Ingyendo nshakisha z'Anselimi Lanturulu

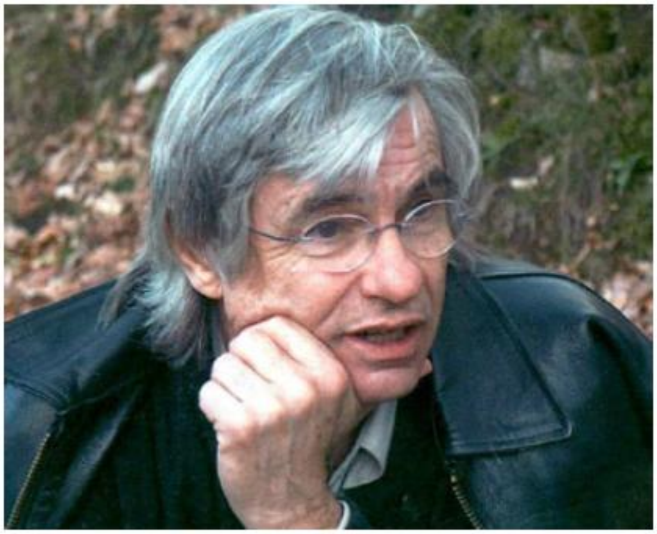
MILIYARIDI IGIHUMBI Z'AMAZUBA

Johani-Petero Petit

Byahinduwe na:
Mohamed Abdel aziz Kamanzi

Ubumenyi butagira Imipaka

Itegeko ryo mu 1901 rigenga amashyirahamwe



Jean-Pierre Petit, Perezida w'iri Shirahamwe

Uyu Jean-Pierre Petit, Peresida w'iri shyirahamwe ry'**Ubumenyi butagira Imipaka**, yahoze ari diregiteri w'ubushakashatsi mu kigo cy'inzobere cya CNRS, mu Bufaransa. Akaba kandi inzobere ihanitse muri Fizike y'inyenyeri (Asitorofizike); yahimbye uburyo bushyashya by'inyandiko bita: *Ibitabo by'amashusho by'ubumenyi.* "**Ubumenyi butagira Imipaka**" ni ishyirahamwe ryahimbwe mu 2005 n'abagabo babiri, Jean-Pierre Petit na mugenzi we Gilles d'Agostini. Iri shyirahamwe ryihaye intego yo gukwirakwiza kw'isi hose ubumenyi ku buntu harimwo n'ubumenyi bwa tekinike, ubukorikori n'ikoranabuhanga. Iri shyirahamwe ribeshejweho n'inkunga rihabwa. Izo nkunga nizo ziriha abantu bahindura inyandiko mu zindi ndimi. Buri nyandiko (igitabo cy'amashusho cy'ubumenyi) ihindurirwa mu rundi rurimi ku mafaranga angana n'amayero 150 (150 euros) kuva mu 2007 kugeza ubu. Iri shyirahamwe rinariha amafaranga ajyanye n'iyoherezwa ucishije muri banke ry'ayo mafaranga y'ihinduranya mu zindi ndimi. Abahinduranyi b'indimi bagiye bongera, buri munsi, umubare w'ibyo bitabo bisomwa hose k'ubuntu. (Nko kugeza mu 2007, hari hamaze kuboneka ibitabo magana abiri (200) bikurwa kuri interineti k'ubuntu kandi byanditse mu ndimi makumyabiri n'umunani (28) harimwo ikinyarwanda n'ururimi rwo muri Lawosi).

Biremewe ko iki gitabo gikopororwa cyangwa gifotorwa,cyose cyangwa igice; kinakoreshwa n'abarimu mu masomo ariko mu buryo butari ububyara inyungu z'amafaranga. Gishobora gushyirwa mu masomero y'uturere, y'amashuri cyangwa ya za kaminuza, cyanditse ku mpapuro cyangwa cya shyizwe mu miyoboro y'imbuga z'ikoranabuhanga zigose (intranet).

Uyu mwanditsi w'ibi bitabo yatangiye kwandika ibindi byo byoroshye kandi bigenewe abana bato (bari mu rugero rw'imyaka 12). Ibindi biriho bikorwa n'ibitabo by'amajwi avuga, bigenewe abatazi gusoma cyangwa abashaka kwiga urundi rurimi rutari urwo bakuriyemwo.

Iri shyirahamwe rishaka buri gihe abahinduranyi b'inyandiko bazishyira mu ndimi zabo zakavukire ariko bafite ubuhanga buhagije bwo gutanga inyandiko mpiduranyi nziza z'ibitabo basomye.

Ushatse kugira icyo ubaza cyangwa ugeza kuri iri shyirahamwe, wajya ku rubuga rwaryo ku interinete aha hakurikira: http://www.savoir-sans-frontieres.com

Iranga-konti mu Bufaransa → Inyandiko ngaragaza mutungo muri (RIB)

Ikigo	Umwanya wo kwakiriramwo amafaranga	Nimero ya konti	Urufunguzo rwa RIB
20041	01008	1822226V029	88

Aho ikorera: Banki ya Posita
Hagati y'Umujyi wa Marseille
13900 Marseille CEDEX 20
Mu Bufaransa

Mu bindi bihugu → Ibanki Mpuzamahanga (International Bank) Nimero ya Konti (IBAN):

IBAN
FR 16 20041 01008 1822226V029 88

→ N' Inyandikobanga ya banki (BIC) :

BIC
PSSTFRPPMAR

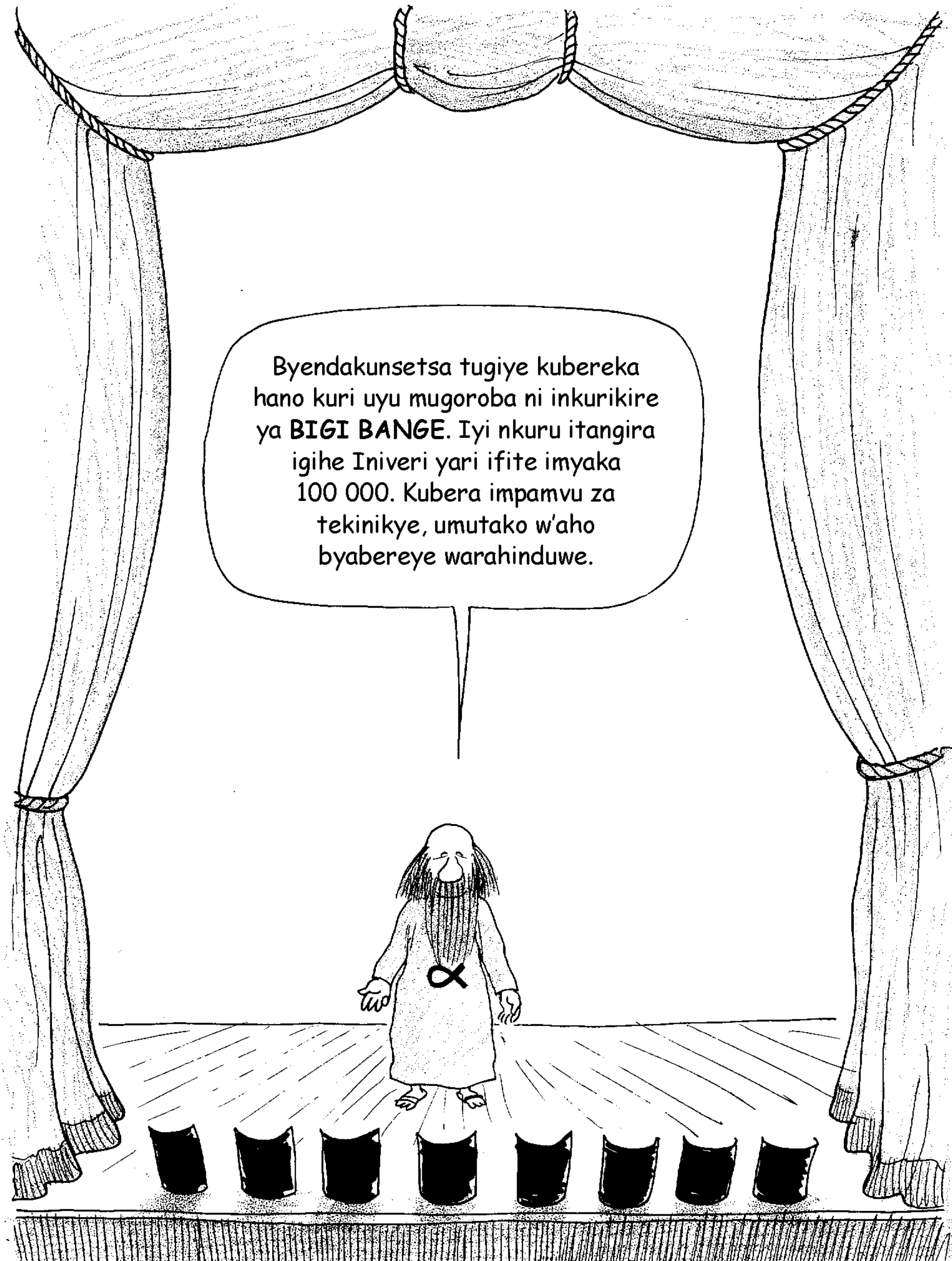
Amategeko agenga iri shyirahamwe agaragara ku rubuga rwa yo kuri interineti. Imibare ngaragaza mutungo nayo irahari kandi ihora ishyirwa ku gihe. Iri shyirahamwe nta mafaranga na make rikura ku nkunga rihawe uretse ayo kohereza, bicishijwe muri banki, ahemba abahinduranyi b'indimi ku buryo babona abagenewe yose.
Nta munyamuryango w'iri shyirahamwe n'umwe rihemba kuko bose ari abakoranabushake.
Abanyamuryango ubwabo nibo barihira amafaranga ishyirahamwe rikoresha ngo ribeho nk'ayo kwishyura no gukoresha urubuga rwa yo rwo kuri interineti kuko ayo atarihwa n'ishyirahamwe.
Bityo mugaragarizwa neza uko umutungo w'ishyirahamwe ukoreshwa kandi mukibonera ikizere ko, muri iyo "mirimo y'ubwitange mfashamuco", inkunga yose mutanga ikoreshwa neza mu kwishyura abahindura ibitabo mu zindi ndimi.
Dushyira ku rubuga rwa interineti buri kwezi, ugereranije, nk'ibitabo cumi bihinduwe mu zindi ndimi.

Urabizi neza, Tireziyasi, ko ari kibonumwe ya Hale ?
Rwose pe

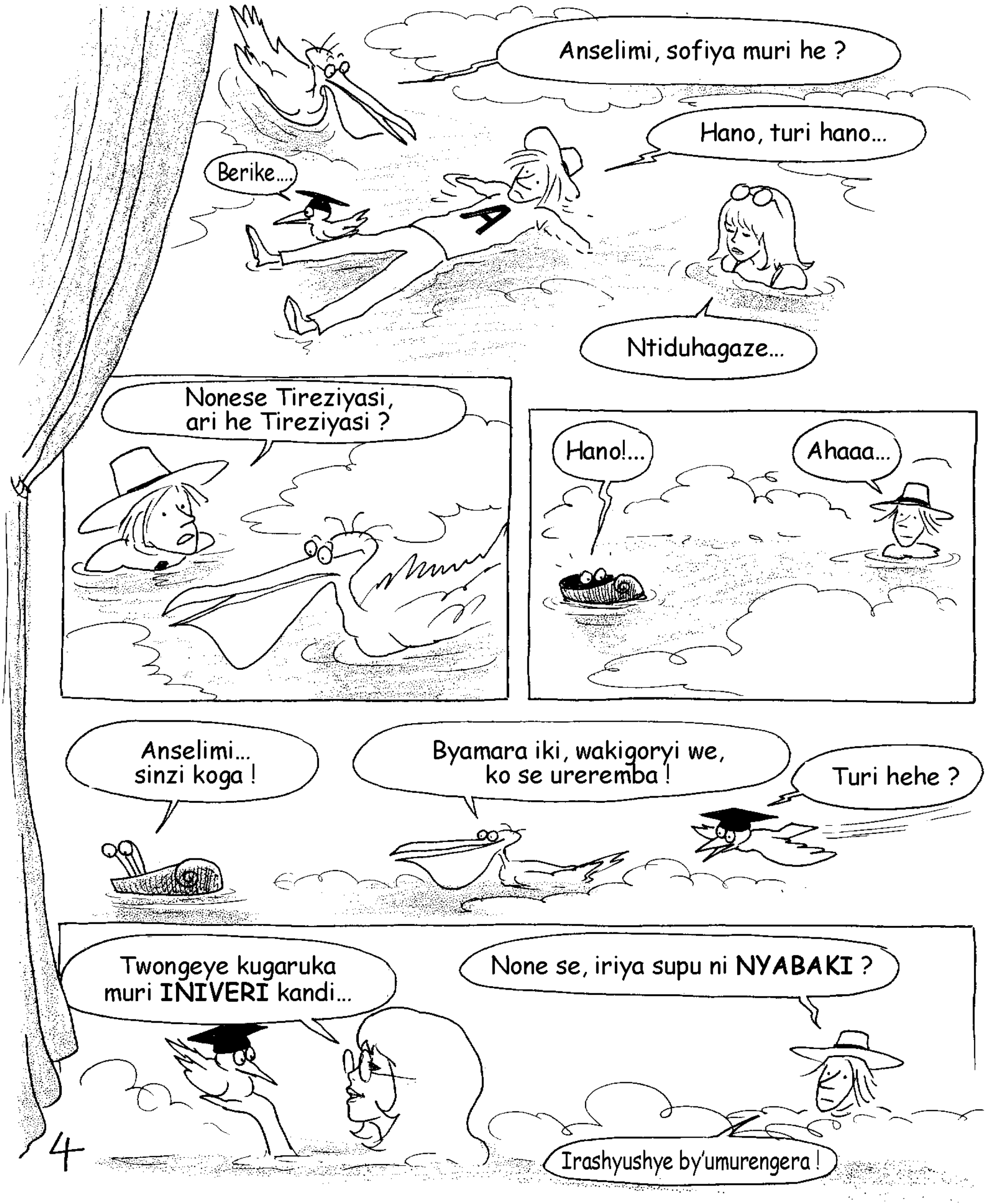
Birashoboka ko iniveri yaba ari igikorwa kigari k'isakazabumenyi nyasiyanse: Imana igerageza kutwumvisha ibintu bimwe na bimwe...

Siyanse yenda ni iforoma ikoze neza kurusha izindi y’inyandiko z’amaringo.

iKiHANANGiRiZO


Byendakunsetsa tugiye kubereka hano kuri uyu mugoroba ni inkurikire ya **BIGI BANGE**. Iyi nkuru itangira igihe Iniveri yari ifite imyaka 100 000. Kubera impamvu za tekinikye, umutako w'aho byabereye warahinduwe.

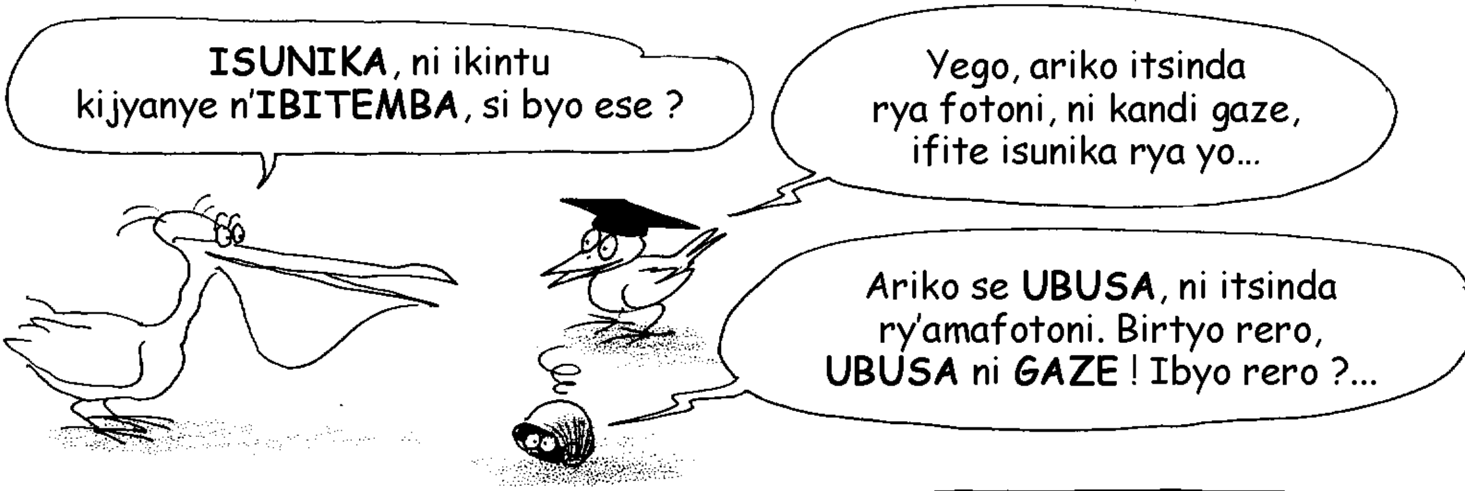
PALANETE iNiVERi



Iyo supu, wa musore we, ni MATSIYERI
Ahaa, nongeye kubabona, mwebwe !
Ubwa mbere na mbere roho y'Imana yagenderaga hejuru y'amazi...
Ningoga...
Hagarikira aho!, wamuhinyuzi we !
Ohu, nimurebe, ni igitangaza !
Oya ariko, arahagaze, ni ibyo gusa...
Dore ra, ni ukuri !

(*) Reba **BIGI BANGE**, icapiro Belini.

