

Klaimat Jeinj

Margaret Sharpe



CO₂

O₂

CH₄

May 2020

Kriol and English with References

H₂O

CO₂

Printed at Evans Printing, Armidale NSW 2350
www.evansprinting.com.au

Margaret Sharpe
www.margaretcsharpes.wordpress.com



<http://creativecommons.org/licenses/by-nc-sa/4.0/>
This work is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License](http://creativecommons.org/licenses/by-nc-sa/4.0/).

Contents

Pat 1	2
Klaimat en weja	2
Longest taim basdam	3
Pikja 1 Sahul 10,000 yiya basdam	3
Wanim yu kin dum tudei?	4
Stori brom wen det klaimat difenwan basdam	4
Wanim yumob kin dumbat bla det nogudwan klaimat?	6
Pat 2	8
Warlgundu stori	8
Dijan najan munanga stori, lilbit olijem	9
Pat 3	11
Klaimat jeinj: wotfo im hepin?	11
O ₂ en CO ₂	11
Kol	12
Pikja 2 CO ₂ meigim hotwan	13
Pikja 3 San nomo meigim klaimat jeinj	14
Dubala taim wen lota CO ₂ langa eya	15
Pikja 4 Hau det solwoda godan en kamap	16
References	17
Hubin raitim dijan buk	18



Ceramic tile table top based on Warlgundu cave
Margaret Sharpe

1 Klaimat Jeinj

Klaimat en weja

Wen yu tokabat **weja** yu tok, yestidei bin lota rein, tudei im plenti sanlait, maitbi neks dei im garra kolwan, bigesmob klaud. Maitbi yu tok bla koltaim, alibala biges fog, kolbala naitaim. Lagijat.

Wen yu tokabat **klaimat**, yu garra jingkabat rili loongtaim, laik las 4 yiya, handred yiya, thausen yiya, milyan yiya, lagijat. Yu nomo toktok blanga wan dei, wan mant, wan yiya, yu tok bla bigesmob yiya.

Samtaim wi toktok bla **klaimat** langa pleis longwei brom yu kantri, wen wi tok 'O det **klaimat** la Tasmeyna moa kolwan', det **klaimat** langa Ireland moa wetwan, meigi ola gras moa grinwan', o 'det klaimat langa Sahara Desit o det Sangodanwei Desit moa draiwan'.

Longestaim basdam

Blekbala bin stap la dijan kantri, la Ostreilya basdam, bifo munanga bin kaman langa Europe en England. Abdadet, ebriweya samtaim draiwan taim, samtaim bigeswan fladwoda, samtaim rili kolwan weja, garrim loda ais en sno. Samtaim deibin aiswan riba (wi kolim gleisiya, glacier) la dijan kantri, la Victoria, Sauth Ostreilya en Tasmeyna. Samtaim solwoda bin kamap en draundim kantri, samtaim moa kantri en solwoda bin godan.

Climate and weather

When you talk about **weather**, you are talking about a day, or a week or month, or sometimes a year. You might say there was a lot of rain yesterday, today is sunny, maybe it'll be cold tomorrow with an early fog, and cold at night— like that.

When you discuss **climate**, you have to think about much longer times or a different place, you are not talking about a day, a month or a year, you are talking about really long times (thousands or millions of years), or a very different place, like Tasmania, Ireland or the Sahara or Western Desert.

Long time in the past

Aborigines have lived in this country, Australia, long before the munanga came to Europe and England. Over thousands of years there were dry times, hotter times, older times with glaciers, even in southern Australia. As oceans changed, there were times when there was more land, and sometimes less. People moved as this happened. Long ago the English Channel flooded and separated England from the rest of Europe. About 10,000 years ago, the ocean separated Tasmania and Victoria.

Ebriweya, ola pipul bin mubaweibat wen det solwoda moa haiwan, deibin kambek wen det solwoda lowan. Wantaim drai kantri brom England la Europe, garrim wanbala riba jeya. Yubin urldi wokwok brom England langa Europe.

En brom 10,000 yiya bifo tudei, rafwan solwoda bin kamap abwei brom Tasmeniya en Biktoriya. Lukluk la det pikja 1. Det klaimat bin jeinjbat; det solwoda bin kamap en draundim Bass Strait en Port Philip klosap Melbourne.

Wen hotwan or kolwan weja, pipul bin lanibat. Deibin mubabat, mubawei brom solwoda, deibin meigim lilwan haus, deibin yusim enimul skin bla klos la kolwan kantri, deibin meigim baushed la hotwan kantri. Deibin meigimbat faiya bla kukim daga, deibin meigim faiya bla meigim mijelb wombala. Ebriweya lagijat.



Pikja 1 Sahul land 10,000 yiya basdam

Buji yu wana lanibat wanim jeinjim det klaimat, yu ridim Pat 2. Yu kin luk du la www.climate.nasa.com.

Everywhere, with smaller populations, people moved when the ocean was higher or lower. Once there was dry land with a river between England and Europe, and you could walk across. Now that's the English Channel.

From about 10,000 years ago, the ocean came up and separated Tasmania from the rest of Australia, see picture 1. The Yarra River in Melbourne went through what is now Port Philip and joined with the Tamar River from Tasmania.

When populations were smaller, people were learning about these things. They made little houses, and used animal skins for cloaks in cold country, and built bow shades in hot country. They made fire to cook with, they made fire to keep warm. It was always like that. You can learn more from www.climate.nasa.com.

