

**Abyev`‡Ki †bvU**

1. Av‡MI Gi KviY ejv n‡q‡Q| Av‡jvi †eM A‡bK †ewk n‡jI wbw`©ó nIqvi Kvi‡Y Avgiv B‡”Qg‡Zv `~‡ii wRwbm †`L‡Z cvwi bv| ïay hZ `~i †\_‡K Av‡jv Avgv‡`i †Pv‡L G‡m Avm‡Z †c‡i‡Q, ZZ `~‡ii wRwbmB †`L‡Z cvB| Z‡e mgq Movevi mv‡\_ mv‡\_ AviI `~i †\_‡K Av‡jv Avmvi my‡hvM cv‡e e‡j µ‡gB AviI `y‡ii I AZx‡Zi e¯ÍyI Avgiv †`L‡Z cvie|

2. gnvRvMwZK gvcKvwV‡Z `~‡i miv e¯Íyi Av‡jvi K¤úv¼ K‡g hvq| d‡j †e‡o hvq Zi½‰`N¨©| G Kvi‡Y `„k¨gvb Av‡jvi is jvj n‡q hvq| GUvB †jvwnZ miY|

3. GKwU we›`y ev Ae¯’v‡bi mv‡c‡¶ †Kv‡bv wRwbm‡K `yB wecixZ w`K †\_‡K †`L‡Z GKB iKg †`Lv †M‡j Zv‡K cÖwZmg wRwbm ev NUbv e‡j| †hgb aiæb, †KD mKvj 10Uvq evwo †\_‡K †ei n‡jb| 2 wgwbU c‡i ev‡m DV‡jb| 20 wgwbU c‡i Kv‡Qi kn‡i †M‡jb| 16 wgwbU a‡i evRvi Ki‡jb| c‡ii 20 wgwb‡U ev‡m K‡i G‡m bvg‡jb evm÷¨v‡Û| c‡ii 2 wgwb‡U evmvq P‡j G‡jb| †Lqvj K‡i †`Lyb, mv‡o 10Uvi `yB w`‡Ki NUbv¸‡jv GKBiKg| Zvn‡j GB f`ª‡jv‡Ki Kv‡Ri LwZqvb mv‡o `kUvi mv‡c‡¶ cÖwZmg| Aek¨ AviI m~²fv‡e fve‡j GB PjvPj‡K cÖwZmg Ki‡Z n‡j AviI wKQy welq wPšÍv Ki‡Z n‡e| Avevi aiæb, GKwU iv¯Ív‡K GKwU RvqMv †\_‡K †`L‡j `yB w`‡KB GKBiKg †`Lv hvq| Zvn‡j GB iv¯ÍvI cÖwZmg| Avgv‡`i gvbe‡`nI wKš‘ cÖwZmg ai‡bi| Avgv‡`i †`‡ni Dci †\_‡K bx‡P GKwU †iLv Kíbv Kiæb| GB †iLvi `yB w`K cÖvq GKB iKg| GUvI GK ai‡bi cÖwZmvg¨| GKwU gv‡e©j‡K gvSLvb w`‡q †K‡U †dj‡j `yB w`K GKB iKg n‡e| ZvB, e¨vm eivei gv‡e©jI cÖwZmg|

4. Av‡jv GK †m‡K‡Û hZ `~i hvq Zv‡K GK Av‡jvK‡m‡KÛ e‡j| †hgwb GK eQ‡i AwZµvšÍ c\_‡K GK Av‡jvKel© e‡j| Zvi gv‡b GK Av‡jvK‡m‡KÛ Avm‡j GK j¶ 86 nvRvi gvBj ev 3 j¶ wK‡jvwgUvi|

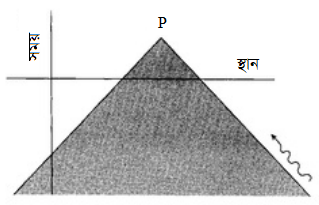
`kg Aa¨vq

nVvr g„Zy¨ I cybR©b¥

G ch©šÍ Avwg a‡i wb‡qwQ gnvwe‡k¦i cwiYwZ wba©vwiZ n‡e A‡bK A‡bK w`b c‡i| nqZ Amxg mgq c‡ii fwel¨‡Z| nqZ †mUv NU‡e we‡ùviY wKsev AvZ©bv‡`i (AviI mwVK K‡i ej‡j KPKP kã ev Zxeª wngvqb) gv‡a¨g| gnvwek¦ m¼ywPZ n‡j †mB Avmbœ NUbvi eû wewjqb eQi Av‡MB Avgv‡`i eskaiiv AvMvg m‡¼Z cv‡e| wKš‘ AviI †ewk fqven GKwU m¤¢vebvI Av‡Q|

Avwg Av‡MB e‡jwQ, gnvwe‡k¦i w`‡K ZvKv‡j †R¨vwZwe©`iv gnvwe‡k¦i eZ©gvb Ae¯’vi Zvr¶wYK †Kv‡bv wPÎ †`‡Lb bv| `~‡ii AÂj †\_‡K Avgv‡`i Kv‡Q Av‡jv Avm‡Z mgq jv‡M e‡j Avgiv GKwU e¯Íyi †mB Ae¯’v †`wL hLb GwU †\_‡K Av‡jv †ei n‡qwQj| †Uwj‡¯‹vc ïay `~‡ii wRwbm †`Lvi hš¿ bq, AZx‡Zi wRwbm †`LviI hš¿| GKwU e¯Íy hZ `~‡i n‡e, Gi ZZ AZx‡Zi wPÎ AvR †`Le Avgiv| ev¯ÍeZv n‡jv, †R¨vwZwe©`‡`i Kv‡Q gnvwek¦ n‡jv ¯’vb I Kv‡ji gvSLvb w`‡q †K‡U wb‡q GK dvwj AZxZ| †KZvwe bvg AZx‡Zi jvBU †Kvb (cone)| 10.1 wP‡Î GwU †`Lv‡bv n‡q‡Q|

Av‡cw¶KZv ZË¡ Abymv‡i †Kv‡bv Z\_¨ ev †fŠZ NUbv Av‡jvi †P‡q `ªæZ †h‡Z cv‡i bv| AZx‡Zi jvBU †Kvb (Av‡jvi †Kvb) Avgv‡`i Ávb‡K †hgb mxwgZ Ki‡Q, †Zgwb mxwgZ Ki‡Q eZ©gv‡b Avgv‡`i‡K cÖfvweZ Ki‡Z cviv NUbv‡KI| Zvi gv‡b †h †fŠZ NUbv Avgv‡`i w`‡K Av‡jvi †e‡M Avm‡Q, †mwU Avm‡Q †Kv‡bv c~e©m‡¼Z QvovB| wech©q hw` AZx‡Zi jvBU †Kvb †e‡q †\_‡K †a‡q Av‡m, Zvn‡j †mB wec` Av‡M †\_‡K †evSvB hv‡e bv| AvNvZcÖvß nevi c‡iB †Kej cÖ\_g Gi K\_v Rvbv hv‡e|



wPÎ 10.1

[¯’vb I Kv‡ji GKwU wbw`©ó we›`y P wPšÍv Kiæb| GUv nqZ GLb Ges GLv‡b| †hgb, gnvwe‡k¦i w`‡K ZvKv‡bv GKRb †R¨vwZwe©` Avm‡j †`L‡Qb Gi AZxZ Ae¯’v| eZ©gvb Ae¯’v bq| P we›`y‡Z Avmv Av‡jv Z\_¨ P Gi gva¨‡g AZx‡Zi jvBU †Kvb †e‡q Avm‡Q, hvi MwZc\_ Zxh©K †iLv w`‡q †`Lv‡bv n‡q‡Q| Av‡jvi †P‡q `ªæZ †Kv‡bv Z\_¨ ev †fŠZ cÖfve Pj‡Z cv‡i bv e‡j GB gyn~‡Z©i GKRb ch©‡e¶K ïay Qwei Mvp AÂ‡j NUv cÖfve ev NUbv †`L‡Z cv‡eb| AZx‡Zi Av‡jvK †Kv‡bi evB‡i NUv †Kv‡bv `~‡h©vM nqZ c„w\_exi w`‡K wec`m‡¼Z cvVv‡Z \_vK‡e| wKš‘ ch©‡e¶K †mUv bv †R‡bB Avb‡›`i g‡a¨ mgq cvi Ki‡e|]

GKwU mij KvíwbK D`vniY wPšÍv Kwi| GB gyûZ© m~h© we‡ùvwiZ n‡j Avgiv †mUv Rvb‡Z cvie mv‡o AvU wgwbU c‡i| m~h© †\_‡K Avgv‡`i Kv‡Q Avm‡Z GB mgqUyKyB jv‡M| GKBfv‡e n‡ZB cv‡i, Kv‡Qi †Kv‡bv b¶Î Gi g‡a¨B mycvi‡bvfv wn‡m‡e we‡ùvwiZ n‡q‡Q| GUv n‡j c„w\_ex cÖvYNvZx wewKi‡Y †Q‡q hv‡e| wKš‘ †mUv bv †R‡bB AviI K‡qK eQi Avgiv Avb‡›`B mgq KvUv‡ev| A\_P wech©‡qi Lei wKš‘ Avgv‡`i w`‡K Av‡jvi †e‡MB Qy‡U Avm‡e| d‡j, GB gyn~‡Z© gnvwek¦‡K †`L‡Z h‡\_ó g‡b n‡jI Avgiv wbwðZ Ki‡Z e‡j w`‡Z cvwi bv fq¼i wKQy B‡Zvg‡a¨B N‡U hvqwb|

me‡P‡q AvKw¯§K wech©‡qi ¶q¶wZ NUbvi gnvRMvwZK AÂ‡ji Av‡kcv‡kB mxgve× \_vK‡e| b¶‡Îi g„Zy¨ ev eø¨vK‡nv‡ji g‡a¨ e¯Íyi cZb MÖn I Av‡kcv‡ki b¶Î‡K cÖfvweZ Ki‡e| Gi cÖfveB nqZ K‡qK Av‡jvKe‡l©i g‡a¨ mxgve× \_vK‡e| me‡P‡q j¶¨bxq we‡ùviY NU‡e wKQy wKQy Qvqvc‡\_i Af¨šÍ‡i NUv NUbvq| Av‡MI e‡jwQ, gv‡Sgv‡S Av‡jvi †e‡Mi eo GK fMœvs‡ki g‡a¨ e¯Íyi wekvj wekvj wcPwKwi wbM©Z nq| †mB mv‡\_ †ewi‡qq Av‡m wecyj cwigvY wewKiY| GB wek…•Ljvi cÖfve cy‡iv Qvqvc\_Ry‡o \_v‡K|

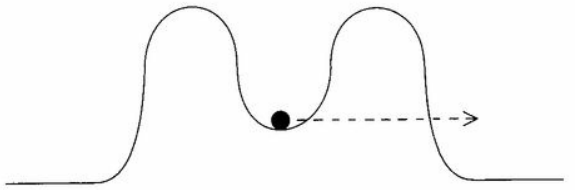
wKš‘ cy‡iv gnvwek¦‡K Kvuwc‡q †`Iqv NUbv¸‡jv †Kgb n‡e? Ggb †Kv‡bv Av‡jvob wK m¤¢e hv GK av°vq cy‡iv gnvwek¦‡KB Gi ga¨eq‡mB †kl K‡i †`‡e? Ggb wK n‡Z cv‡i †h mwZ¨Kv‡ii †Kv‡bv gnvRvMwZK wech©q ïiæB n‡q †M‡Q? hvi Aïf cÖfve nqZ Avgv‡`i AZx‡Zi jvBU †Kvb †e‡q †a‡q Avm‡Q? aŸsm n‡Z hv‡”Q Avgv‡`i ¯’vbKv‡ji fO&¸i KvVv‡gv?

1980 mv‡j wmWwb †Kvjg¨vb I dª¨vsK wW jywmqv wdwRK¨vj wiwfD Rvb©v‡j GKwU fqvbK M‡elYvcÎ cÖKvk K‡ib| wk‡ivbvgUv G‡Kev‡iB A¶wZKi, Òk~b¨¯’vb ¶‡qi gnvKl©xq cÖfve|Ó Zvuiv †h f¨vKyqvg ev k~b¨ ¯’v‡bi K\_v ej‡Qb †mwU wbQKB dvuKv ¯’vb bq| GUv n‡jv †Kvqv›Uvg wdwR‡·i dvuKv ¯’vb| Z…Zxq Aa¨v‡q Avwg e¨vL¨v K‡iwQ, Avgiv †hUv‡K dvuKv ¯’vb g‡b Kwi †mLv‡b Avm‡j cÖPyi cwigvY ¶Y¯’vqx †Kvqv›Uvg Kg©KvÐ N‡U Pj‡Q| ˆ`e Db¥v`bvq f~Zy‡o fvP©yqvj KYviv cÖwZ gyn~‡Z© Avwef©~Z I DavI n‡q hv‡”Q| Avcbv‡`i nqZ g‡b Av‡Q, GB f¨vKyqvg Ae¯’v wKš‘ Abb¨ bq| †Kvqv›Uvg Ae¯’v K‡qKwU n‡Z cv‡i| hvi me¸‡jvB n‡e dvuKv| wKš‘ me¸‡jvi †Kvqv›Uvg Kg©Kv‡Ði ¯Íi wfbœ wfbœ| cÖ‡Z¨K Ae¯’vi kw³I Avjv`v Avjv`v|

‡Kvqv›Uvg wdwR‡·i mycÖwZwôZ GKwU bxwZ n‡jv, D”Pkw³i Ae¯’v wbgœkw³i Ae¯’vq †b‡g Avm‡Z Pvq| †hgb aiæb, GKwU cigvYy A‡bK¸‡jv D‡ËwRZ Ae¯’vq \_vK‡Z cv‡i| hvi me¸‡jv Ae¯’vB Aw¯’wZkxj| GwU me‡P‡q wbgkw³i Ae¯’vq ev wbgœZ‡ji Ae¯’vq †b‡g Avm‡Z †Póv Ki‡e| GKBfv‡e GKUy D‡ËwRZ f¨vKyqvgI wbgœZg kw³i ev ÒmwZ¨Kv‡iiÓ f¨vKyqv‡g †b‡g Avm‡Z †Póv Ki‡e| ùxwZgq gnvwe‡k¦ a‡i †bIqv n‡q‡Q, Lye cÖviw¤¢K gnvwek¦ D‡ËwRZ ev ÒQÙÓ f¨vKyqvg Ae¯’vq wQj| G mgq GwU Pigfv‡e ùxZ n‡q I‡V| wKš‘ Lye Aí mg‡qi g‡a¨ GB Ae¯’v mwZ¨Kv‡ii f¨vKyqv‡g P‡j Av‡m| †kl nq ùxwZ|

mvaviYZ g‡b Kiv nq, gnvwek¦ eZ©gv‡b mwZ¨Kv‡ii f¨vKyqvg Ae¯’vq Av‡Q| Zvi gv‡b, Avgv‡`i mg‡qi dvuKv ¯’vb n‡jv me‡P‡q wbgœkw³i f¨vKyqvg| wKš‘ Avgiv wK wbwðZ K‡i †mUv ej‡Z cvwi? †Kvjg¨vb I wW jywmqv GKwU fqvbK m¤¢vebvi K\_v ej‡Qb| eZ©gv‡bi f¨vKyqvg nqZ mwZ¨Kv‡i f¨vKyqvg bq| GUv nqZ AvcvZZ `xN©¯’vqx †Kv‡bv bKj f¨vKyqvg| hvi Kvi‡Y nqZ fyj K‡i Avgiv g‡b K‡i wb‡qwQ Avgiv wbivc` AvwQ| KviY GB bKj f¨vKyqvg K‡qK wewjqb eQi a‡i wU‡K Av‡Q| Avgiv A‡bK ai‡bi †Kvqv›Uvg Ae¯’vi K\_v Rvwb| †hgb BD‡iwbqvg wbDwK¬qvm, hvi Aa©vqy wewjqb wewjqb eQi| GKevi g‡b Kiæb †h eZ©gv‡bi f¨vKyqvgI GB ai‡bi, Zvn‡j? †Kvjg¨vb I wW jywmqvi M‡elYvc‡Îi wk‡ivbv‡g DwjøwLZ f¨vKyqv‡gi ¶q †\_‡K GKwU fqvbK m¤¢vebv cvIqv hv‡”Q| nqZ eZ©gvb f¨vKyqvg ûU K‡i aŸsm n‡q †h‡Z cv‡i| gnvwek¦ P‡j †h‡Z cv‡i AviI wbgœkw³i Ae¯’vq| hvi cwiYvg Avgv‡`i R‡b¨ n‡e fqvbK (Ges evwK mevi R‡b¨I)|

‡Kvjg¨vb I wW jywmqvi cÖ¯Ívebvi †cQ‡b KvR Ki‡Q †Kvqv›Uvg Uv‡bwjs cÖwµqv| G‡K me‡P‡q mn‡R e¨vL¨v Kivi R‡b¨ GKwU †Kvqv›Uvg KYv GKwU e‡ji evavq AvU‡K Av‡Q—Ggb mij wPÎ we‡ePbv Kiv †h‡Z cv‡i| aiæb, 10.2 wP‡Îi g‡Zv KYvwU GKwU DcZ¨Kvq AvU‡K Av‡Q| `yB cv‡k Av‡Q Lvov cvnvo| ev¯Í‡e cvnvoB n‡Z n‡e Ggb K\_v †bB| †hgb, Zviv ˆe`¨ywZK ev wbDK¬xq e‡ji †¶ÎI n‡Z cv‡i| GB cvnvo cvwo †`Iqvi (ev ej‡¶Î‡K AwZµg Kivi) kw³ Dcw¯’Z bv \_vK‡j g‡b n‡e KYvwU wPiKvj AvU‡KB \_vK‡e| wKš‘ g‡b Kiæb †`Lyb, †Kvqv›Uvg KYviv nvB‡Rbev‡M©i AwbðqZv bxwZ gvb‡Z eva¨| hvi Kvi‡Y Giv Aí mg‡qi R‡b¨ kw³ avi Ki‡Z cv‡i| Gi d‡j gRvi GKwU m¤¢vebv ˆZwi nq| KYvwU cvnv‡oi P~ovq IVvi g‡Zv kw³ avi Ki‡Z cvi‡j Ges avi Kiv kw³ wdwi‡q †`evi Av‡MB Icv‡k †b‡g †h‡Z cvi‡jB †Zv AvUKve¯’v †\_‡K †ewi‡q †h‡Z cvi‡Q| ev¯Í‡eB GwU evav †\_‡K myo½ †K‡U †ewi‡q †Mj|

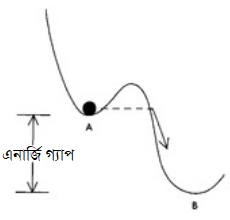


wPÎ 10.2

[Uv‡bj B‡d± ev myo½ cÖfve| `yB cvnv‡oi gv‡Si DcZ¨Kvq Ave× †Kvqv›Uvg KYviI kw³ avi K‡i cvnv‡oi Icv‡k P‡j hvIqvi GKwU ¶y`ª m¤¢vebv Av‡Q| ev¯Í‡e myo½ †K‡U Icv‡k P‡j hvIqv ch©‡e¶‡Y †`LvI †M‡Q| Gi GKwU cwiwPZ D`vniY n‡jv, wKQy †gŠwjK c`v‡\_©i wbDwK¬qv‡mi Avjdv KYv wbDK¬xq e‡ji evav‡K dvuwK w`‡q †ei n‡q hvq| GB cÖwµqvi bvg Avjdv †ZRw¯ŒqZv| GB D`vni‡Y cvnvo n‡jv wbDK¬xq I Zwo”Py¤^Kxq ej| AvuKv QweUv wbQKB NUbvwU‡K mn‡R †evSv‡bvi R‡b¨B †`Iqv n‡q‡Q|]

