

Oct. 16, 1947j
May 3-16, 1947



Li-Rite

PATENTS PENDING

Notes

No. 518 $\frac{1}{2}$

LI-RITE LICENSE NO. 1



Buenos Aires
Thurs. Oct 16/47.

Arr. Airport 6:40 am.
Plane can land on any field.
No general storm, but
Andes closed. Pilot suggests
Mendoza, agree but ask
to fly the crest from
there south. He does
not like Acacagua.
all in front to rise.
Palomar is turf field.

Fly at 800 ft. Birds
still lower.

Inspect farms. Hills
near B.A., then crops,
finally cattle.
Land wire fenced.

Twelve horses, finally
sheep.

Darjeeling -

May 3 -

* * *
The Spirit of the Hills
Francis Smythies
Hadden and Stoughton
London 1945
Rs 18⁺

Firefly an small diamond jewel
last night. Old friend.

"High buildings do not make
civilizations but a selfless man."
Quoted by Phir.

"5% in cities 95% in towns."
Shanti; No peasant so
fine on earth. Only they
are poor.

10050 Ft.
Tunglo 10074

Mr. Pacha - Swiss # - 888
Bus to Sun to

Start in rain.
Best road yet.
Steep or gradual?

Bully cut forest
Bare hilltop -

Stragglers
Heavy thunderstorm

119 beavers.
25 horses

Swamy -

Perfect site.

Depression - Snow course
Snow 3 to 6 ft. Wch 1 - good
Horse back to station below

in
rain in eve only 0.23

14 mi - 2 1/2 mi per hr
Walking.

Lights of Darjeeling

Full moon at dawn
wind still strong but clear

3 days down

Baribans

11:30 to me out

Dispute about horses

Kabraji left behind

Forest again - magnolia

shed dendron, bamboo

but behind ridge barely

annual burning, erosion

Town built for roads

builders & Trade now

with tourists

→ Meadow for snow surveys

9000 ft. ?

Pictures

May 5-

10,000 vs 12,000 ft.

So round at one, so
tending toward invalidism
at other.

Servants or service.

Do not care for farmer,
getting rivalry in other

Teaps for Cooks

Weeks of trek with
fabrifuge and \$6.00 at end
Industry

May 6-

Hill anemone
like sea anemone.

also fields of primroses
(Primulas)

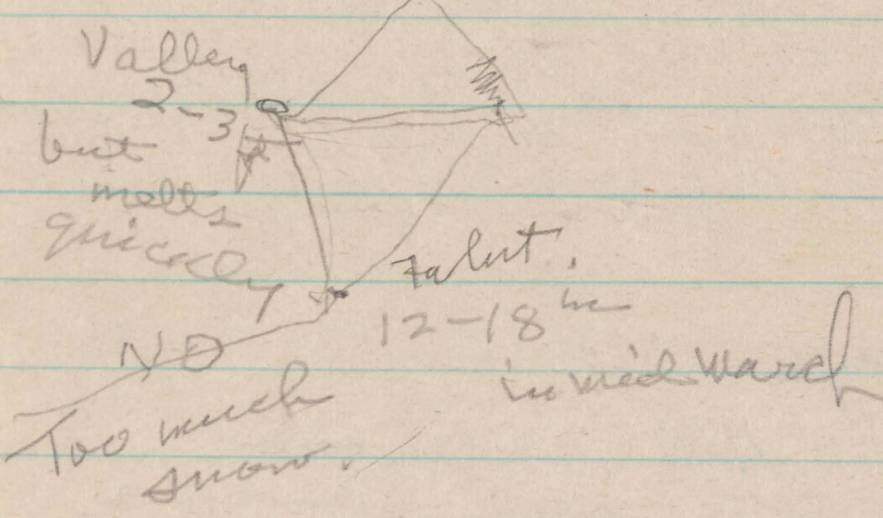
My servant for 6 mos

Snow this morning
at Sandeopus

3 throats

Soil water sent,
also springs

Dj



May 11/2 -

Phalut -

Dr C - on horse for
hospital. Farewell.

Our Nepali escort, Prayers

Cloud cap.

Down trail for snow courses
Yak ranches -

No. 10,000 - long

" 2, 11,000 - mud -

Field demonstration.

Candy + cigarettes days

Ration to ^{Officers} Officers

Letter from Saha

Says as my students

May 12 -

Talk with Rhin -

"Discipline"

Frankness

Tips - Occasionally
or at end - ²
My boy married

Dr C. left Sanderplex at noon.

Tent bearers have gone
down to for night
and departing tomorrow.

May 13 -

Erected by
RAJ SAHEB
N.C. LAMA

Prayer flags wind worn

another snow course

Between 28 and 29 miles east
at 10,800 ft. 1 mi above

Kalipovi on main trail -

One of best courses so far
found - ~~inst~~ rhododendron.
To valley road?

Abundant snow
courses but all

approaches necessary -

thunder storm
brewing as we
reach. Souglu -

Met two camp men
on trail. Going to
trouble - ~~one~~ Benglar

Doctor, here all
for night, no jeep available,
for ~~Dabj...~~ ~~at room~~
10 am

Hail again -

7 army men, skinning
bengal + with us

Boys have organized
records for snow ranges

2 snow courses here

T, ringaya,

Few tents, Barman on
open porch.

Red course maps,

Reports -

Too much illness

Home tomorrow at

1:30 pm

May 16/47

313 mi. on
Kassaback

27-12 excess baggage
8 as tip.

Oliver's brother

Hindaya rises ^{immediately}
from the plain: Get down
by 3000 miles of
grade.

Suddenly warm on
valley floor.

15 locomotives in 30 mi.
3 cars up, 9 cars down

2 men on cowcatcher,
two brakemen between
cars, one plastered on
car if being pushed.

8 in cab.

Haribho Sharma

Senior Draftsman

Kosi Project

C. W. I. N. C.

N. Delhi

T. C. Chawla, Stenographer

C. W. I. N. Commission

New Delhi (India)

Captain A. D. Khanna

Asstt Director CWIC

New Delhi

Silvestre R. Rodriguez

Gen. M. Sierra

del Fuego

Ushuaia

~~Plains~~
Silos - Red-yellow
Tops. Open, corn.

Into morn. - So up to
6000 then 8000 ft,
finally to 11500 to keep
above clouds.

San Luis hills 3000 m.
to our north.

Suddenly over desert.
Slightly mossier.

Irrigation - Mendoza
beyond - mts ahead.
3000ft. furrows beneath.

Are you going home the
first week of December?
"Hart, how can I do it?"

Well, perhaps next Feb
or March - you like the
country? It is a good
country, I like you -

- Areas -

Lago N. #. 1:5

Lago Correntoso 27.1 sq km.
Drainage Area 157.8 km²
1:6

" Traful 70 km²
Drainage Area 535.2 km²
1:8

" Nahuel Huapi 557 km²
Drainage Area 2758.4 km²
1:5

" Mascardi 36.0 km²
Guillermo 16.0 } 52.0 km²
and upper Manso
Drainage Area 335.0 km²
1:6.5

Lago Meliquina 12.0 km²
Drainage Area 313.4 km²
1:25

Lago Hermoso 9.5 km²
D. Area 100.5 km²
1:11

Lago Lacar 55.0 km²
D. Area 980.5 km²
1:18

Lago Lolog 34.0 km²
D. Area 434.5 km²
1:12.5

Lago Huechulafquen 122.5 km²
D. Area 1663.3 km²
1:13.5

Gerard H. Matthes

Oct 17 (Cont.)

Rio de los Patos 2 in snow
San Juan much as S. had
seen it for 3 years - "80%.