Wanim yu kin dum tudei?

Wen det Ropa Riba mishan bit stat, olwan munanga bin plandimbat ting bla munanga daga: pirteta, kerat, pamkin, bin, lifwan daga, lagijat. Deibin kilimbat buligi en bafalo en jukjuk bla mit. Maitbi yu sabi lilbit blanga det taim. Dumaji det olpipul blekbala bin sabi bush purteita, yem, lota gudwan bush daga en wail mit. Maitbi yu kin ridim brom sambala buk blanga det munanga daga en mit. Yu kin ridim bla bus daga du.

Stori brom wen det klaimat difrenwan basdam

Ebriweya, langa Ostreilya en langa England en Europe, pipul dalim stori bla det oltaim. Samtaim deibin sei dubala yangboi bin dum nogudbala ting, en det fladwoda bin kamap. Deibin dalim ola yangboi en yanggel, “yumob dum ting raitwei, dum wanim ola olpipul dalim yumob. Nomo dum nogudwan ting”. Samtaim dei bin dalimbat stori bla jikibala bin dumbat nogudwan ting, en pipul bin laflaf, en deibin rimimba det stori. Samtaim deibin meigim song, deibin meigim dens. En pipul lanimbat ola stori, lanim det dens en rimimba det stori. Ola song-lain bin olijem mep, ola song-lain dalimbat weya yu faindim woda, weya you faindim gudwan brom sangidapwei la sangodanwei. Sambala stori bin dalim wanim bin epin 10,000 yiya basdam. Trubala! Blekbala langa Ostreilya rimimba en jingkabat ola stori.

What can we do about it today?

When the Roper River Mission started, the missionaries planted lots of vegetables: potato, carrot, pumpkin, beans, leafy plants, etc. They killed bullocks and buffalo and chickens for meat. Maybe you know a bit about that time. In the same way the older Aborigines knew about bush tucker and about wild meat. You can read about those times.

Stories from when the climate was different in the past

In all places – in Australia and in England and Europe, people tell stories about old times. Sometimes they blame two boys for doing something bad, and the floods came. They told all the kids “You people do things correctly, do what the old people tell you. Don’t do bad things.” Sometimes they tell a funny story about someone cheeky doing wrong, and the people would laugh about it – and remember the story. The song lines were maps to tell you where to find good water, travelling long distances. Some stories told you what happend 10,000 years ago! Yes, Aboriginal people in Australia remember and think about those stories.

So ola olpipul bin tijimbat ola yangpipul wanim yumob garra dum bla stap gudwan en nomo sikbala. La sangidapwei, det Dhanggati blekbala lanimbat “yu nomo stap klosap la solwoda. Yu kin kajim fish langa bij, ngarni yu garra kemp la haipleis”. Wen det big tsunami, det bigeswan weib bin meigim ola solwoda godan langa Indonisha, langa Aceh, ola Andaman Ailen pipul bin sabi yu garra ranap la bigwan hil – det woda garra kembek en draundim ebriweya. Ola bigeswan enimul bin sabi du, en deibin ranawei la haipleis langa det ailen. Dumaji ola pipul ubin nyuwan langa det kantri nebin sabi, en biges mob bin draun.

Yu wanda askim sambala olpipul wanim bin hepin. Dumaji ebriting hepin en wibin lusum lota stori tudei, bobala wi. Ola munanga brom England, deibin silibala. Deibin bilib wanim deibin dum langa ron kantri bin raitwei bla Ostreilya. Deibin dum rongwei blanga dijan difren moa draiwan kantri. Moa munanga lanimbat mobeta na. Deibin bagarimap moa langa sauthpat Ostreilya.

Tudei, lota pipul bin wori bla **klaimat jeinj o grinhaus ting**. Maitbi yumob langa Ngukurr en difren pleis lagidjat sabi det moa; lota pipul langa bigeswan taun sauthwei nomo sabi prabli. Moa hotwan weja, moa bigeswan bigstom. Moa bigeswan bushfaiya, moa bigeswan saikloun en fladwoda. Wotfo maitbi hepin? Bla wanim? Ai dalim yu langa neks pat langa dijan lilwan buk. Wi gada jingkabat wanim wi kin dum na.

Old people were teaching the children what they had to do to stay healthy and safe. On the east coast of Australia, the Dhanggati Aborigines told people “don’t stay close to the ocean. You can catch fish on the beach, but you have to camp in high places.” When that big tsunami hit Aceh in Indonesia, all the Andaman Island people knew that, and ran up to the hills before the water came back and flooded everywhere. The elephants knew also, and escaped to the hills. The new people there didn’t know, and large numbers were drowned. You should ask some of the old people what happened. We have lost a lot of those stories, unfortunately. Some munanga have worked out what happened and written books. But the first settlers and convicts from England acted stupidly. They thought what was right for their country was right for Australia. This is a much dryer country and they messed up things a lot more in the southern part of Australia. They are slowly learning now.

Now a lot of people are worrying about **climate change** or the ‘**greenhouse effect**’. You in Ngukurr and places like that know more about it; a lot of people in the big cities don’t understand. More hot weather, more big storms, more big bushfires, more cyclones and floods. What might happen? Why? I talk about it in the next part of this book. We have to think about what we can do now.

Wanim yumob kin dumbat bla det nogudwan klaimat?