Ggb Ave× RvqMv †\_‡K †Kvqv›Uvg KYvi myo½ †K‡U †ewi‡q hvIqv evavi D”PZv I cÖ‡¯’i Ici Lye m~²fv‡e wbf©i K‡i| D”PZv hZ †ewk n‡e, KYv‡K Ic‡i IVvi R‡b¨ ZZ †ewk kw³ avi Ki‡Z n‡e| d‡j AwbðqZv bxwZ Abymv‡i FYI wdwi‡q w`‡Z n‡e ZZ ZvovZvwo| Zvi gv‡b D”P evav cvi n‡Z n‡j evav‡K n‡Z n‡e wPKb| hv‡Z Lye `ªæZ FY wdwi‡q †`Iqvi Av‡MB evav cvi n‡q hvIqv hvq| G Kvi‡YB myo½ cÖfve wbZ¨w`b †Pv‡L c‡o bv| eo iK‡gi Uv‡bwjs NU‡Z n‡j †h ai‡bi D”P I cÖk¯Í evav nIqv hv‡e, eo RM‡Zi evav¸‡jv Zvi †P‡q †ewk eo| bxwZMZfv‡e GKRb gvbyl GKwU B‡Ui †`qvj †f` K‡i P‡j †h‡Z cvi‡e| wKš‘ G A‡jŠwKK KvR Ki‡Z cvivi †Kvqv›Uvg myo½ m¤¢vebv A‡bK A‡bK A‡bK ¶y`ª| Z‡e cvigvYweK RM‡Z Uv‡bwjs Anin N‡U| D`vniY¯^iƒc, Avjdv †ZRw¯ŒqZv G cÖwµqv‡ZB N‡U| Aa©cwievnx I Ab¨vb¨ ˆe`¨ywZK hš¿cvwZ‡ZI myo½ cÖfve Kv‡R jvMv‡bv nq| †hgb B‡jKU«b AYyex¶Yh‡š¿ Uv‡bwjs‡qi gva¨‡g ¯‹¨vb Kiv|

eZ©gvb f¨vKyqv‡gi m¤¢ve¨ ¶‡qi mgm¨v m¤ú‡K© †Kvjg¨vb I wW jywmqv Abygvb Ki‡Qb, f¨vKyqvg ˆZwi Kiv †Kvqv›Uvg †¶Î nqZ 10.3 wP‡Î †`Lv‡bv e‡ji g‡Zv (iƒcK) `„k¨ ˆZwi K‡i| eZ©gvb f¨vKyqvg Ae¯’v Av‡Q DcZ¨Kv A Gi f~wg‡Z| Z‡e mwZ¨Kv‡ii f¨vKyqvg Av‡Q DcZ¨Kv B Gi f~wg‡Z, hv A Gi bx‡P| f¨vKyqvg D”P kw³i A Ae¯’v †\_‡K wbgœ kw³i B Ae¯’vq †b‡g Avm‡Z PvB‡e| wKš‘ gvSLv‡b ÒcvnvoÓ ev ej †¶Î \_vKvq †mwU Kiv hv‡”Q bv| cvnvo G ¶q‡K evav w`‡jI †Kvqv›Uvg Uv‡bwjs cÖfv‡ei Kvi‡Y cy‡ivcywi \_vwg‡q ivL‡Z cvi‡Q bv| A †\_‡K B DcZ¨Kvq myo½ †K‡U P‡j Avmv m¤¢e| GB ZË¡ mwVK n‡j gnvwek¦ avi Kiv mg‡qi g‡a¨ Ae¯’vb Ki‡Q| AvU‡K Av‡Q DcZ¨Kv A‡Z| wKš‘ myo½ w`‡q †h‡Kv‡bv mgq B DcZ¨Kvq P‡j hvIqvi GKwU m¤¢vebv memgq Av‡Q|



wPÎ 10.3

[bKj I mwZ¨Kv‡ii f¨vKyqvg Ae¯’v| n‡Z cv‡i dvuKv ¯’vb A Gi eZ©gvb †Kvqv›Uvg Ae¯’v me‡P‡q wbgœ kw³i Ae¯’v bq| nqZ GwU DuPy †Kv‡bv DcZ¨Kvi AvcvZ w¯’wZkxj Ae¯’vq Av‡Q| †m‡¶‡Î m¤¢vebv Av‡Q GwU myo½ cÖfv‡ei gva¨‡g ¶‡q wM‡q mwZ¨Kv‡ii w¯’wZkxj MÖvDÛ Ae¯’v B †Z †b‡g Avm‡e| eyØy‡`i ˆZwii gva¨‡g NUv GB Ae¯’všÍi †\_‡K wecyj cwigvY kw³ wbM©Z n‡e|]

†Kvjg¨vb I wW jywmqv MvwYwZKfv‡e f¨vKyqv‡gi ¶‡qi bgybv evwb‡q‡Qb| Rvb‡Z †P‡q‡Qb e¨vcviUv wVK Kxfv‡e N‡U| Zvuiv †`L‡jb, ¯’v‡bi GKwU ˆ`e (random) Ae¯’v‡b ¶q ïiæ n‡e| Gi AvK…wZ n‡e mwZ¨Kv‡ii f¨vKyqv‡gi GKwU ¶y`ª eyØy‡`i g‡Zv| GwU Aw¯’wZkxj bKj f¨vKyqvg Øviv †ewóZ \_vK‡e| mwZ¨Kv‡ii f¨vKyqv‡gi eyØy` ˆZwi nIqv gvÎB GwU Lye `ªæZ cÖmvwiZ n‡Z \_vK‡e| cÖmvi‡Yi nvi P‡j Avm‡e Av‡jvi †e‡Mi KvQvKvwQ| hv µ‡gB bKj f¨vKyqv‡gi †ewk AÂ‡j †Q‡q hv‡e| Zvrw¶&YKfv‡e †mB AÂj¸‡jv mwZ¨Kv‡ii f¨vKyqv‡g cwiYZ n‡e| `yB Ae¯’vi ga¨Kvi kw³i cv\_©K¨ eyØy‡ei †`qv‡j †K›`ªxf~Z \_vK‡e| Avi Ae¯’v¸‡jv nqZ n‡e Z…Zxq Aa¨v‡q Av‡jvwPZ eo eo gvb¸‡jvi g‡Zv| eyØy`¸‡jv nqZ gnvwek¦gq Ny‡i †eov‡e, MwZc‡\_i mewKQy aŸsm Ki‡Z Ki‡Z|

mwZ¨Kv‡ii eyØy‡`i †`qv‡ji K\_v Rvb‡Z Rvb‡Z †mUv Avgv‡`i `iRvq nvbv w`‡q †dj‡e| Avgv‡`i RM‡Zi †Kvqv›Uvg KvVv‡gv ûU K‡i cv‡ë hv‡e| Avgiv wZb wgwb‡Ui mZK© m‡¼ZI cve bv| gyn~‡Z©i g‡a¨ me AwZcvigvYweK KYv I Zv‡`i wg\_w®Œqv Avg~j cv‡ë hv‡e| †hgb aiæb, †cÖvUb nqZ mv‡\_ mv‡\_ ¶q n‡q hv‡e| GUv NU‡j AvKw¯§Kfv‡e me e¯Íy ev®úxf~Z n‡q hv‡e| hv wKQy evwK \_vK‡e, †mUv P‡j hv‡e mwZ¨Kv‡ii f¨vKyqv‡gi eyØy‡`i Af¨šÍ‡i| Avgiv eZ©gv‡b †hgb †`LwQ, †mUv n‡e Zvi †\_‡K LyeB wfbœ| gnvK‡l©i †¶‡Î me‡P‡q †ewk cwieZ©b †Pv‡L co‡e| †Kvjg¨vb I W jywmqv †`‡L‡Qb, mwZ¨Kvi f¨vKyqv‡gi kw³ I Pvc GZ Zxeª gnvKl©xq †¶Î ˆZwi Ki‡e †h eyØy` cÖmvwiZ n‡Z n‡Z eyØy` w`‡q †Niv AÂj †f‡O co‡e| G‡Z mgq jvM‡e GK gvB‡µv‡m‡K‡ÛiI Kg| G‡¶‡Î gnvm‡¼vP‡bi w`‡K AMÖhvÎv †Kvgj n‡e bv| eis ûU K‡i mewKQy aŸsm n‡q hv‡e| eyØy‡`i †fZiUv ¯’vbKv‡ji wms¸jvwiwU‡Z wM‡q ¸wU‡q hv‡e| GK K\_vq Zvr¶wYK GK m‡¼vPb NU‡e| †Rvi w`‡q wKš‘ mshZfv‡e Zvuiv ej‡Qb, GUv nZvkvRbK| Zvuiv AviI ej‡Qb,

Avgv‡`i bKj f¨vKyqv‡g evm Kivi m¤¢vebv‡K KL‡bvB Avbb`wP‡Ë M‡elYv Kivi welq g‡b nqwb| f¨vKyqv‡gi ¶q cwi‡e‡ki P~ovšÍ wech©q| f¨vKyqvg ¶‡qi c‡i Avgv‡`i †PbvRvbv cÖv‡Yi Aw¯ÍZ¡B ïay Am¤¢e bq, Gi MvVwbK Dcv`vbI Am¤¢e| Z‡e mvšÍ¡bvi GKwU RvqMv Av‡Q| m¤¢eZ mg‡qi mv‡\_ mv‡\_ bZyb f¨vKyqvg w¯’wZkxj n‡e| Avgv‡`i †PbvRvbv cÖv‡Yi Aw¯ÍZ¡ bv \_vK‡j Ggb wKQy KvVv‡gv nqZ \_vK‡e hviv Avb›` Dc‡fvM Ki‡Z Rvb‡e| G m¤¢vebvI GLb Avi †bB|

‡Kvjg¨vb I wW jywmqvi M‡elYvcÎ cÖKvwkZ n‡j c`v\_©we` I †R¨vwZwe©`iv f¨vKyqvg ¶‡qi fqvbK djvdj wb‡q e¨vcK Av‡jvPbvq †j‡M hvb| †bPvi Rvb©v‡j Gi GKwU d‡jv-Avc cÖKvwkZ nq| GUv †j‡Lb Km‡gvjwR÷ gvB‡Kj Uvb©vi I c`v\_©we` dª¨vsK DBjP‡hK| Zvuiv GKwU fqvbK djvdj †ei K‡ib, Ò¶y`ª ¶y`ª wRb‡mi AvPiY †\_‡K mn‡RB †evSv hv‡”Q, Avgv‡`i f¨vKyqvg‡K ev¯Í‡e w¯’wZkxj g‡b n‡jI GwU Zv bq| †Kv‡bv AvMvg m‡¼Z QvovB gnvwe‡k¦i †Kv\_vI mwZ¨Kvi f¨vKyqv‡gi GKwU eyØy` ˆZwi n‡q †h‡Z cv‡i| evB‡ii w`‡K Qwo‡q co‡Z cv‡i Av‡jvi MwZ‡Z|Ó

Uvb©vi I DBjP‡h‡Ki cÖKvkbvi ciciB wcU nvU I gvwU©b wiR †bPv‡iB Av‡iKwU AvZ‡¼i K\_v cÖKvk K‡ib| gnvwek¦‡K aŸsm K‡i †`Iqvi g‡Zv f¨vKyqvg eyØy` nqZ KYvc`v\_©we`ivB g‡bi ARv‡šÍ ˆZwi K‡i †dj‡Z cv‡ib| fqUv n‡”Q, AwZcvigvYweK KYv‡`i Lye D”P kw³i msN‡l© nqZ Ggb Ae¯’v ˆZwi n‡e hv‡Z f¨vKyqvg ¶q n‡q †h‡Z PvB‡e| nqZ †mUv Aí mg‡qi R‡b¨ †QvÆ RvqMvqB n‡e| AvYyex¶wYK RM‡ZI GKevi GB Ae¯’všÍi NU‡j bem…ó GB eyØy`‡K \_vgv‡bv hv‡e bv| Ly` `ªæZ GwU Qwo‡q eo n‡q hv‡e| Zvn‡j c‡ii cÖR‡b¥i KYvZ¡iKhš¿¸‡jv wK wbwl× Kiv DwPZ? nvU I wiR Aek¨ Avk¦¯Í Ki‡Qb| Zvuiv ej‡Qb, gnvRvMwZK iwk¥¸‡jv‡Z kw³ Avgv‡`i KYvZ¡iKhš¿¸‡jvi †P‡q †ewk nq| Avi gnvRvMwZK iwk¥¸‡jv wewjqb wewjqb eQi a‡i c„w\_exi evqygÐ‡ji cigvYyi †K›`ª‡K AvNvZ K‡i P‡j‡Q| wKš‘ f¨vKyqvg ¶q †Zv Zv‡Z ïiæ nqwb| Z‡e Z¡iKh‡š¿i kw³ K‡qK k ¸Y evov‡Z cvi‡jB GZ w`b gnvRvMwZK iwk¥ c„w\_ex‡K †h kw³‡Z AvNvZ K‡i‡Q Zvi †P‡q †ewk †ZR¯^x msNl© m…wó Kiv m¤¢e n‡e| wKš‘ c„w\_ex‡Z eyØy` ˆZwi n‡Z cv‡i wK bv †mUv Avmj welq bq| weM e¨vs‡qi c‡ii †Kv‡bv GK mg‡q GB NUbv ch©‡e¶Y‡hvM¨ gnvwe‡k¦i †Kv\_vI B‡Zvg‡a¨B N‡U †M‡Q wK bv †mUvB n‡jv Avmj K\_v| nvU I wiR e‡j‡Qb, kw³ eZ©gvb Z¡iKh‡š¿i †P‡q wewjqb wewjqb ¸Y †ewk Ggb `ywU gnvRvMwZK iwk¥i gy‡LvgywL av°vi jvMvi m¤¢vebv Lye Kg| AZGe, Z¡iKhš¿‡K eÜ K‡i †`Iqvi GLbB †Kv‡bv `iKvi †bB|

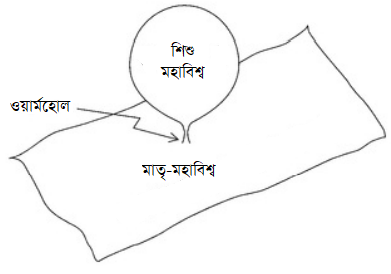
Ab¨ w`‡K Avevi †h eyØy‡`i ˆZwii Kvi‡Y gnvwe‡k¦i Aw¯ÍZ¡ ûgwKi gy‡L, †mB eyØy`B GKUy wfbœ `„wó‡KvY †\_‡K gnvwe‡k¦i Awaevmx‡`i gyw³i GKgvÎ Dcvq n‡Z cv‡i| gnvwe‡k¦i g„Zy¨ †\_‡K evuPvi GKwU wbwðZ Dcvq n‡jv Av‡iKwU gnvwek¦ ˆZwi K‡i †mLv‡b cvwj‡q hvIqv| GUv nqZ Kíbvi †Nvovq me‡P‡q j¤^v jvMvg| Z‡e mv¤cÖwZK eQi¸‡jv‡Z Òwkï gnvwek¦Ó wb‡q Lye Av‡jvPbv n‡”Q| Avi G‡`i Aw¯Í‡Z¡i Av‡jvPbv G‡Kev‡iB †Q‡jgvbywl bq|

1981 mv‡j welqwU cÖ\_g Av‡jvPbvq Av‡bb Rvcv‡bi GK`j c`v\_©we`| Zvuiv mwZ¨Kvi f¨vKyqvg w`‡q †ewóZ GKwU bKj f¨vKyqv‡gi †QvU eyØy‡`i AvPi‡Yi GKwU mij MvwYwZK we†kølY Pvjvb| GUv n‡jv GKUy Av‡M ejv Ae¯’vi wecixZ cwiw¯’wZ| Zvu‡`i c~e©vfvm ej‡Q, bKj f¨vKyqvg Z…Zxq Aa¨v‡q ewY©Z Dcv‡q ùxZ n‡e| GKwU weM e¨vs‡qi gva¨‡g GwU cÖmvwiZ n‡q eo GKwU gnvwe‡k¦ iƒc jvf Ki‡e| cÖ\_g `„wó‡Z g‡b n‡e, bKj f¨vKyqv‡gi eyØy‡`i ùxwZi Kvi‡Y eyØy‡`i †`qvj GZ cÖmvwiZ n‡e †h bKj f¨vKyqv‡gi AÂj eo n‡q mwZ¨Kvi f¨vKyqv‡gi AÂj‡KI `Lj Ki‡e| wKš‘ G‡Z K‡i cÖZ¨vwkZ AvPi‡Yi D‡ëv NUbv N‡U| wbgœ kw³i mwZ¨Kvi f¨vKyqvgB †Zv D”P kw³i bKj f¨vKyqvg‡K mwi‡q †`Iqvi K\_v| D‡ëvUv †Zv nIqvi K\_v bq|

AvRe e¨vcvi n‡jv, mwZ¨Kvi f¨vKyqvg †\_‡K †`L‡j bKj f¨vKyqv‡gi eyØy‡`i `Lj Kiv AÂj‡K †`‡L ùxZ n‡”Q e‡j g‡b nq bv| mwZ¨ ej‡Z GUv‡K eis †`L‡Z eø¨vK‡nv‡ji g‡Zv g‡b nq| (G‡¶‡Î G‡K W±i û Gi UvBg †gwk‡bi UviwW‡mi g‡Zv jv‡M| hv‡K evB‡ii †P‡q †fZ‡i †\_‡K †`L‡j eo †`Lvq) bKj f¨vKyqvg eyØy‡`i †fZ‡i Ae¯’vb Kiv GKRb KvíwbK ch©‡e¶K gnvwek¦‡K e¨vcKfv‡e ùxZ n‡Z †`L‡e| wKš‘ evB‡i †\_‡K †`L‡j G‡K Lye m¼ywPZ g‡b n‡e|

GB A™¢yZ Ae¯’vUy eyS‡Z n‡j GKwU D`vniY Kv‡R jvM‡Z cv‡i| aiæb, GKwU ivev‡ii Pv`i GKwU RvqMvq dy‡j I‡V †ejy‡bi g‡Zv Qwo‡q †Mj (10.4 wPÎ †`Lyb)| GB †ejyb GK ai‡bi wkï gnvwek¦ ˆZwi Ki‡e| GKwU ms‡hvRK myZv ev Iqvg©‡nv‡ji gva¨‡g GwU g~j gnvwe‡k¦i mv‡\_ hy³ \_vK‡e| g~j gnvwek¦ †\_‡K Iqvg©‡nv‡ji Mjv‡K eø¨vK‡nv‡ji g‡Zv g‡b n‡e| GB MVbUv Lye Aw¯’wZkxj| nwKs cÖfv‡ei gva¨‡g eø¨vK‡nvjwU Lye `ªæZ wgwj‡q hvq| g~j gnvwek¦ †\_‡KI Lye `ªæZ cy‡ivcywi nvwi‡q hvq| d‡j Iqvg©‡nvjwU Avjv`v n‡q hvq| Avi wkï gnvwek¦ g~j gnvwek¦ †\_‡K Avjv`v n‡q wb‡RB n‡q hvq bZyb I GK ¯^Zš¿ gnvwek¦| g~j gnvwek¦ †\_‡K Kyuwoi R‡b¥i gva¨‡g GB wkï gnvwe‡k¦i ˆZwii g‡Zv K‡iB Avgv‡`i gnvwe‡k¦i Rb¥ n‡q‡Q e‡j Abygvb KivI †h‡ZI cv‡i| nqZ Aí mg‡qi R‡b¨ ùxwZi c‡i ¯^vfvweKfv‡e cÖmviY K‡g G‡mwQj| GB bgybv ¯úó K‡iB ej‡Q, Avgv‡`i gnvwek¦I nqZ Gfv‡eB G‡m‡Q| G‡m‡Q nqZ Ab¨ †Kv‡bv gnvwe‡k¦i mšÍvb wn‡m‡e|

