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REPORT OF THE BOTANIST OF THE URUBVATI
HIMALAYAN RESEARCH INSTITUTE OF ROERICH MUSEUM

(1)

The Botanist arrived in Naggar on May 28th, 1930. For a month botanical equipment was held up by Customs in Bombay and, when it was finally released in late June, the rains had begun so that collecting was possible only at intervals. In spite of difficulties very good collections were made of the spring flowers from the 8000-12000 ft. altitudes in the Kulu Valley. On July 10th collecting was begun across the Rothang Pass in Lahul and this work has proceeded through the summer. The Lahul District has been covered from Jupa on one side to and across the Chamba border and to the Rothang Pass. Explorations have been made not only in the river bottoms but also on the slopes to the perpetual snow. The botanical collection now comprises some 1300 numbers, representing over 10,000 specimens. It is believed that 90% of the Lahul flora is included in this collection. Range extension of known species will undoubtedly be revealed by an analysis of this material and it is probable that new forms will be discovered.

The specimens form a basis for the study of the ethnobotany of the region. Wherever possible, information has been gathered regarding native uses of plants and a surprisingly large percentage are used as food, flavoring, medicine and ornament. Particular stress has been given to the acquisition not only of an herbarium collection of the medicinal plants (these are known only by Tibetan names), but also samples of as many as possible have been gathered so that they will be available for future experimental uses. Such include Ephedra, Aconite, Gentian, Rhubarb, Aster, Poppy, et al. Information about the medicinal herbs is in the possession, for the most part, of a few initiated lamas. Every effort has been made, and with considerable success, to secure their cooperation in the study of the Tibetan medicines. Their naming of the plants is of course indispensable. The various men have been separately consulted and the information from the several sources compared. Invaluable assistance has been rendered by a young Takur, who has joined the staff. The youth is much esteemed in the valley, speaks and reads the various languages current and has a keen appreciation of the purposes of our investigations.

In addition to the plant collections, a good collection comprising at present some 300 specimens, has been made of the local birds. This number, it is expected, will be raised to 1000 during the year. It will contain many rare and some new things. ~~Here again we have been much hampered, chiefly by the unwillingness of the Punjab Government to cooperate, this in spite of the fact that cooperation with the collector was requested by two great American universities, Harvard and Michigan. (A license to carry fire-arms was received three months after application).~~ Collections of less importance have also been made of the mammals, reptiles and insects.

It will be possible to distribute to foreign institutions at least three complete sets of the herbarium material. There will also be a number of incomplete sets available for gift or exchange, besides a large part of the zoological material. It should also be mentioned that seeds of interesting alpine plants will be sent to interested collectors abroad, among them seeds of some species that will certainly be found to be valuable additions to the flowers now cultivated.

In view of the fact that the study of the medicinal uses of the plants is so important a part of our work, it is suggested that next year collections be made in Spiti and Ladak. (The medicinal herbs grow chiefly in high altitudes only). It is expected that the British Government will refuse permission for such investigations and it is suggested, accordingly, that Harvard University be asked to secure permission in return for much desired zoological material from the region.

The study of the plants from the various aspects: plant ecology, phytogeography, ethnobotany, afford a field of tremendous possibilities. It is strongly to be hoped not only that the present studies can be continued, but that their scope can be expanded. In other branches, also, much is to be done. A geographic and ethnological study of the Lahul District, for example, would give striking results. Three totally different languages are spoken in three villages, the extremes of which are about fourteen miles apart, and the natives of each village are distinguished further by different manners and dress.

(Signed) Walter Koelz

Kyelang, Lahul

August 31, 1930

Report of the Biologist for 1931. H. K. K. 3
17/2/31

The biologist's work during the year 1931 was chiefly ^{carried on} three expeditions: one thru the Kangra Valley into the Great Indian Plains, one to Indian Tibet and one to the domains of the Raja of Rampur-Bushahr. In addition several of the side valleys of the Beas Valley in Kulu were explored.

From January 18 to March 15 was spent in the first expedition. Extensive collections of birds and ^{and a few mammals} plants were made in the Kangra Valley, at Nagrota, on the Plains at the Kurdaspur marshes, around Lahore and at Lissa on the border of Rajputana. The plants of the Plains are of a totally different flora from that of the ^{northern} mountains, ~~for some species as~~ ^{and to but} ~~for the~~ among them are found many of the drugs that the great Indian physicians and their study is of no less interest than the alpine plants of the Tibetan Pharmacopoeia. ^{The big game is not abundant in this region but representative was obtained of which the best Indian Red Deer and the Black Buck, ~~near the largest examples~~ are the game for excellence. The birds during the winter months are of the greatest interest. Mixed with the regular population are visitors from Persia, Persia, Afghanistan, Siberia, Tibet and all the lofty mountain ranges between. Specimens that}

