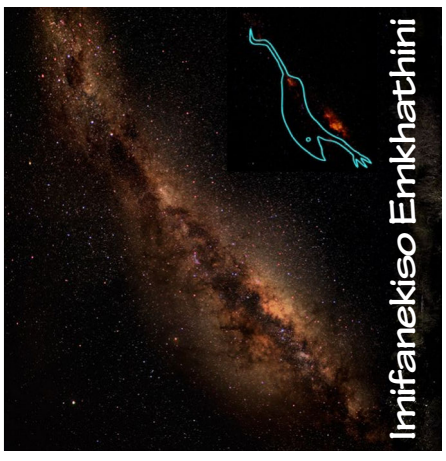
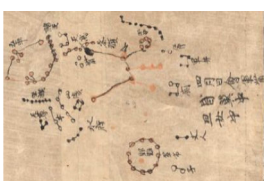




Grażyna Stasińska  
Paris Observatory



UMkhathilibe Ephaketheni Lami

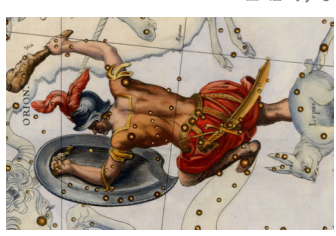


Iziphuzi: Umndwebo wesiShomo iMpambano owdwetshwa ngo-1687 udwetshwa imfundindalo yomkhathi, yamaPholishi uJohannes Hevelius kwibalazwe lakhe lomkhathi.

Kwesokudla: IMephu kaDunhuang, ishadi lamaShayina leziNkanyezi lesentlurini le-7, ilkhombisa isiShomo iMpambano.



IziNkanyezi zesiShomo iMpambano nemigqha yokuzakhele ezikhumanisayo.



Ngenhlal: Umndwebo wesiShomo iMpambano owdwetshwa ngo-1687 udwetshwa imfundindalo yomkhathi, yamaPholishi uJohannes Hevelius kwibalazwe lakhe lomkhathi.

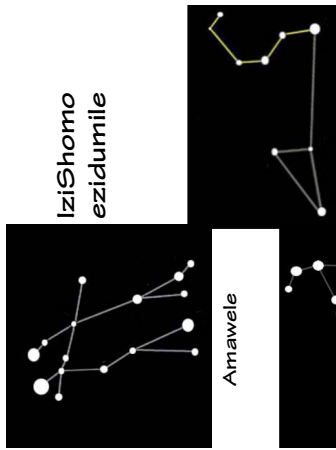
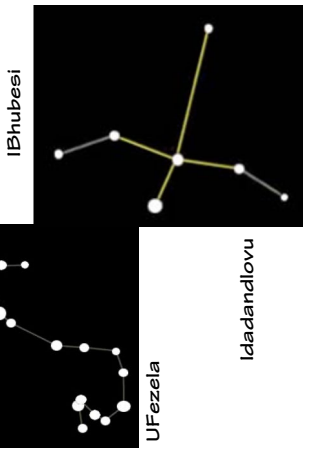
Iziphuzi: Umndwebo wesiShomo iMpambano owdwetshwa ngo-1687 udwetshwa imfundindalo yomkhathi, yamaPholishi uJohannes Hevelius kwibalazwe lakhe lomkhathi.

IziShomo kanye nezomkhathi

Ikhulu leziNkanyezi ziyabonakala ngaphandle kokusebenzisa izipopolo zomkhathi. ekuhambeni kweminyaka, sezafakwa kwizindumayezi zomkhathi ezinemidwebo emihle ekhombisa iziShomo.

Ngesinamuhla osoayensi sebekwazi nokuklala ibanga elisuka eMuhlabeni liya kwizinkanyezi. KwisiShomo esisodwa izinkanyezi zisuke zigqagqene kanti ayikho irto ezihlanganisayo. Yize sit handa ukuzibona ziyinto eyodwa. Ngokusebenzisa izipopolo, singathola iningi leziNkanyezi. Ngowezi-2014, kusetshenziswa izipopolo i-Newton Telescope eCanary Islands, osoayensi baklabhuza indumayezi eyayiqukethe inani eliyizigidi ezingama-219 leziNkanyezi.