[Gerard Matthes. Errors do not
read references]

Sat 18 - Mendoza to Bariloché

More oxygen

Mendoza no active snow
till between 1st & sec. Cord.

Mercedario

Oct 1 -

2800 m.

Agostini

Perennial snow

1500 - 1600 m.

San Martin

{ L. ~~Mercedario~~ A
Beagle Channel.
49° - 55° S.

Mem. to Valp.

431
431 Km

200

Oct 1 - Sep 1

San Juan 2800

Mendoza 2650

Bariloche 800?

Oct 20 -

San Juan 2800

but only slight
3000 est

Mendoza Luca 2719 m

but snow much
higher
3000 est.

Bariloche "1400 m."

1200 - 1400 m

3000 ft in sheltered place
[923 m]

Chubut 1200 m. est

Sanguera

Santa Cruz 840 m.

Sno-cat in South?

See at Balsam

✓ Visa \$8.85

a Supreme Day.

The Southern Andes { Carved
E+W.
by labyrinth.

The Ice's Fange

Max. Snow in Chile

Forests - green and brown.

No forests in Chubut.

Glaciers

White snow.

active

Snow-line

Coop. Snow Surveys

Snow crest in Chile...

Courses -

at Oriskanyfield

In mesas -

Snowline

Snow Season and Snowline

Oct-Feb to Sep-Jan.

Snow Line Sep. (land).

3000 m. To 300 m.

Oct end

3700

To 1400

3.25) 12000 | 3700
975

2250
2275

Mar. 21 - April 26, 1947




Li-Rite

PATENTS PENDING

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April 6, 1947

Rest house at Tussum
elevation 10,200

Chowkidan
= watchman

Convection clouds
Auster - Wool over
the Pass -

falls to depth of
Snow 6 in to 1 Ft. Not
every year - Comes in
Jan - Feb.

Reside year around
here and at Tekungchu.
Sage 5 in. Need Q -
on 3 ft tower.
Perhaps at up

March 20 Snowed
here - but twice as
much at upper station.
Snow thru Nov - March
but far more Jan; Feb,
March.

Magnolia tree just
below point. Rhododendron
depths.

Winter Snow Level

On Trail -

North Exposure 11,200 FT
- 100 FT
" (Continued Snow) 11,600
- 100 FT

Level (Camp 12,660)
- 100
Contour (12,550) 12,350

South Slope - Out of our sight.
on Badjaleh. 2
1

Apr. 9 —

12500 Ft.

Cloudy but dya descended
only 3 in with max of 5.
No crust. "Melting stopped
after certain time —
Nagüdesa.

So cloudiness does
not mean continued
melting.

J. Boney, not yet back
from Rose. "One Apr. 15".

Sleepless last night. Suffocating.
Worried at rough road.
11 mi. 4 hrs up.

9 hrs take yesterday. Ended
strong but evidently nervous.

Lake has low outlet. Remoff
low? "2 1/2 C&S" Patton + Fulerson

Rhododendron 40 ft high.
Evergreens also.

Lower ^{snow-survey} ~~course~~ ^{giving} large
forest-trail on trail side of
river. Dhar can identify it.
Some snow still in the glade
just below the avalanches
and abandoned cobbled tundra.
He will set markers in Oct-Nov.

Streamgauge

1. at outlet of lake.
2. Below large semi-deserted
* station about midway to Fusum,
"15 mile station"
Camps too deep lower down.
Near lower snow-line.

Automatic Recorders.

Precip. at Fusum. (9,000 Ft)

Precip. + temp. at (12,000 Ft)

Totalizer at station
below Pass.

* Bed of stream much
larger than for snow? ^{Monks}

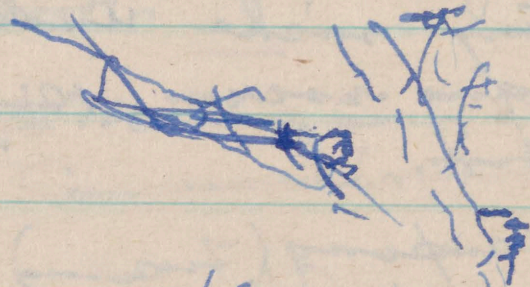
Should be a National Park
Great Smokey magnified
many times up and down.

Earth avalanches. 80-
Soil 1 ft deep. "85" angle
Moss overhangs. Prostrate
grown trees.


Rocus fissured. Roots
deep.

Above Fusum young bamboo
along roadbed. Need a
rope almost to cut it.

Great slides, esp. where
rocks of strata parallel
slope



Some fallen blocks as high
as pony.

Great walls. Smoothly built.
arches like Mycaenean and
Mayan.  all similar.

less than Shus & Fusuma
Sunny, quiet. Decided
to go on. Baggage eager.
1 hr for own lunch.

Caravans to Shosa.

50 animals in one.

Boxes.

strap iron in another
Beaver loaded with
doubled up sheet copper
size of pack.

Done individuals.

16 days!

Tiny niche under over-
hanging rocks. Rizzy deep
below.

at Kampong (Fusuma) a magnolia
yaks with horse tails.

Cane grows longer.
Magnolia and rhododendron
fully 100 ft high.

Sail much deeper.

greater waterholding
capacity.

Pipper's Smiles

children at Gankok-
to Makaraja.

Tiny children in left
of rock on highway.

Diminutive beaver turned
back for his.

Grandma.

Return visit. Courtesy.
hands always cupped.
Salute - one or two hands,
to brow.

Letter to Makaraja.

Asst Commissioner.

W. C. Patton Esq.
Hydroelectric Project
Engineer,
Govt of Bengal
4 Harting St
Calcutta

March 21

at Chhang-gu snow
2 to 3 ft.

Robt Frost, ^{Hopkinson} Holzer (in charge
of state trucks + skiers),
Maharaja Kumar Thondup.
(Family name Namgyal).

skied down road to almost
15 M. Snowed to 13 M.

(wet flakes). Dry snow at
Chhang-gu.

Three days before a
ski party skied to almost
the 13th M.

On Radio by Vicerey-

± 75 000 000 / 750 Ft

higher than Boulder Dam.
in Himalayan gorge.

"On March 26, ^{morning very} sky clear
of clouds in West Sikkim.
Photos made by plane
next day" Luck.

Robt Ford

Lhasa 12,000 Ft.

Apr 10/47 Max 69°F.
Min 31°F.

Within last fortnight snow
fell in morning and
disappeared in afternoon.

Robt Ford came from
Lhasa in 12 days.

Wool caravan in 16 days.

Post to Lhasa in 9 days.
to Gyantse by mule.

riding day and night
and thence by foot-
runner.

Parcel post accumulated
at Gyantse, then by conveyance
under escort.

Post leaves Gyantse
twice weekly at 5 pm
(Wed & Sat.)
and passes Chhang-gu
at 1 ~~pm~~ am. or earlier.

Apr 8 - Tues
last day

Talk all day -
laying out courses -
In yard
on hill

Snow melt

System evolving -

9 hrs talk -
lecture hall?

Problems of passage
Teesta 3,500,000 AF

very minor
Patton will give
data -

Curves of flow

Apr 12 -

Dichau (1790 Ft)
("Nictos") -

Up to Singie (4,100 Ft)

Chunglang 4,900 Ft.

Candy gave out first day.

River fluctuations -

Lilies in yard. Cactus
palm. Veranda overlooking
river.

"Father Church", may I
call you "Father"? a

flower for your coat.

Chinese Rose (Hibiscus)

Boys discussing me
and ~~Setu~~ Rai,
Chowkidar (Choke-i-dar)
and myself. He is only
70. "What am I going
to do when I'm 100?"
Go to South Pole.