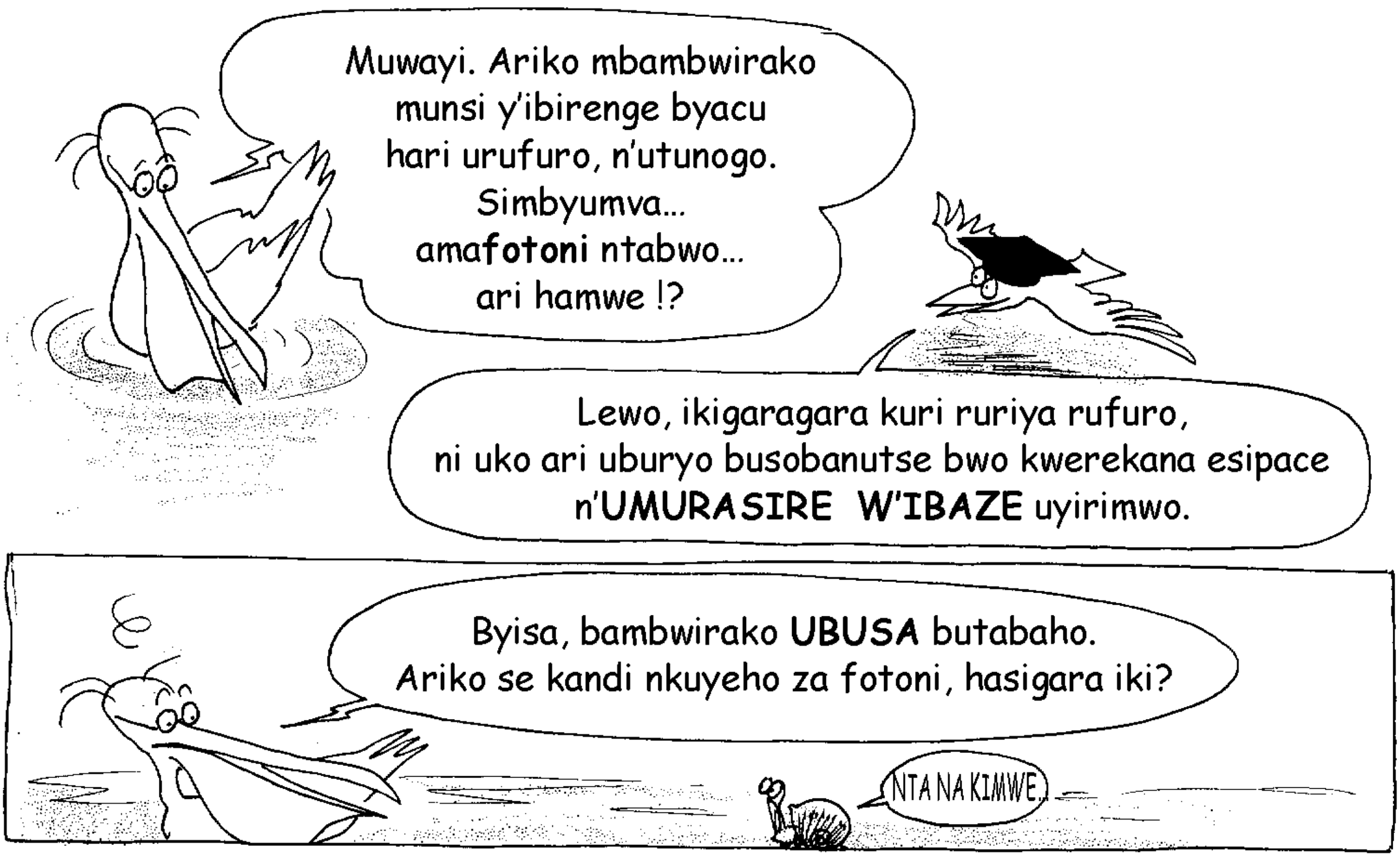
(*) diyametero y'akobo ihwanye n'**UBUREBURE BWA ONDE** ya fotoni.



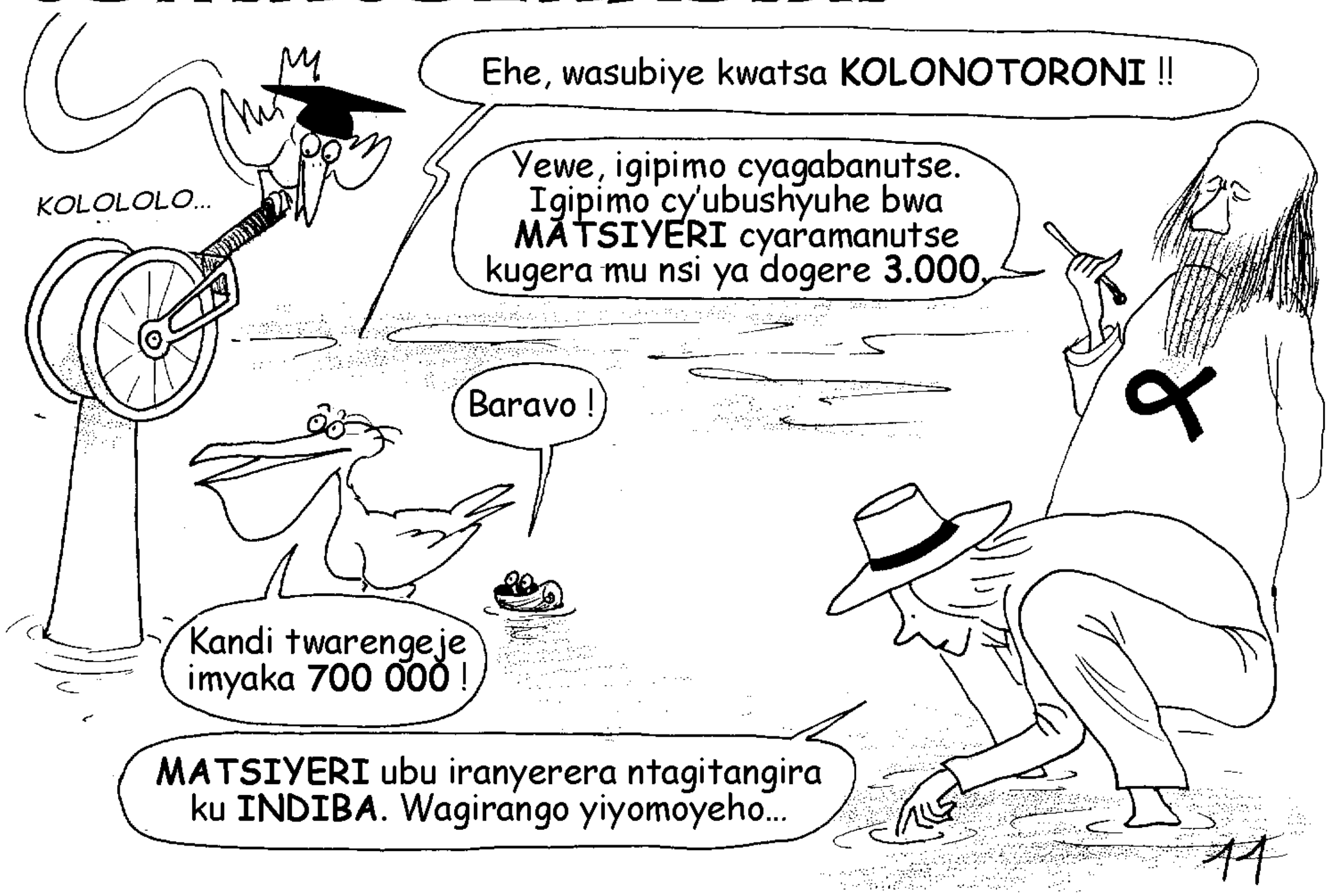
INJOMBANABIKORWA MATSIYERI IMIRASIRE

Mu nsi ya dogere 3000, MATSIYERI inyerera nta ntambamyi ku ndiba y'UMURASIRE NYAKOSIMOSI.
MATSIYERI
Ariko manyanga we, KUBERA IKI ?
Z'atome, Lewo, zigizwe na za nuwayo, z' amashanyarazi ya pozitifu, hamwe na za elegitoroni, zifite amashanyarazi ya negatifu.
Idorojene
Eliyomu
Hejuru ya dogere 3000, ITINGISA NYABUSHYUHE riba rinini cyane, noneho ama SEKURANA hagati ya za atome akabuza ama elegitoroni kuzenguruka mu mutuzo iruhande y'amanuwayo.
Ama elegitoroni ahita YIGENGA noneho hahita havugwa ko MATSIYERI ari IYONIZE.
Byiza, ariko rero se?
URUMURI ni urugendo nkururane rw'ama FOTONI ariko KANDI ni na ONDE NYASUMAKUMASHANYARAZI, umurari wa esipase.
Kandi uwo murari wumvwa cyane n'ama elegitoroni yo afite uburemere bukye ugereranije na za nuwayo zo ziremereye kurushaho.
!

(*) reba **IYABA TWAGURUKAGA?** Icapiro BELINI.

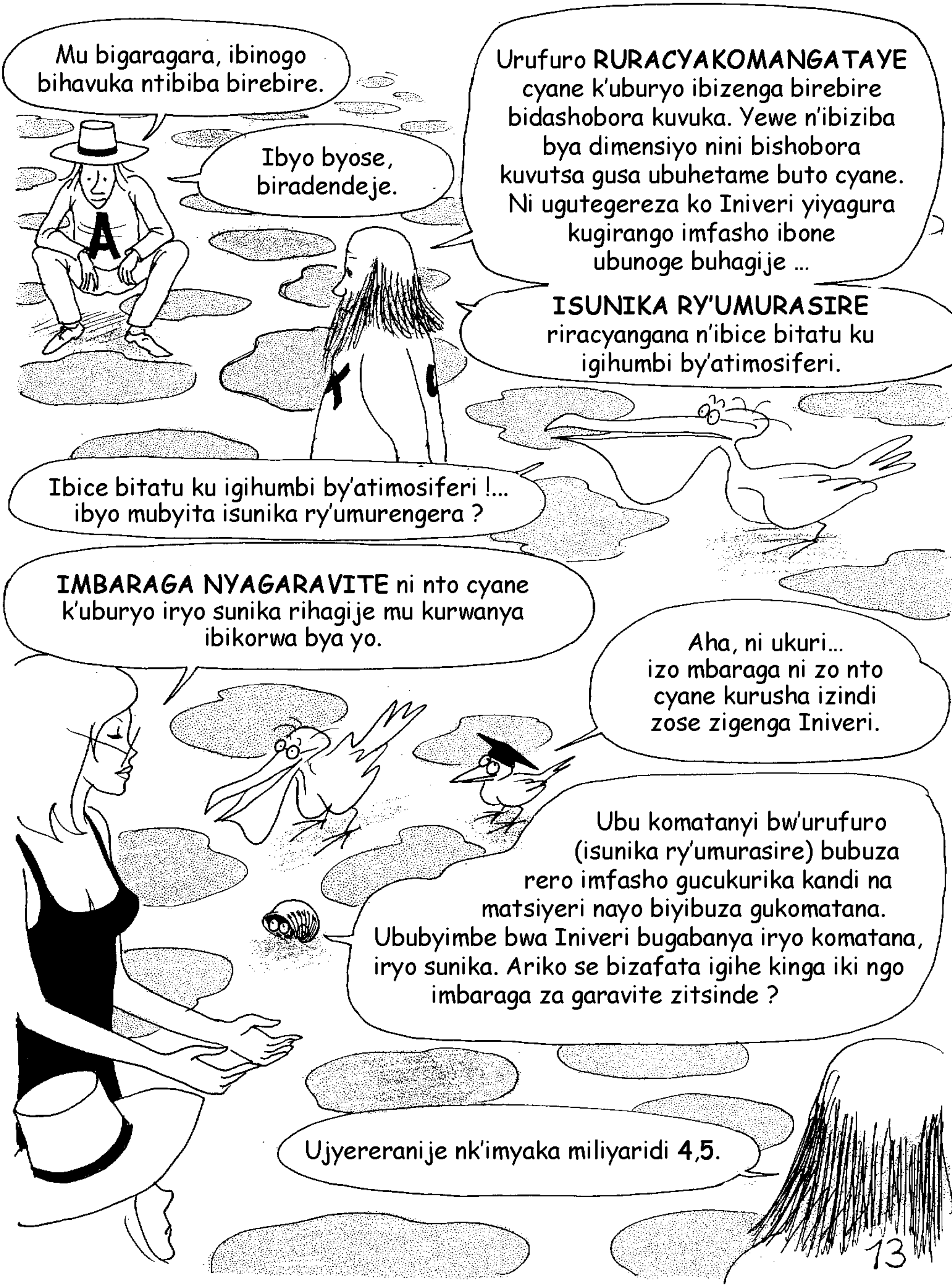


UBWiKUBEKABiRi



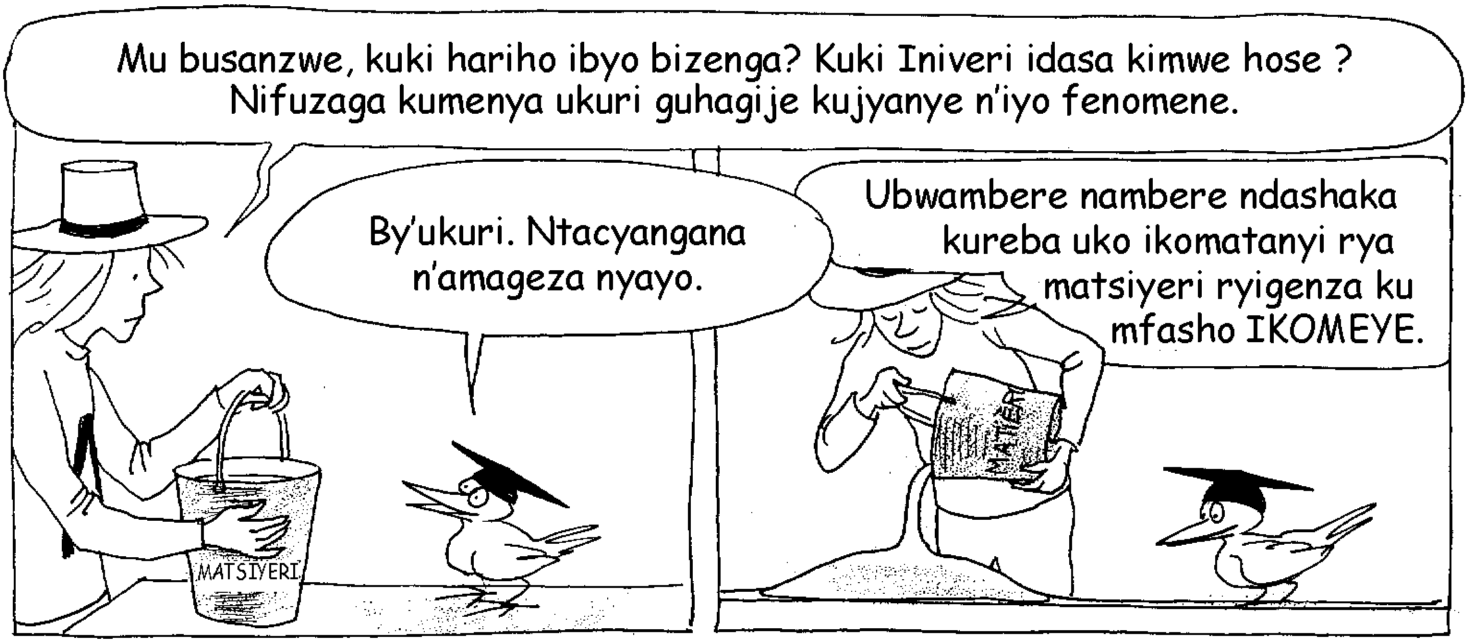
IMBURAKICARO NYAGARAVITE

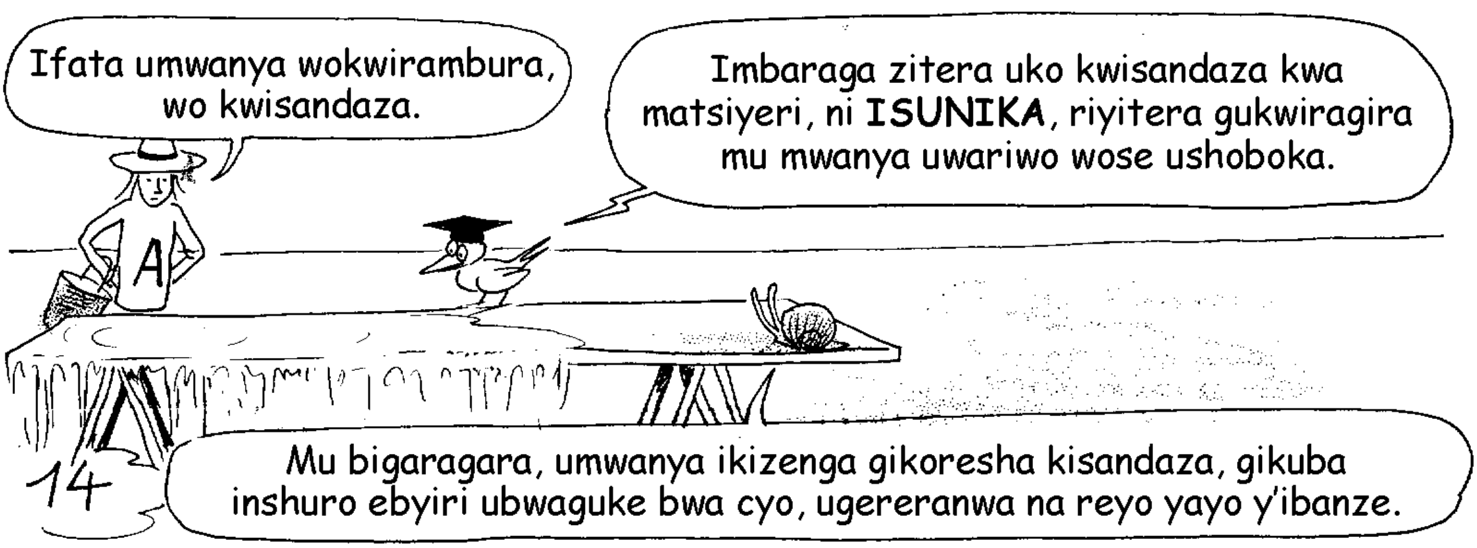
(*) Bivugwa ko UMURIMA W'IKURURA NYAGARAVITE wahavutse.