Wal, aibin irim det Ngukurr Kansil bin dumbat samting bla meigim elektrisiti brom sola penel pleis. Ai rili hepi bla irim det nyus. En deibin purrum moa tengk bla gajim woda. Ai abum ofis la yunibersiti la Armidale en dei bin pudumin 100 sola penel jeya. La Wuyagiba Stadi Hab dei garrim 30 sola penel, plendi bla elektrik lait en intanet en telefon. Maitbi dregli yumob kin klosim det disel jenereita, en nomo garra bringimin ola disel. Ai abum sola penel la main haus, en tengk bla woda. Det rainwoda gudwan, moa gudwan teist; ai nomo laikim det boa woda la Ngukurr!

Maitbi yu kin burrum moa woda tengk bla gajim ola reinwoda blanga yu haus. So yumob kin growum lota daga klosap la yumob haus. Wanim det olwan mishinari bin dum? Ai rimimba pamkin, en stroberi, en letes, lagijat. En sambala olpipul rimimba ola bus daga. Yu kin jingkabat wanim bus daga growap gudwei klosap langa yu pleis. Maitbi laik sambala olpipul yu kin pulat det widwan bla gubit rum la gudwan daga. Yumob garrim lota buk na bla ola olwan bush daga, yu kin faindim wijan gro gudwei la yu pleis, so yu kin seib long draib bla gerrim lilisid en difren bush daga, yarragaga (blek karant), grin plam, wail banana (ngurrurdin). Ai rimimba det bush jalimaduk, lilwan grinwan bin gro la Minyerri. Im switwan. En ngurrurdin, en najan switwan daga.

What you can do about climate problems

I've heard that at Ngukurr you are now getting electricity from solar panels, and I'm delighted to hear it. Also, they have put more water tanks in. I have an office at the University of New England in Armidale and they've put in 100 solar panels to help. At the Wuyagiba Study Hub they have 30 solar panels, which gives plenty of electricity for lights, internet and telephone. Maybe soon you can close down the Deisel generator, and not have to bring all that diesel fuel in. I have solar panels and water tanks at my house. Rainwater tastes good – I don't like the bore water at Ngukurr!

Perhaps you can put more water tanks for rainwater at your houses. Then you could grow lots of vegetable food close to home. What did the missionaries do? I can remember pumpkin, strawberries, lettuce, etc. the old people can remember all the bush tucker. You could think about what bush tucker could grow well close to your homes. Some of the old people used to pull out weeds to give more space for the good bush tucker. You mob now have a lot of books about the old bush tucker, and you could find which ones would grow well around your area. You could save on long drives to get waterlily and other bush tucker, black currant, green plum, wild banana. I remember the little bush passionfruit, little green-skinned fruit grew at Minyerri. It's sweet, wild banana is also sweet.

Simon Normand bin dalim mi sambala bin sabi lota spring woda pleis, lota olwan wodahol, ol draiwan tudei. Wanbala olgomen bin dalim. Ola bulugi bin rabishim du. Maitbi yu kin digimat moa dipwan, en burrum strongwan fens raun det wodahol, so det bulugi kaan go jeya. Maitbi yu kin burrum lilwan ruf en woda tengk klosap la det woda pleis.

Maitbi yu kin burrum yalbun jeya buji yu meigim lilbit bigwan bilibong jeya, klosap la yumob pleis. Simon dalim mi lota menggrob bin dai, dumaji det solwoda bin get hotwan. Den ola lilwan fish u growap jeya kaan growap jeya na. Den yu kaan faindim lota fish.

Moa beta yu growum moa daga klosap la yu pleis, so yu nomo labda go longwei garrim disel trak bla gajim. If yu kaan groim ebriting klosap en yumob stil garra gejim samting brom stowa, dumaji yumob kin miksimin moa bush daga. Pasli, mint en teistiwan lilwan daga: yumob kin gro lilwan lifiwan olijem pasli, mint, ol teistiwan lilwan grinwan daga. Yumob garrim lemongrass deya. Yu kin groum la lilwan bakidi klosap langa yu haus.

Sambala pipul kin dum moa, dumaji yumob kin album gija. En gudwan ting buji yu kip goin futwok, meigim yu moa eltiwan. En dringkimbat moa woda, im kipim yu klinwan insaid.

Simon Normand told me that some people know that a lot of the old waterholes are dry today. One old woman told him. The bullocks were destroying them also. Perhaps you can dig them a bit deeper and put a strong fence round the waterholes, so the cattle can't get in. Maybe too, you can put a little roof and a water tank close to the waterhole.

Maybe you can get waterlily to grow there if you make a bigger billabong there, close to your home. Simon told me a lot of mangroves were dying, because the saltwater got warmer. Then all the young fish who grow there can't grow there any more. Then you can't find as many fish.

It's better you grow more food close to your homes, so you don't have to go so far with a diesel truck to get the. Of course not everything will grow near your home, and you'll still have to buy some things from the store, but you can mix in more bush tucker. There's also parsley, mint and tasty herbs or things like them. You have lemon grass there, and you can grow little things in a container near your house.

Some people can do more, but you can help each other. It's good to keep walking, and to drink more water, which helps your digestion.