~~Leaves falling~~

Henry Ford

Under suspension bridge
over gorge.

Water level app. 200 Ft.

Water gray green

but mt source 12,000 Ft.

Sunday Apr 13/47

Rain sounded like
a river bawling last
night.

Rains afternoo and
night, so must travel
mornings.

Snow caps appear ^{thru mist} on
the near ridges.

→ On Latang Tenga, 14,800 Ft
down to a full 1000 feet.
Seasonal snow - Probably
lower the facing seen.

So of course the
snowed river -
How much rain last
night? This is not
new snow but older.

Flowers - Shall you leave
them here? ^{Yes, will last longer,} "No can
dear you". But Dutta:
"Others will be happy

and thank us for them.
One boy salted the water
more than last lounge.

Terrace Farms -

My God, how did they
do it. One venture above
another? Almost to very tops
of steep wooded mountains.

Steep foot trails leading up
Some terraces, mostly
slopes.

Wide burnings to very tops
in evident preparation
for planting.

Civilization: adjustment
to difficult problems
of life and living? Then
Tibetans and Eskimos
lead.

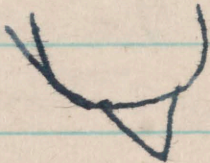
2:15 Bengal time.

Lunch at Dak Bungalow.

at ~~D~~ Tong (^{4,532}~~5,000~~ Ft.)
4,404

cream-golden roses
climbing on the porch.

Down to third box of candy
draps. Three tiny friends
expectant, saluting and
smiling ^{on the trail}. They must have
met me yesterday, at Mangaw?
Of course, each read one.

Canyons are  ~~wide~~
V-shaped above and
V-shaped below, i.e. glacier
cut first and then
deepened by river erosion.
Glaciers have retreated
and streams taken their
place.

Chungtan

	Total Price	in
Jan. 47.	5.75	
Feb	5.06	
March	15.64	
April 1-13	1.30	
April 14		
at Sing Lix - Heavy rain		
at Chungtan	0	in heights

But wooden container
in rain gage
and glass breaker
cracked. Replace

No snow ever here
Place automatic gage here?

Heavy erosion of river
bed above the canyon is
due to glacial deposits
and effect of monsoon
rains in swelling the
Teesta 4 feet above its

present flood plain.

Dutta has found excellent
marble.

Stages of River.

Today river a full
stage. Tonight boys placed
sticks to mark fluctuation
of the Lachen and Lachung
making jointly the Teesta.

"The Lachung is more
rural and open than
the Lachen and leads
to glaciers" - Paul.

April 14 - Monday.

(1941 ed.)
Changtass 5,120 ⁿ 36 Mi
Lachen 8,950 Ft. 50 Mi.
post

Strawberries. diminutive and
sweet.

Lachen Chu
(Teesta) has risen by an inch
during the night of 13th-14th
April, while the Lachung Chu
has risen by $3\frac{1}{4}$ " inch during
the same period. Measuring
sticks with notches marked
on them have been put
on both the streams.

The lower marks are cut
all round the stick, while
the upper notches ^{are} marked
half way round.

kid and little girl

Tues. Apr 15

Cause of devastation in
river is a land slip at
first tributary across stream.
Rockshel road broken by
land slip. So two bridges
for detour.

A canyon glen multiplied
in height and length.

Cascades all the way.
Vapor falls, ribbon falls,
sectional falls, ever up
and down.

Forest aisles, rising and
falling trail to round canyon
shoulders.

Streams high. Land slips.
Snow now high but at
Lachen snow 6-7 ft deep
but melts in Feb-March.
Snowfalls Dec-Jan.
But trails are dangerous.

Thanggu 12580 F.

Snow at Lachen
(8,950 FT)

Snow in autumn. Heavier snow falls in Dec-Jan. If sun shines on snow for considerable period, snow may melt in January or February.

Snow falls for some distance below Teesta Bridge (6,200 Ft) at foot of steep grade.

Max. snow 6 ft, usual 2 to 4 ft.

Trail to Chantung kept open during winter except for two to three days at a time.

So prob. safe from avalanches.

Snow lies longer

in shade. Slopes here ideal for snow-survey courses.

Could this be a survey center? Wireless here to call for horses from Chantung when ready to go out.

at Tangu (12,580 Ft) snow also does not lie long in sun.

Should be a shelter hut half way to Tangu, and a precip. gage at Lachen.

Stream gaging stations on Lachen and Lachung and at lake outboard Trail etc.

In addition snow.

courses in western
Sikkim, —

Girl and kid.

Wash out. Landslides:
monsoons, freezing from
monsoon rains, cleavage
of rock.

Snow course above
land slide? Mt 13,000
ft. approx.

Rained trails, swaying
bridges, boulders,
steep trails, sun guide,
Candy Salaman, S—, S—

Swamped with children,
Cary gone. Another
Grandma (cousins).
Dancing.

Manastang, Finnish
Mission School. Yaks.

Shelf on trail
in rock held up by bamboo plugs
and band. Try
to use rope.

Forest cleared for pasture.
Native plants for grass,
bamboo for hay.

Snow Courses

Mt. De-Nga (Amo Tsaya)
30° W of S of Lachen.
[Mag. correction 3']
by Pass Thepa-La (Pass)
Wooded, steady ascent
from Lachen.

By trail 3-4 hrs to Pass.
"Can wade there hip deep
in winter in a day, but
must stay all night.

In March-April 1938 went
up with survey party.
3 ft snow - Keeper.
No avalanches.

Dutta and Bazu
planning exploration
of other watersheds next
spring. Need wider
net work of snow courses.

Precip. station here desirable
for yak and sheep raising.

" Thangu 13,000 Ft.

to Lachen -

2 mi to Zemu River

7 mi Telling Sandong

12 mi. Dak-bungalow
at Thangu.

then only bridle path -
on rough track amidst rocks
and boulders.

Beninose Dog
yak ranch

Strawberries by Thaisavel
tea

Snow course sites

Opposite Rangle El Capitan

at 10,200 Ft.

but rough trip up
canyon from Lachen.

Sandong 57 mi

11000 - 11400 -

Good courses in
fields + on grazing
slopes above town.

First snow 11,700 F,
Snow cover
1/2 mi east of
Dak Bungalow
at Tangu -
at 12,400 Ft

Wind not strong, Prayer
flags at handlet tho exposed
all winter all whols

Tangu 12,500 Ft

Apr 16

Warmth at high altitude

Potatoes planted at
abandoned town at 11,000 Ft

No snow left at
Tanto and Tantu
But snow still lies
200 yd. up the slope

Winter snow at Tatu
4 to 6 ft deep, Sometimes
8 ft and buries the
Bungalow.
~~is not~~ warm periods
in January may melt
the snow tho replaced
in February.

Regularly melts during
March to mid April.

Travel by officials
thru Pass in midwinter
No snowshoes, can
mush in 2 ft of snow
avalanches apparently
rare!
Good skiing slope

from Lachen up,
and good sites for
snow surveys, for
me pass from water
cut valleys to glacier
cut and wider valleys.
Elev. Taktu 12,500 ft.
Taktu 15,000 ft.

8 mi from here.
No shelter for horses,
So will pack.

I could make round
trip in one day 16 mi
by horse to view
the slopes. But
I am not yet
strong after last night's
illness.

Bomels saw last
night, headache
and fuzzy dreams.
Stiffed by altitude.
Wanted to tear myself
loose from bed and
fall down the trail.
Sickened by my
disordered thinking.

Changing batteries.
Test of altitude as
at Lachen —. Should
try our carburetor
jets — for Tuck
Snowcat.