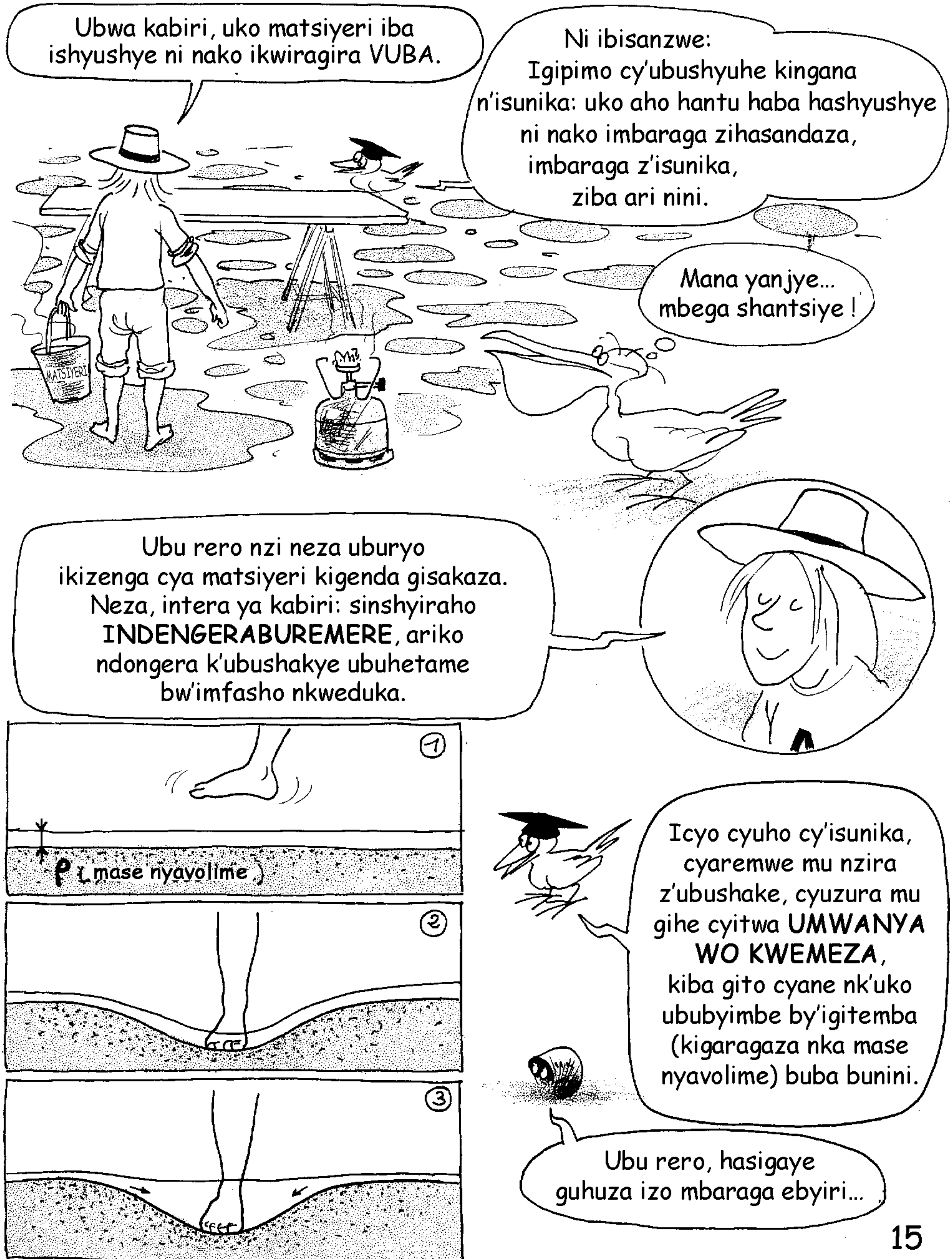


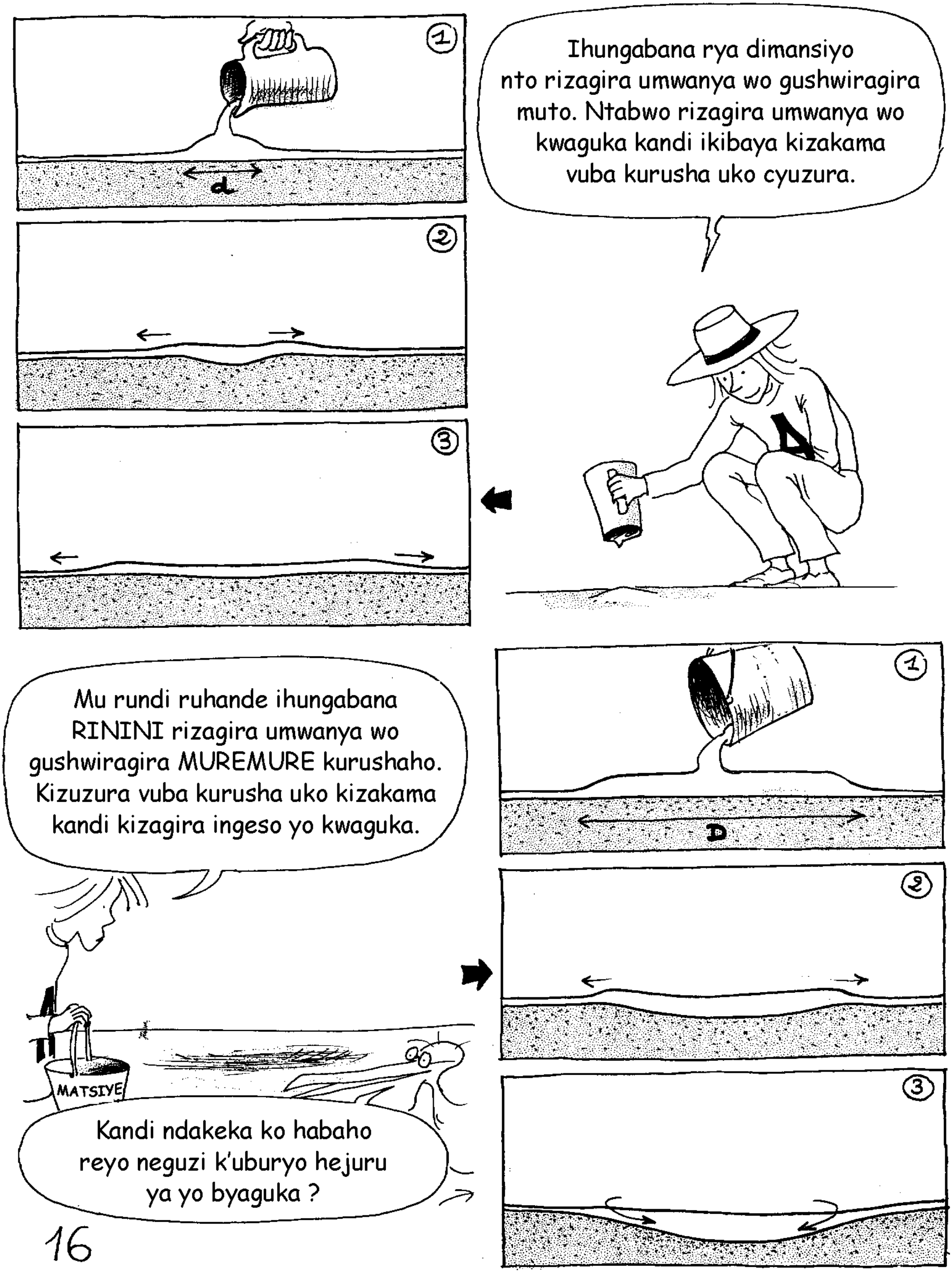
Mu bigaragara, ibinogo bihavuka ntibiba birebire.
Ibyo byose, biradendeje.
Urufuro RURACYAKOMANGATAYE cyane k'uburyo ibizenga birebire bidashobora kuvuka. Yewe n'ibiziba bya dimensiyo nini bishobora kuvutsa gusa ubuhetame buto cyane. Ni ugutegereza ko Iniveri yiyagura kugirango imfasho ibone ubunoge buhagije ...
ISUNIKA RY'UMURASIRE riracyangana n'ibice bitatu ku igihumbi by'atimosiferi.
Ibice bitatu ku igihumbi by'atimosiferi !... ibyo mubyita isunika ry'umurengera ?
IMBARAGA NYAGARAVITE ni nto cyane k'uburyo iryo sunika rihagije mu kurwanya ibikorwa bya yo.
Aha, ni ukuri... izo mbaraga ni zo nto cyane kurusha izindi zose zigenga Iniveri.
Ubu komatanyi bw'urufuro (isunika ry'umurasire) bubuza rero imfasho gucukurika kandi na matsiyeri nayo biyibuza gukomatana. Ububyimbe bwa Iniveri bugabanya iryo komatana, iryo sunika. Ariko se bizafata igihe kinga iki ngo imbaraga za garavite zitsinde ?
Ujyereranije nk'imyaka miliyaridi 4,5.

UBUREBURE BWA JEANS





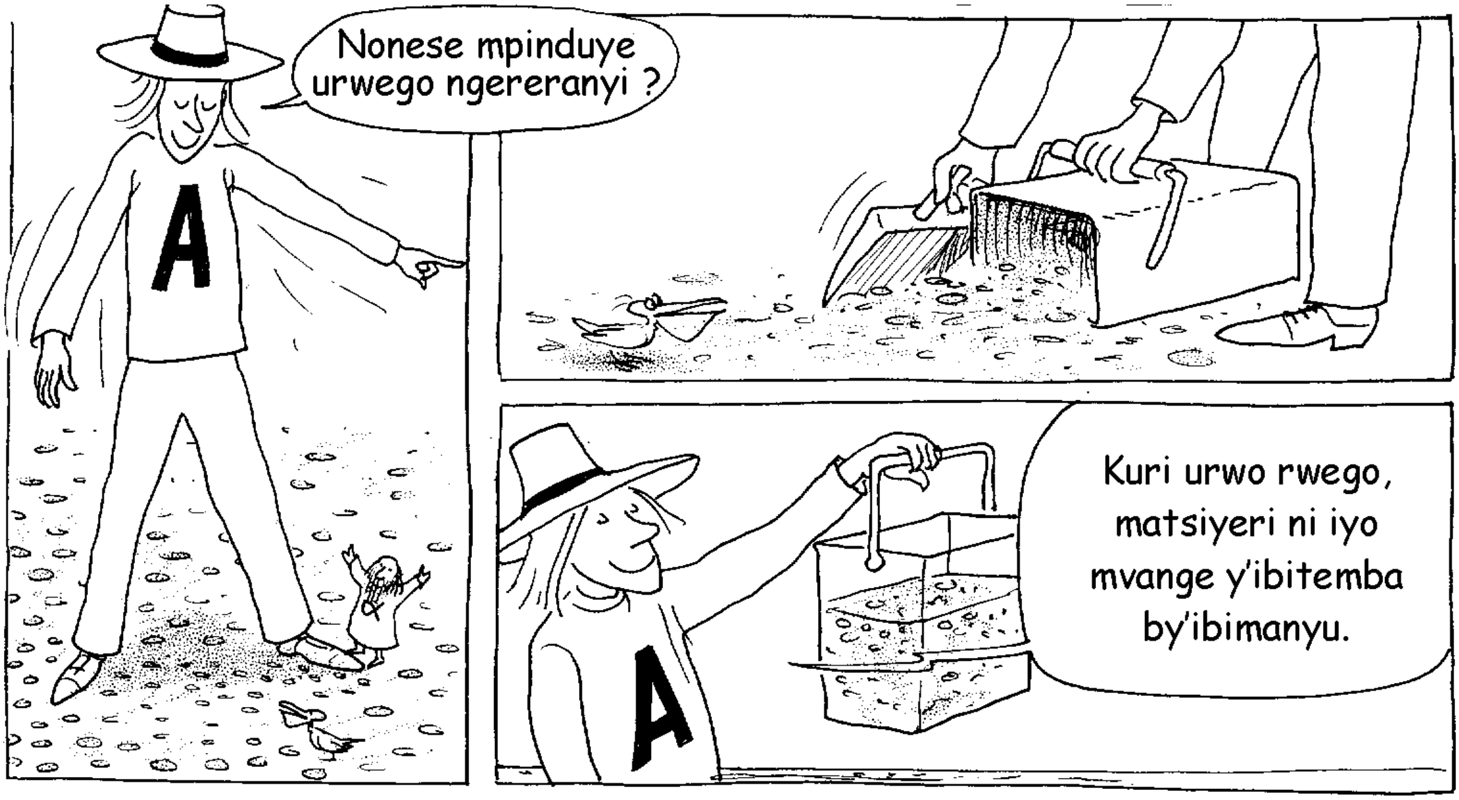

Ubwa kabiri, uko matsiyeri iba ishyushye ni nako ikwiragira VUBA.
Ni ibisanzwe: Igipimo cy'ubushyuhe kingana n'isunika: uko aho hantu haba hashyushye ni nako imbaraga zihasandaza, imbaraga z'isunika, ziba ari nini.
MATSIYERI
Mana yanjye... mbega shantsiye !
Ubu rero nzi neza uburyo ikizenga cya matsiyeri kigenda gisakaza. Neza, intera ya kabiri: sinshyiraho INDENGERABUREMERE, ariko ndongera k'ubushakye ubuhetame bw'imfasho nkweduka.
ρ (mase nyavolime)
Icyo cyuho cy'isunika, cyaremwe mu nzira z'ubushake, cyuzura mu gihe cyitwa UMWANYA WO KWEMEZA, kiba gito cyane nk'uko ububyimbe by'igitemba (kigaragaza nka mase nyavolime) buba bunini.
Ubu rero, hasigaye guhuza izo mbaraga ebyiri...

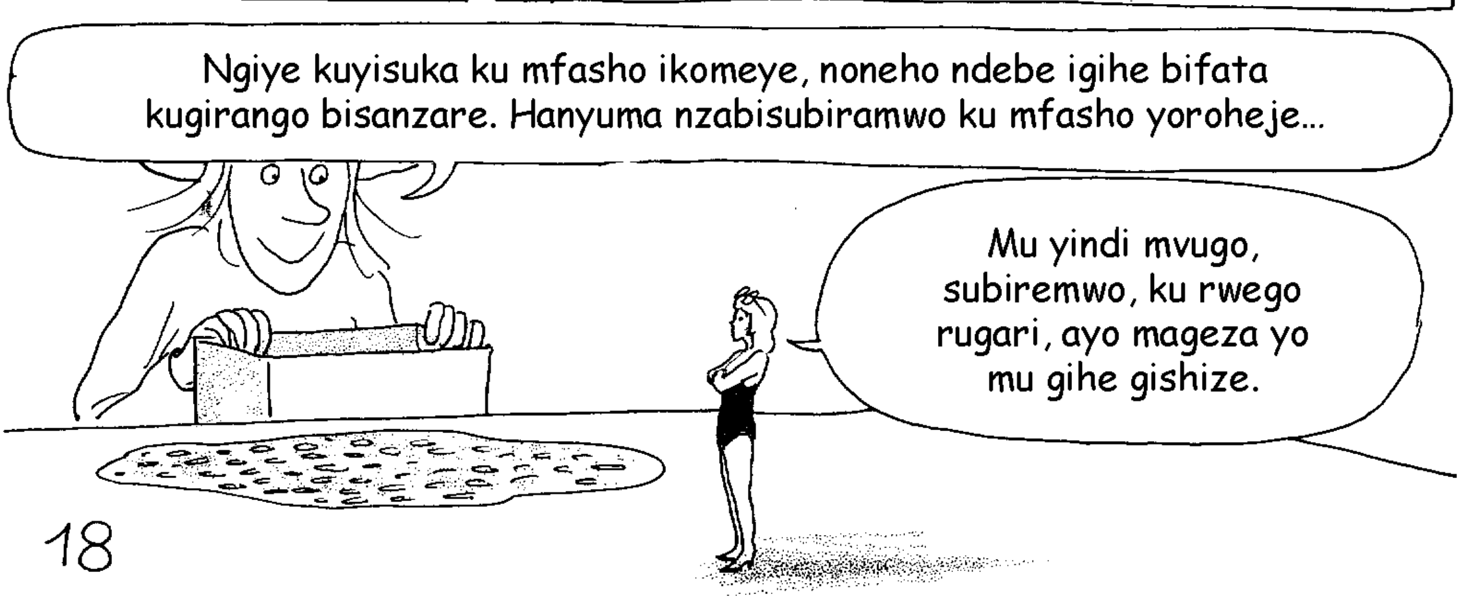


Ihungabana rya dimansiyo nto rizagira umwanya wo gushwiragira muto. Ntabwo rizagira umwanya wo kwaguka kandi ikibaya kizakama vuba kurusha uko cyuzura.
d
D
Mu rundi ruhande ihungabana RININI rizagira umwanya wo gushwiragira MUREMURE kurushaho. Kizuzura vuba kurusha uko kizakama kandi kizagira ingeso yo kwaguka.
MATSIYE
Kandi ndakeka ko habaho reyo neguzi k'uburyo hejuru ya yo byaguka ?

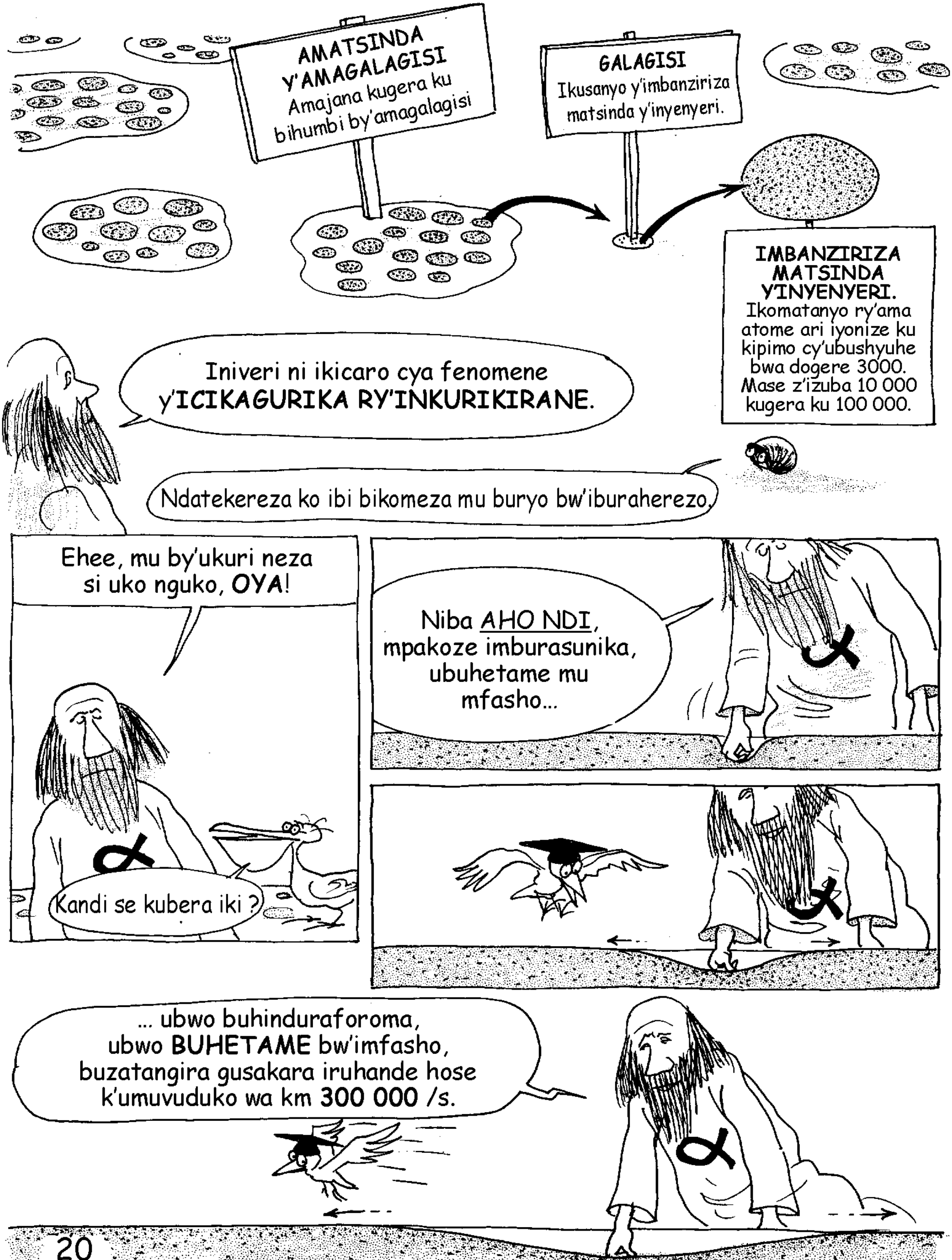
(*) Siri Jemusi JINISI, inzobere muri asitoronomi w'umwongereza. (1877-1946).

MAKOROKOSIME





(*) **IGIPIMO CY'UBUSHYUHE** ni igipimo cy'ingufu-rugendo rwo hagati na hagati rw'uduhimba tw'aho hantu nsukuma-ntemba.


AMATSINDA Y'AMAGALAGISI
Amajana kugera ku bihumbi by'amagalagisi
GALAGISI
Ikusanyo y'imbanziriza matsinda y'inyenyeri.
IMBANZIRIZA MATSINDA Y'INYENYERI.
Ikomatanyo ry'ama atome ari iyonize ku kipimo cy'ubushyuhe bwa dogere 3000. Mase z'izuba 10 000 kugera ku 100 000.
Iniveri ni ikicaro cya fenomene y'ICIKAGURIKA RY'INKURIKIRANE.
Ndatekereza ko ibi bikomeza mu buryo bw'iburaherezo.
Ehee, mu by'ukuri neza si uko nguko, OYA!
Kandi se kubera iki ?
Niba AHO NDI, mpakoze imburasunika, ubuhetame mu mfasho...
... ubwo buhinduraforoma, ubwo BUHETAME bw'imfasho, buzatangira gusakara iruhande hose k'umuvuduko wa km 300 000 /s.