Pat 2
Det Warlgundu stori brom Alawa en Marra



Cave entrance



The cave hill Maureen Thompson



The billabong below the cave, before it shrank to a puddle
 Maureen Thompson, Marra woman

La Warlgundu wanbala keib airrap garrim lota bon. Deibin gabarrim garrim redwan oka. Olman Mordecai Scewthorpe bin dalim mi stori.

Tubala yangboi bin kilim dubala lilwan bardbard. Bat dijan dubala bardbard bin biginini brom det Reinbo. Det Reinbo im bulab gula, jandim bigeswan stom, en kilim detlot pipul. Sambala dalim lilbit difrenwei, en dubala yangboi bin gedawei, en det Reinbo bin kilim najamob pipul. So pipul rimimba det stori en dalim maitbi lilbit difrenwei. Bat det dubala stori dalim yu det Reinbo bin bulab gula bla det ting.

The Alawa and Marra story about the Warlgundu Cave

At Warlgundu there's a cave up high with lot of bones, stained in red ochre. Old Mordecai Scewthorpe told me that story. Two boys killed two little birds. However, these birds were children of the Rainbow Serpent, who got very angry, sent the biggest storm, and killed those people.

Some people tell the story differently, and the Rainbow killed a different mob of people. But both stories tell how the Rainbow got very angry about it.

Dijan najan munanga stori, lilbit olijem

Ai dalim yu najan truwan stori. Langa 1760 raitab 1813, lilmob klebawan munanga bin abum miting ebri fulmuntaim langa England. Nebin elektrik lait den, nebin motoka, anli hos. Det hos sabi wije dei gota go fulmuntaim. Samtaim wanbala fren bin kaman brom Amerika du.

Bifo det taim pipul bin yusim lilbit kol bla faiya jaldu, la England en langa China. Bat den, dismob bin meigim enjin. Dei bin yusibat kol bla meigim enjin wek gudwei. Deibin yusim kol bla meigim woda hotwan en meigim enjin wekwek. Den, la 1857, sambala bin yusim kol bla meigim elektrisiti, en wi bin stat yusim elektrik lait en draibim motoka.

1903 deibin meigim eroplein. Deibin lanibat brom det bumereing bla blekbala klosap Sydney. Trubala, det kambek bumereing bin shoum wije yu meгим wing raitwei. Ebribodi bin hepi blanga ola ting kol kin album, bla ola ting oil kin album.

Bat langa 1960 pipul bin teknotis samting. Det ais riba langa kolwan kantri bin danim mijalb langa woda. Det weja bin go wailwan. Det Reinbo o det We:l bin moa hotwan, get sikap. Ola wodahol la Marranbala kantri bin go draiwan.

Wi garra stap yusim ola kol en oil. Gudnyus: wi sabi meigim sola penel en winfam. Laik ola grinwan plent en tri, wi kin yusum det sanlait, en maitbi deikemwei det disel jenereita bla elektrisiti.

This is a munanga story, which is a little bit the same

Now I'm telling you another true story. About 1769 to 1813, a group of clever men had a meeting every full moon time in England. There was no electric light then, no cars, only horses. Horses know which way to go under a full moon.

Before that time, people used a little bit of coal for fires, in England and in China. But then, this group made engines work well to heat water to make steam engines. Then in 1857, some people used coal to make electricity, and we started using electricity and driving cars. However about 1960, people noticed something. The glaciers in cold countries were melting to water. Weather started going crazy. The Rainbow, or the whole Earth, was hotter, and got sick. All the waterholes in Marra country went dry. We have to stop using all that coal and oil. The good news is we know how to use solar panels and wind farms. We have to stop using coal and oil. Like plants we can use sunlight directly.

Moa isiwani wi sabi wen samting hepin kwikwan. Klaimat jeinj moa slobala. Yu sabi det stori bla brogibrogi? Yu sabi buji brogibrogi dirrawu hotwan woda, im jampat kwikbala, laibala. Buji im in kolwoda en slowan det woda git hotwan, im nomo notis raidap det hotwoda kilim dedbala.

Maitbi im nomo du leitwan bla stat irim wanim det We:l bin dalambat wi. Wi kin trai jeinjim so ola yang pipul kin stei laibala.

Gudnyus: tudei wi abum sola penel, en wi kin meigim elektrisiti brom sanlait. Tudei wi abum winfam. Oldentaim wibin yusim winmil bla bringimap woda. Dislot nyuwan winmil kin meigim elektrisiti du. Wi nomo garra digimap ola kol en oil. Buji yu bolorryum Pat 3, yu kin sabi mowa bla wanim wi garra dum dislot ting.

It's easier to notice when change comes quickly. Climate change is slower. You know the story about a frog? You know that if a frog dives into hot water, it jumps out quick smart, and alive. But if the water is cool, and is slowly getting hotter, it doesn't notice until too late, and the hot water kills it.

Perhaps it's not too late to listen to what the Earth is telling us. We can try to change so the young people will stay alive.

It's good news that today we have solar panels and we can make electricity directly from sunlight. Today we have windfarms. Earlier we used windmills to bring up water from underground. The new windmills can make electricity too. We don't have to mine coal and oil. If you read Part 3, you will understand more about why we have to do these things.