Have developed
snow-sunray system
for Teesta

Two loops

NE and N - Possibly

also for W.

From 15 Mi Station

From Lachen and
Lachung

Develop ski course
on Lachen

Shelter Huts at Pass
and Mi 37

Lachen

Labgram to Dr. Fleming

At Tungoo little
snow this year
But in 1938, in
mid April snow
there and at
Tharchee 4 ft deep.

April 17

First part of trail to
Tharchee 15,600 FT is
steep but after that
the trail is gradual.

Rise of 12,500 to 15,600 ⁽³¹⁰⁰⁾
in 8 mi. On Mt. Pass,
rise Refuge Camp to Summit
1800 FT in 1 mi. or
four times steeper.

Snow reserve

at Thanggu

On shaded side visible snow zone is 13000-18,000 Ft. Will last till May 1-15.

Max. elevations on east side approx. 21,000 Ft.; on west side (Kanchenjunga) 28,000 Ft.

only approach is from Lachen - No trail up the Great Rangit from Day'selling or Kalimpong.

Temp. at 11000 same as Tahoe 6,200 Ft.?

at Talam Shandong above Yak Pastures at Lachen natives raise potatoes.

So snow-melt phase

Lachen is February 15 to May 15 (8,000 to 16,000) while at Tahoe March 15 to July 15. Snow in Teasta thin, seems heavier at higher elev. Kenna Paul is willing to transport and build all equipment needed for snow-survey in Sixerim.

Wind, - at Thanggu (12,500) the wind is stronger than at Lachen and Shandong. ^{40/14} of the prayer flags have worn away but the rest are in fair shape.

Perhaps a Helicopter could operate safely if it could rise.

Clouds here much clear and peak proper. Last night only snow clear.

April 18

Kabruji late in
starting yesterday. Got
lost. Stopped in yak
camp during night
and reached Himalaya
Club Hut this morning.
Large expenditure
of porters and
horses. Good training.
K.C. Y.S. = Knight
Commander of Order
of Sikim.

→ Snow this winter
was light - at Laker

By rights

Major Young Party - - -

Fluctuation

Jha - chui (= River)

~~Apr. 16 -~~

~~Morning - Base~~

Apr 17 -

Morning Base

afternoon + 1 in rise

Apr 18

Morning + $\frac{1}{4}$ in

Afternoon + 1 in and $\frac{1}{2}$ in

Note: Yesterday sunny.

Today mostly cloudy.

Diurnal fluctuation and
increase in flow?

Apr. 19

Morning + 2 in

But rain and snow
in night with rapid
melting.

Evening + $1\frac{1}{8}$ in

April 18

Kabruji late in starting yesterday. Got lost. Staged in yak camp during night and reached Himalaya Club Hut this morning.

Large expenditure of porters and mules. Good training. K.C.Y.S. - Knight Commander of yak camp of Sikkim.

→ Snow this winter was light - at Lachen By rights

Major Young Party - - -

Notes to Map of Sikkim by Major Young.

① N. Slope of DANILYA LA

Ⓐ Snow line 11,000 ft

Ⓑ Depth of snow 3 ft average.

② S. S Slope of DANILYA LA

Ⓐ first 1,000 ft very steep + all snow melted.

③ Valley of Lachen chu to MOME SANSOWA

Ⓐ Snow in bottom of valley 2'-6" to 3'-0"

Ⓑ Snow on W. S slope below 18,000 ft all melted

Ⓒ Snow on E slope to valley bottom - 2'-0" average

④ Valley of Lachen chu MOME SANSOWA to 1st LAKE (Below 16,000 ft contour)

Ⓐ Practically no snow in valley or on N. S slope

Ⓑ Snow on S. S slope (16,000 ft) 1'-0" to 2'-0"

Ⓒ First lake was frozen but was beginning to melt at the edges all frozen, remainder all melted

April 18

Kabruji late in starting yesterday. Got lost. Staged in yak camp during night and reached Himalaya Club Hut this morning. Large expenditure of porters and mules horses. Good training. K.C. Y.S. = Knight Commander of Order of Merit.

→ Snow this winter was light - at Lachen
By rights

Major Young Party - - -

(2) 2nd sebo lake to top of SEROLLA (2)
Snow on ~~the~~ level places 5 ft average up to 6 ft drifts.

(L) Snow on steep N slopes melted

(C) Snow on S. slopes 2 ft average.

(d) Several glaciers + snow banks exist on the S side coming from CHOMBO Massif.

(6) W. S. slope of SEROLLA to 16,000 ft continuous ~~slope~~ ^{snow} ~~changing from~~ 3 ft at top to 6 ft at bottom

(4) 16,000 ft contour to ~~junction~~ and PHALONG
+ ~~CHU~~ ~~CHU~~ CHU -

Valley - odd drifts of snow only averaging 2-3 ft in depth

N. slope - ~~is~~ melted

S. slope - 1-2 ft down to valley bottom

(8) Below river junction

Only slight patches on S. slope remain.

April 18

Kabruji late in starting yesterday. Got lost. Staged in yak camp during night and reached Himalaya Club Hut this morning. Large expenditure of porters and mules horses. Good training. K.C. Y.S. = Knight Commander of Order of Merit of Sikkim.

→ Snow this winter was light - at Lachen

By rights

Major Young Party - - -

(3)

⑨ TITANCU - DONKUNA

(a) Valley NO snow

~~ES slope snow line~~
Snow line on sides of valley at TITANCU

⑩ DONKUNA - CURUDONAMAR

(a) Plateau - no snow except small drifts along river bed. The ground was completely dry + barren.

(b) Snow line N. rim

(c) Snow line S. rim 19,000 ft

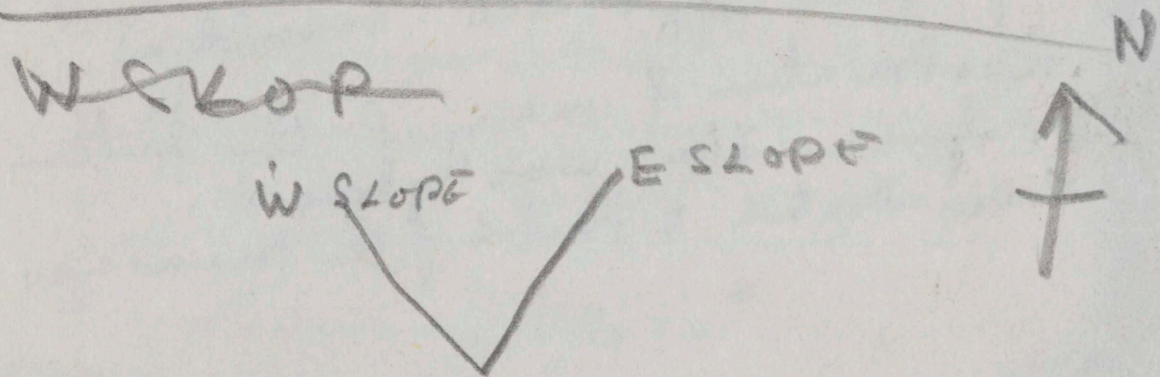
18,000 ft

⑪ CURUDONAMAR - CHOCCEAMO
Plateau

~~all~~ - NO snow till 17,000 ft (at CHOCCEAMO)

(b) Hills to N+S as far as at 10,000 ft and as above.

(c) Glacial lakes are frozen above 17,000 ft. at this level melting is just beginning to take place.



April 18

Kabruji late in starting yesterday. Got lost. Stopped in yak camp during night and reached Himalaya Club Hut this morning.

Large expenditure of porters and mules horses. Good training. K.C. Y.S. = Knight's Commander of Order of Merit.