Ariko rero, igisakara, ni ... urumuri ?
Oya, ni onde y'ubuhetame, onde nyagaravite.
UMURIMA NYAGARAVITE urasakara k'umuvuduko ungana n'uw'urumuri.
Mu buryo bumwe n'iryo sakara ry'ubuhetame, iyegeranya rya matsiyeri "ritumira" matsiyeri nturanyi kuyegera.
Nimuze mwese
Ihamagazwa
km 300.000 /s
Iyo fenomene y'ihungabana nyagaravite ibaye, mu karere runaka ka esipase ya diyametero D, izaba ntagushidikanya nto kuri Ct, aha C ari umuvuduko w'urumuri naho t ari imyaka y'uburambe bwa Iniveri.
Ese kuki iryo kumirwa?

Jyewe ndabyumva. Tuvugeko ushaka guhamagaza, ukoresheje amabaruwa, abantu mu mana izaba mu minsi 4. Uzashobora gusa gutumira abatuye k'ubutaka by'ubufaransa. Naho, hirya ya ho, ntibizashoboka kubera igihe.
Ni byo pe! ntabwo byashoboka ko watumiza abantu mu nama mu gihe gito kurusha umwanya w'ubusakare bw'amabaruwa y'ubutumire.
KORONOTORONI yerekana imyaka miliyoni ijana. RERO imiterere isakaye cyane ishobora kubaho muri kino gihe igomba kuba ifite diyametero iri munsi ya miliyoni ijana z'imwaka-rumuri. Ni cyo kiduhagarikira ku MATSINDA YA ZA GALAGISI.
Abazagira ukwihangana ngo bategereze imyaka miliyaridi icumi bazashobora kubona hirema IMIGOGO Y'AMATSINDA (amatsinda y'amatsinda y'amagalagisi).
Ariko Iniveri iri mu BWAGUKE. Muri rusange, irakweduka ariko urebeye aho uri iriyegeranya...
Mugiye kwirebera...
Ntabwo izi icyo ishaka !

Imyaka ibihumbi ijana, Iniveri ishyushye kandi isennye bubobere nk'igi.
Ndahaga gato...
Imyaka ibihumbi magana rindwi... imikakyire ya mbere.
Igipimo cy'ubushyuhe...
Mu nsi ya dogere 3 000
IMBANZIRIZA MATSINDA NYABUNYENYERI zirirema.
Imyaka miliyoni ijana
Birakatse ubwa kabiri
Ni za GALAGISI
Komeza uhage. Biteye amatsiko.
Ehee, Iniveri yongeye gukaka
Nk'aho yangaga kugara
Dore rero AMATSINDA Y'AMA GALAGISI
Nti mutinya ko...

INGARUKA Z'AMAHONDANO

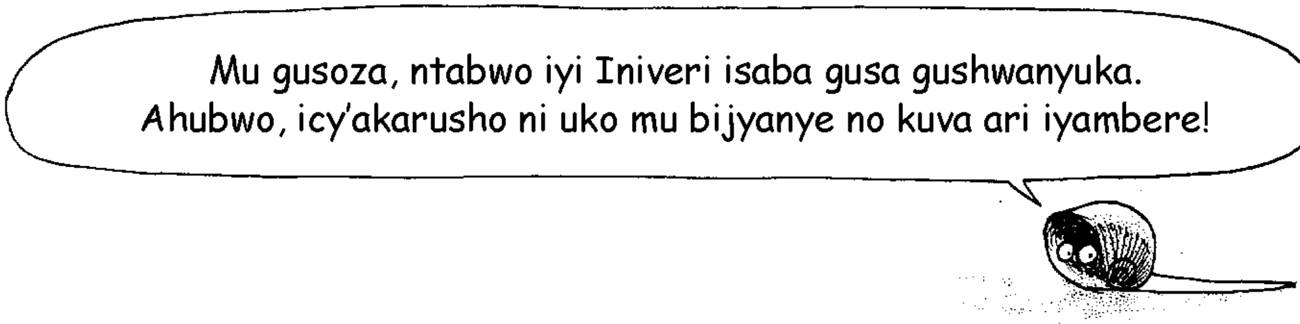
(*) Ihame rya kabiri rya terimodinamikye

(*) Uwo **MWANYA WO KWANDURUKA** uhinduka mu nzira zimwe nka mase y'itsinda.

Hakurikije incurikaburyo, iryo tomboza mu mahondano rizarema UTUGINGO TUGENDA BUHORO CYANE, tuzagira ingeso yo "kugwa" hagati y'iyo SISITEME NYIREMERA GARAVITE HONDANIRO kandi tunahabyiganire. Hagati y'AMATSINDA HONDANIRO (aho habera amahuriro hagati y'utugingo) hazagira rero ingeso yo kwakira utugingo tugenda TUREMERA kurushaho.
Urugero, reba ibiba hagati ya ririya TSINDA RY'AMA GALAGISI. Ama galagisi agenda BUHORO zirahiyegeraniriza kugirango zibyare GALAGISI NDYANYI !
Imfasho itangire gutoboka mwogacwa mwe...
Mbega wee, wagirango imfasho iraganjwe !...

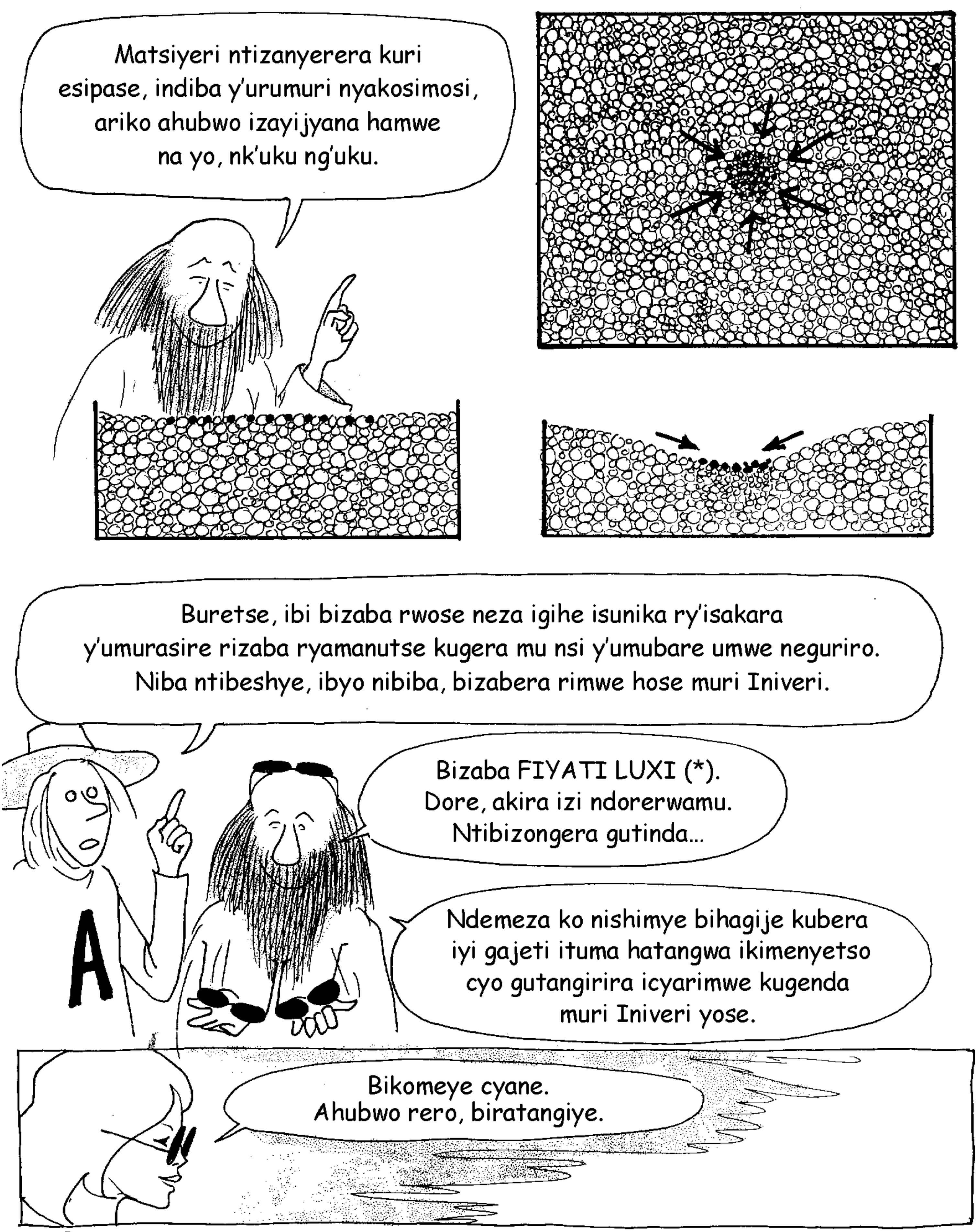
IMANGA NYABUKARA

Bisa n'ibitangiye gututuza
Dore Magisi na Tireziyasi bagarutse
Birasa naho habuze gato ngo mugenzi wacu atwarwe n'IMANGA NYABUKARA.
Nyabuneka, imfasho ya palanete-Iniveri si intaganzwa. Iyo uyitsikamiye cyane irika, iraneshwa...
ni ibisanzwe, na za fotoni ntizishobora kuhasohoka...
Mbega imanga ! Nta nubona INDIBA yayo...
Sinzashobora kuhasohoka nabusa. Ndiho ndamara IMBARAGA ZANJYE ZOSE.
Ni iryo SHWANYUKA ryaremye ayo ma ONDE NYAGARAVITE, mu mwanya ushize...
Imburagasani y'ihinduka
Nti wegere !



IGICANIRO GIKURU CY'URUGWIRO

Imfasho yaje kunanuka cyane. Isakare rya Iniveri ryagabanije bihagije ISUNIKA RY'UMURASIRE.
Ese IYEGERANYA rya MATSIYERI rishobora gute kuzasubira kuba undi munsi? iyo ibimanyu byiyegeranije, igipimo cy'ubushyuhe bwa byo kizazamuka ubwacyo kugera hejuru ya dogere 3000, birtyo rero imatana ku NDIBA ntizahagarara na rimwe, kandi iyo ndiba izajyanwa buri gihe muri urwo rugendo rw'iyegeranya, si byo ?
IMBANZIRIZA MATSINDA NYABUNYENYERI
Ni byo pe, Lewo, ariko ubu ingufu nyagaravite, mu mbanziriza matsinda zigiye "gukomatanya UBUSA", bugizwe n'amafotoni y'imbaraga nkye cyane.
Ahantu ikimanyu kiri, iyo MBANZIRIZA-TSINDA NYABUNYENYERI, isa n'imvange ya MATSIYERI, n'iy' "UBUSA", ni ukuvuga ya za fotoni z'ibanze, byose hamwe bikaba biri ku igipimo cy'ubushyuhe bwa dogere 3000.
Nonese iyo bikomatanye?



(*) Mu KILATINI muri iyo nyandiko.

IMBANZIRIZA MATSINDA ZIRIYEGERANYA.
Igipimo cy'ubushyuhe cya zo kirazamuka. Ama atome yohereza imbaraga nyinshi azinyujije mu ndengera-viyole kandi zigahita ziciraho.
Dore, IMBANZIRIZA MATSINDA NYABUNYENYERI ziciyemwo ibice.
Kubera iki !?
Bitewe n'ingufu nyagaravite, matsiyeri igaragaza imyitwarire kamere yo KWICAGAGURA mudu "selile" dufite reyo ingana na REYO YA JINISI. Iyi nayo yaguka nk'uko igipimo cy'ubushyuhe kizamuka. Iyo habaye igabanuka ryihuse ry'icyo gipimo cy'ubushyuhe, reyo ya jinisi iragabanuka kandi ikaba nto kuri reyo y'icyo kintu. Icyo gihe haba icagagurika ry'ako kanya.
Ikimanyu kiriyegeranya kandi kigashyuha.
Irohereza ako kanya umurasire NV
Ibyo biragikonjesha hanyuma kikicagagura.

Turirebera rero ifenomene yo GUCIKAGURIKA Y'URUKURIKIRANE RUPANZWE, ariko mu yindi nzira.
Ariko se byo bizahagararira he ?

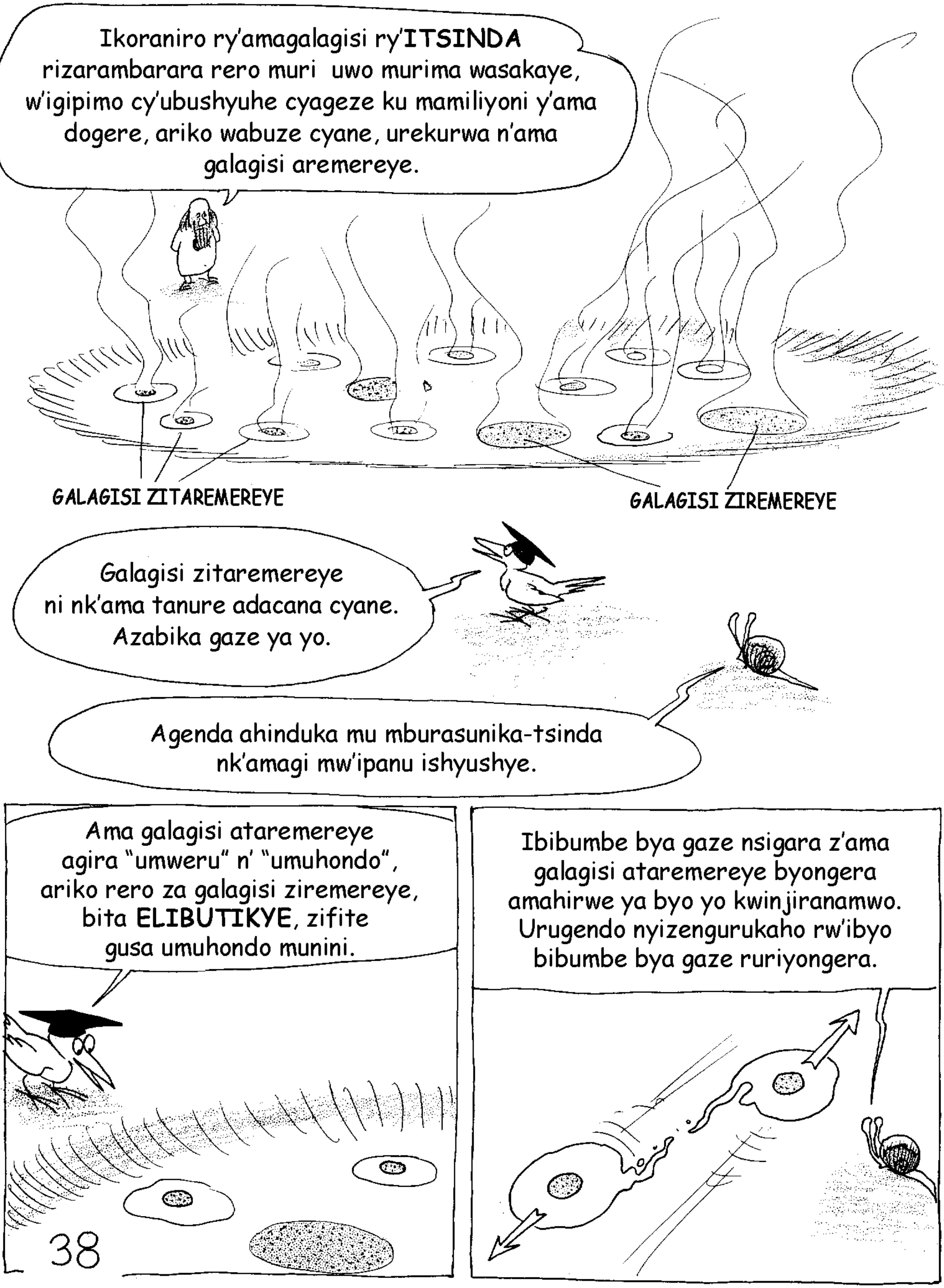
IKAMATANA

Icyoroshye cyane ni ugukora amageza. Muri iyi silenderi, ngiye gukomatanya matsiyeri. Tuzareba neza...
Byose byagaragaye
BAWUMU
Habaye iki ?
IKAMATANA, nshuti ya njye, ikamatana. Iyo ukomatanyije idorojene, nuwayo zayo zirakamatana hanyuma zigatanga imbaraga. Iyaba wari wambajije, na byo...
Reba, biraciragura n'umujinya cyane
Inyenyeri ziriyakije
Bizamara igihe kinini ?

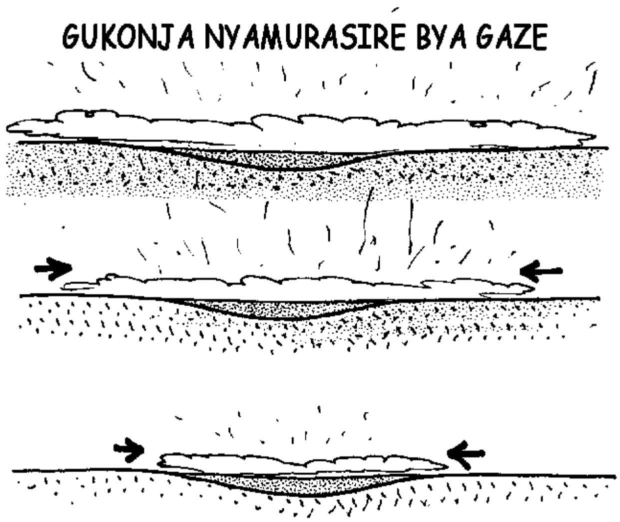
Kuri ako karindi k'umuriro, abasore bacu Babura idorojene, ariko ibyo ntibyatinda kugaruka mu buryo.
Mumpaye ikizere !
Matsiyeri yose yihinduyemwo inyenyeri ?
Oya si nk'uko rwose. Iyo inyenyeri ivutse, yohereza umurazire ahariho hose, kandi ikarekura na matsiyeri. Birtyo rero, irashyushya (rero igahagarika hamwe) matsiyeri ihegereye cyangwa igashwanyaguza ibyariho byirema mu buryo buruhanije hirya no hino aho.
Mu yandi magambo, kuri iyo ntera, GALAGISI ni imvange y'inyenyeri zaka cyane na GAZE NSIGARIRA.