3 Klaimat jeinj: Wotfo im hepin?

Oksijen (O₂) en kabon daiyoksaid (CO₂)

Ola bigwan enimul laik wi garra blowin eya. Det eya goin la wi burlburl, langa wi lang. Langa eya lota difrenwan ges: oksijen, naitrojen, en lilbit ola najan ges. Det bigespat la eya im naitrojen, N₂ (78%) en oksijen O₂ (21%). Lilbit (1%) najalot ting la eya: das, smok, lilwan sid brom difrenwan grin plent, geswan woda H₂O, kabon daioksaid CO₂ 0.04% (en dubala kwaitbala ges Argon en Neon). Det O₂ en N₂ garrim tubala etam, det woda (H₂O) en kabon daioksaid (CO₂) garrim thribala etam, en sanlait meigim lilbit hotwan. Anli langa dijan We:l det eya rait bla laif olijem wi. Buji wantaip we:l nomo garrim eya, im stap kolwan, en nomo garrim laif. Buji wantaip we:l garrim dumaj CO₂ im du hotwan bla laif. Det Moningsta lagijat. Eya bla Moningsta nili holot CO₂; im garrim lota poisinwan esid du.

Wen wi blowin eya langa wi burlburl, wi deikimin 3% det O₂, en gibitwei 4% CO₂. Stil plenty O₂ kamat. Langa burlburl det oksijen goin langa blad, en det blad karrimap langa ebripat wi bodi. Det blad na karrimbek CO₂ langa burlburl, en wen wi blowat, det CO₂ goin la eya atjad.

Why does the climate change?

Oxygen (O₂) and carbon dioxide (CO₂)

All large animals like us have to breathe air. The air goes into our lungs. In the air there are a number of different gases: oxygen, nitrogen and small amounts of other gases. The biggest part in air is nitrogen N₂ (78%) and oxygen O₂ (21%). The remaining part (1%) is a little bit of other things: dust, tiny seeds from different green plants, water vapour (H₂O), carbon dioxide CO₂ (0.04%) and two inert gases Argon and Neon. O₂ and N₂ have two atoms in the molecule, water vapour (H₂O) and CO₂ have three atoms, and sunlight warms them. Only in this planet is the air right for life like us. If one sort of planet has no air, it will stay too cold, and will not have life. If there's too much CO₂, it is too hot for life. Venus is like that. The atmosphere of Venus is nearly all CO₂, with a lot of sulfuric acid also.

When we breathe air into our lungs, we take in about 3% of the oxygen, and breath out about 4% CO₂. There's still plenty of oxygen left (so we can breathe it out into another person's lungs to save their life). In the lungs, the blood carries the Oxygen everywhere in our body. The blood then carries back CO₂ to the lungs, and when we breathe out, the CO₂ goes into the outside air.

Ola gras, ola tri, ola grinwan daga, dei dum seimwan ting. Dei bulimat lilbit O₂ en gibitbek lilbit CO₂. Dumaji ola grinwan daga dum samting moa. Dei yusim det CO₂ en sanlait, en meigim growap moa lif en rut, burdiflawa en daga, en sheid. Abdadet, dei burrumat det O₂ wen det San la skai deitaim.

Loongtaim pasdam, anli lilbit O₂ la eya. Ol wi bigwan enimul nebin jeya, dumaji wi garra yusim det oksijen. Anli wen ola tri en mos en grinwan ting bin meigim bigesmob oksijen, den ola bigwan enimul bin stat. Ola enimul bin dagat det grinwan ting. Wi sabi sambala enimul laikim dagat najan enimul du. Lota sneik en aligeita en manidl laikim dagat najan enimul! Det bokabain dagat lota ent. Ola igalok laigim dagat najan enimul du. Blanga stap laibala, ola enimul garra dagat samting laibala. Dumaji ola grinwan ting olijem dagat det lait brom det San.

Wi, ola blekbala en munanga, bin urldi yusim ola wadi en grass bla meigim faiya. En oltaim, wi, munanga en blekbala bin laigim faiya, en wi laigim jidan en toktok gija klosap faiya.

Kol, det olwan dedwan wadi brom ananit ola graun

Tudei, wi yusim kol en oil brom ananit la graun. Ol det kol en oil bin rili oltaim tri en wadi bin berid. Yelabala en munanga bin yusimbat lilbit kol longes taim, maitbi klosap 3,000 yiya.

All plants (grass and trees) do the same. They take in O₂ and give out CO₂. But the green plants do something more. They use the CO₂ and sunlight, so they can grow more leaves and roots, flowers and fruit, and shade. They then give out O₂ when the sun is in the sky in the daytime.

A very long time in the past, there was only a very little bit of O₂ in the air. There were no big animals there then, because they (and people) had to use oxygen. When plants started making O₂, that's when the big animals started out. Animals eat plants. Some animals like to eat other animals also. To stay alive, all animals have to eat something which is alive. But greenn plants also 'eat' the light from the Sun.

All of us, black or white, used to use wood and grass for making fires, and we like to sit and talk close to a fire.

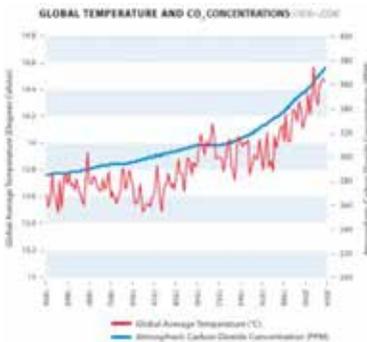
Coal is old dead wood buried in the ground.

Now we use coal and oil from under the ground. All that coal and oil were once trees and wood which was buried. Chinese and White Europeans used to use a small amount of coal for a very long time, Possibly for some 3,000 years.