ùxwZ Z‡Ë¡i RbK A¨vjvb ¸\_ I Zvui mnKg©xiv we†kølY K‡i †`‡L‡Qb, Dc‡i ewY©Z wPÎ †\_‡K `viæY GKwU m¤¢vebv cvIqv hv‡”Q| cix¶vMv‡iB nqZ GKwU gnvwek¦ evbv‡bv hv‡e| bKj f¨vKyqvg ¶‡q wM‡q mwZ¨Kvi f¨vKyqv‡gi eyØy‡` cwiYZ nIqvi g‡Zv AvZ‡¼i e¨vcvi bq GwU| mwZ¨Kvi f¨vKyqvg w`‡q †ewóZ bKj f¨vKyqv‡gi eyØy` ˆZwii NUbv gnvwe‡k¦i Aw¯ÍZ¡‡K ûgwKi gy‡L †d‡j bv| n¨vu, cix¶v Pvjv‡Z wM‡q GKwU weM e¨vs‡qi m~Pbv n‡q †h‡Z cv‡i| wKš‘ Gi we‡ùviY ¶y`ª GKwU eø¨vK‡nv‡ji g‡a¨B mxgve× \_vK‡e| Avi eø¨vK‡nvjwU Lye `ªæZB wgwj‡q hv‡e| bZyb gnvwek¦ wb‡RB wb‡Ri RvqMv evwb‡q †b‡e| Avgv‡`i †Kv‡bv ¯’vb †K‡o †b‡e bv|



wPÎ 10.4

[g~j gnvwek¦ †\_‡K †ejy‡bi g‡Zv Qwo‡q wM‡q GKwU wkï gnvwek¦i Rb¥| g~j gnvwe‡k¦i mv‡\_ GKwU ms‡hvRK myZvi mvnv‡h¨ hy³ \_v‡K| g~j gnvwek¦ †\_‡K ZvKv‡j Iqvg©‡nv‡ji gyL‡K eø¨vK‡nvj g‡b n‡e| eø¨vK‡nvj wgwj‡q †M‡j Iqvg©‡nv‡ji Mjv wew”Qbœ n‡q hvq| d‡j m¤ú~Y© bZyb GKwU ¯^Zš¿ gnvwek¦ Rb¥jvf K‡i|]

n¨vu, GB fvebvwU A‡bKLvwb Abygvbwbf©i| GwU cy‡ivcywi MvwYwZK Z‡Ë¡i Ici `vuwo‡q Av‡Q| Z‡e wKQy wKQy M‡elYv ej‡Q, GB cÖwµqvq bZyb gnvwek¦ Rb¥jvf Ki‡ZI cv‡i| Lye h‡Zœi mv‡\_ wecyj cwigvY kw³‡K Nbxf~Z K‡i iwPZ n‡Z cv‡i gnvwek¦| Lye `~‡ii fwel¨‡Z Avgv‡`i wbR¯^ gnvwek¦ ev‡mi A‡hvM¨ n‡q †M‡j ev gnvaŸ‡mi m¤§yLxb n‡j Avgv‡`i eskaiiv wPiZ‡i GLvb †\_‡K P‡j †h‡Z cv‡i| Kyuwo cÖwµqvi gva¨‡g bZyb gnvwek¦ iPbv K‡i ms‡hvRK Iqvg©‡nvj w`‡q †mB gnvwe‡k¦ †h‡Z n‡e| †mUvB nqZ n‡e P~ovšÍ cwihvb ev ¯’vbvšÍi| Aek¨ †KDB wVK ej‡Z cvi‡eb bv Kxfv‡e wbf©xK cÖvYxiv GB KvRwU Ki‡e| ev Av‡`Š cvi‡e wK bv| Kg K‡i ej‡jI GB Iqvg©‡nv‡ji †fZi w`‡q hvÎvUv n‡e †gv‡UI Avivg`vqK n‡e bv| hw` bv †h eø¨vK‡nv‡j Zviv XyK‡e †mwU Lye eo nq|

Gme ev¯Íe welq¸‡jv ev` w`‡j wkï gnvwe‡k¦i aviYv wKš‘ mwZ¨Kv‡ii A¤^i‡Z¡i c\_ Ly‡j w`‡”Q| ïay Avgv‡`i eskai‡`i R‡b¨B bq, gnvwe‡k¦i R‡b¨I| gnvwe‡k¦i Rb¥-g„Zy¨i K\_v wPšÍv Kivi e`‡j Avgv‡`i‡K GK ¸”Q gnvwek¦ wb‡q fve‡Z n‡e| wPiKvj hvi msL¨v ïay evo‡e| cÖwZwU †\_‡K Rb¥ n‡e bZyb cÖR‡b¥i AviI A‡bK A‡bK gnvwek¦| nqZ AmsL¨| gnvRvMwZK GB De©iZvi d‡j GB gnvwek¦¸‡jvi mgv‡ek—hv‡K ejv DwPZ †gUvfvm©—Gi †Kv‡bv ïiæ ev †kl \_vK‡e bv| cÖwZwU gnvwe‡k¦iB Rb¥ \_vK‡e| weeZ©b \_vK‡e| g„Zy¨ \_vK‡e| Av‡Mi Aa¨vq¸‡jv‡Z †hfv‡e ejv n‡q‡Q †mfv‡e| wKš‘ mvwe©Kfv‡e Zv‡`i ¸”Q wU‡K \_vK‡e wPiKvj|

GB wPÎ †\_‡K GKwU cÖkœ ˆZwi nq: Avgv‡`i gnvwek¦ wK cÖvK…wZK †Kv‡bv NUbv (¯^vfvweKfv‡e wkïi R‡b¥i g‡Zv) bvwK †Kv‡bv B”Qvi ev¯Íevqb (†U÷wUDe wkïi g‡Zv)? Avgiv Kíbv Ki‡Z cvwi, g~j gnvwe‡k¦i GKwU h‡\_ó DbœZ I c‡ivcKvix RvwZ nqZ GKwU wkï gnvwek¦ ˆZwii wm×všÍ wb‡Z cv‡i| †mUv wb‡R‡`i wU‡K \_vKv wbwðZ Ki‡Z cvjv‡bvi e¨e¯’v Ki‡Z bq| eis wbR‡`i gnvwek¦ †kl n‡q †M‡jI Ab¨ RvqMvq cÖv‡Yi Aw¯ÍZ¡‡K wUwK‡q ivLvi e¨e¯’v Ki‡Z| GUv n‡j wkï gnvwe‡k¦ hvIqvi R‡b¨ AwZµg‡hvM¨ Iqvg©‡nvj ˆZwi Ki‡Z †M‡j †h Kó n‡e Zvi Avi †Kv‡bv `iKvi n‡e bv|

wkï gnvwek¦ g~j gnvwe‡k¦iB ˆewkó¨ aviY Ki‡e Zv ejv hv‡”Q bv| cÖK…wZi wewfbœ ej I e¯ÍyKYvi wewfbœ ˆewkó¨¸‡jvi KviY m¤ú‡K© weÁvbxiv GLbI Rv‡bb bv| GB ˆewkó¨¸‡jv nqZ cÖK…wZi m~‡Îi Ask n‡Z cv‡i| †h¸‡jv nqZ memgq me gnvwe‡k¦i R‡b¨ KvR Ki‡e| Ab¨ w`‡K wKQy ˆewkó¨ Avevi weeZ©‡bi d‡jI ˆZwi n‡Z cv‡i| †hgb aiæb, †ek K‡qKwU mwZ¨Kvi f¨vKyqvg Ae¯’vi Aw¯ÍZ¡ \_vK‡Z cv‡i| hvi me¸‡jvi kw³ GKB iKg ev cÖvq GKB iKg| ùxwZ hy‡Mi †k‡l bKj f¨vKyqvg ¶q n‡j nq‡Zvev GwU A‡bK¸‡jv m¤¢ve¨ f¨vKyqvg Ae¯’vi GKwU ˆ`efv‡e †e‡Q †bq| gnvwe‡k¦i c`v\_©we`¨vi m~‡Îi K\_v ej‡Z n‡j ej‡Z nq, KYv I Zv‡`i g‡a¨ wµqvkxj e‡ji A‡bK ˆewkó¨B wbw`©ó ai‡bi f¨vKyqvg Ae¯’vB wVK K‡i †`q| GKBfv‡e wbw`©ó K‡i ¯’v‡bi gvÎvi msL¨vI| d‡j wkï gnvwe‡k¦i ˆewkó¨ g~j gnvwek¦ †\_‡K m¤ú~Y© Avjv`v n‡Z cv‡i| nqZ G¸‡jvi Aí K‡qKwU‡ZB ïay cÖv‡Yi D™¢e NUv m¤¢e n‡e| †hLv‡b c`v\_©we`¨vi m~Î¸‡jv Avgv‡`i gnvwe‡k¦i g‡Zv ev KvQvKvwQ n‡e| A\_ev nqZ ¸Yvejxi avivevwnKZv i¶vi †Kv‡bv bxwZ Av‡Q, hvi gva¨‡g A™¢yZ wgD‡Ukb e¨ZxZ g~j gnvwe‡k¦i evwK ˆewkó¨¸‡jv wkï gnvwe‡k¦ fv‡jvfv‡e mÂvwiZ nIqv wbwðZ nq| c`v\_©we` wj †¯§vwjb e‡j‡Q‡b, gnvwek¦¸‡jvi g‡a¨ nqZ GK ai‡bi WviDBbxq weeZ©b KvR K‡i \_vK‡Z cv‡i| hv c‡iv¶fv‡e cÖvY I m‡PZbZvi Avwef©v‡ei mg\_©b †`q| Gi †P‡q gRvi GKwU m¤¢vebvI Av‡Q| gnvwek¦¸‡jv nqZ g~j gnvwe‡k¦i †Kv‡bv eyw×gvb mË¡vi B”Qvi cÖwZdjb| G¸‡jv‡Z nqZ cwiKíbv K‡iB cÖvY I m‡PZbZvi weKv‡ki R‡b¨ cÖ‡qvRbxq ˆewkó¨¸‡jv w`‡q †`Iqv n‡q‡Q|

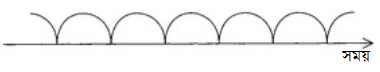
GB fvebv¸‡jv Lvg‡Lqvjx Abygvb gvÎ| wKš‘ Km‡gvjwR kvLvwUB †Zv Lye bZyb GKwU weÁvb| ZeyI Av‡Mi Aa¨vq¸‡jv‡Z †h AveQv c~e©vfvm †`Iqv n‡q‡Q, GB KíbvcÖeY K\_v¸‡jv Zvi wKQyUv n‡jI AšÍZ cwi®‹vi Ki‡e|G¸‡jv †\_‡K ejv hvq, GKw`b Avgv‡`i eskaiiv †kl wZwb wgwb‡Ui gy‡LvgywL n‡jI †Kv\_vI bv †Kv\_vI nqZ m‡PZb cÖvYx‡`i Aw¯ÍZ¡ wU‡K \_vK‡Z cv‡i|

GMvik Aa¨vq

‡h c„w\_exi †kl †bB

gnvRvMwZK wech©q Gov‡bvi c\_ AbymÜv‡bi †¶‡Î Av‡Mi Aa¨v‡qi †k‡l Av‡jvwPZ K\_v¸‡jv QvovI AviI wKQy m¤¢vebv Av‡Q| gnvwe‡k¦i cwiYwZ wb‡q †jKPvi w`‡Z †M‡jB mvaviYZ †KD bv †KD Avgv‡K PµvKvi g‡Wj m¤ú‡K© wR‡Ám K‡ibB| gnvwek¦ GKwU m‡e©v”P mvBR ch©šÍ cÖmvwiZ nq| Zvici ¸wU‡q gnvm‡¼vPb N‡U| wKš‘ cy‡ivcywi aŸsm nIqvi e`‡j GwU †Kv‡bvfv‡e jvwd‡q I‡V| ïiæ K‡i cÖmviY I m‡¼vP‡bi Av‡iKwU Pµ (wPÎ 11.1 †`Lyb)| GB cÖwµqv nqZ wPiKvj Pj‡Z cv‡i| †m‡¶‡Î gnvwe‡k¦i mwZ¨Kv‡ii †Kv‡bv ïiæ ev †kl \_vK‡e bv| cÖwZwU Avjv`v Avjv`v P‡µi ¯^Zš¿ m~Pbv I †kl \_vK‡e hw`I| wn›`y I †eŠ× ag© Øviv cÖfvweZ gvby‡li Kv‡Q GB ZË¡Uv we‡kl cQ‡›`i| ag©¸‡jv‡Z Rb¥-g„Zy¨ I m…wó-aŸs‡mi Pµ †Rviv‡jvfv‡e Dc¯’vcb Kiv n‡q‡Q|

gnvwe‡k¦i †k‡li mg‡qi R‡b¨ `y‡Uv Lye Avjv`v wP‡Îi eY©bv w`‡qwQ Avwg| Gi †Kv‡bvUvB Avkvi Av‡jv †`Lvq bv| gnvaŸ‡mi gva¨‡g gnvwe‡k¦i wb‡R‡K aŸsm K‡i †`Iqvi m¤¢vebv Lye fq¼i K\_v| †mUv hZ w`b c‡iB NUyK bv †Kb Zv‡Z wKQy Av‡m hvq bv| Ab¨ w`‡K, GKwU wbw`©ó mgq ch©šÍ ¯^gwngvq mPj \_vKv gnvwe‡k¦i Amxg mgq ch©šÍ gwjb Ae¯’vq dvuKv n‡q c‡o \_vKvi welqUv Aek¨B gb Lvivc K‡i †`‡e| wKQy wKQy g‡Wj †\_‡K gnvcÖvYx‡`i Z\_¨ cÖ‡m‡mi †h Amxg ¶gZv AR©‡bi m¤¢vebv †`Lv hvq †mUv nqZ Avgv‡`i Dò i‡³i gvby‡li Kv‡Q kxZj ¯^všÍbv g‡b n‡e|



wPÎ 11.1

[gnvwe‡k¦i PµvKvi g‡Wj| wbqwgZ weiwZ‡Z gnvwe‡k¦i AvKvi Lye Nb I Lye ùxZ Ae¯’vi g‡a¨ ¯úw›`Z nq| cÖwZwU P‡µi ïiæ nq GKwU we‡ùvi‡Yi gva¨‡g| †kl nq m‡¼vP‡bi gva¨‡g| mg‡qi mv‡c‡¶ GwU †gvUvgywU cÖwZmg|]

PµvKvi bgybv GK w`K †\_‡K Lye †jvfbxq| G‡Z gnvwek¦ cy‡ivcywi aŸsm n‡q hv‡”Q bv| gnvwe‡k¦i ˆewkó¨¸‡jv wPiZ‡i nvwi‡q hvIqvi gva¨‡g Gi ¶q NU‡Q bv| Aweivg cybive…wË‡K e¨\_©Zv †\_‡K i¶v Ki‡Z n‡j cÖwZwU Pµ‡K †Kv‡bvfv‡e Ab¨ Pµ¸‡jv †\_‡K Avjv`v n‡Z n‡e| ZË¡wUi GKwU RbwcÖq iƒc Abymv‡i cÖwZwU bZyb Pµ Gi c~e© iƒ‡ci wbg©g g„Zy¨ †\_‡K wdwb‡·i1 g‡Zv K‡i Avwef©~Z nq| Avw`g Ae¯’v †\_‡K GwU bZyb KvVv‡gv M‡o †Zv‡j| c‡ii gnvm‡¼vP‡b me †kl n‡q hvIqvi Av‡M GwUI wb‡Ri ¯^gwngv cÖ`k©b K‡i|

ZË¡Uv‡K †`‡L wKš‘ AvKl©YxqB g‡b nq| Z‡e `~f©v‡M¨i e¨vcvi n‡jv G‡Z gvivZ¥K wKQy †fŠZ mgm¨v Av‡Q| Gi GKwU n‡jv, Ggb GKwU MÖnY‡hvM¨ cÖwµqv Lyu‡R †ei Kiv hv m‡¼vPbkxj gnvwe‡k¦i NbZ¡ †e‡o †M‡j Zv‡K gnvm‡¼vP‡bi gva¨‡g aŸsm nIqv †\_‡K i¶v K‡i cybivq cÖmvwiZ Kiv‡e| Gi Rb¨ gnvK‡l©i wecix‡Z KvR Kiv †Kv‡bv ai‡bi ej Dcw¯’Z \_vK‡Z n‡e| m‡¼vP‡bi †k‡li ch©v‡q †hwU AwZgvÎvq eo n‡q DV‡e| hvi d‡j AZt‡ùvUb cÖwµqv wecixZgyLx n‡e| cÖwZnZ n‡e gnvK‡l©i `yg‡o-gyP‡o †`Iqvi A`g¨ ¶gZv| eZ©gv‡b Ggb †Kv‡bv e‡ji K\_v Rvbv †bB| \_vK‡jI Gi ˆewkó¨ nZ LyeB A™¢yZ|

Avcbv‡`i nqZ g‡b Av‡Q, weM e¨vs‡qi ùxwZ Z‡Ë¡ wVK Ggb kw³kvjx GK weKl©x e‡ji K\_vB ejv n‡q‡Q| Z‡e g‡b ivL‡Z n‡e, †h D‡ËwRZ f¨vKyqvg Ae¯’v †\_‡K ùxwZ ej ˆZwi nq †mUv LyeB Aw¯’wZkxj| ˆZwi nIqvi Aí mg‡qi g‡a¨B GwU aŸsm n‡q hvq| Aek¨ GUv mn‡RB †evSv hvq †h ¶y`ª, mij I AcK¡ gnvwek¦ †Zv Ggb Aw¯’wZkxj Ae¯’vqB Rb¥ †b‡e| wKš‘ RwUj GK g¨v‡µv‡¯‹vwcK Ae¯’v †\_‡K m¼ywPZ n‡q gnvwek¦ me RvqMvq D‡ËwRZ f¨vKyqvg Ae¯’v wd‡i cv‡e— Ggb aviYv Kiv G‡Kev‡i wfbœ K\_v| e¨vcviUv GKUv †cwÝj‡K Gi AMÖfv‡Mi Ici `vuo Kiv‡bvi g‡Zv| †cwÝjUv Lye `ªæZ KvZ n‡q c‡o hv‡e| †cwÝj‡K Avevi Av‡Mi g‡Zv gv\_vi Ici `vuo Kiv‡bv A‡bK KwVb KvR n‡e|

G mgm¨v¸‡jv Gov‡bv hv‡e a‡i wb‡jI PµvKvi gnvwe‡k¦i aviYvq AviI RwUjZv \_v‡K| wØZxq Aa¨v‡q Gi GKwU wb‡q Av‡jvPbv K‡iwQ| AcÖZ¨vMvgx cÖwµqvq Pjv wm‡÷g¸‡jv mmxg nv‡i Pj‡Z \_vK‡j mmxg mg‡qi g‡a¨B Zv‡`i †kl Ae¯’vi w`‡K GwM‡q hv‡e| GB bxwZi gva¨‡gB Ebwesk kZ‡K gnvwe‡k¦i Zvcxq g„Zy¨i c~e©vbygvb Kiv n‡qwQj| gnvRvMwZK P‡µi aviYv wb‡q G‡jI GB mgm¨vwU †\_‡KB hvq| gnvwek¦‡K µ‡gB axi MwZ‡Z Pjv GKwU Nwoi mv‡\_ Zyjbv Kiv hvq| GK mgq Awbevh©fv‡e Gi Kvh©µg †kl n‡q hv‡e| hw` bv Gi Kvh©µg cybivq ïiæ nq| wKš‘ †Kvb †m †KŠkj †h wb‡R AcÖZ¨vMvgx cwieZ©b †\_‡K wb‡R‡K evuwP‡q gnvRvMwZK Nwoi cybive…wË Kiv‡e?