Iziphuzi: Umndwebo wesiShomo iMpambano owdwetshwa ngo-1687 udwetshwa imfundindalo yomkhathi, yamaPholishi uJohannes Hevelius kwibalazwe lakhe lomkhathi.



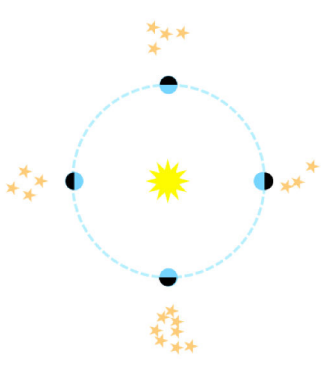
UMkhathini ezikhathini ezahlukene

IziNkanyezi zibonakala epusuku kuphela: emini, zisuke zifihliwe ukukhazimula kwelanga.

Onyakeni, uMhlaba uzungeza ILanga okudala ukuthi izingxeny e ezahlukene zomkhathi zibonakale ngezikhathi ezahlukene zonyaka (Bhaka umdwebo ekhasini ellandelayo).

Imbulunga yezinkanyezi iyimbulunga yokuziqambela ezimeke eMuhlabeni lapho khona izinkanyezi ezikhokhelwe khona kanti futhi zibonakala sengathi zinyakaza khona.

Indlela yelanga kwimbulunga yezinkanyezi iyindilinga engamula kwizishomo ezisondelene nescaba somjikezelo somhlaba ekuyingelezeni kwelanga. Lendlela ibizwa ngecathamo.



Umzungezo welanga kaNomkhubulwana. Izihlobo ezahlukene zezishomo ziyabonakala epusuku ngezikhathi ezahlukene zonyaka.



Ngo-1927 kwabanjwa umncintiswano wokukhetha ifulegi lase-Alaska. Umnophi kwaba uBenny Benson, umfana oneminyaka eyi-13 wase-Alaska. Wabhala wathi: 'Inkanyezi yasengakatho yikusasa le-Alaska, esenyakatho kakhulu kwinyunyana. Ikwidwenguli esafelaba webhela — esikhombisa amandla.'

Ifulegi laseBrazil. IziNkanyezi zalo ezama-27 zimlele izifundazwe zakhona kanti zihleliwe ngendlela efanayo naseMkhathini obonakala eBrazil.



IMpambano : Isishomo esidumile

Kusukela emandulo abantu babegamba iziShomo-ikakhulukazi amagama ezilwane noma onkulunkulu babo-baphinde bazakhele izingane kwane ngazo lezozishiShomo.

Isibonelo, isiShomo impambano ngesingisi ebizwa nge-Orion, yagqanjwa ngamaGriki. Ziningi izingane kwane ezixoxwa ngayo i-Orion, unkulunkuluwana omuhle, osoayensi baseShayina babazi ngempambano beyibizwa ngoShen, umzingeli noma lqhaw.

AbaseGhibitche babematanisa lesiShomo nokulunkulu wabo u-Osiris, kwakungamaSumeriyeni; bayiqamba ngo-Uru An-na, okueho ukuthi 'ukukhanya kwezulu'.

ekwazi ukubona isiShomo ufelelela weBhele.

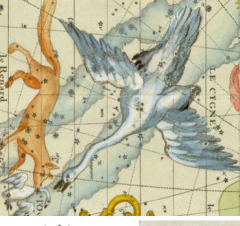
2



Inkazimulo yomkhathathi eRhodé umdwebo odumnile owadwetshwa ibhunu uVincenc Van Gogh, lapho khona umuntu



Lomdwebo olinganisela kwizi-17,000 ubudala osentabanti iLascasux eFransi ukhombisa iqoqo leziNkanyezzi alibizwa ngesiLithela.



Amawele, kwisifantisa somngalika wa wokudalwa saaeFransi sove-1537, esaelotshwe ngu-al-Qazwini ngowe-1250.



UFezela, kwisivumelano esizibulungu sidwetshwe ngu-Andalc di Negro ngowe-1330.



Ibhubeke, kw-Uranometriya yaseOyereisweLithelana uJohan Bayer (1603).



Idadandlovu, kwindumayezzi yasomkhathathi wamaNjisi uJohn Flamsteed (1729).