Dumaji anli lilbit. Det meigim lilbit moa CO₂. Klosap 1760-1813, moa 200 yiya bifo tudei, deibin meigimbat enjin wekwek brom stim (geswan woda), en deibin meigim det woda hotwan brom meigim faiya garrim kol. Nomo elektrik lait jen, nomo motoka. Ebribodi bin wokwok, o maitbi yusum yarraman, hos.

Langa 1879, pipul bin stat yusim elektrik lait, langa 1888 deibin meigim motoka. Deibin barnim kol bla meigim elektrisiti, deibin meigim petrol en disel brom det oil. Wen wibin stat yusim biges mob kol en oil, ebribodi bin hepiwan en sei GUDJOB!

Bat, brom maitbi 1960, sambala bin faindim lota ais bin gobek la woda. Ola graun garrim ais adbala. Det graun bin go sofwan wen det ais bin danim la woda. Jet kolwan graun dei kolum **tandra**. Ola reindiya la Canada en naja nothpleis bin faindim ola graun go sofwan. Bobala reindiya! Wanbala munanga bin raitim bla dijan ting. Najan munanga, neim Keeling, bin kip rekord bla langa eya, luk Pikja 2.



Pikja 2 CO₂ meigim hotwan

But only a little. It made a little bit more CO₂. About 1760-1813, over 200 years before now, they made engines that could work from steam, and they made the water hot from making fires with coal. There was no electricity then, no cars. Everyone walked, or used horses.

Around 1879, people began using electric light; in 1888 they invented cars. They burnt coal to make electricity, they made petrol and diesel from oil. When we started using a lot of coal and oil, everyone was happy and said it was GREAT!

However, from around 1960, some people were finding that a lot of ice was melting. Tundra, frozen ground is hard, but the ground was going soft when the ice turned to water. The reindeer were confused, poor things! One munanga wrote about it. Another man, Keeling, was keeping records about the air, see Picture 2 above.

Moa CO₂ la eya meigim moa womwan eya. Tudei biges mob pipul ebriweya. Tudei wi yusim lota kol en oil bla meigim elektrisiti, en powa bla motoka en eroplein. En na ola eya moa hotwan. Wen moa hotwan, wi garrim moa nogudwan stom, wi garrim moa saiklon, wi garra moa hotweja. Yumob sabi bla ola bushfaiya la Ostreilya las yiya? Faiya barnim wadi en tri, meigim lota enimul dai, yusim lota oksigen bla faiya, en gibat CO₂. Ol det bushfaiya bin meigim seim mob CO₂ laik ola bigwan eroplein la skai langa wan yiya! Det CO₂ kejim moa hotwan lait brom det San, en meigim eya moa hotwan. Moa hotwan eya meigim moa hotwan en wailwan weja. Trubala! Det eya jas 1° C moa womwan na brom ola CO₂ wi purrumin langa 1950. NOMO GUDJOB na wi yusum kol en oil!

Pikja 3 shoum samting moa. Det San im go lilbit woman en kolwan ebri 11 yiya. Pikja 2 shoum im nomo det San jeinjimbat bin meigim det eya more hotwan na. Ola kol en oil wi yusim bla disel en petrol en elektrisiti meigim det klaimat moa hotwan.



Pikja 3 Hotwan brom CO₂ (redwan lain) en San (yelawan)

More CO₂ in the air makes the air hotter. There are more people now than there ever was before. We use a lot of coal and oil to make electricity, and for power for cars and planes. Now the air is hotter. The hotter it gets, the more wild storms, more cyclones, more hot weather. Of course you know about all the bushfires in Australia last year. The fire burnt a lot of country, killed animals and plants, and gave out CO₂. Those bushfires put as much CO₂ into the air as all the big planes put out in ONE YEAR! CO₂ catches more infra red light from the Sun, and it makes the air hotter (not all the time, but on average). The air is warmer by 1° C since 1950. It's no longer a GOOD THING to use coal and oil. Picture 3 shows something more. The sun gets a bit warmer and cooler every 11 years. Picture 3 shows it is NOT the Sun which is making the air hotter now. All the coal and oil we use for petrol, diesel, electricity and plastics is making the climate hotter.

Tubala taim wen lota CO₂ langa eya.

Tubala taim loongtaim pasdam, det CO₂ bin moa. Wantaim, lota volkeino en det graun bin krek la Siberia bin meigim lota lava, det raning rok, en det eya bin get 7° C moa hotwan. Ebri bigwan enimul, fish en grinwan plent bin dai! 90% laif bin dai! Lota tri bin dai (no gras det taim, gras bin gro leita). Det sekan taim, imbin dainasoa taim, det bigeswan lisid. Lota O₂ la eya den, moa den tudei. Lota enimul bin gro bigbala. Dregonflai bin gro big den du, maitbi 1 mita wing. Den one biges rok brom space (an asteroid) bin smajimap klosap la Meksiko, klosap Amerika. Det asteroid bin rili bigeswan, maitbi 8 km bigwan. Im meigim bigeswan weib, bigeswan tsunami. Agen lota enimul bin dai. Dumaji det pletipus bin laib, en det krokodail. Enimul langa Ostreilya, ubin lib la woda o hol la graun bin laib!