cÖ\_g `„wó‡Z g‡b n‡e †fŠZ cÖwµqv¸‡jv †hfv‡e D‡ëvw`‡K KvR K‡i †Zgwbfv‡eB gnvwe‡k¦i m‡¼vPb ch©vq cÖmviY ch©v‡qi g‡ZvB n‡e| wew¶ß n‡Z \_vKv Qvqvc\_¸‡jv Kv‡Q P‡j Avm‡Z eva¨ n‡e| kxZj n‡Z \_vKv cUf~wg wewKiY AveviI DËß n‡e| Avi RwUj c`v\_©¸‡jv †f‡O wM‡q †gŠwjK KYvi m¨y‡c cwiYZ n‡e| weM e¨vs‡qi wVK c‡i gnvwe‡k¦i †h Ae¯’v wQj, gnvm‡¼vP‡bi wVK Av‡MI cÖvq GKBiKg Ae¯’v n‡e| Z‡e †`‡L GgbUv g‡b n‡jI ev¯Í‡e wKš‘ GUv n‡e bv| gnvwe‡k¦i †cQ‡b †Nvivi mg‡qi †R¨vwZwe©`‡`i ch©‡e¶Y †Kgb n‡e †mUv †\_‡K Avgiv GKwU aviYv †c‡Z cvwi| †m mgq cÖmviY eÜ n‡q m‡¼vPb Pj‡Z \_vK‡e| d‡j †m mg‡qi †R¨vwZwe©` wKš‘ ZLbI †`L‡eb, eû wewjqb eQi a‡i Qvqvc\_iv `~‡i mi‡Q| †`‡L g‡b n‡e, gnvwek¦ cÖmvwiZ n‡qB P‡j‡Q| hw`I Avm‡j m‡¼vPb ïiæ n‡q †M‡Q| GB fy‡ji KviY Av‡jvi †eM mmxg nIqvq mwZ¨Kvi NUbv †Pv‡L Avm‡Z mgq †j‡M hv‡”Q|

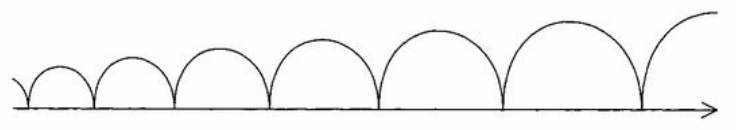
1930 Gi `k‡K Km‡gvjwR÷ wiPvW© †Uvjg¨vb †`Lvb, Kxfv‡e GB Kvi‡Y gnvwe‡k¦i AvcvZ cÖwZmvg¨ bó n‡”Q| KviYUv Lye mij| gnvwe‡k¦i ïiæi mgq weM e¨vs †\_‡K cÖPyi cwigvY Zvc wewKiY aŸsmve‡kl wn‡m‡e †\_‡K hvq| mg‡qi mv‡\_ mv‡\_ b¶‡Îi Av‡jvi cÖfv‡e GB wewKiY AviI ev‡o| K‡qK wewjqb eQi c‡i gnvk~‡b¨ Qwo‡q cov b¶‡Îi Av‡jvi RgvK…Z kw³ cUf~wg Zv‡ci mgvb nq| Gi A\_© n‡jv, m‡¼vP‡bi w`‡K GwM‡q hvIqvi mgq gnvwek¦Ry‡o weM e¨vs‡qi wVK c‡ii mg‡qi †P‡q j¶¨Yxq iKg †ewk cwigvY wewKiY kw³ Dcw¯’Z \_v‡K| d‡j gnvwek¦ Avevi hLb m¼ywPZ n‡q AvR‡Ki Ae¯’vq Avm‡e ZLb Gi DËvc Av‡iKUy †ewk \_vK‡e|

GB evowZ Zvckw³i †hvMvb †`q gnvwe‡k¦i †fŠZ Dcv`vb¸‡jv| GUv KvR K‡i AvBb÷vB‡bi E=mc2 m~Î w`‡q| Zvckw³ ˆZwi Kiv b¶‡Îi †fZ‡i nvB‡W«v‡R‡bi g‡Zv nvjKv †gŠj¸‡jv cÖ‡mm n‡q Avqib ev †jvnvi g‡Zv fvix †gŠ‡j cwiYZ nq| mvaviYZ Avqi‡bi GKwU wbDwK¬qv‡m 26wU †cÖvUb I 30wU wbDU«b \_v‡K| Avcbvi nqZ g‡b n‡e, Zvn‡j †Zv Ggb GKwU wbDwK¬qv‡mi fi n‡e 20wU †cÖvUb I 30wU wbDU«‡bi f‡ii mgvb| wKš‘ bv| Gfv‡e ˆZwi wbDwK¬qv‡mi fi Avjv`v KYv `ywUi wgwjZ f‡ii 1 fvM Kg nq| f‡ii GB NvUwZ n‡q‡Q mej wbDwK¬q e‡ji eÜb kw³ ˆZwi Ki‡Z wM‡q| GB kw³ wn‡m‡e Dcw¯’Z \_vKv fiUyKyB b¶‡Îi kw³ wn‡m‡e wbM©Z nq|

GZme wKQyi dj n‡”Q e¯Íy †\_‡K wewKi‡Y kw³i wbU iƒcvšÍi| gnvwe‡k¦i cÖmviY cÖwµqvi Ici Gi GKwU ¸iæZ¡c~Y© cÖfve Av‡Q| KviY wewKi‡Y gnvKl©xq Uvb GKB fi kw³i c`v‡\_©i Uvb †\_‡K GK`gB Avjv`v| †Uvjg¨vb †`wL‡q‡Qb, m‡¼vPb ch©v‡qi evowZ wewKi‡Yi Kvi‡Y gnvwek¦ ¸wU‡q hvq AviI `ªæZ †e‡M| Avi †Kv‡bvfv‡e hw` AviI GKevi wecixZ cÖwµqv ïiæ nq, Zvn‡j †`Lv hv‡e gnvwek¦ cÖmvwiZ n‡”Q AviI `ªæZ nv‡i| Ab¨fv‡e ej‡j, cÖwZwU weM e¨vs Av‡MiwUi †P‡q eo n‡e| d‡j cÖwZwU bZyb P‡µ gnvwek¦ Av‡Mi †P‡q †ewk cÖmvwiZ n‡e| d‡j Pµ¸‡jv GKBmv‡\_ eo I `xN©¯’vqx n‡e| (†`Lyb 11.2 wbs wPÎ)|

gnvRvMwZK P‡µi e…w×i AcÖZ¨vMvgx cÖwµqvi inm¨I Rvbv| GUvI ZvcMwZwe`¨vi wØZxq m~‡Îi Awbevh© cwiYwZi GKwU D`vniY| ax‡i ax‡i evo‡Z \_vKv wewKi‡Yi d‡j ev‡o GbU«wcI| Gi cÖKvk N‡U gnvKl©xqfv‡e µgkB eo †\_‡K AviI eo Pµ ˆZwii gva¨‡g| Z‡e Gi gva¨‡g wKš‘ mwZ¨Kvi A‡\_© Pµ ej‡Z hv †evSvq ZviI Aemvb N‡U| mg‡qi mv‡\_ mv‡\_ Aek¨B gnvwe‡k¦ cwieZ©b N‡U| AZx‡Zi Pµ¸‡jv G‡Ki ci GK RwUj I wek…•Lj m~Pbvi Rb¥ w`‡q‡Q| Avi fwel¨‡Zi Pµ cÖmvwiZ n‡e jvMvgnxbfv‡e| GKmgq GwU GZ eo n‡e †h GKwU wbw`©ó P‡µi eo Ask‡K wPicÖmvigvb wP‡Îi Zvcxq g„Zy¨ †\_‡K Avjv`v K‡i †Pbv hv‡e bv|

‡Uvjg¨v‡bi Kv‡Ri c‡iI weÁvbxiv Ggb Ab¨ wKQy cÖwµqvI Lyu‡R †c‡q‡Qb hv cÖwZwU P‡µi cÖmviY I m‡¼vP‡bi cÖwZmvg¨ bó K‡i †`q| Gi GKwU D`vniY n‡jv eø¨vK‡nv‡ji m…wó| Av`k© Ae¯’v wPšÍv Ki‡j, gnvwe‡k¦i Rb¥ nq eø¨vK‡nvj Qvov| wKš‘ mg‡qi mv‡\_ mv‡\_ b¶Îiv m¼ywPZ nq| Avi Ab¨ cÖwµqvqI ˆZwi nq eø¨vK‡nvj| Qvqvc‡\_i weeZ©‡bi mv‡\_ mv‡\_ AviI AviI eø¨vK‡nvj ˆZwi n‡Z \_v‡K| m‡¼vP‡bi †kl ch©vq¸‡jv‡Z AviI †ewk eø¨vK‡nvj ˆZwii cwi‡ek ˆZwi nq| wKQy eø¨vK‡nvj wgwjZ n‡q eo eø¨vK‡nvjI ˆZwi nq| d‡j gnvm‡¼vP‡bi KvQvKvwQ mg‡qi gnvwe‡k¦i Ae¯’v weM e¨vs‡qi c‡ii mgq †\_‡K A‡bK †ewk RwUj| GUv cwi®‹vi †h m‡¼vP‡bi mgq A‡bK †ewk eø¨vK‡nvj \_vK‡e| gnvwe‡k¦i Pµ bZyb K‡i ïiæ n‡j c‡ii Pµ A‡bK †ewkmsL¨K eø¨vK‡nvj wb‡q hvÎv ïiæ Ki‡e|



wPÎ 11.2

[AcÖZ¨vMvgx cÖwµqvi Kvi‡Y gnvRvMwZK Pµ µ‡gB eo n‡Z \_v‡K| d‡j GKmgq Pµ ej‡ZB wKQy \_v‡K bv|]

d‡j g‡b n‡”Q †h Pµxq gnvwe‡k¦ GK Pµ †\_‡K c‡ii P‡µ †fŠZ KvVv‡gv ¯’vbvšÍwiZ n‡Z cv‡i Zvi R‡b¨ ZvcMwZwe`¨vi wØZxq m~‡Îi ˆewkó¨¶qKvix cÖfve Gwo‡q Pjv m¤¢e bq| GLv‡bI Zvcxq g„Zy¨ NU‡e| GB nZvkvRbK cwiYwZ †iva Kivi GKwU DcvqI Av‡Q| †mR‡b¨ a‡i wb‡Z n‡e, cÖwZwU bZyb P‡µi †fŠZ Ae¯’v GZ Pig †h Av‡Mi P‡µi †Kv‡bv Z\_¨ c‡ii P‡µ †cŠuQ‡Z cv‡i bv| Av‡Mi me †fŠZ e¯Íy aŸsm n‡q hvq| me cÖfve bó n‡q hvq| e¯ÍyZ, gnvwek¦ G‡Kev‡i bZyb K‡i Rb¥jvf K‡i|

Ggb GKwU g‡W‡j AvKl©Yxq †Kv‡bv w`K Lyu‡R cvIqv gykwKj| cÖwZwU Pµ †fŠZfv‡e Ab¨ Pµ †\_‡K Avjv`v n‡q \_vK‡j GK P‡µi c‡i Av‡iK Pµ Av‡m—Ggb K\_v ejvi wK †Kv‡bv A\_© \_v‡K? ev¯Íe †Zv cÖwZwU PµB Avjv`v Avjv`v gnvwek¦| Gfv‡eI †Zv ejv hvq †h G¸‡jv G‡Ki ci GK bv †\_‡K Ae¯’vb K‡i mgvšÍiv‡j| GB Ae¯’vwU cybR©b¥ev‡`i K\_v g‡b Kwi‡q †`q, †hLv‡b cÖwZwU gvbyl Av‡Mi R‡b¥i K\_v fy‡j hvq| Zvn‡j †Kvb A‡\_© ejv hv‡e †h Av‡Mi gvbylwUi cybR©b¥ n‡q‡Q?

Av‡iKwU m¤¢vebv n‡jv, †Kv‡bvfv‡e ZvcMwZwe`¨vi wØZxq m~Î jw•NZ n‡”Q| d‡j †cQ‡b †Nvivi mgq bZyb K‡i Nwo bZyb K‡i ïiæ n‡”Q| wØZxq m~Î †h aŸsmhÁ NUv‡e †mUvi ¶wZc~iY m¤ú‡K© GwU Zvn‡j Kx ej‡Q? m~ÎwUi GKwU ev¯Íe D`vniY †`Lv hvK| †evZj †\_‡K myMwÜi D‡e hvIqvi K\_vB aiæb bv| myMwÜi AvPiY cv‡ë †M‡j GKwU Avg~j cwieZ©b NU‡e| †hLv‡b N‡i cÖwZwU †KvYvq Ae¯’vb Kiv myMwÜi AYy¸‡jv wd‡i Avm‡e †evZ‡j| Pjw”PÎ Pj‡e D‡ëv w`‡K| ZvcMwZwe`¨vi wØZxq m~Î †\_‡KB Avgiv AZxZ I fwel¨‡Zi cv\_©K¨ eyS‡Z cvwi| hvi bvg mg‡qi Zxi| Zvi gv‡b GB m~‡Îi e¨Z¨q NU‡j mgq Pj‡Z ïiæ Ki‡e D‡ëv w`‡K|

wech©q P‡j G‡j mgq †cQ‡b Pj‡Z ïiæ Ki‡e g‡b KivUv gnvRvMwZK g„Zy¨‡K Gwo‡q hvevi wKQyUv mv`vgvUv GKwU †KŠkj| mgq Lvivc n‡q †M‡j gnvRvwZK Pjw”PÎUv‡K †cQb w`‡K Pvwj‡q `vI, e¨m! Z‡e GB wPšÍvUv‡KI A‡bK Km‡gvjwR÷ MÖnY K‡i‡Qb| 1960 Gi `k‡K †R¨vwZc©`v\_©we` \_gvm †Mvì Ggb GKwU cÖ¯Ívebv w`‡qwQ‡jb| Zvui g‡Z, cybivq m‡¼vPbkxj gnvwe‡k¦i m‡¼vPb `kvq gnvwek¦ nqZ †cQ‡b Pj‡Z ïiæ Ki‡e| wZwb g‡b Kwi‡q †`b, Gi d‡j wKš‘ †mB mgq RxweZ \_vKv cÖvYx‡`i gw¯Í®‹I †cQ‡b Pj‡e| d‡j Zv‡`i Kv‡Q mg‡qi aviYvI wecixZ n‡q hv‡e| d‡j m‡¼vPbkxj gnvwe‡k¦i cÖvYxiv Zv‡`i Pvicv‡ki mewKQy‡K †cQ‡b Pj‡Z †`L‡e bv| eis Avgv‡`i g‡ZvB mewKQy‡K mvg‡b GwM‡q †h‡Z †`L‡e| †hgb, Zviv g‡b Ki‡e gnvwek¦ m¼ywPZ bq, cÖmvwiZ n‡”Q| Zv‡`i †Pv‡L g‡b n‡e, Avgv‡`i mg‡qi gnvwek¦B m¼ywPZ nw”Qj| Avi Avgv‡`i gw¯Í®‹B KvR KiwQj wecixZ w`‡K|

1980'i `k‡K w÷‡db nwKsI mg‡qi D‡ëv w`‡K †Nviv wb‡q wKQy gRvi KvR K‡ib| c‡i †mB wPšÍv †\_‡K m‡i Av‡mb| Avi e‡jb, †mUv wQj Zvi me‡P‡q eo fyj| cÖ\_‡gi nwKs‡qi wek¦vm wQj, PµvKvi gnvwe‡k¦ †Kvqv›Uvg †gKvwb· cÖ‡qvM Ki‡Z †M‡j we¯ÍvwiZ mgq cÖwZmvg¨ `iKvi n‡e| c‡i †`Lv †Mj, welqUv †Zgb bq| †Kvqv›Uvg †gKvwb‡·i Av`k© m~Îvqb AšÍZ Ggwb e‡j| m¤cÖwZ gv‡i †Mj g¨vb I †Rgm nvU©j †Kvqv›Uvg †gKvwb‡·i m~Î¸‡jv‡K GKUy wfbœfv‡e wPšÍv K‡i‡Qb| GLv‡b Zviv mgq cÖwZmvg¨ hy³ K‡i‡Qb| Gici cÖkœ †i‡L‡Qb, GB Ae¯’v Avgv‡`i gnvRvMwZK mgqKv‡j ch©‡e¶Y‡hvM¨ †Kv‡bv cÖfve ivL‡e wK bv| GLb ch©šÍ Gi DËi cwi®‹vi bq|

gnvRvMwZK wech©q Gov‡bvi m¤ú~Y© wfbœ GKwU Dcvq e‡j‡Qb iæk c`v\_©we` Av‡›`ªB wj‡Û| Z…Zxq Aa©v‡q Av‡jvwPZ ùxwZ ZË¡‡K we¯Í…Z K‡i DcvqwU fvev n‡q‡Q| g~j ùxwZ Z‡Ë¡ a‡i †bIqv n‡q‡Q Lye cÖviw¤¢K gnvwe‡k¦i †Kvqv›Uvg Ae¯’v GKwU wbw`©ó D‡ËwRZ f¨vKyqv‡g mv‡\_ m¤úwK©Z| hvi cÖfv‡e wKQy mgq a‡i e¨vcK cÖmviY N‡UwQj| 1983 mv‡j wj‡Û e‡jb, G‡Kev‡i cÖv\_wgK gnvwe‡k¦i †Kvqv›Uvg Ae¯’v eis wek…•Lj Dcv‡q RvqMv‡f‡` Avjv`v n‡Z cv‡i| †Kv\_vI wbgœ kw³, †Kv\_vI †gvUvgywU D‡ËwRZ Ae¯’v, †Kv\_vI Avevi A‡bK †ewk D‡ËwRZ BZ¨vw`| D‡ËwRZ AÂ‡j ùxwZ N‡U| GQvovI †Kvqv›Uvg Ae¯’vi AvPiY wb‡q Kiv wj‡Ûi wn‡m‡e cwi®‹vifv‡e †`Lv hvq, AwZ D‡ËwRZ AÂ‡j me‡P‡q †ewk ùxwZ N‡U| Avi ¶q N‡U me‡P‡q Kg| Zvi gv‡b †Kv‡bv GKwU wbw`©ó AÂj hZ †ewk D‡ËwRZ \_vK‡e †mwU ZZ †ewk ùxZ n‡e| †evSvB hv‡”Q, Lye Aí mgq mgq c‡iB †h AÂ‡j NUbvµ‡g kw³ †ewk I ùxwZ me‡P‡q `ªæZ N‡U‡Q †mwU Lye ZvovZvwo ùxZ n‡q †gvU ¯’v‡bi †ewkifvM Ask `Lj K‡i †dj‡e| wj‡Û welqUv‡K WviDBbxq weeZ©b ev A\_©bxwZi mv‡\_ Zyjbv K‡ib| †Kv‡bv ¯’v‡bi Lye D‡ËwRZ GKwU Ae¯’vi GKwU mdj †Kvqv›Uvg d¬vKPy‡qk‡bi d‡j †mB ¯’v‡bi AvqZb ûU K‡i A‡bK A‡bK †e‡o hv‡e| hw`I †m R‡b¨ cÖPyi kw³ avi Ki‡Z n‡e| d‡j avi Kiv kw³i GB AwZùxZ AÂj¸‡jvB gnvwe‡k¦ †ewk \_vK‡e|

wek…•Lj GB ùxwZi Kvi‡Y Aí mg‡qi g‡a¨B gnvwek¦ A‡bK¸‡jv †QvU †QvU gnvwe‡k¦i ev eyØy‡`i GKwU ¸‡”Q cwiYZ n‡e| wKQy wKQy ùxwZ n‡e cvM‡j g‡Zv| wKQy wKQy Avevi GKUyI ùxZ n‡e bv| wbQK G‡jv‡g‡jv d¬vKPy‡qk‡bi Kvi‡Y wKQy wKQy GjvKvq A‡bK †ewk D‡ËwRZ kw³ \_vK‡e| d‡j †mBme GjvKvq cÖv\_wgK m~‡Î hZUv g‡b Kiv n‡q‡Q Zvi †P‡q †ewk ùxwZ n‡e| Avevi GB ¯’vb¸‡jvB me‡P‡q †ewk ùxZ n‡e e‡j ùxwZ-DËi gnvwek¦ †\_‡K ˆ`efv‡e GKwU we›`y evQvB Ki‡j †mwU Lye ùxZ AÂ‡j \_vKvi m¤¢vebvB †ewk| AZGe gnvk~‡b¨ Avgiv nqZ AwZùxZ GKwU AÂ‡ji Mfx‡i Aew¯’Z AvwQ| wj‡Ûi wn‡me Abymv‡i, eo eyØy` nqZ 10^108 ¸Y eo n‡q‡Q| gv‡b 1 Gi c‡i 10 †KvwU k~b¨ w`‡j †h msL¨v nq ZZ ¸Y|