→ Snow this winter was light - at Lachen by night.

Major Young Party - - -

Yumtso (YUMCHITTO) Plain (4)

(a). According to reports from the SIRARR who was up in November there was then drift 1 to 2 ft deep ^{in shady places} around SONWONG + ~~SONWONG~~ on the CHHO west side of the GUNWONGMA CHO ~~SONWONG~~ right up to the SONWONG.

On the HONG SONWONG side of the SONWONG in the LACHONGA valley there was ^{practically} no snow at all. The snow had fallen in September + there had been no further falls till 14 March 43.

(b). In April 43 the SIRARR was up in the Yumtso + there was then about 3 ft of snow on the Yumtso Plain.

(c). In Oct. 43 there was a very heavy fall of ^{rain} snow resulting in destruction of many of the paths + bridges. This was general over the winter & much of the Himalayas.

Tibet -

a country without trees and with rounded mountains, desolate but for the goodness of God that gave it yaks and sheep. The yaks provide hair for tents, meat, milk and transport. Sheep provide export wool and flesh. Both provide fuel from dung, better than any timberline fuel. Yaks cannot live below 8000 ft because of heat. They graze

near timberline
and "Charvidar"
east of Dar Bungalow,
has 150 sheep and
100 yaks on the slopes
above us.

— Kerma Park

Upper Teesta

Snow conditions
described to me by
Major Young. See
Memo.

— Wind Direction —

Wind is normally up the
canyon during day. Prayer
flags are constant reminder.

Quite unlike Sierra Nevada -
from cold peaks to hot valley.
In Himalaya, there is the

hot Hindustan plain.
Why not therefore down-
slope southwards?

Is upward ^{north} ascent due
to Tibetan plateau which
also can heat up the
12,000 ft high?

Watch for shift in direction.

Seix

Their Five Rs. by Lieut. Singh.

1. Hair - From boyhood no
cutting of hair or beard.
So beard thin and silvery.
2. Comb
3. Underwear of special type.
4. Bracelet
5. Knife. (for protection only)

My dear Dr Church,

Dr Kalraji reached here just now 8 a.m. He spent the night in a yak tent having lost his way.

Please send some potatoes, onions, tinned fish, one tin of milk powder. We discovered last night that we have enough food to last us till lunch today. We have no vegetables at all & no meat except tinned ham which won't last beyond breakfast.

Major Young's party must have reached by now. Hope you are better.

Yours truly

Bikar Das
18th April 1947

hat Hindustan plain.

Why not therefore down-

My dear Dr Church,

We reached the Club hut at 1.30 p.m. (I.S.T.) except Dr Kalraji. Major Young's party is here occupying the bungalow. We have made friends with them and are going to occupy the bungalow with them. They are quite a nice lot. They will be reaching Thanggu tomorrow afternoon and will stay there during the night. They will be leaving Thanggu day after tomorrow. We shall leave this place day after tomorrow and

near Timberline
and "Chaukidar"
supt of Dar Bungalow
has 150 sheep and
100 yaks on the slopes
above us.

- Kerma Paul

Upper Teesta

Snow conditions
described to us by
Major Young. See
Memo.

- Wind Direction -

Wind is normally up the
canyon during day. Prayer
flags are constant reminder.

Quite unlike Sierra Nevada -
from cold peaks to hot valley.
In Himalaya, there is the

hot Hindustan plain.

and there's a...

reach Thangpu in the
afternoon.

We hope you are
keeping fit. With regards.

Yours only

Bikash Bora

17th April 1947

April 20 -

The Church Boys
in the Snows

Prayer flags are pointing
down valley this morning -

Platan cold and plain
hot? Down current near

Escape by reacting from
snow

10:30 am

Wind blowing fresh
up valley - Overcast

Monday Apr 21.

Must split my sleeping bags.
Too warm.

But sound sleep - altitude
less.

Scenes are budding, leaves
are colored. The grass is
larger.

Spring is here.. We have
left the alpine world -
which rises above and before
our door.

Our large haul of flowers
left on up trip still decorates
our table.

The Church Boys.

Smoke out of gables -
bldgs, tents,

Spinning, mending

Only strawberry ^{bliss}

7000 ft

Teesta Bridge

Like Prayer wheel

Terms

Mt face 85%

vertical faces & forest

90% descent into
torrent

Running rapids! Bear

Since ways from log
would be battered

"Forest Primordial"

Increasing sounds of life

Simla, Summer Capital
of India

HA ^{only}. Rocks for
roofs, bamboo for bending.
Low cost of living - but eggs 20rs.

Trail to river a bog but
rode all but one piece.

Landslide devastation
like a volcanic mud flow.
Detritus recesses max. size
15 x 30 ft. Trail among
the boulders.

Yak milk becoming golden
since we have been
gone.

Yak milk as pleasant
as cow's milk.

"Told my father that
you were my father,
my only real love" - Dahr

Mail from Sirakim -
Plans for Kosi

Apr 22

River Rise

Lachen (Big Lach)

Eve Apr 13	Base
Morning 14	+ 1.5 m
" 22	+ 12.5

at Lake Apr 21 - at least 10 m

Lachung (Little Lach)

Eve Apr 13	Base
Mon 14	+ 0.7 m
" 22	+ 9.9 m

Principals 2.5 m
Apr 13 - 22

Temp. increase
Water air

Water 52 air 64

De Bos
Water too cold for road
Must be snow melt

De Bos will come to
put in stream gages

Site for Green Gage?

Color in the green
forest

Stream bridge by
them

general

Depth of the stream

Big holes of water

Viewed reversed,
Down canyon away
from snow

Rain heavier than higher
up. Much so.

Into bog if away from
trail. Bog to the boulders
Wet and slippery.

Detour - road gone
below Dak B. - at Tung

Where is Labrapi?

Lunch Place.

Nanga-ghati

wine house

Double bamboo walls

On hillside -

= beer, Get drunk

"Falls or Mountain View"

Thung-Chang 3 1/2 mi post

Wine House 29 = 7 mi

Sinchar 23 1/2

Drinking soil

Stamps - 9500 - 5100

I was there
Close to the

Rain in open and forest

Drops from the trees
are large and effective
like drippings while the

rain in the open
seemed finer and less
wet. In denser part
the intervention may
be more complete.

Test by a series of
gazes in open and
types of forest.

at least the ground

Mangrove
far up
Mangrove

was moxy except
where sandy.

There should be good
soil-storage and better
drainage. —

Important project
in connection with
monsoons.

This afternoon rain
continuous - prelude
to monsoons? Then
one month early.

View up North

— landscape —

Canyon filled with
anchor clouds and
distant ridges show
in rounded lines
outlined in riparian
haze. A study in
planes.

The floor of the canyon
appears to be a layer with
reflections given vista
and framed by the
wooded slopes.

Rain increasing
downward? Little
at 12,500 Ft.; 2.50ⁱⁿ
at 5,200 Ft.; rain
toward 4,500 Ft.

Apr 23.

Sixth. Rain all night,
then again this pm.

Squawk at Manan.

Indian can^{in form} lower.

White clay water, yellow
clay in main stream.

Candy again. Ill boy.
Children climb for candy
live goats.

Trail wet, terraces

small lakes. Rice?

Sawyers on logs.
(4900 ft)

→ at Bunker, snow 6 to 12 in
but melts quickly.

Lieut Singh came on trip
because of me.

Muslim — "came a week
early for same purpose."

I am the mureling of them
all, "Precious" for the cause
and to them. I accept it now.

Dietie (1800 ft)

Temp 70.5°F

River temp. 58°; Chungtang 52°

River risen 4 ft 5 in since
morning of Apr. 12, now Apr 23.