Det asteroid bin go rili hotwan wen imin foldan, en biges faiya bin stat. Lota O₂ bin barnim, en lota CO₂ bin langa eya. No keinggaru det taim yet. Ola bard bin stat bifo det taim. Dei bin lilwan dainasoa jen, garrim feja. Trubala! wi stil garrim dislot bard, dislot lilwan dainasoa tudei. En ola bard garrim song bin stat la Ostreilya. En lilbit leita, gras bin stat – langa Otrailya! Trubala! Main skulfren Barbara bin dalim mi deibin faindim det klos rileishan bla gras iya in Ostreilya! Bla wi ansesta bin lilwan enimul jen, olijem maus na. Det yarraman grendedi bin laik lilwan dog. Blanga keinggaru grendedi bin laib dettaim tu. Leita det pokyupain (ekidna) bin stat, brom det olwan pletipus! Trubala!

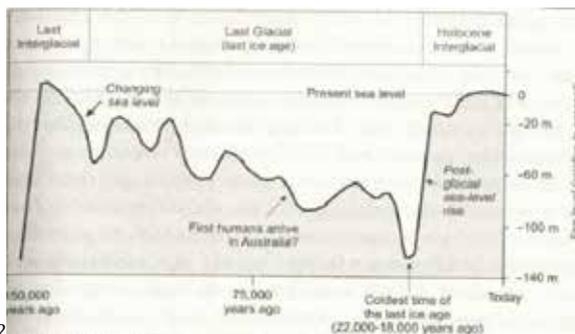
Twice in the past when there was a lot of CO₂ in the atmosphere

Twice in the past when there was a lot more CO₂, One was about 252 million years ago. There were lots of volcanoes in what is now Siberia. The air got 7° C hotter. 90% of life died out, animals, trees, fish. (There was no grass then, that happened later from Australia). The second time it was in dinosaur time. There was more O₂ in the atmosphere then (up to 35%). A lot of animals grew very big, and dragonflies did too, with wingspan up to 1 metre! Then about 65.5 million years ago, an asteroid, about 8 km across slammed in near Mexico. It caused an enormous tsunami, and lots of animals died. Animals living close to water or in burrows survived, so we still have crocodiles and platypus!

The asteroid got hotter than the outer part of the Sun as it fell through the atmosphere. With that extra oxygen, there were huge bushfires. Birds are from that time, the little feathered dinosaurs are still here. All the world's songbirds came from Australia, and grass evolved – in Australia. The horse's ancestor was the size of a little dog. Kangaroos hadn't evolved yet, and the echidna evolved from the platypus some 30-35 million years later.

Longestaim abda jet no ais la graun, en eya bin moa hotwan garrim ola CO₂ brom detlot bigeswan bushfaiya. Abdajet det ais bin kambek en det solwoda bin godan lilbit abda det hotwan taim.

Dijan Pikja 4 shoum hau det solwoda bin godan en kamap. Ola Yanyuwa pipul rimimba wen det solwoda bin moa lowan, dei sabi ola neim bla kantri ananit ola solwoda. Buji det solwoda kamap mowa na, maitbi 0.2 mita, det solwoda andi draundim sambala bij, laik weya dei abum det Study Hub langa Wuyagiba.



CO₂

Pikja 4 Hau haiwan det solwoda godan en kamap

Wen wibin urldi yusimbat ola kol en oil wibin jingabat en sei im gudwan, bat tudei wi sabi im nogudwan. Wi labda stap yusim ola kol en oil. Buji wi nomo dum lagijat, det eya garra get hotwan dumaj en lota enimul en daga garra dai, en bigesmob pipul garra dai du. Wi labda jidan najawei, garrim sola penel, o win bla meigim elektrisiti. Wi labda ranim motoka garrim elektrisiti brom sola penel en winfarm, nomo petrol en disel. Buji wi nomo dum, maitbi ola blekbala en munanga garra dai, en ola daga we dagat garra dai.

For a long time after that, there was no ice, and the atmosphere was hotter because of all the CO₂ from those fires. After that, the ice came back, and the ocean went down a bit. When we used to use all the coal and oil, we thought it was good, but today we know it's not good. We have to stop using coal and oil. If we don't do it, the atmosphere will get too hot, and many animals and vegetable foods will die, and a lot of people will die also. We have to live another way, with solar panels, windmills to make electricity. We have to run cars with electricity from solar wind farms, not use petrol and diesel. If we don't change, perhaps all people, black and white will die, as will all the foods we rely on.

References

Weya aibin faindim buk en intanet blanga dijan stori

Briggs, Barbara 2016. Australia's little sister of the grasses, ABC Okham's Razor.

Buis, Alan 2020. A Degree of Concern: Why global temperatures matter. www.climate.nasa.gov

Holocene climate change, www.ecosia.org/images; weya aibin faindim Pikja 1.

Lane, Nick 2002. *Oxygen: The Molecule that made the World*. Oxford: OUP.

Normand, Simon 2004, revised and reprinted 2009. *Stone country to Saltwater: Recent artwork & stories from Ngukurr, Arnhem Land*. Melbourne: Simon Norman. esp. p. 22

Nunn, Patrick 2018. *the Edge of Memory: Ancient stories, oral tradition and the Post-Glacial world*. London, Oxford, New York, New Delhi, Sydney: Bloomsbury Sigma; weya aibin faindim Pikja 4.

Preston, Douglas 2019. The day the dinosaurs died, *The New Yorker* 8th April 2019.

