

The following is a song by **Ralph A. Lewin** (1997), from "The Biology of Algae and Diverse Other Verses", pp. 6-9. The Boxwood Press, California. It seems to fit the tune of "Home, home on the range". It is here for your enjoyment; annotated notes on the names of scientists mentioned follow the song.

Folksong About Moonshine Assimilation, Or Something

O, 'way out on the Bay
There's some chlorophyll a
 Where the quanta of photons accrue;
And 'way out in the Sound
Where the plankton abound
 There are algae that's fixin' CO₂

 They call it that good ol' CO₂
 And them that can fix it is few.
 If you turn on a light
 They can spend all the night

'Similatin that good ol' CO₂

It was Otto¹ who said,
With a shake of his head,
 "Let us see what *Chlorella* can do."

It can set up a store
Of three quanta, or four,
 And can use them for fixin' CO₂

 They call it that good ol' CO₂
 (u.s.w.)

And then old Uncle Hans²
Said we hadn't a chance
 To extract an insoluble clue.
But they proved he was wrong—
As you'll learn from this song—
 About fixin' that good ol' CO₂

 They call it that good ol' CO₂
 (etc.)

And then old Cousin Kees³
Came and joined in the race
 With bacteria, red, white, and blue.

You don't have to be green—
If you see what I mean—
 To engage in the fixin' CO₂

 They call it that good ol' CO₂
 (etc.)

And then poor Cousin Mel⁴
Had to struggle like hell
 On the path where the carbon went
through;

 But, to no-one's surprise
 He was 'warded a prize
 For his studies in fixin' CO₂

 They call it that good ol' CO₂
 (etc.)

And then young Cousin Dan⁵—
He's the kind of man
 Who just wonders what extracts cans do—
Found that chlorophyll juice
Was enough to reduce
 Just a smidgen of labeled CO₂

 They call it that good ol' CO₂
 (etc.)

Now my Cousin André⁶
Found an easier way—
 And we'll give the young fella his due.
He's lost most of his hair
Catchin' carbon from air
 In a system for fixin' CO₂

 They call it that good ol' CO₂
 (etc.)

Now we've come to the stage
When such fixin' the rage—
 And it seems not to matter by who.
If you give us a chance
We're as good as the plants
 At the fixin' of good ol' CO₂

 They call it that good ol' CO₂
 It's a process that many can do.
 If you'll turn off the light
 We'll respire all the night,
 Generatin' some more CO₂

Notes by Govindjee (January 26, 2003)

¹ Otto Warburg . He was a 1931 Nobel laureate in Physiology & Medicine. He discovered the chloride and bicarbonate effects in photosynthesis, among many many other things; he introduced manometry and the use of single-celled alga *Chlorella* for photosynthesis research. See <http://www.nobel.se/medicine/laureates/1931/>.

² Hans Gaffron. In 1936, he proposed the idea of "Photosynthetic Unit" based on the 1932 work of Robert Emerson and William Arnold ; he discovered photoreduction of CO₂ by hydrogen.

³ Cornelis ("Kees") B. van Niel. He is known as the father of research on photosynthetic bacteria.

⁴ Melvin Calvin. He was a 1961 Nobel laureate in Chemistry for the discovery of the path of carbon in photosynthesis. See <http://www.nobel.se/chemistry/laureates/1961/calvin-bio.html>

⁵ Daniel ("Dan") Arnon. In 1954, he discovered photophosphorylation in chloroplasts.

⁶ Andre Jagendorf. He provided key evidence for Peter Mitchell's chemiosmotic hypothesis in chloroplasts. Mitchell received the 1978 Nobel Prize in Chemistry, see <http://www.nobel.se/chemistry/laureates/1978/mitchell-bio.html>