Much is snowmelt, part also
is rainfall.

Water yellow + gray water
at Suspension Bridge, flung
rain and rise of 6 ft in
temp. of river water at
Dietie.

April 24

Morning air 68.5°F

River 56°F

last
night
70.5

58°F

Evidence that snow water
dominates. Temp tonight?

River narrow in canyon,
hence the apparent great
rise from rain.
Increase this morning 3 in,
approx. (as marked on rock).

from Teesta Bridge
Taxi to D-5 for 3h
Missed lower Teesta
but looked down into
Delaware Water Gap
again — and onto
Tea slopes.

Previously corn
old bridges + new
both to be flooded
to lower

Apr 23 -

Manzan 3,550ft

Monks go for woods

My mule has had bad
wade to side.

Terraces aflood ->

Squash appears only at
Manzan ->

Saving a timber

Stone work

Study relative effect of
rain + snow above

Chungthang and below
Little rain above

Is rain zonal?

Rain 3 in rise last
night from (rain drainage)

3 in - Total since
in 12 days 4 ft 5 in.
Snow must must
have been 3/4
Precip. at

Apr. 24

at Diata.

Last 4 nights rain heavy.
During day intermittent
slight drizzle.

Previously no rain
during the previous
8 days.

at Chungthang

During our 10 days from
there 2.51 in. rain.

Rise of rivers ?

Note increase in silt
discoloration below Lintik.

Haze too deep to see
Mountain peaks - Also
on east side of valley +
possibly rain. Condensation
below umbrellas, Hang
from collar of coat.
Candy - my mulatras
baby seen.

Irrigation on terraces -
Some nice paddies -
Waigo -

Storm depression has
now passed, our rain was
a storm, not monsoon.

Lunch on Ridge

My mulatras' little boy
and candy
[Two girls insulted by
candy - "Too fresh"]

The Commissioner's auto
comes to meet me.
Boys insist "C" will be

attended". Latta, Paul + D.
Dax B. - crowded.

Military mission for
and Gansel 131 mi.
our doctor wants -
Rejected - "42" in waist -
Heart trouble.

Mail sent up Toesta!
Dinner at Commissioner's
Snow in Tibet.

→ C - wants 2 copies of
snowline maps, Robt Ford
1 copy - Then copies of
all reports -

A merry evening -
Commissioner's tales of
crime - "Over the cliff -
Gambling. V.C.

Apr 25

Rangpo R. -
glacial gravel
residual yellow
R. comes from
Natala Pass -
Relatively good
fluvial gravel

Camp

Indians -

Road dry. Rain?

Six - Bombay

Lunch to 4.30
Expect with smile
at the end of the road
"yes"

On road + scant
rivers. See D.
Loats + rocks. But
yours keep even
close to snow line
(not much lower
than 5000 ft)

Teesta Bridge.

Dam site.

Passed Com. Happiness
on bridge.

He came in taxi from
Darjeeling and left it
for our use.

Siliguri or D-J now?
Teesta white yellow
see ~~xx~~ of pages
back.

Rope team to
tea slope?

~~tab~~
Lopchu (5300 Ft) Forest
Bungalow (Best tea
estate).

Streams (ground drainage)
all dry, but road is
approaching top of ridge.

Cool, beautiful.
→ Tell Patton.
Precip. at D-5?

Power line?
In cloud 6,000 Ft
+ 500(?)

April 26 -

Mr Datta has a complete
series of air maps of Kosi
River in summer.

Mts base almost, erosion
marks radiate from even
the summits, the stream
is badly silted.

" Forest only below 2000 Ft
(or 6000 Ft?). Denuded for
farms? Eroded portions
now abandoned. Where
terraced erosion is absent
Datta.

Doctor's story of hostility in
Nepal. Won by medicine
(350 cases) and story of
how the Kosi Yom made
bring lights, radio, telegraph
to them. Then they p

the British and decided
their own Government.

Prices. Eggs per doz Rs 2
on the trail. Prices
went up as we appro-
ched. Luxury money for
retires.

Butter Rs 3/12 for
2 lbs.

Doctor H - Rs 10 for
each examination.

Hoges Rs 3 per day. High Rs 7.

Cloth for suits Rs 27^(?) per
yd.

Peasants buy little - all
from their land.

Transport by back, burro,
mule, ox, yak.

Bullock carts, lories,
rickshaws, taxi, pony
carts.

[Aug 5-39, 1947]

Li-Rite

PATENTS PENDING

Notes

No. 518 $\frac{1}{2}$

LI-RITE LICENSE NO. 1

85.7.11
117.58

Want a Card

Bertha Benham, Soda Springs

Lynnan Beecher

Neva Cazien

Charles Cutts

Pipper

Emma Silver

1 Re

12 As

Amount 500 RS.

Ticket to Simagaru

6 am.

Wed

(Field 7:30 am)

Inge Enzo Macagno - Profe-
sor de Hidraulica en la
Fac. de Ingenieria de S. Juan

Inge Guillermo J. Hughes
Director de Obras Hidraulicas
e Hidroelectricas de la
Prov. de Mendoza

Inge Eudonio Zappi
Jefe Divisional Zona Cuyo
de la D. G. de Agua y
Energia Electrica.

D. Francisco V. Leiva Porta
Director del Instituto de
Ciencias Economicas

D. Arturo E. Corte, Secretario
del Instituto del Agua

Alberfo A. Tomaghelli
Doctor en Quimica
Especialidad Analitica

Ceresetto 1763

San Juan.

Dean of the Faculty of Engineering
of San Juan.

Maria de la Asuncion Plaza de Darnat (Don Petron)
Desmeralda 1277, 7^{mo} "C" Buenos Aires

Traductora - Interpreté del H. Congreso de la Nacion
Secretary of Senators Mathus Hoyos + Dr Tacheret
Dr Tacheret, President of the Library Commission
Senator for San Juan. Sanitary Commission

Dr Alexander Mathus Hoyos is President of the
Foreign Relations Commission + of the
Agriculture Commission. Senator for Mendoza

Ingeniero Jacobo A. Sardina

Jefe Comisión Estudios Rio ^{Limay} Limay

San Carlos de Bariloche (Rio Negro)
(de la Direccion General de Agua y Energia
Electrica)

Private Adresse:

Calle 10 N: 1345

La Plata

Gilardoni

Roberto José Gilardoni
Departamento de
Hidrología - Serv. Tutor.
Nacional -

Comando de la Región
Glaciología y Nivometría -
Yapeyu ^{Bernal}
Yapeyu 675 - Bernal
F.C.S. F. C. Sud.
SOUTH

Paseo Colón 317 - (Buenos Aires)
(Official Adresse)
(Servicio Meteorológico Nacional)

Manuel S. Garcia Wimer
Dirección de Agua y Energía
Eléctrica -

Facultad de Ingeniería de la
Universidad de Cuyo -
Casilla Correo 37 - San Juan
F. C. P. - (Mailing Address).
Barrio Irrigación Nacional - Casa 3
(Home address.)

Marcelo E. Vardaquer
Dirección de Agua y Energía
Eléctrica -

Jefe División Técnica San
Juan -
Ingeniero Civil e Hidráulico
Barrio Irrigación Nacional
Casa N° 2 - San Juan -

Ing. Juan Vitoria
Secretario Técnico de la
- Gobernación - San Juan

Ing. A. de Tolnay
Jefe Depto. Hidrología
S. Juan, Reconstrucción
Has only laboratory of hydraulics
in South America
Nominate him for Amer. Geog. Union.
"Has a bunch of my snow pubs."