Amxg msL¨K AwZùxZ eyØy‡`i g‡a¨ Avgv‡`i gnvwek¦I GKwU| d‡j eo gvcKvwV‡Z wPšÍv Ki‡j Avgv‡`i gnvwek¦‡KI e¨vcK wek…•Lj g‡b n‡e| Avgv‡`i eyØy`wU eZ©gv‡b ch©‡e¶Y‡hvM¨ gnvwe‡k¦i †P‡q A‡bK A‡bK eo| eyØy‡`i Af¨šÍ‡i c`v\_© I kw³ cÖvq mylgfv‡e web¨¯Í \_vK‡e| wKš‘ eyØy‡`i evB‡i \_vK‡e Ab¨ AviI eyØy`| GQvovI \_vK‡e Ggb AÂj, †hLv‡b GLbI ùxwZ Pj‡Q| Avm‡j wj‡Ûi g‡W‡j ùxwZ KL‡bvB \_v‡g bv| memgqB †Kv‡bv bv †Kv‡bv ¯’v‡b ùxwZ Pj‡ZB \_v‡K| Ab¨ eyØy` ˆZwi n‡Z \_v‡K| hw`I ZZ¶‡Y Ab¨ eyØy`iv RxebKvj †kl K‡i g‡i hv‡”Q| d‡j GUvI GK ai‡bi wPišÍb gnvwek¦| Av‡Mi Aa¨v‡q Av‡jvwPZ wkï gnvwe‡k¦i g‡Zv A‡bKUv| †hLv‡b Rxeb, Avkv I gnvwek¦iv cÖwZwbqZ Rb¥jvf K‡i| ùxwZi gva¨‡g bZyb eyØy` gnvwek¦ ˆZwi Pj‡ZB \_v‡K| Gi nqZ †Kv‡bv wbw`©ó m~Pbv wQj bv| Aek¨ GUv wb‡q eZ©gv‡b wKQy weZK© Av‡Q|

Ab¨ eyØy‡`i Dcw¯’wZi Kvi‡Y Avgv‡`i eskaiiv wK wU‡K \_vKvi AbyK~j cwi‡ek cv‡e? Zviv wK gviv hv‡ei Av‡M Av‡M Ab¨ bZyb eyØy‡` m‡i wM‡q gnvRvMwZK wech©q, ev AviI mwVK K‡i K‡i ej‡j eyØy`xq wech©q, †\_‡K i¶v cv‡e? jvBd A¨vÛ Bb‡d¬kb bv‡g GKwU ex‡ivwPZ M‡elYvc‡Î wj‡Û GB welqwU Av‡jvPbv K‡ib| GUv cÖKvwkZ nq 1989 mv‡ji wdwR· †jUvim Rvb©v‡j| wZwb e‡jb, ÒGB djvdj¸‡jv ej‡Q, ùxwZ gnvwe‡k¦ Rxe‡bi Aemvb KLbI n‡e bv| `~f©vM¨ n‡jv, GUv †\_‡K e‡j †`Iqv hv‡”Q bv †h gvby‡li fwel¨r wb‡q Avgiv Lye Avkvev`x n‡Z cvie| †h‡Kv‡bv wbw`©ó AÂj ev eyØy`B ax‡i ax‡i ev‡mi A‡hvM¨ n‡q hv‡e| d‡j wU‡K \_vKvi GKgvÎ †KŠkj n‡e aŸs‡mi mgq Nwb‡q G‡j GK AÂj †\_‡K Av‡iK AÂ‡j P‡j hvIqv|"

wj‡Ûi ùxwZ Z‡Ë¡ GKwU nZvkvRbK w`K Av‡Q| †mUv n‡jv GKwU Av`k© eyØy` A‡bK A‡bK eo| Zvui wnmve g‡Z, Avgv‡`i me‡P‡q Kv‡Qi eyØy` GZ `~‡i Av‡Q †h Av‡jvKel© GK‡K Zv cÖKvk Ki‡Z n‡j 1 Gi c‡i K‡qK wgwjqb k~b¨ emv‡Z n‡e| GUv GZ eo msL¨v †h G‡K wjL‡Z †M‡j cy‡iv GKwU wek¦‡Kv‡li cvZv †kl n‡q hv‡e| Av‡jvi †e‡Mi KvQKvwQ †e‡M †M‡jI GB `~iZ¡ cvwo w`‡Z cÖvq GKB cwigvY eQi mgq jvM‡e| hw` bv †mŠfvM¨µ‡g Avgiv Avgv‡`i eyØy‡`i G‡Kev‡i cÖv‡šÍi w`‡K Ae¯’vb K‡i \_vwK| GUvI m¤¢e n‡e hw` Avgv‡`i gnvwek¦ AbywgZ c×wZ‡Z cÖmvwiZ n‡Z \_v‡K| eZ©gvb mg‡q cÖKU f~wgKv ivLv c`v\_© I wewKiY Amxg cwigvY nvjKv n‡q †M‡j eZ©gv‡b G‡Kev‡iB †evSv m¤¢e bq Ggb me‡P‡q m~² †Kv‡bv †fŠZ cÖfv‡ei IciB nqZ †kl ch©šÍ gnvwe‡k&eŸi cÖmvi‡Y †KŠkj wbf©i Ki‡e| †hgb aiæb, ùxwZ e‡ji Lye `ye©j GKwU aŸsmve‡kl gnvwe‡k¦ †\_‡K †Mj| gnvK‡l©i Kvi‡Y †hUv GLb G‡Kev‡i \_g‡K Av‡Q| wKš‘ eyØy` †\_‡K cvjv‡Z Avgv‡`i †h cwigvY mgq jvM‡e Zv‡Z nqZ †mB aŸsmve‡kl Avevi j¶¨Yxq n‡q DV‡e| †m‡¶‡Î nqZ h‡\_ó `xN© mgq ci gnvwek¦ AveviI ùxZ n‡Z ïiæ Ki‡e| weM e¨s‡qi c‡ii †mB mg‡qi g‡Zv GZ cÖPÐfv‡e bq| eis Lye ax‡i| ejv hvq †h weM e¨vs‡qi GKwU ¶xY bgybvi g‡Zv| wKš‘ ¶xY GB cÖfve `ye©j n‡jI GUv Pj‡e AbšÍKvj| gnvwe‡k¦i e…w×i Lye ax‡i ax‡i evo‡jI eo n‡q hvIqvi GB nvi †e‡o hvIqvi †fŠZ cÖfve Lye ¸iæZ¡c~Y©| Gi cÖfv‡e eyØy‡`i g‡a¨B GKwU NUbv w`M‡šÍ¡i D`q n‡e| †hUv‡K †`L‡Z A‡bKUv eø¨vK †nv‡ji g‡Zv g‡b n‡e, hvi †fZiUv \_vK‡e evB‡ii w`‡K| GwU GKwU djcÖm~ dvu` wn‡m‡e KvR Ki‡e| ZLbI †eu‡P \_vKv †h‡Kv‡bv Rxe Avgv‡`i eyØy‡`i †fZ‡ii Amnvqfv‡e AvU‡K \_vK‡e| KviY Zviv hZB eyØy‡`i evB‡ii w`‡K †h‡Z \_vK‡e, eyØy‡`i cÖvšÍ ùxwZi cÖfv‡e ZZB `ªæZ AviI m‡i †h‡Z \_vK‡e| wj‡Ûi wnmve-wbKvk GKUy KvíwbK| Z‡e GLv‡b Lye my›`i K‡i †`Lv‡bv Av‡Q †h gvby‡li P~ovšÍ wbqwZ nqZ Lye ¶y`ª †fŠZ cÖfv‡ei Ici wbf©i Ki‡e| †m cÖfve GZ †QvU †h gnvRMvwZK ch©v‡q †mwUi ewntcÖKvk †Pv‡L covi Av‡M Avgiv Zv‡K kbv³I Ki‡Z cvie bv|

wKQy w`K †\_‡K fve‡j wj‡Ûi Km‡gvjwR cyivZb w¯’ive¯’v Z‡Ë¡i K\_v g‡b Kwi‡q †`q| cÂvk I lv‡Ui `k‡Ki ïiæ‡Z ZË¡wU Lye RbwcÖq wQj| gnvwe‡k¦i mgvwß Gov‡bvi R‡b¨ GUv GLbI me‡P‡q mij I AvKl©Yxq ZË¡| Gi g~j ms¯‹i‡Yi cÖ¯ÍveK n‡jb nvig¨vb ew›` I \_gvm †Mvì| GB Z‡Ë¡i g‡Z, eo KvVv‡gv‡Z memgq gnvwek¦ AcwiewZ©Z \_v‡K| d‡j Gi †Kv‡bv ïiæ ev †kl †bB| cÖmvi‡Yi mv‡\_ mv‡\_ Gi dvuKv ¯’v‡b bZyb bZyb c`v\_© ˆZwi nq| memgq GKwU wbw`©ó NbZ¡ eRvq \_v‡K| Qvqvc\_‡`i wbqwZ Avwg Av‡Mi Aa¨vq¸‡jv‡Z †hgb e‡jwQ †ZgbB: Rb¥, weeZ©b I g„Zy¨| wKš‘ Acwimxg bZybm…ó c`v\_© †\_‡K cÖwZwbqZ ˆZwi n‡”Q bZyb bZyb Qvqvc\_| d‡j cÖ‡Z¨K hy‡MB gnvwe‡k¦i mvaviY †Pnviv mvwe©Kfv‡e GKB \_v‡K| GKwU wbw`©ó AvqZ‡bi ¯’v‡b Qvqvc‡\_i msL¨v memgq mgvb \_v‡K, hv‡`i G‡KKwUi eqm G‡KK iKg|

ïiæ‡Z k~b¨ †\_‡K gnvwek¦ Kxfv‡e Gj GB cÖ‡kœi Reve w`‡Z bv †c‡i w¯’ive¯’v ZË¡ †kl n‡q hvq| GB Z‡Ë¡ weeZ©‡bi gva¨‡g gnvRvMwZK Awebk¦iZvi mv‡\_ gRvi ˆewP‡Zª¨i mgš^q Kiv n‡q‡Q| Avm‡j GwU AviI GK avc mvg‡bI hvq| Kvi‡Y G‡KKwU Qvqvc\_ ax‡i ax‡i g‡i †M‡jI mvwe©Kfv‡e gnvwek¦ KLbI e…× nq bv| Avgv‡`i DËicyiæl‡`i‡K gvwU Lyu‡o µ‡gB dywi‡q Avmv R¡vjvwbi †LvuR Ki‡Z n‡e bv| GK Qvqvc\_ cyivZb n‡q †M‡j ïay Av‡iK Qvqvc‡\_ P‡j †h‡Z n‡e GB hv| GUv Pj‡Z cv‡i AbšÍKvj ch©šÍ| memgq \_vK‡e GKBiKg †ZR, ˆewPZª¨ I mwµqZv|

Z‡e GUv‡K KvR Ki‡Z n‡j wKQy †fŠZ kZ© c~iY n‡Z nq| cÖmvi‡Yi Kvi‡Y K‡qK k eQi cici gnvwe‡k¦i AvKvi wØ¸Y nq| NbZ¡‡K GKB \_vK‡Z n‡j GB mg‡qi g‡a¨ cÖvq 1050 Ub bZyb c`v\_© cÖ‡qvRb| †`‡L G‡K A‡bK †ewk g‡b nq| wKš‘ Gi gv‡b n‡jv cÖwZ kZ‡K wegv‡bi M¨v‡i‡Ri AvKv‡ii ¯’v‡b M‡o GKwU cigvYy m…wó| Ggb NUbv Avgv‡`i †Pv‡L covi m¤¢vebv Lye Kg| Gfv‡e c`v\_© ˆZwi nIqvi †fŠZ cÖwµqvi AviI eo GKwU mgm¨v Av‡Q| G‡Kev‡i Kg K‡i n‡jI Avgv‡`i‡K †Zv Rvb‡Z n‡e evowZ f‡ii †hvMvb †`Iqv †mB kw³ †Kv‡Ì‡K Avm‡e| Avi †KbBev GB kw³ KLbI dywi‡q hv‡e bv| †d«W n‡qj I Zvui mnKg©x RqšÍ bviwjKvi GB mgm¨v wb‡q KvR Ki‡b| Zvuiv `yRbB w¯’ive¯’v ZË¡‡K we¯ÍvwiZ iƒc `vb K‡ib| kw³i mieiv‡ni R‡b¨ Zvuiv m…wó †¶Î bv‡g bZyb ai‡bi GKwU †¶Î cÖ¯Íve K‡ib| a‡i †bIqv n‡qwQj, kw³ †¶‡Îi wb‡Ri \_vK‡e FYvZ¥K kw³| m f‡ii c`v‡\_©i cÖwZwU bZyb KYvi Avwef©v‡ei mv‡\_ mv‡\_ kw³ †¶‡Î -mc2 cwigvY kw³ Rgv n‡e|

kw³ †¶‡Îi aviYvi mvnv‡h¨ kw³i †hvMvb mgm¨vi c×wZMZ mgvavb n‡jv| wKš‘ A‡bK cÖkœ †\_‡K †Mj AgxgvswmZ| GQvovI mgvavbwU wbQK cÖ‡qvR‡bi LvwZ‡iB ˆZwi e‡j g‡b nw”Qj| GB inm¨gq †¶‡Îi Ab¨ †Kv‡bv ewntcÖKvk wQj bv| Gi †P‡q eo K\_v n‡jv, 1960 Gi `k‡K ch©‡e¶Y P‡j hvw”Qj ZË¡wUi wec‡¶| wec‡¶ me‡P‡q ¸iæZ¡c~Y© cÖgvY wQj gnvRvMwZK cUf~wg Zvcxq wewKi‡Yi Avwe®‹vi| mylg GB cUf~wg‡K mn‡RB weM e¨vs‡qi aŸsmve‡kl wn‡m‡e e¨vL¨v Kiv hvq| wKš‘ w¯’ive¯’v Z‡Ë¡ Gi e¨vL¨v cvIqv gykwKj| GQvovI `~i AvKv‡ki Qvqvc\_ I †eZvi Qvqvc‡\_i2 Rwic †\_‡K eo KvVv‡gv‡Z gnvwe‡k¦i cwieZ©‡bi c‡¶ AKvU¨ cÖgvY cvIqv hvq| GUv cwi®‹vi n‡q †M‡j †d«W I Zvui mnKg©xiv w¯’ive¯’v Z‡Ë¡i mij iƒc cwinvi K‡ib| Aek¨ gv‡Sg‡a¨ ZË¡wUi AviI RwUj iƒ‡ci mvgwqK D`q N‡U|

‡fŠZ I ch©‡e¶Yg~jK mgm¨v ev` w`‡jI w¯’ive¯’v ZË¡ wKQy AvMÖ‡nvÏxcK `vk©wbK mgm¨vi Rb¥ †`q| †hgb aiæb, Avgv‡`i eskaiiv nv‡Z Amxg mgq I m¤ú` †c‡j Zv‡`i cÖhyw³MZ DbœwZi †Kv‡bv my¯úó mxgv \_vK‡e bv| cy‡iv gnvwe‡k¦ Qwo‡q co‡Z Zv‡`i mvg‡b †Kv‡bv evav \_vKvi K\_v bq| µ‡gB AviI eo AvqZ‡bi ¯’vb n‡e Zv‡`i KivqZ¡| d‡j Lye `~‡ii fwel¨‡Z gnvwe‡k¦i eo GKwU Ask cÖhyw³i `L‡j Avm‡e| wKš‘ cÖ¯Ívebv ej‡Q, gnvwe‡k¦i eo KvVv‡gvi ˆewkó¨ mg‡qi mv‡\_ mv‡\_ AcwiewZ©Z \_vK‡e| d‡j w¯’ive¯’v ZË¡ ej‡Q, Avgv‡`i eZ©gvb gnvwek¦ B‡Zvg‡a¨ cÖhyw³i Kivq‡Z¡ P‡j G‡m‡Q| w¯’ive¯’vi gnvwe‡k¦ †fŠZ Ae¯’v¸‡jv me hy‡MB mvwe©Kfv‡e GKB iKg hy‡MB eyw×gvb cÖvYx‡`i Avwef©ve me hy‡MB nIqvi K\_v| Avi †h‡nZy GB cÖwµqv AbšÍKvj a‡i Pj‡Q, †m Kvi‡Y Ggb wKQy m¤cÖ`vq \_vKv DwPZ hviv A‡bK `xN© mgq a‡i wU‡K Av‡Q| d‡j Zviv cÖhyw³ LvwU‡q A‡bK wecyj cwigvY AvqZ‡bi ¯’vb KivqZ¡ Kivi K\_v| hvi g‡a¨ \_vK‡e gnvwe‡k¦i Avgv‡`i AÂjUvI| eyw×gvb cÖvYxiv gnvwek¦ `Lj Ki‡Z Pvq bv e‡j GB djvdj Gov‡bvi †Kv‡bv my‡hvM †bB| Acwimxg mgq Av‡M †h‡Kv‡bv GKwU m¤cÖ`v‡qi Avwef©veB Ggb djvd‡ji R‡b¨ h‡\_ó| Gi mv‡\_ cÖvPxb GKwU avuavui wgj Av‡Q: Amxg gnvwe‡k¦ †h NUbv NUvi m¤¢vebv Lye Kg †mwUI GK w`b bv GK w`b NU‡e| ZvI GKevi `yevi bq| AmxgmsL¨K evi| hyw³i aviv †e‡q Pj‡Z Pj‡Z Avgiv †cŠu‡Q hvB †mB wZ³ Dcmsnv‡i: w¯’ive¯’v ZË¡ Abymv‡i gnvwe‡k¦ msNwUZ cÖwµqv¸‡jv AweKj Gi Awaevmx‡`i cÖhyw³MZ Kvh©µ‡gi g‡Zv| Avgiv hv‡K cÖK…wZ ewj †mUv Avm‡j GKwU ev GK`j gnvcÖvYxi KK©KvÐ Qvov Avi wKQyB bq| G‡K †`‡L g‡b n‡”Q †c­‡Uvi †Wwgqv‡R©i GKwU iƒc| †WwgqvR© n‡jv GKwU †`eZv †h †eu‡a †`Iqv †fŠZ m~‡Îi mxgvi g‡a¨ †\_‡K KvR K‡i| gRvi e¨vcvi n‡jv, n‡qj Zvui †k‡li w`‡Ki gnvRvMwZK ZË¡¸‡jv‡Z Ggb gnvcÖvYx‡`i K\_v mg\_©b K‡i †M‡Qb|