one may find ^{single or in} scattered fairs in their
nesting haunts are here assembled in flock.
~~Hordes of~~ Cranes from Eastern Siberia may literally fill
a ~~5000~~ field, the magnificent Imperial Sand Grouse
for Persia visit ~~the~~^{its} watering places in thousands,
the Accipitres, ^{among} the rapt of birds in collections
are assembled in great variety (of the 1000 speci-
men ^{of bird} secured over 10% were of this group) ducks
and snipes in ~~many species~~ ^{and other} ~~from the~~ ^{from the} ~~rock~~
~~Siberian herons~~ I saw till spring
calls them to their home nesting ground in
Siberia and Tibet. Among the ~~Ple~~ Among the
birds of the Plains the ~~Ibis~~^{The spoonbills,}, Egrets, Bitternes,^(?)
Storks, Cranes, Parrots, Bobets, Bustards,^(?) Patoches,
are ~~the of striking in~~ constitute an interesting
part of the collection.

The expedition to Indian Tibet left headquarters on June 7 and returned on October 8, having covered ~~over~~ 1000 miles, ^{chiefly} ~~in~~ the province of Rupshe, Ladak and Zaskara, and secured over 1000 plant numbers constituting some 10,000 specimens, more than 1000 birds skins and 25 big game heads were collected. The ~~most~~ ^{large} of the ~~game~~ ^{large} mammals of the region: Ovis ammon, shapu, nabo, ibex, Tibetan gazelle, Kyang, etc. In ~~spite~~ ^{of} the plant growth, as all Tibetan explorers have described it, is phenomenal. Up to 20000 ft

and now the vegetation ascends. It is a singular
fact ~~that~~ ^{that} at the ~~flora~~ ^{flora} ~~line~~ ^{line} of the snow 5
line on the ~~East~~ ^{East} Himalayan range practically none
occur on the great plateau not even the
little *Saxifraga* ~~fragrans~~ ^{fragellaris} that extend all
over the broad world, even to the land below the
North Pole. ^{Unlike most plants of high altitude,} ~~the plants~~ ^{are} ~~are~~ ^{often} ~~not~~ ^{not} ~~dwarfed~~ ^{dwarfed} (?)
and ~~are~~ ^{are} ~~usually~~ ^{usually} ~~with~~ ^{with} ~~the~~ ^{the} ~~vegetation~~ ^{vegetation} at 15 to 18000, there are many
showy, well grown, and often very fragrant represen-
tatives of the genera *Lanunculus*, *Saxifraga*,
Pedicularis, *Primula*, *Potentilla*, *Rosa*, *Clematis*,
Aster, ^{*Gentiana*} ~~to mention only the most striking.~~
~~part~~ ^{part} of the birds collection contains many
things of scientific interest, among them several
new records for the avifauna of the ~~area~~ ^{area} and
a new ~~breeding~~ ^{breeding} bird for the Indian Empire,
The giant lark, *Melanocephala maxima*, taken
with its egg at Haule. (A further report of the
itinerary of the expedition will appear as "The
Naturalist's Diary" in the next issue of the
Journal of the University of the Himalayan Research Institute
and ~~basic~~ ^{basic} ~~life~~ ^{life}, detailed reports on the scientific
results will appear when the various collections
have been studied.)

From November 4 to December 7 was spent in the Sully Valley in Pamun-Presah. A collection of 165 plant numbers, about 2000 specimens, 5 big game skins and one bird skin was brought back. Among the birds were representatives of all the grouse and pheasants of the area and a number of species of other groups that range chiefly to the east and meet the limit of their range in the Sully Valley. Many species of plants were found in bloom, among them a good series of the bamboo and other grasses and several very attractive ^{and fragrant-flowered} plants. ^{Interesting} Several ^{hot} cultural products, ^{not also obtained} among them a squash ^{of very fine flavor} that grows to more than 100 lbs. and seems to be confined to a very small ^{cold} valley. Seeds of ^{all} these were gathered for distribution.

During the year by request of the various institutions the following material has been distributed abroad:

Museum of Comparative Zoology, Harvard College	
— Bird skins	Natural history Department
N. Y. Bot. British Museum	1 bird skin
French Museum	— bird skins, big big game
New York Botanical Gardens	700 plant numbers, 3000 specimens, and 35 packets of seeds
U.S. Dept. of Agriculture	45 packets of seeds
Jardin des Plantes, Paris	35 " " "

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Concerning the Personnel of the Biologist's Staff.

For botanical collecting one good assistant is constantly required. This man can also perform as bearer. In the collecting season two more men are needed for carrying bladders, etc in the field. (The bearer remains in camp looking after the drying of the collections).