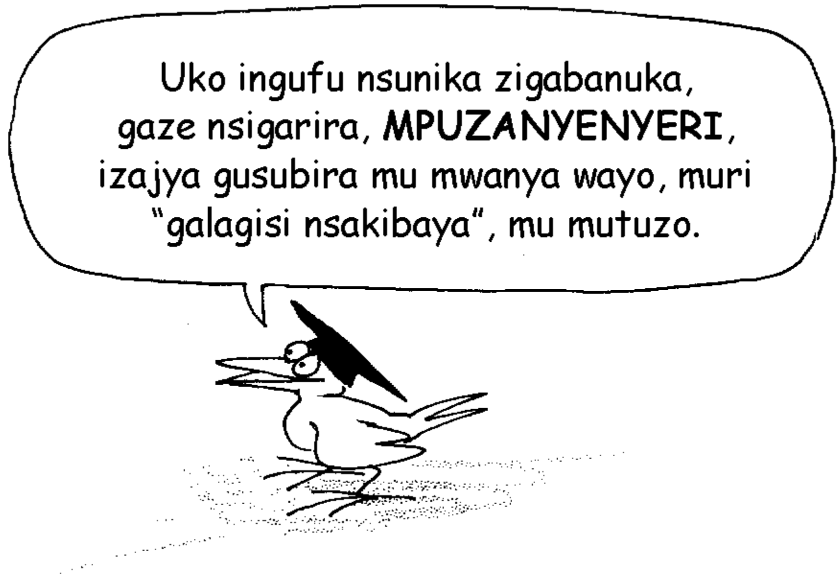
iNyenyeri zisakaza ingufu kandi zigashyushya gaze. Birtyo zongera ISUNIKA rya yo...
AMAGALAGISI
Noneho izo MBARAGA NSUNIKA zikwedura icyo kirere cy'icyuka.
GAZE
GALAGISI Y'INYENYERI
Uwo "MWUKA NYAGALAGISI" urenga cyane umupaka wa "GALAGISI Y'INYENYERI"
GAZE NSIGARIRA
Iyo galagisi iremereye cyane (miliyaridi igihumbi z'inyenyeri) isa niyatakaje gaze yayo yose. Kubera iki ?
Ni ukuri ! GAZE NSIGARIRA ya yo yagiye he ?
Yenda ntayarihari...
Byatuje ubu. Ariko igihe miliyaridi igihumbi by'inyenyeri z'iyi galagisi zacaniraga icyarimwe, byari ITANURE nyaryo.

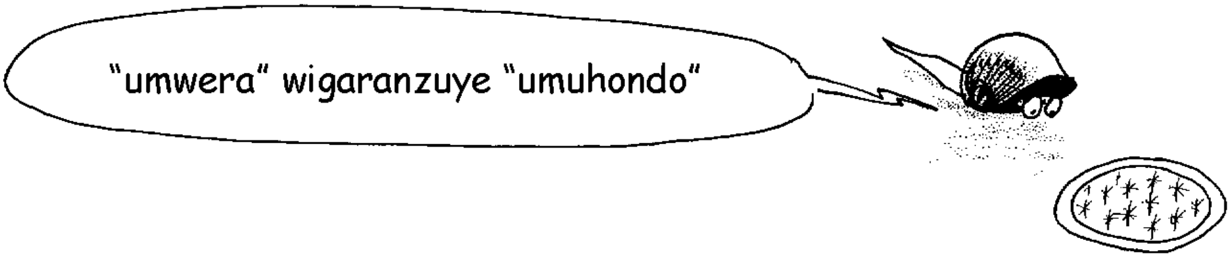
(*) Reba kandi **IYABA TWAGURUKAGA ?** BELINI


Ikoraniro ry'amagalagisi ry'ITSINDA rizarambarara rero muri uwo murima wasakaye, w'igipimo cy'ubushyuhe cyageze ku mamiliyoni y'ama dogere, ariko wabuze cyane, urekurwa n'ama galagisi aremereye.
GALAGISI ZITAREMEREYE
GALAGISI ZIREMEREYE
Galagisi zitaremereye ni nk'ama tanure adacana cyane. Azabika gaze ya yo.
Agenda ahinduka mu mburasunika-tsinda nk'amagi mw'ipanu ishyushye.
Ama galagisi ataremereye agira "umweru" n' "umuhondo", ariko rero za galagisi ziremereye, bita ELIBUTIKYE, zifite gusa umuhondo munini.
Ibibumbe bya gaze nsigara z'ama galagisi ataremereye byongera amahirwe ya byo yo kwinjiranamwo. Urugendo nyizengurukaho rw'ibyo bibumbe bya gaze ruriyongera.

Inyenyeri zaratuje mu bw'itonzi. Iruhande y'icyo zari ziri zikivuka, zahindutse nk'amakara asanzwe.
Iyo ziba zarakomeje zirtyo ntizari kumara igihe kinini.
Gaze nsigarira y'ama galagisi ataremereye atanga urumuri.
Urwo rumuri ruva he?
Ama atome. Ese reba.
Ama atome abiri atangiye gusekurana...
... ibyo biherekezwa n'isakazwa ry'urumuri. Muri icyo gikorwa, igice kimwe cy'ingufu-rugendo y'ama atome gihindurwa mu ngufu nsakazwa.
Umuvuduko nyatingisa bushyuhe w'ama atome uragabanuka. Iyo mase nyamwotsi IRAKONJA kandi uvuze IGIPIMO BUSHYUHE aba avuze ISUNIKA.



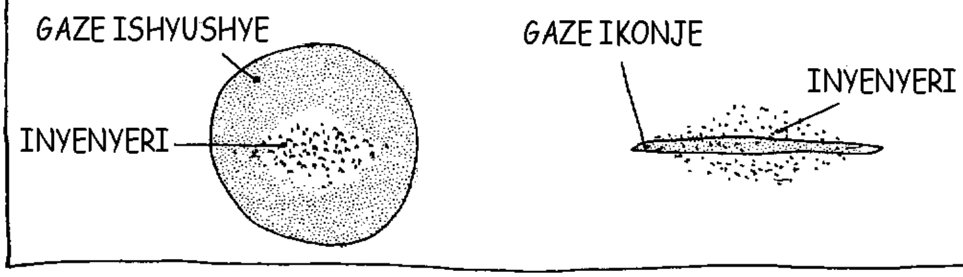




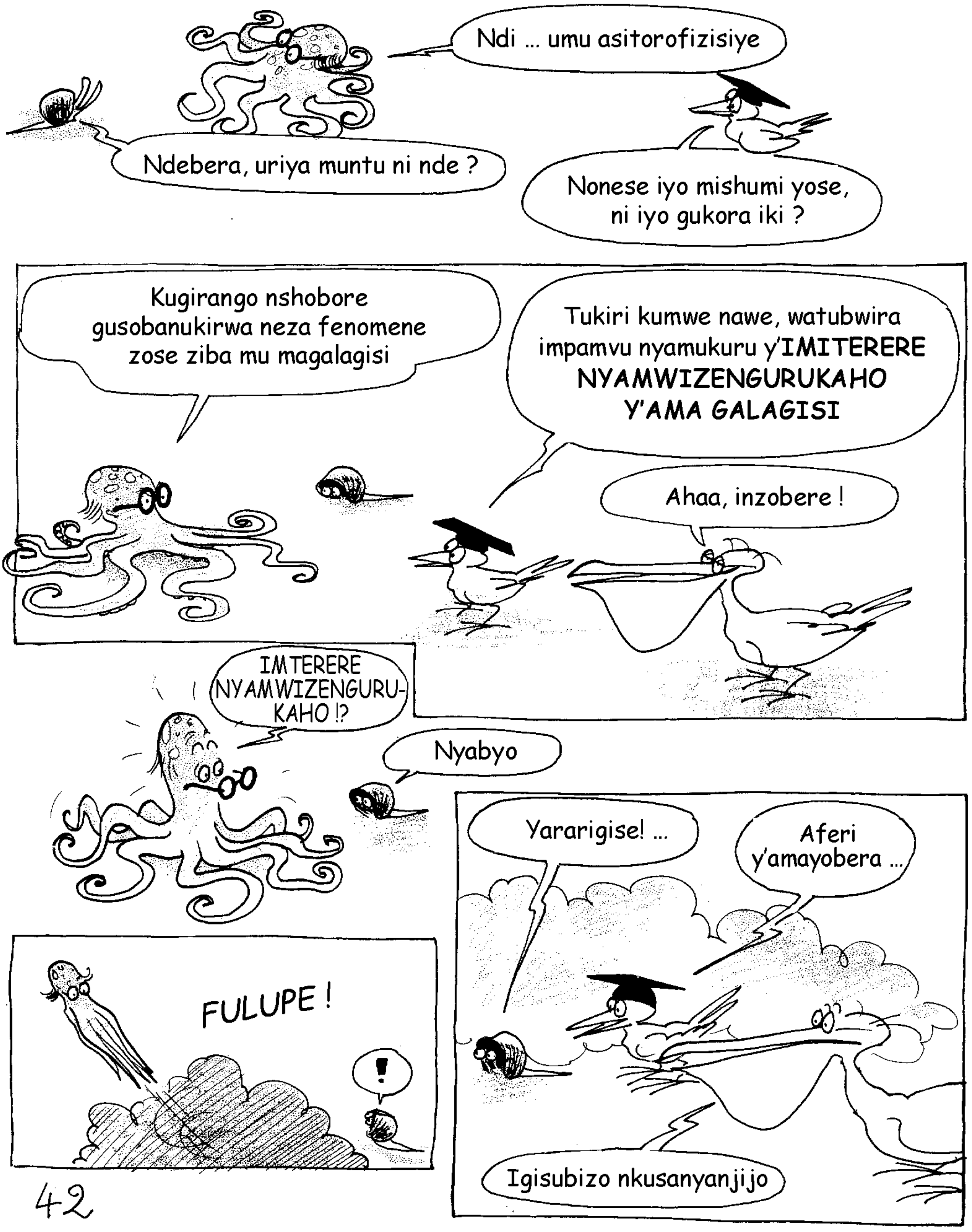
U MUDELI werekanywe aha ni irondora rya **DIMANSIYO 2** (dimansiyo ya gatatu ikaba ikoreshwa mu kwerekana ubuhetame, umurima nyagaravite, n'ibindi n'ibindi...). Ama **GALAGISI** ni ibintu nya dimansiyo eshatu. Ama Galagisi atazenguruka, cyangwa azenguruka buhoro cyane, azagira iforomu ijya gusa na **SIFERI**. Ama Galagisi yizengurukaho n'ingoga azabyatarara nka capati. Iyacu, **UMUYOBORO NYAMATA**, wizengurukaho rimwe mu myaka imiliyoni **200**.

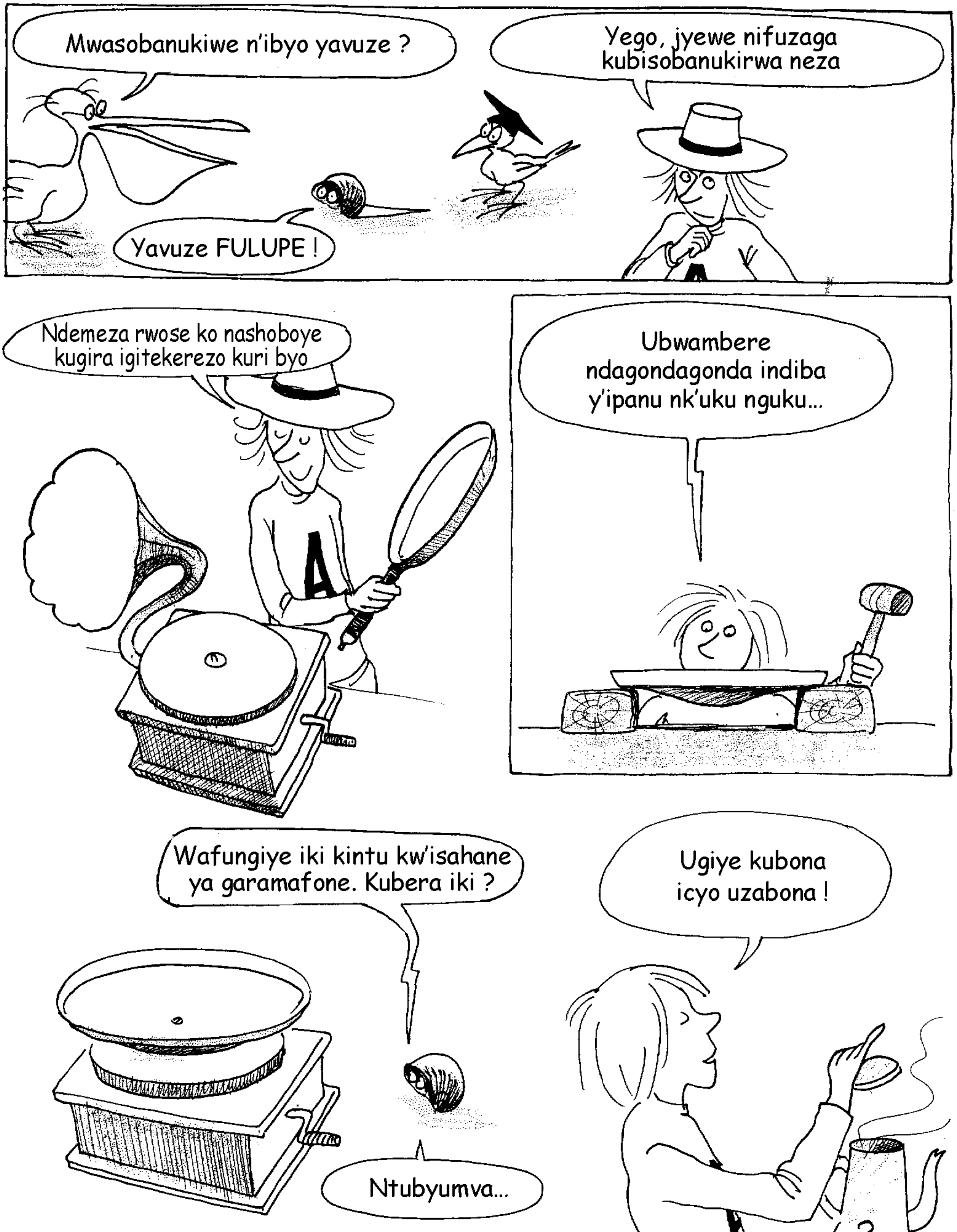
Igihe gaze nsigarira iguye noneho kuri galagisi ya yo, ingufu nzengurutsa zibuza iyegeranywa mu nzira nkurikirareyo. Ibiramambo, nta kizarwanya iyegeranyo rikurikiye umurongo nyizengurukaho. Gaze mpuzanyenyeri, mu ma galagisi, izagira iforomu ya **DISIKYE IBYATARAYE CYANE**:

UBUYOBOZI



IMITERERE NZENGURUKYE


Ndebera, uriya muntu ni nde ?
Ndi ... umu asitorofizisiye
Nonese iyo mishumi yose, ni iyo gukora iki ?
Kugirango nshobore gusobanukirwa neza fenomene zose ziba mu magalagisi
Tukiri kumwe nawe, watubwira impamvu nyamukuru y'IMITERERE NYAMWIZENGURUKAHO Y'AMA GALAGISI
Ahaa, inzobere !
IMTERERE NYAMWIZENGURU-KAHO !?
Nyabyo
Yararigise! ...
Aferi y'amayobera ...
FULUPE !
!
Igisubizo nkusanyanjijo



Mwasobanukiwe n'ibyo yavuze ?
Yego, jyewe nifuzaga kubisobanukirwa neza
Yavuze FULUPE !
Ndemeza rwose ko nashoboye kugira igitekerezo kuri byo
Ubwambere ndagondagonda indiba y'ipanu nk'uku nguku...
Wafungiye iki kintu kw'isahane ya garamafone. Kubera iki ?
Ntubyumva...
Ugiye kubona icyo uzabona !

Nduzuza isahane n'igitemba hanyuma byose mbyinjize mu rugendo nyizengurukaho.
Dore !
Ipanu isimbura umwanya nyabunyenyeri, naho ikawa isimbure gaze mpuzanyenyeri nsigarira. Iyo mpagaritse isahane, ikawa izenguruka VUBA KURUSHA ipanu kandi hazavuka za ONDES NYAMWIZENGURUKAHO.
IMITERERE NYAMWIZENGURUKAHO y'amagalagisi afite gaze nsigarira yaba yaraturutse rero kuri fenomene y'ITSIRIMANA NGENDANYI, amatsinda abiri y'ibitemba : GAZE MPUZANYENYERI na "GAZE NYABUNYENYERI", zizenguruka ku mivuduko inyuranye, "IREREMBA" umwe ku wundi, nk'uko igitemba kireremba ku indiba y'ipanu...
... nk'uko ikawa ireremba hejuru y'indiba y'igikombe.

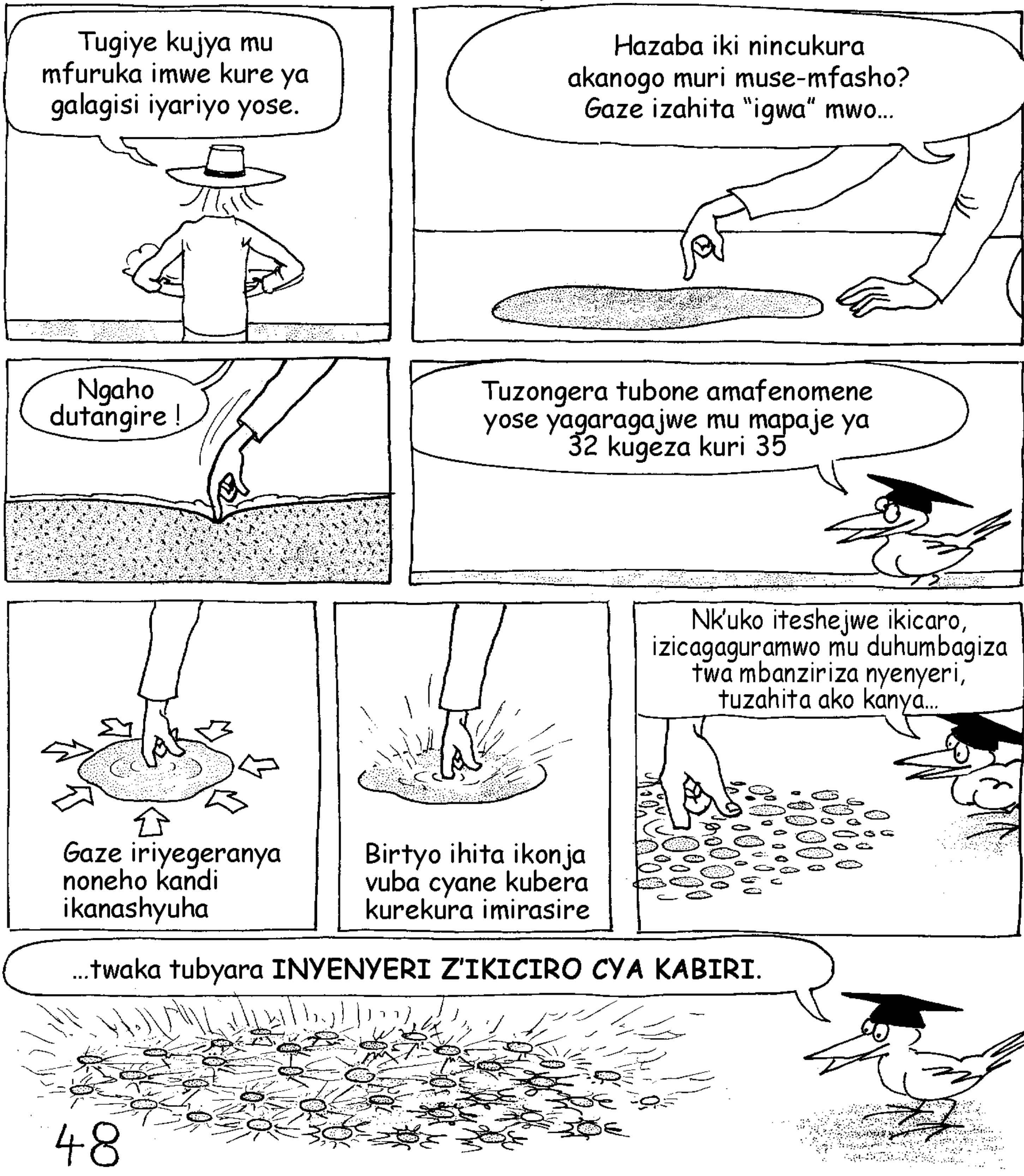
Ariko, ni kuki amagalagisi NYASERIKERENKWEDUYE zitagira imiterere ya nyizengurukaho ?
Kuberako gusa zitagira GAZE NSIGARIRA. Zarayitakaje igihe cy'icanwa ry'INYENYERI MBANZIRIZA zazo.
Ni kandi fenomene y'ITSIRIMANA NGENDANYI ikora imiterere nyizengurukaho igihe cy'ividurura ry'akavugutiro.
Ngaho mbwira, uziko ibyo uvuga birakomeye. Birtyo rero urufunguzo-nsobanuro rwa amayobera y'amagalagisi nyizengurukaho rwaba ruba mu ndiba y'ibikombe by'ikawa, cyangwa by'utuvugutiro ?!?
Amagalagisi yaba ari imwenge y'ividura rya kosimosi ?
Hariya, twahuzaga igitemba n'urukuta rukakaye. Tugerageze na sisiteme aho mase ebyiri z'ibitemba zijombana ibikorwa.
Nafungiranye gaze mu nsi y'iyi nzogera kandi nashyize ikinyabuzi mw'ipanu. Mbikesheje iyi sisiteme, nshobora kwiga ibiba igihe mase nyagaze ijombana ibikorwa n'iyindi mase nyagitemba.