gnvwe‡k¦i mgvwß wb‡q K\_v DV‡jB Zvi D‡Ïk¨ m¤ú‡K© cÖkœ Av‡m| Avwg Av‡MB e‡jwQ, gnvwe‡k¦i g„Zy¨i m¤¢vebv †`‡L evU«©vÛ iv‡mj g‡b K‡iwQ‡jb, gvby‡li Aw¯ÍZ¡ †kl ch©šÍ e¨\_©| w÷‡fb DBbevM©I m¤cÖwZ G gZ †cvlY K‡i‡Qb| Zvi `¨ dv÷© w\_ª wgwbUm eB‡qi †k‡li Dcmsnvi n‡jv, Ògnvwek¦‡K hZUv †ewk †evSv hv‡”Q, ZZB A\_©nxb g‡b n‡”Q|" Avwg e‡jwQ, ax‡i ax‡i gnvRvMwZK Zvcxq g„Zy¨i fq‡K eo K‡i †`Lv‡bv n‡q‡Q| nqZ fyjI Kiv n‡q‡Q| Aek¨I gnvm‡¼vP‡bi gva¨‡g g„Zy¨ n‡jI n‡Z cv‡i| Avwg gnvcÖvYx‡`i Kg©KvÐ wb‡q wKQy Abygvb K‡iwQ| hviv we¯§qKi †fŠZ I eyw×MZ AR©b w`‡q cÖwZK~jZv‡K Rq Ki‡Z cv‡i| GQvovI Avwg ms‡¶‡c wPšÍvi mxgvnxbZv wb‡q Av‡jvPbv K‡iwQ| hw`I gnvwe‡k¦i mxgv \_vK‡jI \_vK‡Z cv‡i|

wKš‘ weKí GB wPÎ¸‡jv Avgv‡`i nZvk `~i Ki‡Z m¶g wK? GKevi Avgvi GK eÜy ejj, ¯^M© m¤ú‡K© †m hv ï‡b‡Q Zv‡Z Zvi AvMÖn‡eva Av‡mwb| Zvi g‡Z, AbšÍKvj a‡i gwngvwš^Z fvimvg¨c~Y© Rxeb n‡e AvKl©Ynxb| Gi †P‡q `ªæZ g‡i wM‡q AbšÍ Rxe‡bi GK‡N‡qwg †\_‡K gyw³ cvIqvB fvj| Agi‡Z¡i Rxe‡b hw` GKB wPšÍv I AwfÁZvB wd‡i wd‡i †fvM Ki‡Z nq Zvn‡j Zv mwZ¨B A\_©nxb| wKš‘ Agi‡Z¡i mv‡\_ hw` DbœwZ hy³ nq, Zvn‡j Avgiv wPišÍb bZyb‡Z¡ emev‡mi K\_v Kíbv Ki‡Z cvwi| memgq bZyb I †ivgvÂKi wKQy Kiv I †kLv hv‡e| mgm¨v n‡jv, Zvi D‡Ïk¨ Kx n‡e? gvbyl GKwU cÖKí nv‡Z wb‡j Zvi †cQ‡b \_v‡K D‡Ïk¨| D‡Ïk¨ AwR©Z bv n‡j cÖKí nq e¨\_© (hw`I jä AwfÁZvi g~j¨ Av‡Q) Ab¨ w`‡K j¶¨ AwR©Z n‡j cÖKí mdj| Avi Kvh©µg n‡e mgvß| †h cÖKí KLbI †kl n‡e bv Zvi wK †Kv‡bv mwZ¨Kvi j¶¨ ev D‡Ïk¨ \_vK‡Z cv‡i? Aw¯Í‡Z¡i ¯^iƒc hw` nq KLbI †cŠuQ‡Z bv cviv GK MšÍe¨, Z‡e wK Zv‡K A\_©en ejv hv‡e?

gnvwe‡k¦i †Kv‡bv D‡Ïk¨ \_vK‡j Avi †mB D‡Ïk¨ AwR©Z n‡j gnvwe‡k¦i mgvwß NU‡ZB n‡e| KviY, ZLbI Gi Aw¯ÍZ¡ Aweivg \_vKv n‡e wfwËnxb I wbi\_©K| Ab¨ w`‡K gnvwek¦ wPiKvj wU‡K \_vK‡j Gi †Kv‡bv P~ovšÍ D‡Ïk¨ Av‡Q Kíbv Kiv KwVb| d‡j gvnvRvMwZK mdjZvi wewbgq nqZ gnvRvMwZK g~j¨ w`‡q w`‡Z n‡e| Avgiv m‡e©v”P cÖZ¨vkv n‡jv, Avgv‡`i eskaiiv nqZ †kl wZb wgwb‡Ui Av‡MB gnvwe‡k¦i D‡Ïk¨ Rvb‡Z cvi‡e|

**Abyev`‡Ki †bvU**

1. wdwb· g~jZ wMÖK iƒcK\_vi GKwU cvwL, hv PµvKv‡i G‡Ki ci GK Gi c~e©cyiæ‡li QvB †\_‡K cybR©b¥ jvf K‡i|

2. eY©vjxi †eZvi Zi½‰`‡N¨©i As‡k †h M¨vjvw·¸‡jv Lye D¾¡j Zv‡`i bvg †eZvi Qvqvc\_| 10 †gMvnvU©R †\_‡K 100 wMMvnvU©R K¤úv‡¼ G‡`i `xwß 1039 IqvU ch©šÍ nq|

MÖš’cÄx

• Barrow, John D., and Frank J. Tipler, The Anthropic Cosmological Principle (Oxford: Oxford University Press, 1986).

• Burrows, Adam, ÒThe Birth of Neutron Stars and Black Holes,Ó Physics Today, 40 (1987): 28.

• Chapman, Clark R., and David Morrison, Cosmic Catastrophes (New York & London: Plenum Press, 1989).

• Close, Frank, End: Cosmic Catastrophe and the Fate of the Universe (New York: Simon & Schuster, 1988).

• Coleman, Sidney, and Frank De Luccia, ÒGravitational Effects on and of Vacuum Decay,Ó Physical Review D, 21 (1980): 3305.

• Davies, Paul, The Cosmic Blueprint (New York: Simon & Schuster, 1989), The Mind of God (New York: Simon & Schuster, 1991).

• Dyson, Freeman J., ÒTime without End: Physics and Biology in an Open Universe,Ó Reviews of Modern Physics, 51 (1979): 447.

• Gold, Thomas, ÒThe Arrow of Time,Ó American Journal of Physics, 30 (1962): 403.

• Hawking, Stephen W., A Brief History of Time: From the Big Bang to Black Holes (New York: Bantam, 1988).

• Hut, Piet, and Martin J. Rees, ÒHow Stable Is Our Vacuum?Ó Nature, 302 (1983): 508.

• Islam, Jamal N., The Ultimate Fate of the Universe (Cambridge: Cambridge University Press, 1983).

• Linde, Andrei D., Particle Physics and Inflationary Cosmology (New York: Gordon & Breach, 1991).

• Luminet, Jean-Pierre, Black Holes (Cambridge: Cambridge University Press, 1992).

• Misner, Charles W., Kip S. Thorne, and John A. Wheeler, Gravitation (San Francisco: W. H. Freeman, 1970).

• Page, Don, and Randall McKee, ÒEternity Matters,Ó Nature, 291 (1981): 44.

• Rees, Martin J. ÒThe Collapse of the Universe: An Eschatological Study,Ó The Observatory, 89 (1969): 193.

• Smolin, Lee, ÒDid the Universe Evolve?Ó Classical and Quantum Gravity, 9 (1992): 173.

• Tipler, Frank J., The Physics of Immortality (New York: Doubleday, 1994).

• Tolman, Richard C., Relativity, Thermodynamics, and Cosmology (Oxford: Clarendon Press, 1934).

• Turner, Michael S., and Frank Wilczek, ÒIs Our Vacuum Metastable?Ó Nature, 298 (1982): 633.

• Waldrop, M. Mitchell, Complexity: The Emerging Science at the Edge of Order and Chaos (New York: Simon & Schuster, 1992).

• Weinberg, Steven, The First Three Minutes: A Modern View of the Origin of the Universe, updated ed. (New York: Basic Books, 1988).

cwiwkó-K (Abyev`K)

gnvwe‡k¦i m¤¢ve¨ cwiYwZ

MZ kZ‡K Avgiv Rvb‡Z cvwi, gnvwe‡k¦i GKwU wbw`©ó AZxZ Av‡Q| Zvi Av‡M w¯’i Ae¯’v ZË¡ RbwcÖq wQj| aviYv Kiv nZ, gnvwek¦ AbšÍKvj a‡i Dcw¯’Z Av‡Q| eqm AbšÍ n‡j fwel¨r cwiYwZ wb‡q cÖkœ Av‡m bv| wKš‘ Kwei K\_v, ÒRwb¥‡j gwi‡Z n‡e|Ò ZvB fwel¨‡Z Kx n‡e †mUv eo GK cÖkœ|

1920 mvj †\_‡K 1950| GB wek eQi a‡i weÁvbx GWDBb nve‡ji ch©‡e¶‡Yi gva¨‡g cwi®‹vi †evSv †Mj, Qvqvc\_iv G‡K Aci †\_‡K `~‡i mi‡Q| G †\_‡KB ˆZwi nq weM e¨vs ZË¡| 1927 mv‡j RR© †j‡gBÎ e‡jb, cÖmviYkxj gnvwek¦ †\_‡K ejv hvq, AZx‡Z gnvwek¦ wQj wbweo GK we›`yi g‡Zv| Gi Av‡M AvBb÷vB‡bi mvwe©K Av‡cw¶K Z‡Ë¡i mgvavb K‡i Av‡jKRvÛvi wd«Wg¨vbI GKB K\_v e‡jwQ‡jb| AvBb÷vB‡bi mgxKi‡Yi GKwU mgvavb Abymv‡i †`Lv hvq, GKwU cÖv\_wgK wms¸jvwiwU †\_‡K Rb¥ gnvwe‡k¦i| 1964 mv‡j Avwe®‹…Z nq gnvRvMwZK cUf~wg wewKiY| weM e¨vs Gi c‡¶ GKwU eo cÖgvY GKwU|

1998 mvj †\_‡K ïiæ K‡i wewfbœ ch©‡e¶Y †\_‡K †`Lv hvq, gnvwe‡k¦i cÖmvi‡Yi MwZ µ‡gB evo‡Q| Gi Rb¨ `vqx kw³‡K bvg †`Iqv nq WvK© GbvwR©| AvBb÷vB‡bi mgxKiY ejwQj, gnvwek¦ cÖmvwiZ n‡”Q| wKš‘ AvBb÷vBb wb‡RB †mUv wek¦vm Ki‡Zb bv| mgxKiY Am¤ú~Y© g‡b K‡i wZwb ZvB evowZ GKwU a«yeK †hvM K‡iwQ‡jb| c‡i ¯^xKvi K‡ib, GUv Zvi Rxe‡bi me‡P‡q eo fyj| wKš‘ GLb Avevi g‡b n‡”Q GB a«yeK `iKvi Av‡Q| GB a«yeK Avm‡j WvK© GbvwR©i wecix‡Z KvR K‡i|

fwel¨‡Z gnvwe‡k¦i fv‡M¨ †gvUv `v‡M ej‡j wZbwU NUbv NU‡Z cv‡i| nq GwU wPiKvj cÖmvwiZ n‡Z \_vK‡e| gnvKl© cÖmvi‡Yi MwZ Kgv‡bvi †Póv Ki‡e| Z‡e WvK© GbvwR©i Kvi‡Y cÖmvi‡Yi MwZ µ‡gB evo‡e| Av‡iKwU n‡Z cv‡i, gnvwe‡k¦i cÖmviY GK mgq †\_‡g hv‡e| ïiæ n‡e m‡¼vPb| Av‡iKwU m¤¢vebv n‡jv, cÖmviY Pj‡Z \_vK‡e| Z‡e cÖmvi‡Yi MwZ µgk Kg‡Z \_vK‡e| wKš‘ G‡Kev‡i eÜ n‡q hv‡e bv|

fwel¨‡Z gnvwe‡k¦i fv‡M¨ Kx NU‡e Zvi eo GKwU cÖfveK n‡jv gnvwe‡k¦i NbZ¡ civwgwZ (density parameter)| G‡K wMÖK eY© I‡gMv (Ω) w`‡q cÖKvk Kiv nq| Gi gvb †c‡Z gnvwe‡k¦i e¯Íyi Mo NbZ¡‡K Nb‡Z¡i GKwU µvwšÍ gvb Øviv fvM Kiv nq| Nb‡Z¡i †h gvb Lye A‡íi Rb¨ gnvwe‡k¦i cÖmviY‡K \_vgv‡Z eÜ n‡e Zvi bvg µvwšÍ (critical) NbZ¡|

gnvwe‡k¦i fwel¨‡Zi mv‡\_ Gi AvK…wZiI m¤úK© Av‡Q| I‡gMvi gvb 1-Gi †ewk n‡j gnvwe‡k¦i AvK…wZ n‡e Ave× †Mvj‡Ki c„‡ôi g‡Zv| KviY G‡¶‡Î gnvwe‡k¦i NbZ¡ µvwšÍ Nb‡Z¡i †P‡q †ewk| c„w\_exi c„‡ôi g‡Zv Ggb gnvwe‡k¦i wÎfy‡Ri wZb †Kv‡Yi †hvMdj 180 wWwMÖi †ewk n‡e| Z‡e eo gvcKvwV‡Z gnvwe‡k¦i AvK…wZ n‡e Dce…‡Ëi g‡Zv| gnvK‡l©i cÖfv‡e GK mgq cÖmviY †\_‡g hv‡e| †kl ch©šÍ NU‡e weM µvÂ (Big Crunch) ev gnvm‡¼vPb| we›`y †\_‡K Avmv gnvwek¦ we›`y‡Z wM‡qB Avevi wg‡k hv‡e|

Z‡e wKQy wKQy AvaywbK ZË¡ ej‡Q, I‡gMvi gvb 1-Gi †ewk n‡jI WvK© GbvwR©i cÖfv‡e gnvwek¦ cÖmvwiZ n‡ZB \_vK‡e| G Kvi‡Y gnvm‡¼vPb NUvi m¤¢vebv GLb ch©šÍ AwR©Z Ávb Abymv‡i Kg| Z‡e NU‡eB bv †mUv ejvi †Rv †bB|

I‡gMvi gvb 1-Gi Kg n‡j gnvwek¦ n‡e Db¥y³| wÎfy‡Ri wZb †Kv‡Yi †hvMdj 180 wWwMÖi Kg n‡e| gnvKl© cÖmviY‡K wKQyUv Kgv‡e| wKš‘ WvK© GbvwR©i cÖfv‡e †m evav D‡c¶v K‡i cÖmvi‡Yi MwZ eis AviI †e‡o †h‡Z \_vK‡e| Gfv‡e Pj‡Z \_vK‡j GKmgq gnvKl©, Zwo”PygKZ¡ I mej wbDK¬xq e‡ji evuab wQu‡o hv‡e| G Ae¯’v‡K ejv nq weM wic (Big Rip) ev gnvfvOb|

GKB iKg cwiw¯’wZ‡Z Av‡iKwU m¤¢ve¨ cwiYwZi bvg weM wd«R (Big Freeze) ev gnvwngvqb| G Ae¯’vq me©Î weivR Ki‡e wngkxZj Ae¯’v| n‡e bv †Kv‡bviKg Zvc wewbgq| †\_‡g hve e¯ÍyKYvi PjvPj| G Kvi‡Y Gi Aci bvg Zvcxi g„Zy¨| GUv N‡U †M‡j e¯Íyi g‡a¨ Avi †Kv‡bv cÖKvi Zvc wewbgq m¤¢e n‡e bv| me hš¿ APj n‡q hv‡e| GbU«wc (kw³ iƒcvšÍ‡ii A¶gZv) n‡e m‡e©v”P|

Z‡e gnvwe‡k¦i NbZ¡ µvwšÍ Nb‡Z¡i mgvbI n‡q †h‡Z cv‡i| mwZ¨ ej‡Z, eZ©gvb ch©‡e¶Y Gi c‡¶B K\_v ej‡Q| Ggb gnvwe‡k¦B wÎfy‡Ri wZb †Kv‡Yi †hvMdj 180 wWwMÖ nq| G‡¶‡Î gnvwek¦ n‡e mgZj| ch©‡e¶Y ej‡Q, gnvwek¦ GgbB| GB djvd‡ji ÎywUi gvÎv gvÎ 0.4%| GB gnvwek¦I wPiKvj cÖmvwiZ n‡e, Z‡e cÖmvi‡Yi nvi µgk Kg‡e| Z‡e KL‡bvB G‡Kev‡i †\_‡g hv‡e bv| Z‡e WvK© GbvwR© f~wgKv ivL‡j cÖmviY ïiæ‡Z \_vg‡jI Avevi †e‡o hv‡e| cwiYwZ n‡e †mB Db¥y³ gnvwe‡k¦i g‡ZvB|

AviI wKQy Kgm¤¢ve¨ NUbv NU‡Z cv‡i gnRvwe‡k¦i fv‡M¨| Gi GKwU n‡jv weM evDÝ| GUv Avm‡j gnvwek¦ m¤ú‡K© PµvKvi g‡W‡ji GKwU Ask| GwU Abymv‡i, gnvwek¦ ïiæ n‡qwQj m¼ywPZ Ae¯’v †\_‡K| Avi †mB m¼ywPZ Ae¯’vUv G‡mwQj Zvi c~e©eZ©x GKwU cÖmviY †\_‡g wM‡q ¸wU‡q hvIqvi gva¨‡g| Gfv‡eB gnvwek¦ G‡Ki ci m¼ywPZ I cÖmvwiZ n‡”Q| G‡Ki ci NU‡Q weM e¨vs I weM µvÂ| G R‡b¨B GB g‡W‡ji bvg PµvKvi g‡Wj|

weÁvbxiv ej‡Qb AviI GKwU m¤¢vebvi K\_v| Gi bvg weM ¯­vc© (Big Slurp)| ¯­vc© A\_© MÖvm Kiv ev MÖvm Kivi mgq m…ó kã| G ZË¡ Abymv‡i gnvwek¦ GLb bKj f¨vKyqvg Ae¯’vq Av‡Q| †h‡Kv‡bv mgq P‡j †h‡Z cv‡i cÖK…Z f¨vKyqv‡g| cÖK…wZi †h‡Kv‡bv †fŠZ cÖwµqv memgq mwe©wb‡gœi kw³i Ae¯’v‡b \_vK‡Z Pvq| Avi gnvwek¦ me©wbgœ kw³i Ae¯’vq \_vK‡jB †Kej cÖK…Z f¨vKyqv‡g \_vK‡e| GLb †mUv bvI n‡Z cv‡i| nqZ gnvwek¦ GLb D”PZi kw³i Ae¯’v‡b Av‡Q| Zvi gv‡b Av‡Q bKj f¨vKyqvg Ae¯’vq| †m‡¶‡Î †h‡Kv‡bv mgq GwU Avmj f¨vKyqv‡g P‡j hv‡e| Zvi mv‡\_ mv‡\_ Avg~j cv‡ë hv‡e Avgv‡`i wPi‡Pbv gnvwek¦| †fŠZ a«yeK‡`i gvb e`‡j †h‡Z cv‡i| cv‡ë †h‡Z cv‡i Av‡jvi †e‡Mi gvb wKsev A¨v‡fv‡M‡W«v a«yeK| d‡j ¯’vb, Kvj, e¯Íy I kw³i aviYv GK`g e`‡j †h‡Z cv‡i| nqZ AvMvg †Kv‡bv m‡¼Z bv w`‡qB aŸsm n‡q hv‡e gnvwek¦|

welqwU wb‡q we¯ÍvwiZ Av‡jvPbv Kiv n‡q‡Q GMvik I Z…Zxq Aa¨v‡q|

cwiwkó-L (Abyev`K)

weÁvb Kxfv‡e KvR K‡i?