Ing. Gaurio

Dr. Augusto Tapia
Bs. Aires, Ambarés 985.
O with Sr. Gano
Agustín Gomez 132,
S. Juan.

Rossini ? Mendoza

Wanted esp. by Ing. Sardino
the 1933 Geog. Review. He has
translated it into Spanish.

Dr. Guinazu

Ing. Juan Victoria
Secretario Técnico de la
- Gobernación - San Juan

Wanted esp. by Ing. Sardina
the 1933 Geog. Review. He has
translated it into Spanish.

Dr. Guinazu

Dr. G. Gudolle

Assistant to Technical Secretary of
Presidency

Dr. José Figuerola

Am. P.

o with Sr. Yano
Agustín Gomez 132,
S. Juan.

Rossini ? Mendoza

Dr. A. E. Corte

A. Alvarez 16

Mendoza

Rep. Argentina

Cuyo

Secretario del Instituto del Agua de la Universidad Nacional de Cuyo

Your son will write to :

Francisco V. Leiva Hita

Ciencias económicas

Instituto de Estudios Económicos

Universidad Nacional de Cuyo
Mendoza, Argentina

~~Dr. A. C. Coate~~
~~Dr. R. J. de Coate~~

~~ALVAREZ 19~~

~~U. P. 15147~~

~~MENDOZA~~

Dagoberto A. Sardina
Calle 10 N° 1345
La Plata
(Argentina)

To send publications

ING. ENZO OSCAR MACAGNO

Entre Ríos 857-Dto 4

San Juan

Argentina

For DL Corte

- 1) Names and addresses of Institutes which are dedicated to the study of snow and glaciers in Russia, Switzerland, Germany, Sweden, England, Canada, U.S.A. India, Italy, ..
- 2) The names and addresses of professors of ~~the~~ any Institute that study snow and glaciers.
- 3) If not too troublesome would appreciate any publications or reprints be sent to me about snow and glaciers
- 4) Any comments about glaciers from a meteorological standpoint ..

Colonel J. ~~L~~advocat
LADVOCAT

lt. ^M Manuel Ceretti

Eng. Pedro Rasilla^s

~~Federico~~
Eng. F. Zapper
Federico

^M
lt. Mario Nosenzo
(Medical)

~~10/2/50~~
11/2/50

~~11/10/50~~

Over the moisture and
cloud mass.

Now Riding at 3600 ft.

Still in cattle country. "Sud
of milk". Precip. 900 mm -

~~Soon~~

It is low pampa. Richest
zone in all the country.

Pampa is "plain", high or low -

The PAMPA is the area between
Cordoba and B.A.

Near B.A. precip. is 1000 mm
cities have Chinese-red
roofs on houses.

MORON - airport of B.A.
New airport under
construction Ps. 300,000,000

Major + intensive crops

Third river is largest. Has largest hydro electric dam in Argentina.

All five rivers are permanent but rain fed. Last snow in 1918.

Cordoba and B.A. two oldest cities in Argentina.

Cuyo Univ, 10 years, Cordoba

Univ. 300 yrs.

Rivers: Name Rio Primero

Sounds, from north & south.

Five in all.

Irrigation area relatively small but ~~quite~~ land extends to B.A. grass lands

approximately = Spanish "more or less"

always abundantly used.

This might be Dakota.

Patterns of green and brown, radiating roads, jagged, small square towns, tiny lakes, swales shown be shadow or change in hue of verdure, overcast, rain. Steamers.

A glaciated land. Running into a vapor belt with a school of small clouds below. Running at 7075 FT

Aug. 29 -

Dry or arid even. In heavy rains water flows a hundred rivulets, low low Chaparral area.

Cordoba

" Ciudad de Cordoba

Altura 480 MTS

Altitude 1574 FT

Aneroide 1300 FT

Low 275 ft.

Eachier 250 ft. ?

~~Mount~~

Precip. 500 mm

Irrigation - canal

Cordoba 300 000 population

Mining, grazing.

Military Industries - airplane factories. Because in center of country.

Tourists. Climate good for TB.

drop 2

Third river is largest. Has largest hydro electric dam in Argentina. All five rivers are permanent but all five freeze in 1918.

Aug. 29 -

who say

Aug. 28

Ladocat

My Colonel

Mrs Cardenas
City Hotel

Verdi Aida
All Italiano

of verdure, overcast, rain.
Streamers.

A glaciated land. Running into a vapor belt with a school of small clouds below. Running at 7075 FT

factories. Because in center of country. Tourists. Climate good for TB.

Thursday

Plane called away by emergency
transport of medical supplies
to Paraguay.

The Senators eager.

Totalizers fairly stable.

Small ones sufficient.

Wind shield,

Snow surveys represent fairly the
altitude and topog. situation.

Hot water - in - tub as heater for rooms
all anxious to go to Patagonia.

Letters -

Maize + intensive crop
M

- 3 -

Third river is
hydro electric dam
all five rivers
rain fed. last
Cordoba and 3
cities in argent

Cuyo Univ,
Univ. Sao Paulo,
Rivers: Name

Sounds, four
Five in all.

irrigation a
but some land
grass lands
approximately

always a

This might be

Patterns of
brown, &
jogg, small
tiny lakes,
shadow or
of verdure,
Steamers.

A glacier
running into a
school of small
Running at 7

...
line
a
Cordoba
MTS
FT
300 FT
5 ft
50 ft.
...
darker
...
population
...
stries - airplane
area in center
...
note good for

Maize + Interoceanic Prof'n

Third river is largest. Has largest hydro electric dam in Argentina. All five rivers are permanent but rain fed. Last snow in 1918.

Cordoba and B.A. two oldest cities in Argentina.

Cuyo Univ, 10 years, Cordoba

Univ, 300 yrs.

Rivers: Name Rio Primero, sounds, from north & south, five in all.

Irrigation area relatively small but ~~quite~~ land extends to B.A. grass lands

approximately = Spanish "more or less" always abundantly used.

This might be Dakota.

Patterns of green and brown, radiating roads, jogg, small square towns, tiny lakes, swales shown be shadow or change in hue of verdure, overcast, rain streamers.

A glaciated land. Running into a vapor belt with a school of small clouds below. Running at 7075 FT

Aug, 29 -

Water in snow at base.

Friday - Overcast on Precordera, Cordoba 1500+ FT

500 mm. rain

900 " on PAMPAS

1000 mm. at B.A.

Rain - clouds.

Prof. Garibaldi enthusiastic, to water Co, 10 in group. Data into far south computer.

Wes. Sordina from San Juan, increasing cold. Bath hot.

Sleep. Van Sennay, "It is sometimes too late" - Ladies H.J.

Dream of art lessons,

roba 300 000 population, mining, grazing.

Military industries - airplane factories. Because in center of country.

Tourists. Climate good for TB.

Maize + intensive crops

Third river is largest. Has largest hydro electric dam in Argentina. All five rivers are permanent, but rain fed. Last subw. in 1918.

Cordoba and B.A. two oldest cities in Argentina.

Cuyo Univ, 10 years, Cordoba Univ, 30 yrs.

Rivers: Name Rio Primero, Segundo, from north & south, Five in all.

Irrigation area relatively small but ~~quite~~ land extends to B.A. grass lands

approximately = Spanish "more or less" always abundantly used.

This might be Dakota.

Patterns of green and brown, radiating roads, jagged, small square towns, tiny lakes, swales shown be shadow or change in hue of verdure, overcast, rain streamers.

A glaciated land. Running into a vapor belt with a school of small clouds below. Running at 7075 FT

Aug. 29 -

Sometimes too late
Cattle to Juce
Dan Sweeney

30 August
Santa Rosa
de Lima

(all S. American Holiday)

Mining, grazing - Military industries - airplane factories. Because in center of country. Tourists. Climate good for TB.