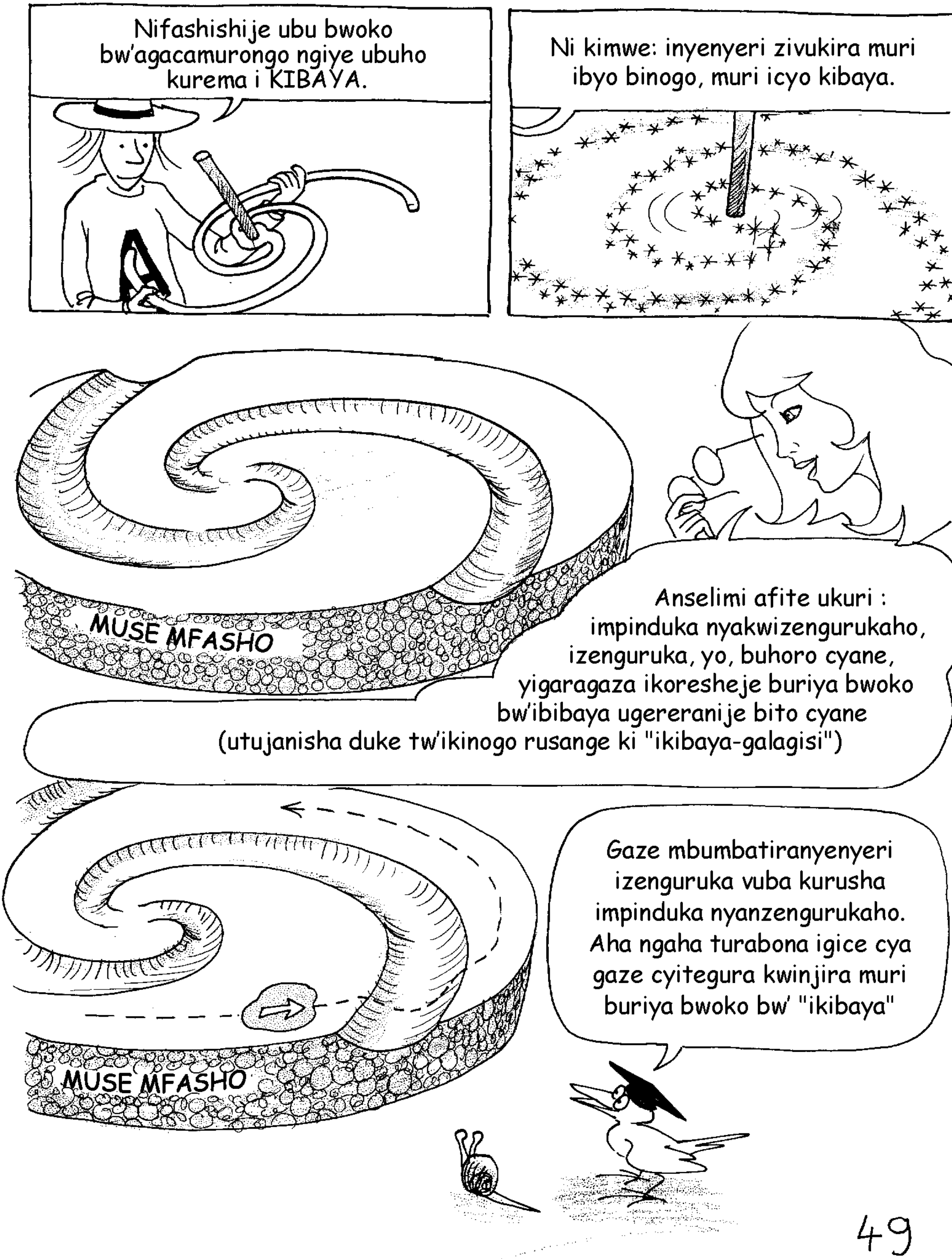
(*) umwotsi NDENGERANEGUZI

(**) fenomene irekura kandi ubushyuhe ikanagaburira serwakira ingufu (ariko ibyo ni iyindi nkuru).

Tugaruke ku UMUDELI WACU wa galagisi. Mase nyagitemba igaragaza "GAZE Y'INYENYERI" izenguruka mu "KIBAYA" cyacyo. Irengewe na mase ya GAZE NSIGARIRA izenguruka k'umuvuduko wihuta kurushaho. Bikurikirwa na fenomene y'ITSIRIMANA NGENDANYI kandi noneho igabura-nsakazi rya MASE rirahinduka, impinduka ikaba ifite ya gewometiri NZEGURUKWAHO.
Nyegeranyi yose ya MATSIYERI (inyenyeri cyangwa gaze) icukura ako kanya iyo muse-mfasho. Ahari MASE, haba hari UBUHETAME.
MUSE-MFASHO
Mu yandi magambo, hazaboneka ubwoko bw'IBIBAYA bw'iforomu nyizengurukaho, aho gaze izagira ingeso yo kuhiyegeraniriza.
Ariko simbona n'ubu na rimwe iyegeranya ry'umwotsi w'amazi.
Tuyore gaze mpagatiranyenyeri nkye
Turebe ikiba kuri gaze mpagatiranyenyeri iyo "iguye" muri ubwo bwoko bw'ibibaya...

IHINGURO-NTUNGABUZIMA NYAGALAGISI

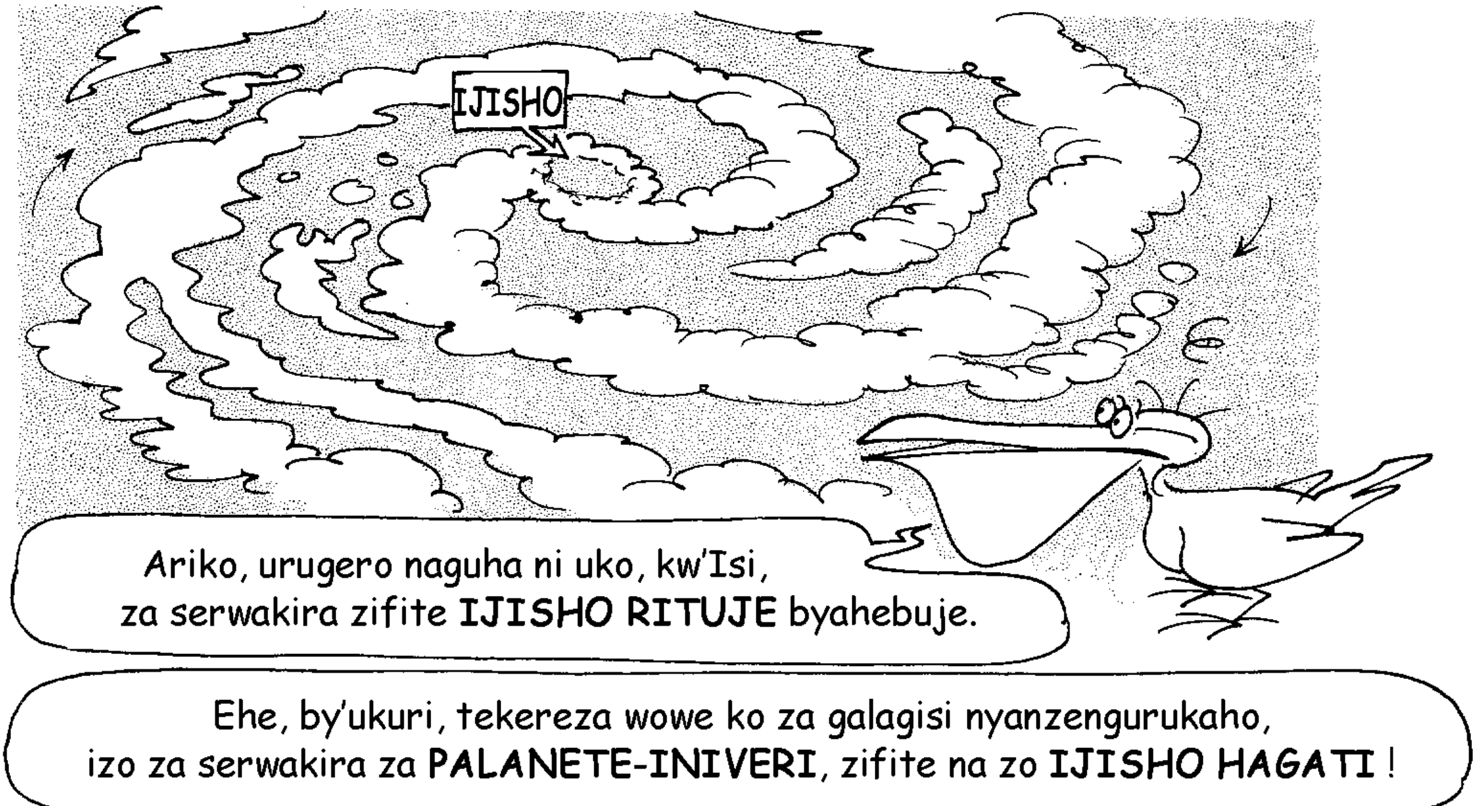




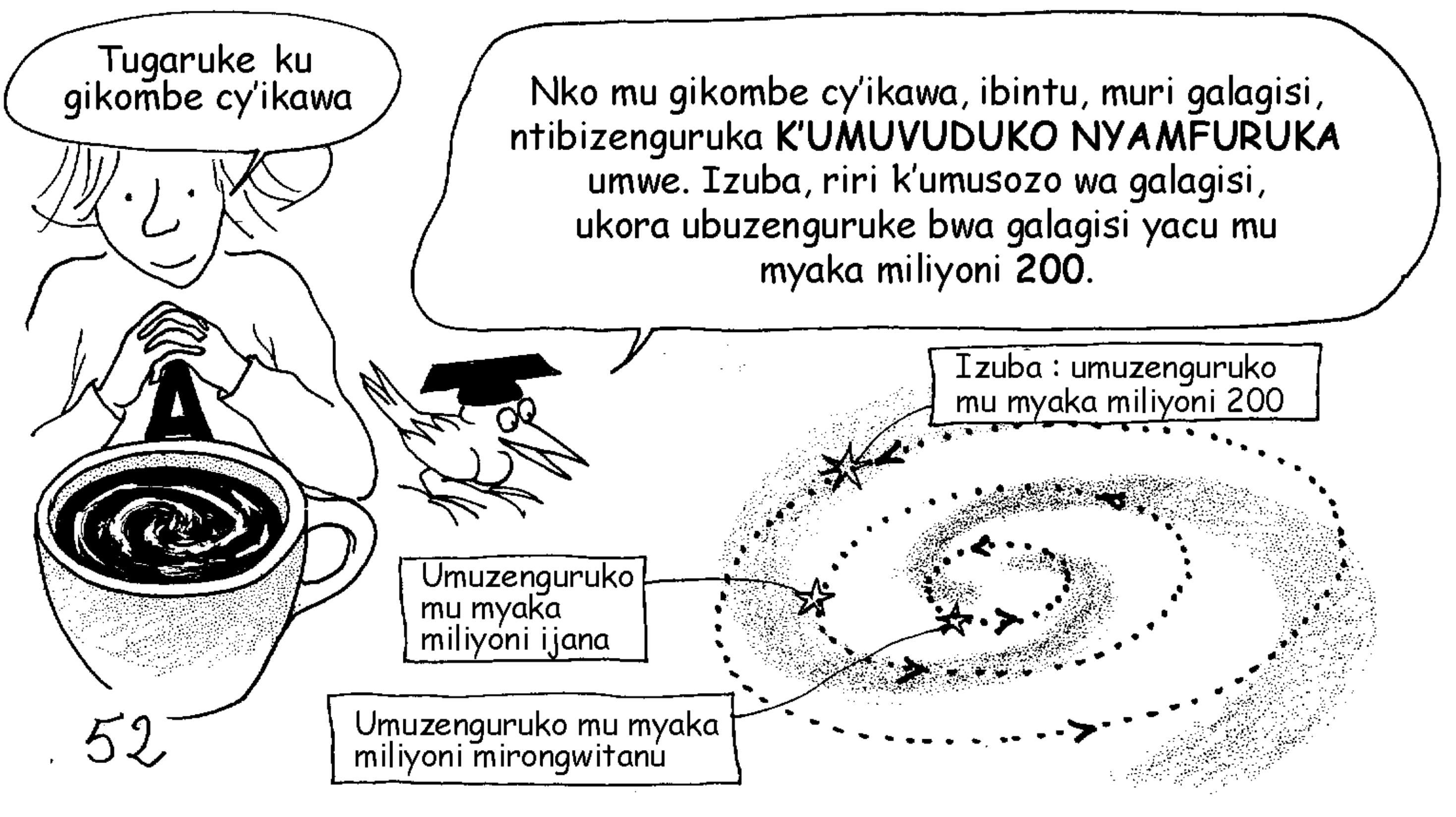
Nifashishije ubu bwoko bw'agacamurongo ngiye ubuho kurema i KIBAYA.
Ni kimwe: inyenyeri zivukira muri ibyo binogo, muri icyo kibaya.
MUSE MFASHO
Anselimi afite ukuri : impinduka nyakwizengurukaho, izenguruka, yo, buhoro cyane, yigaragaza ikoresheje buriya bwoko bw'ibibaya ugereranije bito cyane (utujanisha duke tw'ikinogo rusange ki "ikibaya-galagisi")
Gaze mbumbatiranyenyeri izenguruka vuba kurusha impinduka nyanzengurukaho. Aha ngaha turabona igice cya gaze cyitegura kwinjira muri buriya bwoko bw' "ikibaya"
MUSE MFASHO

SERWAKiRA ZO MURi iNiVERi

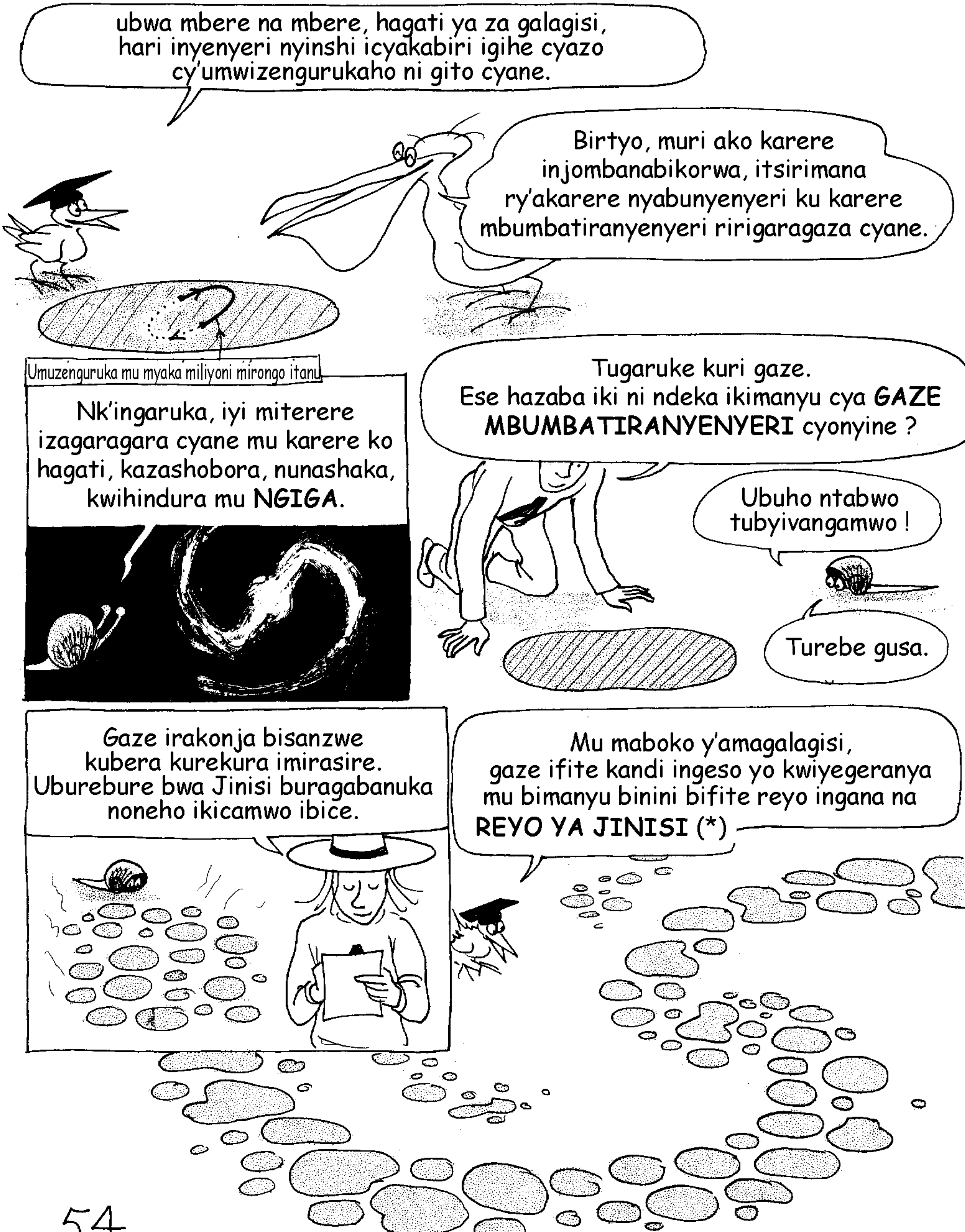
Kandi rero izo nyenyeri z'imitavu, zishyushye cyane, ziboneka gusa mu maboko nyanzengurukaho, aho zigaragaza zimurika cyane gaze mpagatiranyenyeri...
Uribagiwe, Lewo, ko izo nyenyeri zitaguma ari imitavu igihe kirekire cyane. Imyaka ibihumbi cumi iyo bikabije. Igihe cyo gutwika idorojeni nyinshi ishoboka. Iyo zivuye mu maboko, ziba ari NYAGUPFA, ziba ari gusa nk'amakara.
Kandi ntiziba zikiboneka
GAZE MPAGATIRANYENYERI nayo igaragara gusa mu maboko, aho imurikwa cyane n'izo nyenyeri z'imitovu. Nyuma y'aho, imaze gusohoka mu maboko, iyo gaze isubira kwijima.