weÁvb Kx, Kxfv‡e KvR K‡i †mUv wb‡q Avgv‡`i mgv‡Ri Lye Kg gvby‡liB aviYv Av‡Q e‡j g‡b nq| weÁv‡bi wKQy wKQy welq wb‡q weZ‡K©i KviYI m¤¢eZ GUvB| weÁvb Kx I Kxfv‡e KvR K‡i G wel‡q A¨v weªdvi wnw÷« Ae UvBg eB‡qi Z…Zxq Aa¨v‡q w÷‡db nwKs h‡\_ó Av‡jvPbv K‡i‡Qb| GB eB‡qi Abyev`K Abyev` K‡i‡Qb †m eBwUI| GLv‡b Zvi Av‡jv‡KB ms‡¶‡c ejwQ|

weÁvb g~jZ A‡bK¸‡jv ˆeÁvvwbK Z‡Ë¡i mgv‡ek| Avi ˆeÁvvwbK ZË¡ n‡jv GKwU g‡Wj, hv ch©‡e¶‡Y cvIqv NUbv‡K e¨vL¨v Ki‡Z cvi‡e Ges fwel¨‡Z Kx NU‡Z cv‡i †mUv m¤ú‡K© mywbw`©ó Abygvb ev c~e©vfvm w`‡Z cvi‡e| ˆeÁvvwbK ZË¡‡K KL‡bvB mwVK ejv hvq bv| Z‡Ë¡i c~e©vfvm cwieZ©x ch©‡e¶‡Yi mv‡\_ nvRvievi wg‡jI †M‡jI Avcwb ej‡Z cvi‡eb bv ZË¡Uv mwVK ev wbuLyZ| n‡Z cv‡i, c‡iieviB c~e©vfvm fyj n‡q hv‡e|

cwimsL¨vbwe` RR© e‡·i K\_vwU ZvB h\_v\_©, Òme g‡WjB fyj, Z‡e wKQy g‡Wj Kvh©Ki|Ò

cwimsL¨v‡bi QvÎ I wk¶K nIqvi myev‡` ˆeÁvvwbK c×wZi mv‡\_ m¤úK©Uv Av‡iKUy Mfxi Avgvi| cwimsL¨v‡b Avgiv †WUv ev DcvË wb‡q KvR Kwi| Zvici †mUv †\_‡K me‡P‡q fvj fvj g‡Wj w`‡q †cÖwWKkb ev c~e©vbygvb Kwi| †h g‡Wj me‡P‡q fv‡jvfv‡e c~e©vbygvb w`‡Z cvi, †mUv wb‡q AviI KvR Kwi| RR© e‡·i K\_v Abymv‡iB, †Kv‡bv g‡WjB ev¯Íe RMZ‡K mwVKfv‡e e¨vL¨v Ki‡Z cv‡i bv| wKš‘ hZUyKy cv‡i †mUv ev¯Íe KvRK‡g©i R‡b¨ h‡\_ó| Kvh©Ki|

ˆeÁvwbK ZË¡¸‡jvI ch©‡e¶‡Y cvIqv Z\_¨-DcvË wb‡q Gfv‡eB KvR K‡i| D`vniY wn‡m‡e ejv hvq, wbDU‡bi gnvKl©xq Z‡Ë¡i K\_v| A‡bK my›`i ZË¡| wKš‘ Avgiv Rvwb, GUv Avm‡j GKwU ÎywUc~Y© ZË¡| eya MÖ‡ni K¶c‡\_i mwVK e¨vL¨v ZË¡wU w`‡Z cv‡iwb| †hUv †c‡i‡Q AvBb÷vB‡bi mvwe©K Av‡cw¶K ZË¡| wKš‘ Avgiv AviI Rvwb, wbDU‡bi ZË¡ fyj n‡jI Kvh©Ki| GB ZË¡ w`‡qB gnvKv‡k hvb cvVv‡bv nq| hw`I eo f‡ii e¯Íyi †¶‡Î ZË¡wU fyj dj †`q| wbDU‡bi MwZwe`¨vI me iKg MwZ‡K e¨vL¨v Ki‡Z cv‡i bv| e¨\_© AwZcvigvYweK RM‡Zi KYvi MwZi e¨L¨v w`‡Z| ev Av‡jvi †e‡Mi KvQvKvwQ †e‡M Pjvi e¯Íyi MwZi mwVK weeiY w`‡Z| wPivqZ MwZwe`¨v K…òe¯Íyi wewKiY e¨vL¨v Ki‡Z cv‡i bv| cv‡i bv Av‡jvKZwor wµqv wKsev nvB‡W«v‡R‡bi g‡Zv mij cigvYyi e¨vL¨v w`‡Z|

wbDU‡bi Z‡Ë¡i e`‡j Avmv AvBb÷vB‡bi mvwe©K Av‡c¶ ZË¡I wK wbLyuZ? weÁvbxiv GLbB Rv‡bb, ZË¡Uvq fyj Av‡Q| hw`I 2015 mv‡ji gnvKl© Zi½ Avwe®‹v‡ii gva¨‡g ZË¡wU wb‡Ri kw³i Rvbvb w`‡q‡Q| wKš‘ H †h GKB K\_v| ZË¡Uv Kvh©Ki| wKš‘ mwVK `vwe Kiv hv‡e bv|

AvKv‡k MÖn‡`i G‡jv‡g‡jv PjvPj †`‡L cÖvPxb wMÖK †R¨vwZwe©` U‡jwg e‡jwQ‡jb, c„w\_ex gnvwe‡k¦i †K›`ª| mevB c„w\_ex‡K †K›`ª K‡i Nyi‡Q| Nyi‡Q MÖnivI c„w\_exi Pviw`‡K wbR wbR K¶c‡\_| Z‡e MÖniv Avevi wb‡Ri K¶c‡\_i g‡a¨B Av‡iKwU †QvU e…ËvKvi K¶c‡\_I Nyi‡Q| Gi gva¨‡g MÖn‡`i G‡jv‡g‡jv PjvP‡ji `viæY e¨vL¨v cvIqv †Mj| ZË¡wU `viæY cÖksmv Kyovj| wKš‘ ZË¡wU Abymv‡i Pvu` I c„w\_exi `~iZ¡ gv‡Sgv‡S A‡a©K mvaviY `~i‡Z¡i A‡a©K n‡q hvIqvi K\_v| hv fyj| Gfv‡e fvj GB ZË¡I fyj cÖgvwYZ nq|

wPÎ: U‡jwgi g‡Wj

[U‡jwgi g‡W‡j c„w\_exi Ae¯’vb wQj gnvwe‡k¦i †K‡›`ª, Ges G‡K wN‡i ivLv AvUwU †MvjK gnvKv‡ki me¸‡jv e¯Íy‡K aviY K‡i †i‡LwQj|]

GK K\_vq, †Kv‡bv ZË¡B mwVK bq| wbQK Kvh©Ki| Kv‡R jvwM‡q `viæY wKQy KvR Kiv hvq GB hv|

ZvB weÁvb ev †Kv‡bv ˆeÁvvwbK ZË¡ m¤ú‡K© ejv hvq bv, Avwg G‡K mZ¨ e‡j gvbwQ| Avevi GUvI ejv hvq bv †h G‡K Avwg cwiZ¨vM Kie| eis hZw`b Kv‡R jv‡M e¨envi Kie| ZvB ag© I †Kv‡bv ˆeÁvvwbK Z‡Ë¡i GKUv‡K Av‡iKUvi wec‡¶ e¨envi Kivi PP©v †\_‡K †ewi‡q Avmv `iKvi| AviI `iKvi mnbkxjZvi PP©v| wRwbmUvi A‡bK Afve eZ©gvb mg‡q|

cwiwkó-M (Abyev`K)

mgq †Kb †cQ‡b P‡j bv?

cwifvlv (Terminology)

*A‡bK mgq wbQK `y‡qKwU kã eyS‡Z bv cvivi Kvi‡Y †Kv‡bv eB‡qi g~j AskB †evSv KwVb n‡q `vuovq| G mgm¨v `~i Ki‡ZB eBwU‡Z e¨eüZ cÖ‡qvRbxq wKQy cwifvlv †hvM Kiv n‡q‡Q| cwifvlv¸‡jv‡K evsjv GKv‡Wwgi wbqg †g‡b eY©vbyµg Abymv‡i mvRv‡bvi †Póv Kiv n‡q‡Q|*

*~ Abyev`K*

**AwbðqZv bxwZ** (Uncertainty principle): †Kv‡bv KwYKvi Ae¯’vb I †eM GKBmv‡\_ wbwðZ K‡i Rvbv m¤¢e bq| Gi GKwU hZ †ewk wbf©yjfv‡e cwigvc Kiv n‡e, AciwU m¤ú‡K© cvIqv Z\_¨ ZZB AwbwðZ n‡q co‡e| GB bxwZwU nvB‡Rbev‡M©i Ae`vb|

**AvKvkM½v** (Milky Way): Avgv‡`i m~h© †h Qvqvc‡\_i Ask| c„w\_ex †\_‡K mwc©j evûi GB Qvqvc‡\_i Aivqb evûwU MÖx‡®§i iv‡Zi AvKv‡k DËi-`w¶‡Y we¯Í…Z e…ËPv‡ci g‡Zv †`Lv hvq|

**AcÖZ¨vMvgx cÖwµqv** (Irreversible process): †h cÖwµqv ïay GKw`‡KB P‡j, †cQb w`‡K wd‡i Av‡m bv| Gi cÖ‡qvM †`Lyb wØZxq Aa¨v‡q|

**AvBÝUvBb- †iv‡Rb †mZy** (Einstein-Rosen bridge): ¯’vb- Kv‡ji GKwU miæ wUDe, hv `ywU eø¨vK †nvj‡K hy³ K‡i| Av‡iv †`Lyb, Iqvg©‡nvj|

**Av‡jvKel©** (light-year): Av‡jv GK eQ‡i †h `~iZ¡ AwZµg K‡i| (\* g‡b ivL‡Z GwU, Av‡jvK-‡m‡KÛ Ges GB RvZxq GKK¸‡jv mg‡qi bq, `~i‡Z¡i GKK)

**Av‡jvK-‡m‡KÛ** (Light-second): Av‡jv GK †m‡K‡Û †h `~iZ¡ AwZµg K‡i|

**B‡jKU«b** (Electron): wbDwK¬qv‡mi Pviw`‡K NyY©biZ †b‡MwUf ev FYvZ¥K PvR©avix KwYKv|

**B‡jKwU«K PvR© ev Zwor Avavb** (Electric charge): KwYKvi ag© hvi gva¨‡g GwU wecixZ PvR©avix Ab¨ KwYKv‡K AvKl©Y K‡i Ges GKB iKg PvR©avix KwYKv‡K weKl©Y K‡i|

**I‡Rvb** (Weight): gnvKl©xq (ev AwfKl©xq) †¶Î Øviv †Kv‡bv e¯Íyi Dci cÖhy³ ej| GwU f‡ii mgvbycvwZK wKš‘ mgvb bq| Avgiv mvaviYZ hv‡K I‡Rvb ewj, †mwU Avm‡j fi| f‡ii mv‡\_ AwfKl©xq Z¡iY ¸Y Ki‡j I‡Rvb cvIqv hvq|

**Iqvg©‡nvj** (Wormhole): gnvwe‡k¦i `~ieZ©x `ywU AÂ‡ji ms‡hvM cÖ`vbKvix GKwU cvZjv wUDe ev myo½| Iqvg©‡nv‡ji Aci cÖv‡šÍ mgvšÍivj ev wkï gnvwek¦ \_vK‡Z cv‡i, hvi gva¨‡g mgq ågY m¤¢e n‡Z cv‡i|

**KYv Z¡iKhš**¿ (Particle accelerator): †h †gwk‡bi mvnv‡h¨ B‡jK‡U«vg¨vM‡bU ev Zwo”Py¤^K e¨envi K‡i †ewk kw³ w`‡q w`‡q MwZkxj PvR©avix KwYKv‡`i †eM e…w× Kiv hvq|

**KYv- Zi½ ˆØZZv** (Wave-particle duality): †Kvqv›Uvg †gKvwb‡·i GB bxwZ †h, KwYKv I Zi‡½i g‡a¨ †Kv‡bv cv\_©K¨ †bB| †Kv‡bv mgq KwYKv AvPiY K‡i Zi‡½i g‡Zv, Avevi KL‡bv Zi½ KwYKvi g‡Zv AvPiY K‡i|

**Km‡gvjwR** ev **gnvwek¦ZË**¡ (Cosmology): mvgwMÖKfv‡e gnvwek¦ wb‡q Av‡jvPbv Kiv n‡q †h kv‡MÖ|

**†Kvqv›Uvg** (Quantum): †Kv‡bv cvigvYweK cÖwZwµqvq Ask †bIqv e¯Íyi me©wbgœ cwigvY|

**†Kvqv›Uvg †gKvwb·** (Quantum mechanics): cø¨v‡¼i †Kvqv›Uvg bxwZ I nvB‡Rbev‡M©i AwbðqZv bxwZ †\_‡K cÖ¯ÍyZ Kiv w\_Iwi|

**†KvqvK©** (Quark): GKwU PvR©avix †gŠwjK KwYKv, hv mej wbDwK¬qvi ej Abyfe K‡i| †cÖvUb I wbDU«b `ywU KwYKvB wZbwU K‡i †KvqvK© Øviv MwVZ|

**K¤úv¼** ev **wd«Ky‡qwÝ** (Frequency): †Kv‡bv Zi½ cÖwZ †m‡K‡Û hZ¸‡jv Pµ ev K¤úb m¤úbœ K‡i|

**K…lMnŸi** (Blackhole): ¯’vb-Kv‡ji Ggb AÂj †hLvb †\_‡K †Kv‡bvwKQyB †ewi‡q Avm‡Z cv‡i bv| GgbwK Av‡jvI bv|

**†¶Î** (Field): Ggb wKQy hv ¯’vb- Kv‡ji D‡jøL‡hvM¨ As‡k we¯Í…Z | GwU KwYKvi wecixZ, hv wbw`©ó †Kv‡bv mg‡q ïay GKwU we›`y‡ZB Ae¯’vb K‡i|

**Mvgv iwk¥** (Gamma rays): Lye ¶y`ª Zi½‰`‡N¨©i Zwo”Py¤^Kxq iwk¥| †ZRw¯Œq wewKiY ev †gŠwjK KwYKv‡`i msN‡l©i d‡j GwU Drcbœ nq| Av‡iv †`Lyb, †ZRw¯ŒqZv|

**M¨vjvw· (**Galaxy**)**: †`Lyb Qvqvc\_

**NUbv** (Event): wbw`©ó ¯’vb I mgqwewkó ¯’vb- Kv‡ji Dci¯’ †Kv‡bv we›`y|

**NUbv w`Mš**Í (Event horizon): eø¨vK †nv‡ji mxgvbv| eø¨vK †nv‡ji Pvicv‡ki †h AÂ‡ji evB‡i Av‡jv Avm‡Z cv‡i bv|

**†PŠ¤^K †¶Î** (Magnetic field): †PŠ¤^K e‡ji R‡b¨ `vqx †¶Î| Zwor †¶‡Îi (electric field) mv‡\_ mgwš^Z n‡q GwU GLb Zwo”Py¤^Kxq †¶‡Îi Ask|

**Qvqvc\_** (Galaxy): gnvKl©xq eÜ‡b Ave× eû b¶Î, AvšÍtbv¶wÎK M¨vm, a~wji I WvK© g¨vUv‡ii mgv‡ek|

**WvK© g¨vUvi** (Dark matter): M¨vjvw·, M¨vjvw·cyÄ I G‡`i gv‡S Aew¯’Z †mme e¯Íy hv‡`i‡K GL‡bv mivmwi †`Lv m¤¢e nqwb| wKš‘ gnvKl©xq cÖfv‡ei Kvi‡Y G‡`i Dcw¯’wZ †Ui cvIqv hvq| gnvwe‡k¦i AšÍZ 90 fvM fiB WvK© g¨vUvi|

**wWD‡Uwiqvg** (Deuterium): 2 wU †cÖvUb m¤^wjZ nvB‡W«vR‡bi GKwU iƒc|

**Zwo”Py¤^Kxq ej** (Electromagnetic force): B‡jKwU«K PvR©avix KwYKv‡`i g‡a¨ †h ej KvR K‡i| Pvi cÖKvi †gŠwjK e‡ji g‡a¨ kw³‡Z wØZxq|

**ZË¡** (Theory): Zi½‰`N¨© †Kv‡bv NUbv‡K e¨vL¨v Ki‡Z cviv I fwel‡Z¨ Kx NU‡Z cv‡i †m m¤ú‡K© Abygvb Ki‡Z cviv †Kv‡bv GKwU g‡Wj|

**Zi½‰`N¨©** (Wavelength): †Kv‡bv Zi‡½i cvkvcvwk Aew¯’Z `ywU P~ov ev Lvu‡Ri g‡a¨ `~iZ¡| [wPÎ †`Lyb]

wPÎ: Zi½‰`N¨©

**ZvcMwZwe`¨vi wØZxq m~Î** (Second Law of Thermodynamics): GKwU Ave× wm‡÷‡gi GbU«wc KLbI K‡g bv| GbU«wc gv‡b kw³ iƒcvšÍ‡ii A¶gZv| †hgb, d¨vb Pvjv‡j we`¨yr kw³ N~Y©kw³‡Z cwiYZ nq| wKš‘ Zvc kw³ AvKv‡i wKQy kw³ AcPq nq, †hUv‡K Kv‡R jvMv‡bv hvq bv| Gfv‡e cÖwZwbqZ wKQy kw³ Ae¨envi‡hvM¨ n‡q hvq| mvaviYZ GbU«wc memgq ev‡o| GbU«wc cwieZ©b n‡e bv hw` cÖwµqv cÖZ¨vMvgx nq| AviI †`Lyb, cÖZ¨vMvgx|

**ZvivgÐjx** (Constellation): AvKv‡ki 88 wU AÂ‡ji Avjv`v Avjv`v bvg| gnvRvMwZK wewfbœ e¯Íyi AvKv‡ki †Kvb w`‡K Aew¯’Z Zv mn‡R †Pbvi Rb¨ ZvivgÐjx Kv‡R Av‡m| Ggwb‡Z GKB ZvivgÐjx‡Z Aew¯’Z b¶Î ev Qvqvc\_iv ev¯Í‡e mvaviYZ eû `~‡i `~‡i \_v‡K| ïay †`L‡ZB GKB w`‡K| †KD `~‡i, †KD Kv‡Q|