**Impambano « eguqukezelwe »**

Izinganekwane zakwamanye amasiko zihlukile kakhulu.

Kusukela kumaYollingu, abomdabu base-Australia, iMpambano iyisiklebe esiphethe izinsizwa ezintathu ezilamanyo ababeyodoba. Oyedwa wabo wadla iNhlanzi ababengavuyelwe ukuyidla. Ngokudinwa, inkosikazi yelanga, yakha iNkanyamba eyathat ha isiklebe esasithwe lezi izelamani yasyisa esibhakabhakeni.

Inganekwane ehluKile exoxwa ngabomdabu baseBrazil: isiShomo sendoda simele indoda uNkosikazi wayo owayefela umfowabo. Wabulala umyeni wakhe, wamunqamula umulenze owodwa. Onkulunkulu bamuzwela base bemushintsha bemenza isiShomo.

7

Isiwahla sesenteShuri lesi-G esikhombisa isondo lesicathamo elinemidwebo yamaGrikihi.



Icathamo lamaShayina, lalisetshenziselwa ingoboco, lihluKile kuncacathamo lasentehonalanga

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**Ezomkhathathi kanye nokufundiswa kwezinkanyezi**

Igama elithi icathamo lidlume kakhulu ngenxa yobudlelwano elinabo nokubhula ngokusebenzisa indawo lapho iLanga lisuke ilikhona kwicathamo ngosuku lakho lokuzalwa. Ababhali balemibhulo babizwa ngeziCathamo, kanti bahlukile kunezimfundindalo zomkhathathi!

Ezomkhathathi ziyisayensi echaza iphinde izame ukupondisa zonke izinto eziseemkhathathini (imizulane, iziNkanyezi, imiThalakazi). Ukubhula ngokusebenzisa icathamo akusiyi isayensi. Ligabadela ukuthi kunobudlelwano phakathi kwendawo ilanga elikuYona kanye nemizulane kanye nezimpilo zabantu. Asikho isizathu sokuthi lokhu kubanjalo. Inganinjalo, kunobufakazi obuningi obukhombisa ukuthi lokhu akusilo iqiniso.

11

Ukuze ufunde kabanzi ngalolu uchungechunge kanye neshloko esithulwe kuleNcwajana, sicela uvakashele <http://www.tuimp.org>

Ukuthunelwa: Nkhanhla Mberimo  
TUIMP Creative Commons

**UMkhathathilwe Ephaketheni Lamni No. 5**

LeNcwajana liotshwe ngowezi-2015 liotshwa uGrzyżyna Strasińska waseParis Observatory (eFransi) yase iningilizwa uStan Kurtz wase UNAM Radio Astronomy Institute eMoria (eMeksikho).

Isethombwe esisekKhaveni sikhombisa umdwebo "Imu esemkhathathini", isiShomo esikhona cishe kuwona wonke amasiko abomdabu base-Ostreliya. Asichazwa iziNkanyezzi kepha sichazwa amabala amunyama abonakalayo mawuqhathanisa neNdlela entsusi.

Iyona ndlela imfundondalo yezomkhathathi eyaqala ngayo.

5

Uma ubuka umkhathathi ebuseku obuthe gwe, uzobona ukuthi iziNkanyezzi kuba sengathathi zidweba inidwebo thizeni. Lemidwebo, ebizwa ngeziShomo, ayishintshi nhlobo nobusuku. Kodwa-ke iyanyakaza : njengelaLanga, iziShomo « ziyabalala » empumalanga ziphinde « zishone » entshonalanga. Umdwebo wonke uyagwebuka ngobusuku nobusuku kodwa utholakala endaweni efanayo emva konyaka owodwa.

Akuzumi nhlobo ukuthi kusukela emandulo, abantu bazo zonke izinhlanga babewubhekisisa umkhathathi, owawudlala indima yomtholandlela enkathathini kanye nasemkhathathini.

IsiShomo iMpambano ibukwa eningizimu nenkabazwe, lapho sibukeka sibheke phansi.

Isishihla somdwebo wengwanekwane abantu base-Australia abayibungamisa nalesi isiSomto.



Ikhlehla igama lomdabu laseBrazilili elisho isiShomo iziShomo iMpambano kanye noCwazilwe (isithombe sithathwe emnyuziyemnu yase-Amazonia.)

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