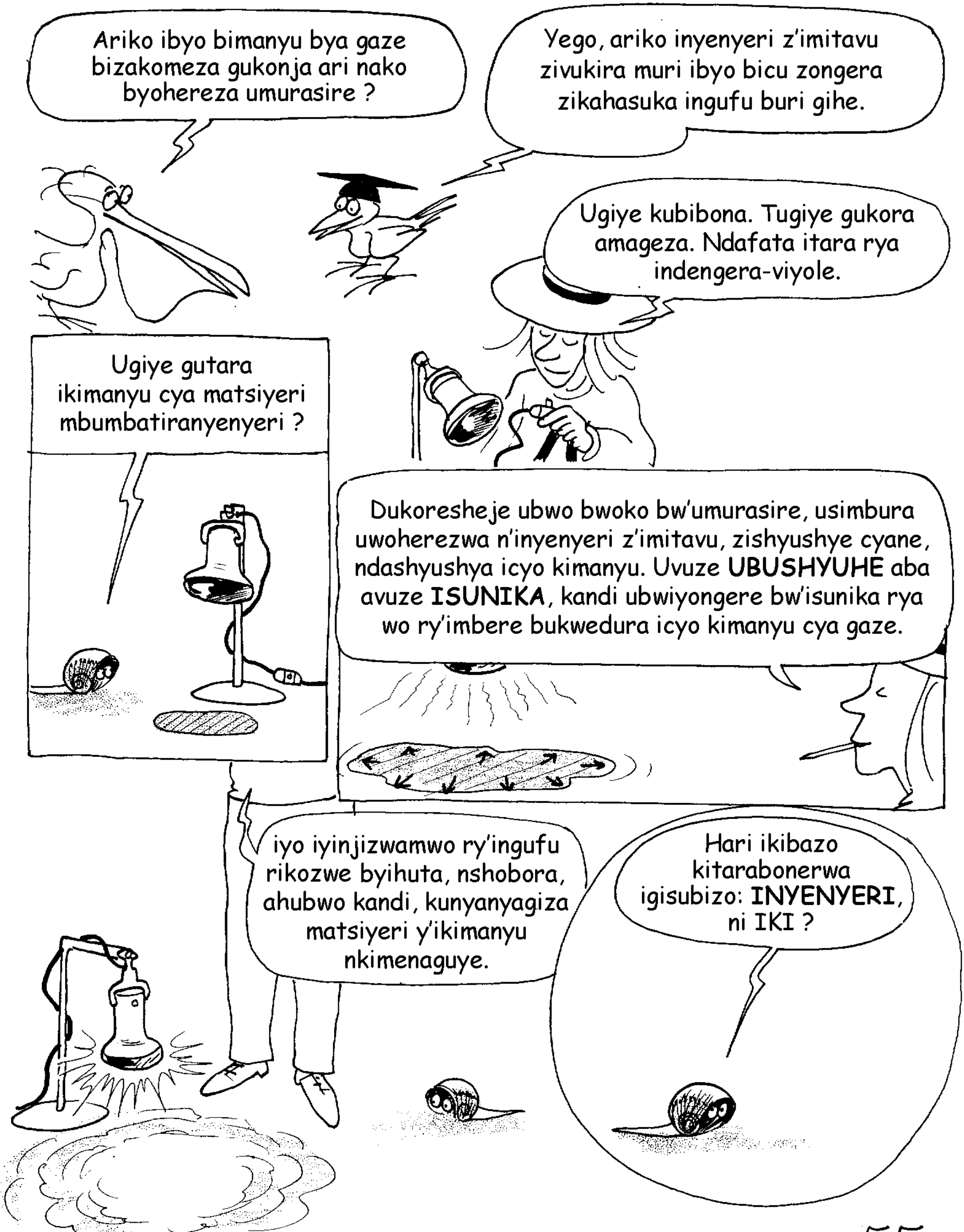
NYIZENGURUKAHO NYAWITURUKAHO



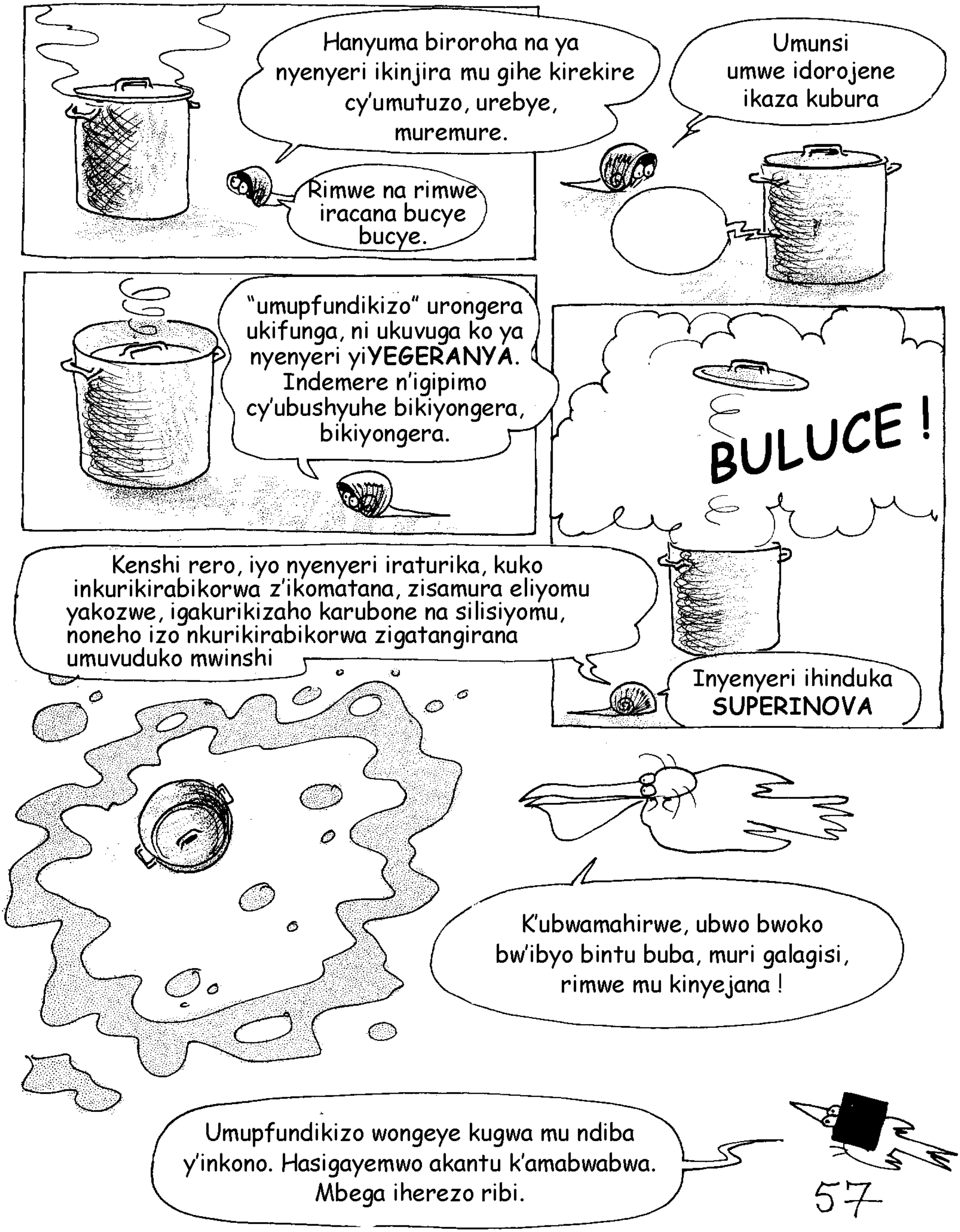
Muri make igice cyo hagati cya galagisi kizenguruka vuba kurusha umusozo
Nawe urabibona neza ko, ari amavugutiro!
Kuva Tireziyasi ahatse kuzimirira mu mwobo wirabura, byahindutse igitekerezo cye kitanyeganyega !
Ibyo si ubugoryi. Hari abantu benshi kandi bazi ubwenge batekereza ko hari ikinogo cy'umukara kinini hagati ya galagisi...
Dore galagisi "NYAYO", igaragaza ingendo muri za dimansiyo eshatu
Dukurikije igishushanyo, inyenyeri, zo ni uduce twa "gaze y'inyenyeri" (birtyo rero wazigereranya na za "molekile") twambukiranya kuri buri muzenguruko ama **DISIKYE YA GAZE**, abyataraye by'umurengera.
Ibi bisobanura impamvu injombanabikorwa akarere nyabunyenyeri-akarere mbumbatiranyenyeri, ugereranije, ari ntagatege
DISIKYE YA GAZE
Ndatekereza ko impamvu ari uku zijombana ibikorwa na gaze igihe gusa nzambukiranyaga iyo disikye ibyataraye ?
Neza cyane !



(*) Mu magalagi "nyayo", umubyimba wa disikye nawo ujya kungana n'iyo reyo.


Ariko ibyo bimanyu bya gaze bizakomeza gukonja ari nako byohereza umurasire ?
Yego, ariko inyenyeri z'imitavu zivukira muri ibyo bicu zongera zikahasuka ingufu buri gihe.
Ugiye kubibona. Tugiye gukora amageza. Ndafata itara rya indengera-viyole.
Ugiye gutara ikimanyu cya matsiyeri mbumbatiranyenyeri ?
Dukoresheje ubwo bwoko bw'umurasire, usimbura uwoherezwa n'inyenyeri z'imitavu, zishyushye cyane, ndashyushya icyo kimanyu. Uvuze UBUSHYUHE aba avuze ISUNIKA, kandi ubwiyongere bw'isunika rya wo ry'imbere bukwedura icyo kimanyu cya gaze.
iyo iyinjizwamwo ry'ingufu rikozwe byihuta, nshobora, ahubwo kandi, kunyanyagiza matsiyeri y'ikimanyu nkimenaguye.
Hari ikibazo kitarabonerwa igisubizo: INYENYERI, ni IKI ?

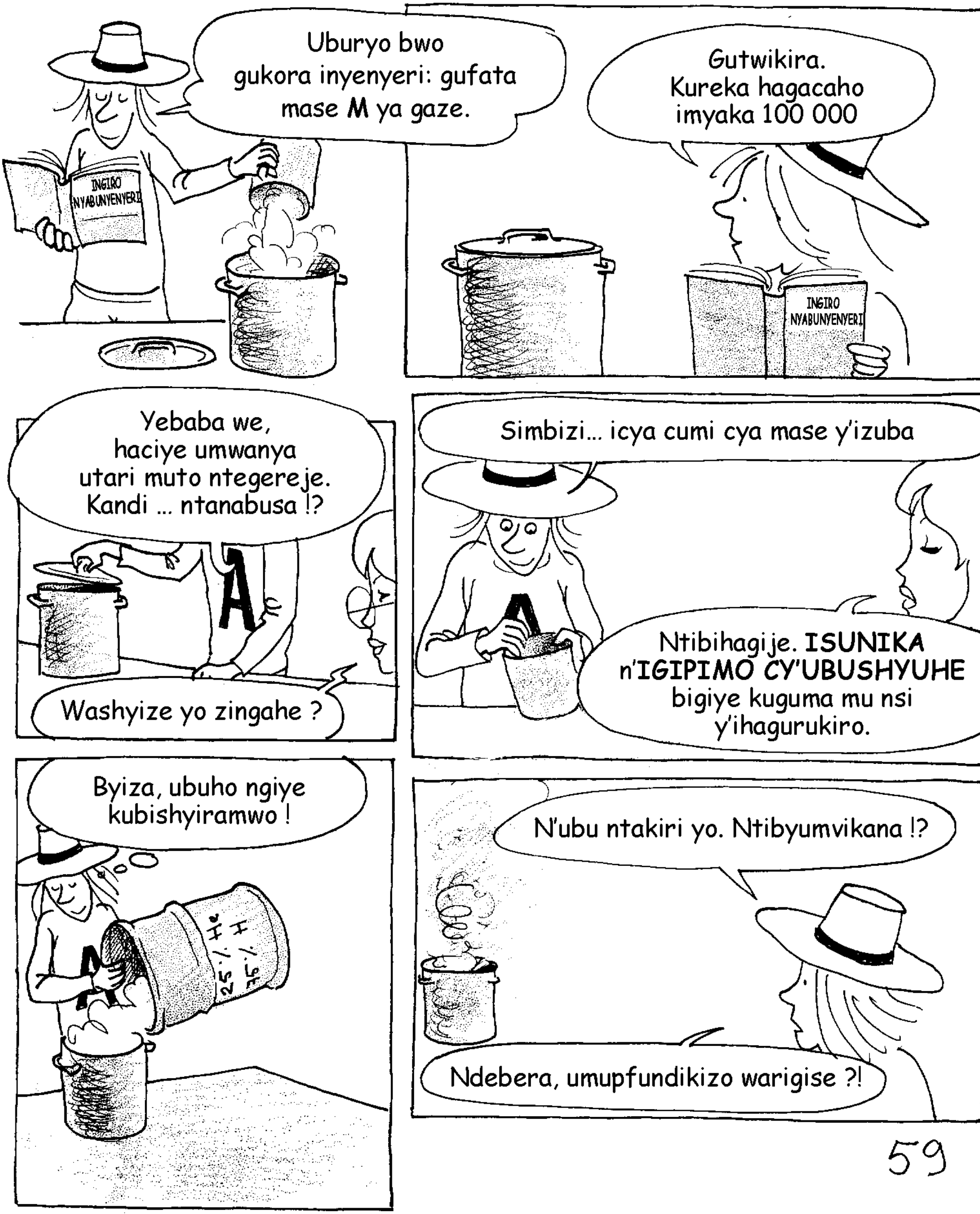
FENOMENE NYABUNYENYERi



Hanyuma biroroha na ya nyenyeri ikinjira mu gihe kirekire cy'umutuzo, urebye, muremure.
Rimwe na rimwe iracana bucye bucye.
Umunsi umwe idorojene ikaza kubura
"umupfundikizo" urongera ukifunga, ni ukuvuga ko ya nyenyeri yiYEGERANYA. Indemere n'igipimo cy'ubushyuhe bikiyongera, bikiyongera.
BULUCE !
Kenshi rero, iyo nyenyeri iraturika, kuko inkurikirabikorwa z'ikomatana, zisamura eliyomu yakozwe, igakurikizaho karubone na silisiyomu, noneho izo nkurikirabikorwa zigatangirana umuvuduko mwinshi
Inyenyeri ihinduka SUPERINOVA
K'ubwamahirwe, ubwo bwoko bw'ibyo bintu buba, muri galagisi, rimwe mu kinyejana !
Umupfundikizo wongeye kugwa mu ndiba y'inkono. Hasigayemwo akantu k'amabwabwa. Mbega iherezo ribi.

(*) galagisi ifite diyametero y'imyaka-rumuri ibihumbi ijana

AMOKO Y'INYENYERI



Twungutse ! UMWOBO WIRABURA umwe !
Inyenyeri-rugero ni igice cya mase nyabuzuba
Ahaa, ni ukuri ! hamwe n'iyi esipase idakomangatanye...
Dore. Nyuma y'iyi ntera yumye ho gato yo gucana, inyenyeri ihita ishyikira imyakire yayo ikataje.
FOLOTISHI FOLOTISHI FOLOTISHI
Cyose, ni iki kandi ?
SEFEYiDE
FOLOTISHI FOLOTISHI
SEFAYIDE
Wakoze INYENYERI YIHINDURANYA. Diyametero yayo irahinduka buri kanya kandi, kuri buri yegeranya, irekura itama ry'urumuri.
Uko mase ya SEFAYIDE ari nini ni nako ubugarukire bwayo ari burebure. Incandago (paralagise) mu rugendo ryatumye bakoresha izo nyenyeri mu gupima urugendo rudutandukanya na galagisi ya Andromede.
Ubuyobozi

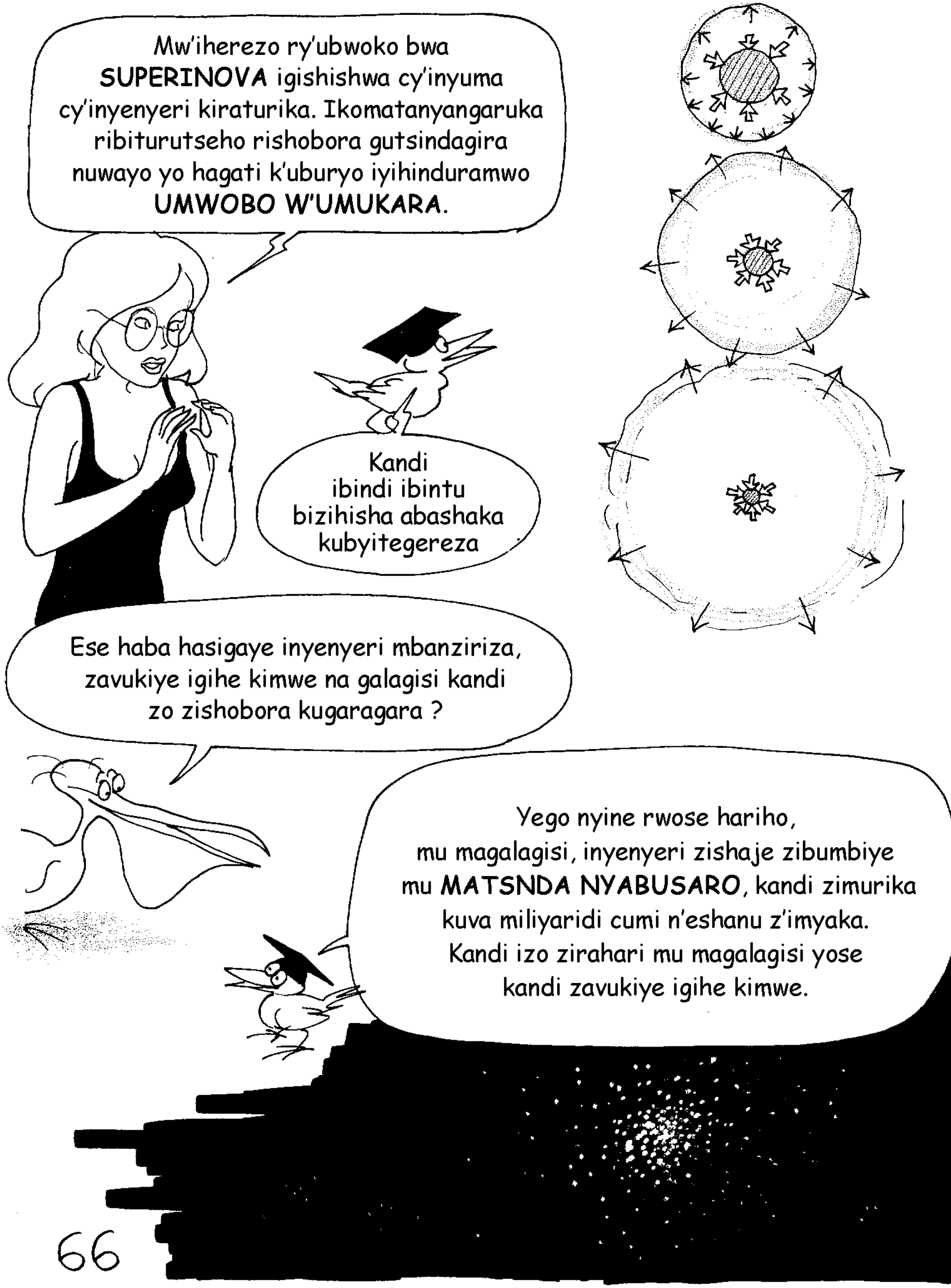
Uko inyenyeri IREMEREYE, ni nako ibyiruka N'INGOGA. INYENYERI yo mu bwoko bw'izuba ishobora kugurumana mu mahoro mu gihe cy'ama miliyaridi y'imyaka, naho inyenyeri y'umutavu, iremereye, ikoresha idorojene yayo mu miliyoni imwe y'imyaka. Iherezo rya yo ni uguturika
MASE Y'IZUBA
INSHURO CUMI ZA MASE Y'IZUBA
Inyenyeri ziremereye ni inyenyeri z'ibibazo
Ngiye kubaza ikibazo nka Tereziyasi: INYENYERI ZIMARA IKI !
IKIBAZO KIZA CYANE !
Mu nda y'inyenyeri nuwayo z'atome zihura n'amasunika akomeye cyane. IKOMATANA ry'ama nuwayo ane ya idorojeni atanga...
... eliyomu