Roberts, Betty Nyikbirri et al. 2018. *Alawa, Marra and Warndarrang Plants and Animals: biocultural knowledge of flora and fauna from Ngukurr, Numbulwar, Minyerri and Limmen Naional Park, North Australia*. Ngukurr: Northern Territory Botanical Bulletin No. 48, Department of Environment and Natural Resources, Ngukurr Language Centre.

Trueman, C.N. 2015. Coal mines in the industrial revolution, historylearningsite.co.uk.



Hubin raitim dijan buk

Margaret Sharpe was born towards the end of 1934, and lived in Sydney as a child, but also for most of a year in Victoria during the war. There she had six months off school because of the views then on discouraging short-sighted children from gravitating into academic work. That treatment might have been a failure, but she learnt to look after poddy lambs, ride a bicycle (to school), and to swim in the billabong.

After finishing an honours degree in Maths, she worked at CSIRO National Standards Laboratory in Sydney University Grounds. She did a degree in theology and then worked with the Summer Institute of Linguistics in the Philippines for a few years. Returning to Australia after studying linguistics with SIL, she began work on Alawa in 1965, and in the process gradually developed a knowledge of Kriol, the lingua franca at Ngukurr (then Roper River Mission), Hodgson Downs and Nutwood Downs. She was one of the first to alert the Australian Institute of Aboriginal Studies (now AIATSIS) on the need to recognise Kriol as language worth studying.

Margaret is an Adjunct Senior Lecturer in Linguistics at the University of New England, Armidale, NSW. She initially gained a Bachelor of Science with honours in Mathematics at Sydney University, graduating in 1956, and working at CSIRO National Standards Laboratory for three years. She went to the Philippines and gained some fluency in Amganad Ifugao in about 1963. She returned to Australia in 1965 and with a Research Fellowship from the Australian Institute of Aboriginal Studies (now AIATSIS, The Australian Institute of Aboriginal and Torres Strait Studies) completed a Ph.D. on the Alawa language. She produced a triglot Alawa-Kriol-English dictionary which was published in 2001, dictionaries of Western Bundjalung, and Coastal Bundjalung in NSW and a dictionary of Yugambah and neighbouring dialects in 1999. This last is now revised as *Gurgun Mibinyah*, covering the dialects of Yugambah-Bundjalung spoken in the Gold Coast area down to Murwillumbah and the Tweed River. For these groups, Mt Warning or Wulambiny is their sacred mountain, and all initiation grounds are oriented towards this mountain, where the sun first strikes Australia.

Margaret has produced learner's guides in Alawa, Bundjalung and the Mibiny dialects. and helped people in these areas and from the Dhanggati area residing in Armidale.

Margaret has worked on Aboriginal English in a couple of settlements in Queensland, and more intensively on Alice Springs Aboriginal English with students from Traeger Park Primary School. She has two children; her daughter and husband live in Mareeba, Nth Qld with their two highschool aged girls, and her son in Armidale with his wife and their four university and highschool aged children. Her daughter also went to a preschool class at Ngukurr in one of her visits.

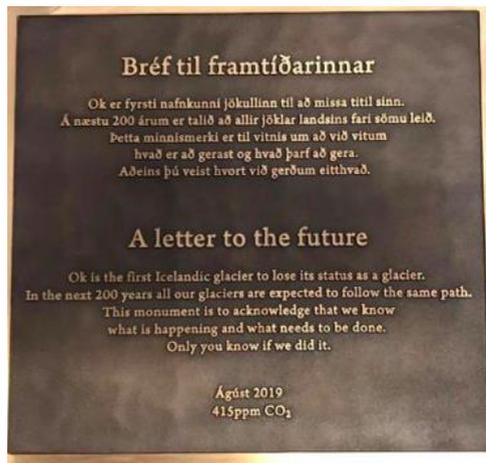
Wanbala ting moa

Yumob sabi det san gibit lait, en im gibit hotwan lait. Wi no kin siyim det hotwan lait, dumaji wi filim, meigim yu wombala. Det hotwan lait meigim dakwan ting more hotwan. Det hotwan lait no kin womum waitwan ting dumaj. Det sno en ais riba nomo womum dumaj, im sendimbek enikain lait. Det waitwan rok, en det ting yu peintim garrim waitwan peint sendimbek det hotwan lait. Buji ola ais riba pasawei, det we:l get moa hotwan moa kwikbala.

You know that the sun gives light, and also infrared light. We can't see the infrared, but we feel it as it makes you warm. Infrared light makes dark-coloured things hotter, but can't warm white things much at all. Snow and glaciers don't warm much, they reflect all light, all electromagnetic radiation.. White rocks and anything you paint white reflects infrared light back. If all the glaciers disappear, the world will get hotter faster.

Maitbi yu wanda raitim enjing bla rimimba iya?

Maitbi yu wanda raitim enjing bla rimimba iya?



Leda la yumob 200 yiya abda wi

Ok feswan ais riba garrim ais nomo langa Aisland. Imin ol woda na.
Nekswan 200 yiya, wi rekon ola ais riba garra pasawei.
Dijan speshul notis dalim yumob wi sabi wanim hepin na, en wanim wi garra dum.
Abda 200 yiya wi laibala bin pasawei.
Anli yumob sabi buji wi bin dum.

August 2019
415 pat langa milyan
(Distaim bifo ola bushfaiya)