1
Snow last week at Mendoza

Aug. 29 - To B.A.

Enter plane in order
of passengers list -

In order of application?
Good idea

Snow on summit of ~~Andes~~
Yes ~~Andes~~
Colourful sunrise.

Landscape underneath is
parklike. Orderly trees,
Hobbesian avenues, square
fields, some green -

Clouds settling over range
to north.

Dry streambeds again
with detour ditches.

San Juan - Rio
Rio S.J. 1 1/2 times, Mendoza (P)

But Mendoza ~~area~~ has
much more irrigated land.
5 rivers vs 2.

Aug. 15 -

Detritus to land slides.

Silt from beneath snow cover.

But stream clears ^{some} in 20 km
Rio Vaca and Tupungato. Stem
is to west.

Bit more snow between Inca and
- i.e. between Crest and sec.

Cordillera.

~~to~~ from Chicago on train, Jeep.

Home with Tappers and ~~Wimmer~~
in dark 150+ km.

Must go back to Crest. Snow
disappointing.

Aug. 20 (Wed.)

Plane arrives late. Heavy storm
moving north along mountains. Cannot
cross into Chile.

Lunch. Clear still at Glacier. So
up to visit with San Juan.
6500 m. but had oxygen loosely over

my nose,

Desert dry streams,

Tachal from far north as
half the flow of San Juan.

Ry. Ads settling ahead of us
on peaks. So swing east
and straight for San Juan.

The pilots will wait at Mendoza
for fair weather.

"Lancaster" searching plan.

— A — Ours O

Newspapers. Glaciers.

Must get runoff of Tachal.

Table of Harry completed. Bed
1 am. Only trends. 150 km
apart.

Waiting for ^{Rio} Colorado.

Aug. 21 (Thurs).

San Juan - will call Chile.

Only 20 min. to highway station.
One way road.

Dimensions at San Juan
but much, very much, in
upper stream. Accounts for
300 to 30%?

Two reservoir sites.

Upper immense.

Season opening. blossoms.

→ "Streams since"

Find Hans Heinsheimer,

Overjoyed - Telegram 10
days old. Addressed wrong.

Film on air mild but
not violent as lower
at San Juan.

A tern - pet in Argentina

Dr Juan Garro -

Glaciers in Ansilta Cordillera

Barcel

Friday 22 - up Rio

Aug. 15.

No snow on 3 Cordillera
Sant " " 2^m "

Snow begins satisfactorily only
at 7000 ft at Punta Vacas

Three streams here -
Vacas, Yampungato,
Cuervas - Feeders of Mendoza

En talas -- Reson

Viva --

We are with you

Flat with snow (but
melting, too shallow to
hold melt water.

90⁺ (150?) cattle on snow
trail for Chile.

At Rosario snow better,
Excellent - on flat but melting

Road closed
near
Londelita

Test depth of penetration
in snow,

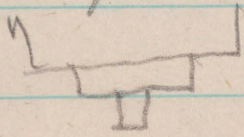
North slopes bare, S-dopes
covered (?). Flat has some
snow remnant. Centruans

Puente del Inca

M 2719

Soil & snow slides
Autumn ~~landslides~~ from
frost and ice in rocks.

Box canyons



Mts rising
rapidly.

Silt or color from snowbanks
But picks up once beyond
However, has cleared much

20 kms downstream
below Punta Vacas.

Trip by jeep

Treaty of Chusko Cop here.

Rio Negro
canal across
arch entrance
Vinas del
1,000,000 acres?

Jergon?
No music.

Friday - Aug 6.

Late up. Visit to Cent. Dir.

at 2. Our Indian chopper appropriate
to dirt on auto. Would like always
to be my driver. Grand of Pt. Maggi.

to letter to minister when?

off for San Rafael only late.

Volcanic fires over Tupingato
as seen near Sukkerloppen,
Greenland.

Town to the Diamant and
Tituel. Finally to S. Rafael in
the night at 10. A hacienda
with balconies turned in and
light wells narrow. A labyrinthine
inner court + two stories

Saturday. Slept till 9. No fire.

Rich district.

News reporters.

Into S.W. up trail. Thru Painted
Range warmest part of Pre-cord
Salt lakes, yellow pampas.
More rain. Reservoir being built

train Rio Colorado calls to surveying
Great reservoir being planned

Corte-ll

Mil Base
here snow at 6,350. Ski field.

also. Snow
Snowplow

Rio Negro next beyond

up bench at military post.
Mules only for Andes Safer.
Hot Springs

Snow at 7,000 m. Continuum
here snow at 6,350. Ski field.

Snow leaves white.
Only 15 km here to Chile.
Only a single range. 2 at
Mendoza, 3 at San Juan

Old + new snow

River higher this evening
from melting.
Hotel made by state Province
but leased. Road too high
here.

Power plant with
guard against avalanches
350 km today 200+ mi.

Working out survey plans

To ?

Cowboy ear buttons

White thread & needle

Black thread

Talcum powder

Washing

Names -

Salvadora

Cita

Buy at San Juan Ormat.

Air France

Sunday Aug 9 To Rio Grande

Rio Grande & Rio make Rio Colorado.

Route 40 to Strait of Magellan. School houses.

Fort of juniper stones and laurel groves.

New railway grade.

Up Rio Grande.

40 cu m, mine at present.

Max, 7600?

Relatively clear

New snow

5250 ft

Traged back 7750 ft

Ski hut 2000? high 3800 meters?

Aug 9 Lunch with ^{mixing} René Adon

White Russian engineers.

Can reach snow from Minacar asphalt mine.

Snow here at lunch place

40 cu. at times. More at mine.

Problem -

From mine can go only 7 kms further up to 3000 m. where cliff and deep valley stop us.

Wind from North

Permanent winter snow

only at 3000 m except on

S. side where not windblown

and is shaded.

Can spotted snow be used for seasonal percentage?

Well to have a Stevens snow gage at mine. Weather S. station already there.

Monday Aug 5? Conference

Warm room -

An easy schedule, but full

1. To Army. all present -

Map of Mendoza + San Juan

2. Jarden for San Juan but watershed far larger than shown

Several small maps for Mendoza but heavier rainfall + snow

M - 140,000 in area

2/3 as much in San J -

Rad south passes in both

Antos

Highways to Andes. Several possible. Army flycans will recommend it.

By once weekly. Same for totalizers and snow surveys.

Harmony should be good.

Trips planned over province.

Plane 6 passengers + 5 crew

lost from B.A. to Chile. Several days.

Taching.

Conference at 4. Glaciology

1 Aug 09

Perhaps we better here

Test some of smoother slopes

Avoid numerous crevices

80 km (60 mi) home to Malanzúe

Holiday

All day on living and salutation.

Tues. a plane to cross Andes!

To Patagonia? Trust it up.

Wed -

Major flow - a month later + longer glaciers?

Hughes. Want to spend every minute with you. Such rich experiences, so simply told. So much the better.

To Shipa - cold water.

Brazilian boys "Will send you your pictures. Will glad with us a little note? An train Friday

about Chile. Available in Argentina

Wanda

Rio Satchal

(of San Juan Province)

Air France
 Réseau Aérien Mondial
 Lucien Boucher
 PERCEVAL - 16 Rue d'Anvers
 PARIS. M
 Campus at Mendota 766.15

2298

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$$\begin{array}{r} 766 \\ \underline{\quad\quad} \\ 3.1 \\ \hline 766 \end{array}$$

$$\begin{array}{r} 2719 \\ \underline{\quad\quad} \\ 3.25 \end{array}$$

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$$13595$$

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