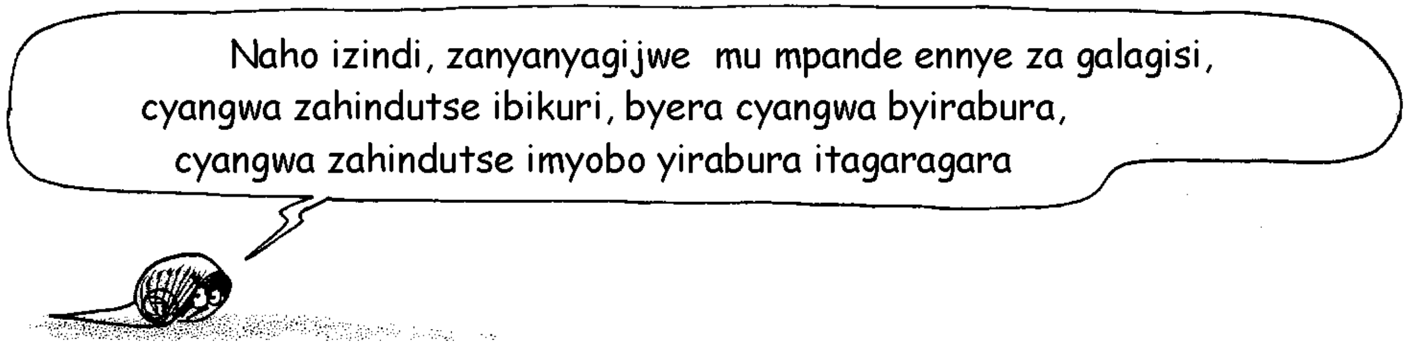
iMBUTO ZA iNiVERi

iBiCU & iMVURA

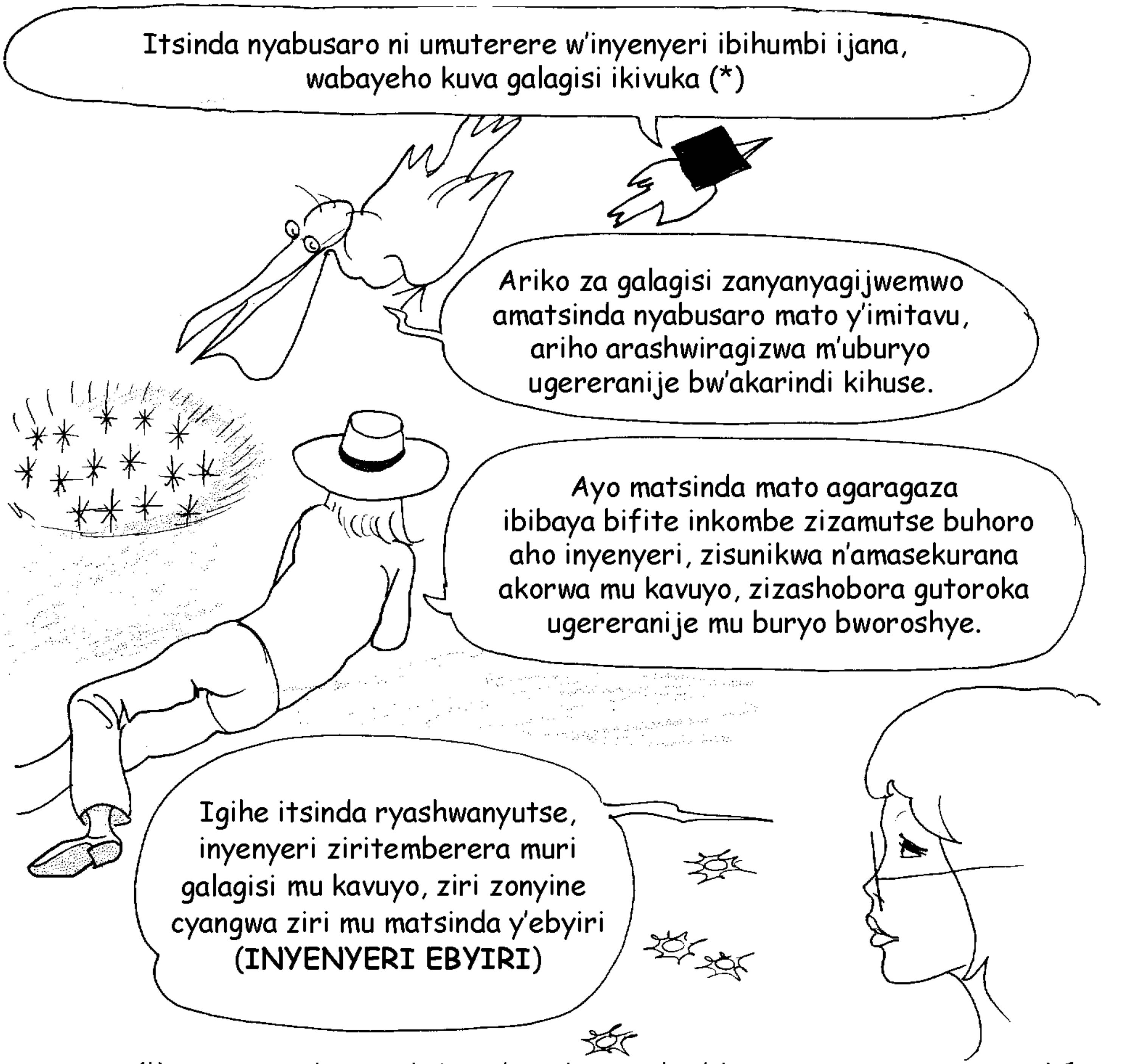
Anselimi, uriho urakora iki?
Ngwino tujyane
Uyu ni umwanya wo gukusanya ibyo tuzi byose ku amagalagisi.
Hano mfite ibigaragaro byambere byiza by'umwitegererezo.
Matsiyeri. Ubwa mbere inyenyeri miliyaridi Magana abiri
Gaze nke ya mpagatiranyenyeri
Tuzengurutse iryo tsinda
Ariko ... habaye iki?
Byose byagiye!!?
Sofiya, mfite agahinda. Galagisi yanjye yaturitse yose. Ibiramambo nari nakoresheje ibigaragaro by'ubwitegererezo bya vuba cyane!
Byapfuye pe...

MASE iBURAHO


Mw'iherezo ry'ubwoko bwa SUPERINOVA igishishwa cy'inyuma cy'inyenyeri kiraturika. Ikomatanyangaruka ribiturutseho rishobora gutsindagira nuwayo yo hagati k'uburyo iyihinduramwo UMWOBO W'UMUKARA.
Kandi ibindi ibintu bizihisha abashaka kubyitegereza
Ese haba hasigaye inyenyeri mbanziriza, zavukiye igihe kimwe na galagisi kandi zo zishobora kugaragara ?
Yego nyine rwose hariho, mu magalagisi, inyenyeri zishaje zibumbiye mu MATSNDA NYABUSARO, kandi zimurika kuva miliyaridi cumi n'eshanu z'imyaka. Kandi izo zirahari mu magalagisi yose kandi zavukiye igihe kimwe.



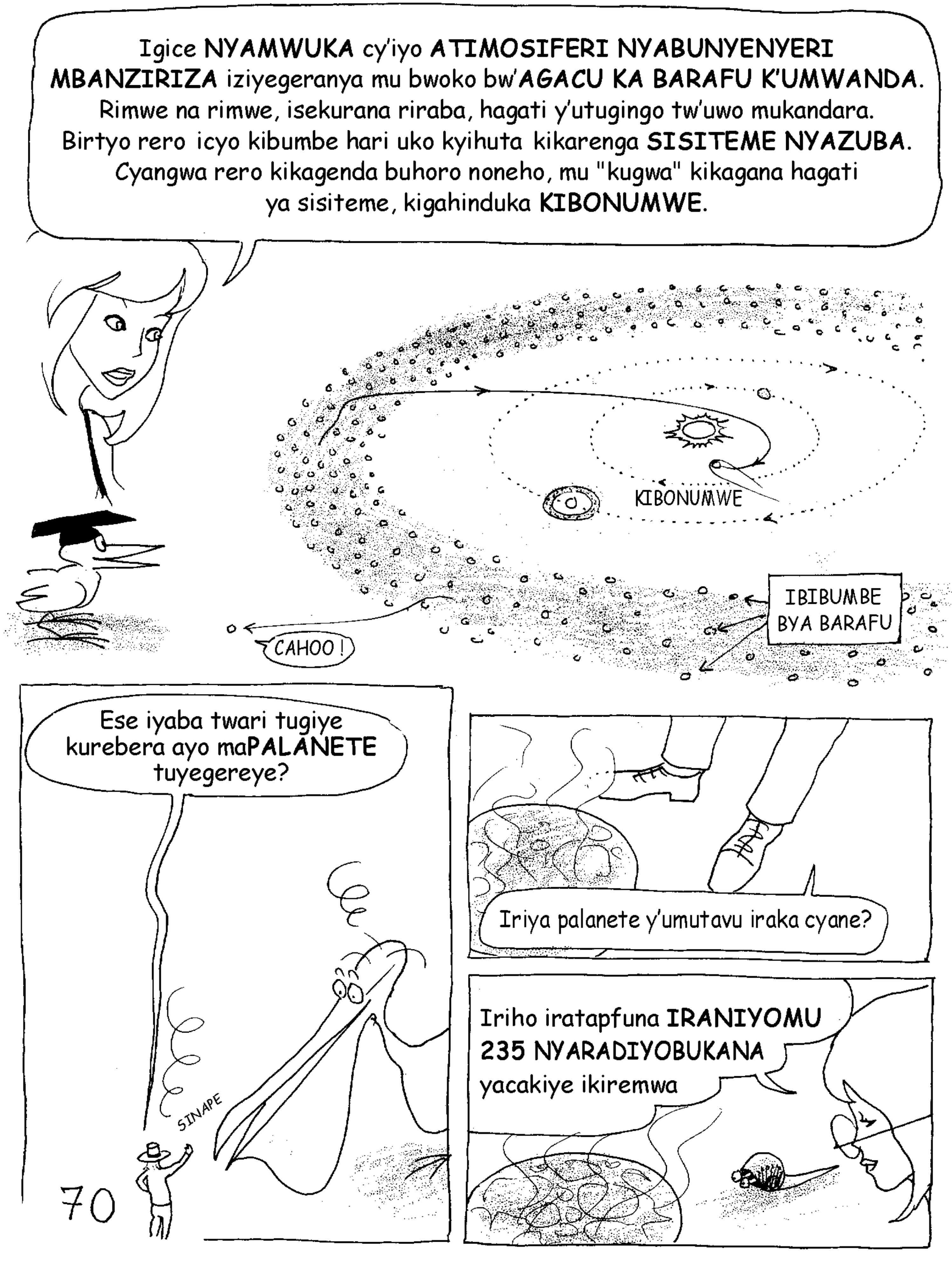
AMATSiNDA Y'iNYENYERi



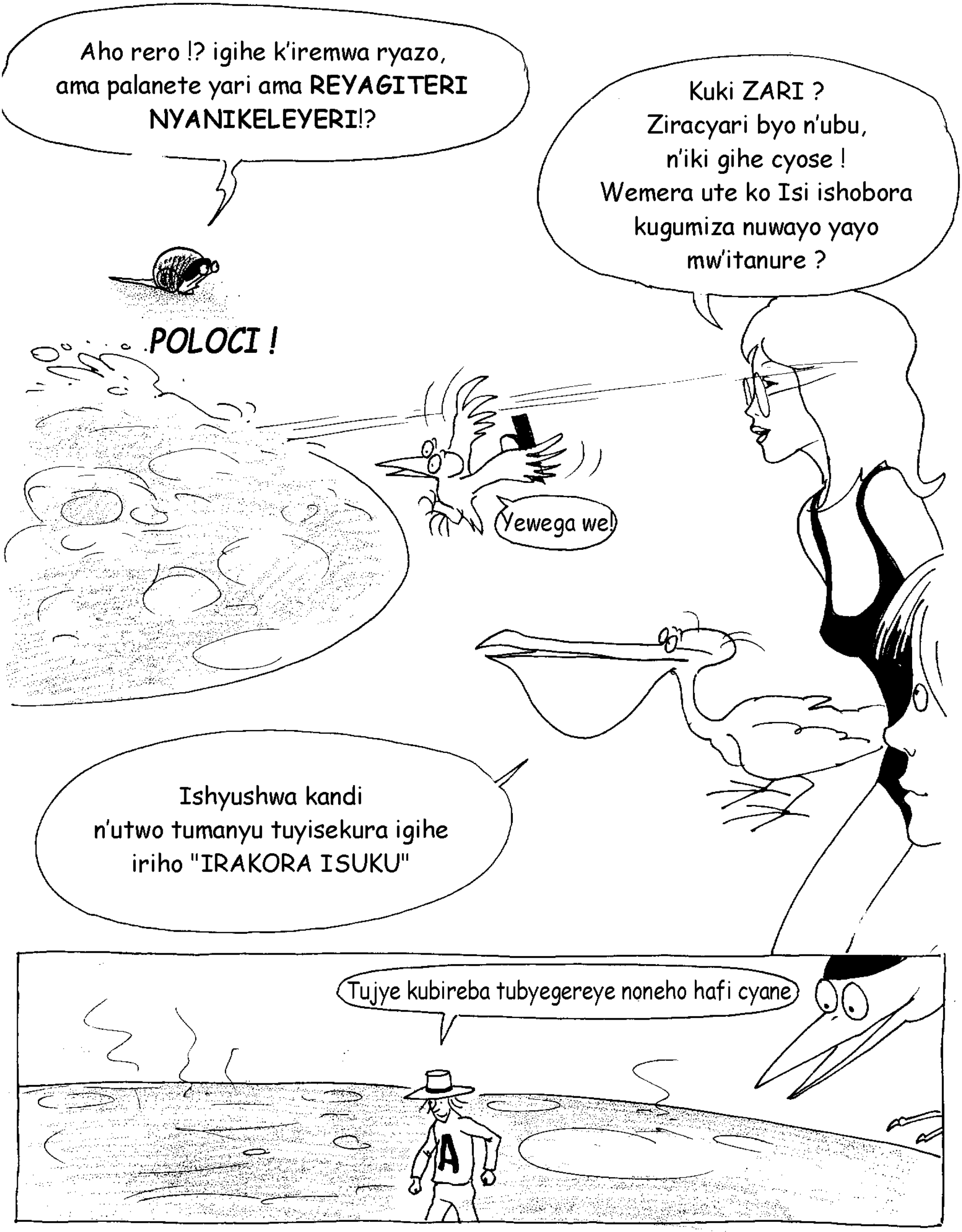
(*) umwanya wo kuyonga kw'itsinda nsekurane uhinduka mu buryo bumwe na mase ya ryo.

Ishyirwa hamwe z'izo nyenyeri ebyiri, za mase zijya kungana cyangwa zirutana cyane, ni sisiteme ZIDAPFA GUHINDAGURIKA. Izo sisiteme nyabubiri, nyishi cyane mu magalagisi, ni ikimenyetso cy'isano mbarizwayo rya kera mw'itsinda ry'inyenyeri.
Ndibaza ko amagalagisi agomba nayo kuba atakaza buhoro buhoro inyenyeri z'ayo?
Kubera icyo, birasabako inyenyeri zakira imivuduko y'umirengera, iruta umuvuduko w'itoroka, biciye mu mukino w'AMASEKURANA. Ariko, zinyanyagijwe muri galagisi, inyenyeri zirema rwose ihuriro NTASEKURANA. Ntizigera zihura na rimwe. Birtyo rero za galagisi ntizitakaza inyenyeri
Guhora utwara byose, ibyo ndabikunda...
Nditegereza iri tsinda rito ry'inyenyeri zikimara kuvuka. Ubirebye neza zitwara nk'amagalagi y'imitavu yacu. Zirashyushye, zikikijwe n'agahu gato ka gaze n'ivu : umwuka wazo, mu yandi magambo...

AMAPALANETE



Igice NYAMWUKA cy'iyo ATIMOSIFERI NYABUNYENYERI MBANZIRIZA iziyegeranya mu bwoko bw'AGACU KA BARAFU K'UMWANDA. Rimwe na rimwe, isekurana riraba, hagati y'utugingo tw'uwo mukandara. Birtyo rero icyo kibumbe hari uko kyihuta kikarenga SISITEME NYAZUBA. Cyangwa rero kikagenda buhoro noneho, mu "kugwa" kikagana hagati ya sisiteme, kigahinduka KIBONUMWE.
KIBONUMWE
IBIBUMBE BYA BARAFU
CAHOO!
Ese iyaba twari tugiye kurebera ayo maPALANETE tuyegereye?
SINAPE
Iriya palanete y'umutavu iraka cyane?
Iriho iratapfuna IRANIYOMU 235 NYARADIYOBUKANA yacakiye ikiremwa



Aho rero !? igihe k'iremwa ryazo, ama palanete yari ama **REYAGITERI NYANIKELEYERI**!?
Kuki ZARI ? Ziracyari byo n'ubu, n'iki gihe cyose ! Wemera ute ko Isi ishobora kugumiza nuwayo yayo mw'itanure ?
POLOCI !
Yewega we!
Ishyushwa kandi n'utwo tumanyu tuyisekura igihe iriho "IRAKORA ISUKU"
Tujye kubireba tubyegereye noneho hafi cyane

Anselimi, ntegereza !! itonde, iruka ry'ibirunga riracyari ryinshi
Aha, kiriya... ibyaribyo byose umutwe urubitse !
Ubwo rero, Tireziyasi... umurizo wawe wongeye kwizinga ?
Mi!
Muratureba rero turi ku PALANETE. Imvura za karahabutaka zisiba buhoro buhoro inkovu zasizwe na amameteworite. Hashize igihe t= miliyaridi cumi z'imyaka kandi igipimo cy'urumuri nyakosimosi cyaramanutse kugera kuri dogere 4 Kelivini.
Tugiye kuzakomerereza ku nkuru nshya: BIYOLOGIKONI. Hano ni Sofi, ubavugisha ari muri Kosimosi.
UMUSOZO