**†ZRw¯ŒqZv** (Radioactivity): wKQy wKQy cigvYy wb‡RB wb‡RB Ab¨ cigvYy‡Z cwiYZ nevi †h cÖwµqv|

**`kv** (Phase): wbw`©ó mg‡q †Kv‡bv Zi‡½i Ae¯’vb| Gi gva¨‡g †evSv hvq †h Zi‡½i Ae¯’vb wK Lvu‡R, P~ovq bvwK GB `yB‡qi gv‡S Ab¨ †Kv\_vI Av‡Q|

**`ye©j wbDwK¬qvi ej** (Weak force): Pvi cÖKvi †gŠwjK e‡ji g‡a¨ wØZxq `ye©j ej| GwU gnvK‡l©i †P‡q kw³kvjx| GiI cvj­v Lye †QvU| GwU †h †Kv‡bv e¯Íy KYv‡K AvKl©Y K‡i, Z‡e ejevnx KwYKv‡K AvKl©Y K‡i bv| (\*G‡K ms‡¶‡c ejv nq `ye©j ej|)

**b¶Î** (Star): gnvKl© eÜ‡b Ave× †MvjvK…wZi c­vRgv c`v\_©| MÖn b¶‡Îi cv\_©K¨ n‡jv, †ewkifvM b¶Îi Rxe‡bi D‡jøL‡hvM¨ mgq Ry‡o wdDkb wewµqvi gva¨‡g Av‡jv I Zvc Drcbœ K‡i|

**wbDwK¬qvi wdDkb** (Nuclear fusion): †h cÖwµqvi gva¨‡g `ywU cigvYyi wbDwK¬qvm msN‡l©i gva¨‡g hy³ n‡q GKwUgvÎ fvix wbDwK¬qvm MVb K‡i|

**wbDwK¬qvm** (Nucleus): cigvYyi †K›`ªxq Ask| G‡Z mej e‡ji gva¨‡g †cÖvUb I wbDU«b hy³ \_v‡K|

**wbDU«b** (Neutron): A‡bKUv †cÖvU‡bi g‡ZvB GKwU KwYKv, Z‡e G‡Z †Kv‡bv PvR© †bB| cigvYyi wbDwK¬qv‡mi A‡a©K KwYKv GB wbDU«b w`‡q c~iY nq|

**wbDU«b b¶Î** (Neutron star): mycvi‡bvfv we‡ùvi‡Yi c‡i A‡bK mgq †h kxZj Ask evwK †\_‡K hvq| GwU N‡U hLb †Kv‡bv b¶‡Îi †K›`ªfv‡Mi e¯Íy ¸wU‡q wbDU«‡bi Nb f‡ii e¯Íy‡Z cwiYZ nq| (\*Gi gnvKl© GZUv kw³kvjx †h B‡jKU«b I †cÖvUb GK n‡q wM‡q cy‡ivUv PvR©nxb wbDU«‡b cwiYZ nq|) Av‡iv †`Lyb, wbDU«b|

**wbDwU«‡bv** (Neutrino): GKwU Am¤¢e nvjKv KwYKv, hv ïay gnvKl© Ges `ye©j wbDwK¬qvi ej Øviv cÖfvweZ nq|

**wbðj fi** (Rest Mass): wm‡÷‡gi mvwe©K MwZ †\_‡K ¯^vaxb †gvU fi‡K wbðj fi e‡j| Ab¨ bvg: cÖK…Z (proper) fi, Af¨šÍixY (intrinsic) fi|

**Z¡iY** (Acceleration): †h nv‡i (mg‡qi cwieZ©‡bi mv‡\_) †Kv‡bv e¯Íyi †eM cwieZ©b nq|

**ˆØZZv** (duality): AvcvZ `„wó‡Z Avjv`v n‡jI GKB djvdj cÖ`vb Kiv `y‡Uv w\_Iwii g‡a¨ m¤úK©| AviI †`Lyb, *KYv/ Zi½ ˆØZZv*|

**cwRU«b** (Positron): B‡jKU«‡bi abvZ¥K PvR©avix cÖwZKwYKv| AviI †`Lyb: *cÖwZKwYKv*|

**cig k~b¨ ZvcgvÎv** (Absolute zero temperature): me©wbgœ m¤¢ve¨ †mB ZvcgvÎv, hv‡Z e¯Íyi †Kv‡bv Zvc kw³ \_v‡K bv| Gi gvb 0 †Kjwfb ev -273.16 wWwMÖ †mjwmqvm|

**cigvYy** (Atom): mvaviY e¯Íyi †gŠwjK GKK| G‡Z GKwU ¶y`ª wbDwK¬qv‡mi (‡cÖvUb I wbDU«b w`‡q ˆZwi) Pvicv‡k B‡jKU«biv K¶c‡\_ Nyi‡Z \_v‡K|

**cø¨v‡¼i †Kvqv›Uvg bxwZ** (PlanckÕs quantum principle): Av‡jv (ev Ab¨ †h †Kv‡bv cÖPwjZ Zi½) ïay wew”Qbœ †Kvqv›Uv AvKv‡i wbM©Z nq, hvi kw³ Gi K¤úv‡¼i mgvbycvwZK Ges Zi½‰`‡N¨©i e¨¯ÍvbycvwZK| Av‡iv †`Lybt mgvbycvwZK I e¨¯ÍvbycvwZK|

**cÖwZKwYKv** (Antiparticle): e¯Íyi cÖ‡ZKwU KwYKvi wecix‡Z GKwU cÖwZKwYKv Av‡Q (hvi PvR© Qvov Avi me ag© KwYKvi g‡ZvB| †hgb B‡jKU«‡bi cÖwZKwYKv cwRU«b, hvi PvR© +1|)| KwYKv I cÖwZKwYKvi g‡a¨ msNl© n‡j `ywUB wbwðý n‡q hvq, wewbg‡q cvIqv hvq kw³|

**cÖwZmvg¨** (Symmetry): GKwU we›`y ev Ae¯’v‡bi mv‡c‡¶ †Kv‡bv wRwbm‡K `yB wecixZ w`K †\_‡K †`L‡Z GKB iKg †`Lv †M‡j Zv‡K cÖwZmg wRwbm ev NUbv e‡j| we¯ÍvwiZ Rvb‡Z †`Lyb, beg Aa¨v‡qi Abyev`‡Ki †bvU|

**†cÖvUb** (Proton): cÖvq wbDU«‡bi g‡ZvB GKwU KwYKv| wKš‘ Gi i‡q‡Q abvZ¥K PvR©| cigvYyi wbDwK¬qv‡mi KwYKv‡`i cÖvq A‡a©KmsL¨K Giv|

**†dvUb** (Photon): Av‡jvi GKwU †Kvqv›Uvg| Av‡iv †`Lyb †Kvqv›Uvg|

**wdDkb**: †`Lyb wbDwK¬qvi wdDkb

**eY©vjx** (Spectrum): GKwU Zi‡½i Dcv`vb K¤úv¼¸‡jv| †mŠieY©vjxi `„k¨gvb Ask isaby‡Z †`Lv hvq| Avgiv Lvwj †Pv‡L †h Av‡jv †`wL Gi evB‡iI bvbvb Av‡jv Av‡Q RM‡Z| me¸‡jv Av‡jv‡K GKmv‡\_ ejv nq eY©vjx|

**weM e¨vs** (Big bang): gnvwe‡k¦i ïiæ‡Z †h wms¸jvwiwU wQj| Av‡iv †`Lyb, wms¸jvwiwU|

**we‡kl Av‡cw¶K ZË¡** (Special relativity): gnvK‡l©i Abycw¯’wZ‡Z †h †Kv‡bv †e‡M MwZkxj mKj c‡h©‡e¶‡Ki Kv‡Q weÁv‡bi m~Î¸‡jv GKB \_vK‡e- GB bxwZi wfwË‡Z ˆZwi AvBb÷vB‡bi w\_Iwi| Kvj `xN©vqb, ˆ`N© m‡¼vPb, fi-kw³ mgZyj¨Zv BZ¨vw` GB w\_Iwii dmj| Av‡iv †`Lyb, mvwe©K Av‡cw¶K ZË¡|

**e¨¯ÍvbycvwZK** (inversely proportional): X, Y Gi e¨¯ÍvbycvwZK n‡j Gi A\_© n‡”Q Y †K †Kv‡bv msL¨v Øviv ¸Y Ki‡j X †K †mB msL¨v Øviv fvM †`Iqv n‡”Q| A\_¨©vr, Y hZ ¸Y evo‡e, X ZZ ¸Y K‡g hv‡e| †hgb Y wØ¸Y n‡j X n‡q hv‡e A‡a©K| Y wZb ¸Y n‡j X n‡e wZb fv‡Mi GK fvM| Z‡e hw` ejv nq X, Y Gi e‡M©i e¨¯ÍvbycvwZK, Zvn‡j Y wØ¸Y n‡j X n‡e Pvi fv‡Mi GK fvM| AviI †`Lyb, mgvbycvwZK|

**eø¨vK †nvj** (Black hole): †`Lyb *K…òMnŸi*|

**fi** (Mass): †Kv‡bv e¯Íy‡Z Dcw¯’Z c`v‡\_©i cwigvY; e¯Íyi RoZv ev Z¡i‡Yi cÖwZ evav|

**fvP©yqvj KwYKv** (Virtual particle): †h KYweKv‡`i‡K mivmwi †`Lv hvq bv, wKš‘ cwigvc‡hvM¨ cÖwZwµqv \_v‡K| Giv Lye ¶Y¯’vqx| AwbðqZv bxwZi gva¨‡g ˆZwi nq I Avevi `ªæZ aŸsm n‡q hvq|

**gnvRvMwZK a«yeK** (Cosmological constant): ¯’vb- Kv‡ji mnRvZ ag©B n‡”Q cÖmvwiZ nIqv- Ggb e¨vL¨v †`evi R‡b¨ AvBb÷vB‡bi D™¢vweZ MvwYwZK a«yeK| c‡i †`Lv wM‡qwQj GB a«yeK Avbv wQj fyj wm×všÍ| wKš‘ GLb Avevi Gi cÖ‡qvRb Av‡Q e‡j g‡b n‡”Q|

**gvB‡µvI‡qf cUf~wg wewKiY** (Microwave background radiation): Avw` DËß gnvwek¦ †\_‡K wbM©Z wewKiY| eZ©gv‡b Gi GZ †ewk jvj miY n‡q‡Q †h G‡K Avi Av‡jv wn‡m‡e †`Lv hvq bv, cvIqv hvq gvB‡µvI‡qf wn‡m‡e| gvB‡µvI‡qf nj K‡qK †mw›UwgUvi Zi½‰`‡N¨©i †eZvi Zi½| Av‡iv †`Lyb, jvj miY|

**wgwéI‡q**: †`Lyb *AvKvkM½*v |

**†gŠwjK KwYKv** (Elementary particle): Ggb KwYKv hv‡K Avi fvOv hvq bv e‡j wek¦vm Kiv nq|

**†iWvi** (Radar): †eZvi Zi‡½i gva¨‡g e¯Íyi Ae¯’vb wbY©‡qi hš¿| hš¿ †\_‡K †cÖwiZ m‡¼Z e¯Íy‡Z †cŠu‡Q cÖwZdwjZ n‡q wd‡i Avm‡Z †h mgq jv‡M Zv Kv‡R jvwM‡q `~iZ¡ †ei Kiv nq|

**jvj ev †jvwnZ miY** (Red shift): Wcjvi wµqvi Kvi‡Y Avgv‡`i KvQ †\_‡K `~‡i m‡i hvIqv b¶‡Îi Av‡jv‡K jvj †`Lv|

**mej wbDwK¬qvi ej** (Strong force): Pvi cÖKv‡ii †gŠwjK e‡ji g‡a¨ me‡P‡q kw³kvjx ej| Z‡e Gi cvj­v me‡P‡q †QvU| gv‡b Gi cÖfve †ewk `~i ch©šÍ KvR K‡i bv| GwU †KvqvK©‡`i‡K hy³ K‡i †cÖvUb I wbDU«b Ges †cÖvUb I wbDU«b‡K hy³ K‡i cigvYy MVb K‡i| ms‡¶‡c mej ejI ejv nq|

**mgvbycvwZK** (Proportional): X, Y Gi mgvbycvwZK n‡j Gi A\_© n‡”Q Y †K †Kv‡bv msL¨v Øviv ¸Y Kiv n‡j X †KI †mB msL¨v Øviv ¸Y Kiv n‡e| Gi A\_© n‡e Y †h nv‡i evo‡e XI †mB nv‡i evo‡e| Z‡e hw` ejv nq X, Y Gi e‡M©i mgvbycvwZK, Z‡e Y wØ¸Y n‡j X Pvi ¸Y n‡e; Y wZb ¸Y n‡j X bq ¸Y n‡e BZ¨vw`|) AviI †`Lyb, *e¨¯ÍvbycvwZK*|

**mvaviY ev mvwe©K Av‡cw¶K ZË¡** (General relativity): †h †Kv‡bv MwZ‡Z Pjv ch©‡e¶‡Ki Kv‡Q weÁv‡bi m~Î¸‡jv GKB n‡e- GB aviYvi wfwË‡Z ˆZwi AvBb÷vB‡bi w\_Iwi| GB w\_Iwi gnvKl©‡K PZyg©vwÎK ¯’vb- Kv‡ji mvnv‡h¨ cÖKvk K‡i| eo gvcKvwV‡Z gnvwek¦‡K GB ZË¡ w`‡qB e¨vL¨v Kiv nq|

**¯’vb- Kvj** (Space-time): PZyg©vwÎK ¯’vb, hvi we›`y¸‡jv‡K NUbv ejv nq|

**wms¸jvwiwU** (Singularity): ¯’vb- Kv‡ji Ggb we›`y †hLv‡b ¯’vb- Kv‡ji eµZv (A\_ev Ab¨ †Kv‡bv e¯ÍyMZ ivwk) Amxg nq|

**w÷ªs w\_Iwi** (String theory): c`v\_©we`¨vi †mB w\_Iwi hv‡Z wewfbœ KwYKv‡K w÷ªs (myZv, `wo BZ¨vw`) Gi K¤úb g‡b Kiv nq| w÷«s Gi ïay ˆ`N¨© Av‡Q, Ab¨ †Kv‡bv gvÎv (D”PZv ev cÖ¯’) †bB|

**wmgy‡jkb** (simulation): ev¯Í‡e Kiv Am¤¢e ev KwVb Ggb †¶‡Î we‡klZ Kw¤úDUv‡i mvnv‡h¨ welqwU wb‡q KvR Kivi bvg wmgy‡jkb| we¯ÍvwiZ †`Lyb cÂg Aav‡q¨i †bv‡U|

d¬¨vc

†jLK cwiPwZ

cj †Wwfm

Bs‡iR c`v\_©we`| eZ©gv‡b hy³iv‡ó«i A¨vwi‡Rvbv †÷U BDwbfvwm©wUi Aa¨vcK| hy³ Av‡Qb K¨wj‡dvwb©qvi P¨vcg¨vb BDwbfvwm©wUi Bbw÷wUDU di †Kvqv›Uvg ÷vwWR cÖwZôv‡bi mv‡\_I| Gi Av‡M Ab¨v‡b¨i g‡a¨ BDwbfvwm©wU Ae K¨vgweªR I BDwbfvwm©wU K‡jR jÛ‡bI Aa¨vcbv K‡i‡Qb| M‡elYvi welq Km‡gvjwR (gnvwek¦ZË¡), †Kvqv›Uvg †¶Î ZË¡ I A¨v‡÷«vev‡qvjwR|

wZwbB cÖ\_g †hŠ\_ GKwU M‡elYvc‡Î †`wL‡q‡Qb, nwKs wewKi‡Yi gva¨‡g eø¨vK †nvj ev®úxf~Z nIqvi R‡b¨ Av‡kcv‡ki GjvKv †\_‡K eø¨vK †nv‡ji g‡a¨ FYvZ¥K kw³i cÖ‡ek `vqx| GQvovI `xN© mgq KvR K‡i‡Qb mgq wb‡q|

weÁvb‡K RbwcÖq Kivi Kv‡R Zvui Ae`vb Amvgvb¨| A‡bK¸‡jv †UKwb‡Kj I RbwcÖq eB‡qi †jLK wZwb| †UKwb‡Kj eB‡qi g‡a¨ Ab¨Zg `¨ wdwR· Ae UvBg A¨vwm‡gwU« (1974)| GQvovI wj‡L‡Qb RbwcÖq eB `¨ GR Ae BbwdwbwU, `¨ ivbI‡q BDwbfvm©, `¨ KmwgK eøywcÖ›U, A¨vevDU UvBg: AvBb÷vBbÕm AvbwdwbkW weR‡bm, †Kvqv›Uvg A¨vm‡c±m Ae jvBd BZ¨vw`|

f~wlZ n‡q‡Qb A‡bK¸‡jv cyi®‹v‡i| hvi g‡a¨ Ab¨Zg BD‡iKv cÖvBR, †Kjwfb c`K, d¨viv‡W cÖvBR I †U‡¤újUb cÖvBR|

Abyev`K cwiwPwZ

Avãyj¨vn Avw`j gvngy`|

cvebv K¨v‡WU K‡j‡R cwimsL¨vb wefv‡Mi cÖfvlK wn‡m‡e Kg©iZ| Gi Av‡M wimvP© A¨vwm÷¨v›U wn‡m‡e KvR K‡i‡Qb BwÄwbqvm© A¨vÛ A¨vWfvBRim wjwg‡UW (EAL) cÖwZôv‡b| XvKv wek¦we`¨vj‡qi cwimsL¨vb wefvM †\_‡K Abvm© I gv÷vm© wWwMÖ AR©b K‡i‡Qb|

†jLv‡jwLi m~Pbv MwYZ g¨vMvwRb cvB wR‡iv Uy BbwdwbwUi gva¨‡g| Kw›U«weDUi wn‡m‡e KvR K‡i‡Qb cÖ\_g Av‡jv cwiev‡ii gvwmK weÁvb g¨vMvwRb weÁvbwPšÍvq| wK‡kviAv‡jv, e¨vcbmn wewfbœ g¨vMvwR‡b wbqwgZ wjL‡Qb MwYZ, cwimsL¨vb I †R¨vwZwe©Ávb wb‡q| GQvov weÁvb wel‡q AbjvB‡bI mwµqfv‡e †jLv‡jwL Ki‡Qb|

evsjvq †R¨vwZwe©Ávb‡K RbwcÖqKiY I mn‡R Dc¯’vcb Kivi R‡b¨ ˆZwi K‡i‡Qb AbjvBb †cvU©vj wek¦ WU Kg (sky.bishwo.com)| GKB D‡Ï‡k¨ cwimsL¨vb I †WUv mv‡qÝ wb‡q ˆZwi K‡i‡Qb Stat Mania (www.statmania.info)|

wcÖq kL: bZyb wKQy †kLv (we‡kl K‡i MwYZ I †R¨vwZwe©Ávb), †cÖvMÖvwgs, ågY I iv‡Zi AvKvk ch©‡e¶Y|

ˆcwÎK wbevm: j²xcyi m`i Dc‡Rjvi SvDWMx MÖvg|

‡jL‡Ki Ab¨ eB

• A¨v weªdvi wnw÷« Ae UvBg (2017) (Abyev`, g~j w÷‡dK nwKs I wjIbv`© †¤øvwW‡bv)

• gnvwe‡k¦i mxgvbv (2019)

• Amxg mgxKiY (2019)

B‡gBj: almahmud.sbi@gmail.com

I‡qemvBU: mahmud.bishwo.com

†dmeyK: fb.com/mahmud.sbi

Qwe: mvjgv wmwÏKv