This estimate involves only the preparation of four sets of herbarium material. This is the number needed to supply herbaria with which we are now connected. If other sets are wanted, it involves the writing of another set of labels and the doubling of field material. The writing of the duplicate label^{set} cannot be done by the collector without seriously impairing the effectiveness of the collecting and some one capable of making a correct copy will be required. Babu Tej Ram could perhaps do this. Ideally, a writer in the field should be employed, but this is at present out of the question of course. The work that the extra collecting equipment presumes can be performed by a coolie.

For zoological collecting assistance is needed to capture and to preserve the specimens. The collection and the supervision of the preservation of specimens can be done by Shaker Ruff Chand. With one good

assistant the energetic prosecution of this work can be left in his hands.

The biological collecting then need for proper functioning, in the botanical division:

one grad assistant (permanently employed)
two coolies (one permanently employed)

and if the work is to be expanded, the temporary engagement of another coolie and of a label writer.

In the zoological division, for the collection primarily of birds: a shikari and a food assistant, both permanently employed, are wanted.

There are now employed the "food assistant" for the botanical work and the shikari. Of the "permanent" staff there remain to be found the botanical coolie and the zoological assistant. It is expected that other coolies as needed can be recruited from among the population of the areas explored.

Further, regarding the two new men: It is not likely that suitable Kuluense can be found. Only people of higher elevations appear to be willing to tolerate the rough living that the work entails.

Naturally, these people cannot be attracted to our service without finding in it an income greater than they can meet at home. Clever young men, and in this class our servants should be sought, prefer trade and the rest find it more profitable to spend their winters elsewhere and work for the rest of the season at home. There is no likelihood then of finding a coolie for less than 20 or 25 Rs. a month. The zoologist's assistant will probably require a wage of 30 or 35 Rs.

Memorandum:

The government paid ^{workmen} from 14 as to 1 Rupee a day for building the road in Rampur near the Tibetan border. A horse in Rampur costs 2 Rs. a day. These are facts of my own ascertaining.

Regular wage for men in Lahul is 8 as. in spring and for harvest 12 as. In Kulu Lahulis get up to 3 Rs. a day for wall building, house construction, etc. Facts from various Lahulis, confirmed by R.C.

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Biological

Report of Collections for the first
year
of activity of the U. S. N. R. Institute

The botanical collection numbers
constitute 2022 numbers, collected mainly
in the districts of Kulu and Lahul with
minor collections from the Southern districts
of the Punjab. Each number consists of
from 4 to 10 specimens and of these American
and French Herbaria have received duplicates.

The bird collection numbers 2127
specimens, collected as above. All orders
and families found in the region investigated
are represented. (and the ^{great} majority of the
species)

45 specimens of big game and fur-
bearing animals have ^{been} preserved or collected.

During the year much delay in the
work ^{in all branches} was much hampered by delays ^{of one to 3 months} in
the arrival of equipment, the securing of
permits and so forth. It is expected that the

results of the coming year will be
materially greater.

Wool

X) Tcho-mo. etc.

Biological Explorations in the Provinces
of Rupshu, Ladak and Zaskar June⁷ to October⁸
1931.

composed of the naturalist and his assistant

The expedition proceeded thru Lahul across
the ^{lofty} Bara Latza^{La} and La Chulung^{Passes} to Tso Kar, a
large lake partly salt, partly fresh. Thence the large
^{backwash} lakes ~~Stanosire~~^{X) Kijagar}, Kijagar, Kyun and Kyang were visited
and the ancient monastery of Hanle. ~~Thence~~ The route
continued down to the Indus and across the Tsaka La
to the great salt Lake ~~or~~ Pantong, over 90 miles long. Crossing
Chang La 18400', the Indus valley was entered again and ~~the~~ a
halt of two weeks made at the trade center Leh. The Srinagar
Route was followed to the Kangi Nulla; thence up the Nulla
and across Kangi La into Zaskar. From ^{Pasang} the old capital
of the province the expedition passed ~~th~~ along the Tsarap River
and crossed into Lahul over the Shingo La. Four
months were consumed in the journey which including side
trips amounted to over 1000 miles. ^{26 passes were crossed, all over 12000'} ^{1000 birds skins, (one}
^{more than} over 1000 plant numbers (some 15000 specimens), and
25 big game animals, including ibex, nabo, gazelle, Kiang,
Ovis ammon, shaper, etc. and a number of smaller
mammals such as hares, foxes, ^{conies} ~~conies~~ martens, marmots, etc.
Collected. Much of the area visited has ^{previously} not been
biologically explored and in the area that has been
~~explored~~ studied ornithologically ^{the expedition's work has added} new records have been
added to the bird fauna. ^{birds} The Tibetan Lark not previously
known to ~~be~~ ^{they} in Indian Empire was found abundantly
in one locality and nests and eggs were gathered. The eggs
of the Tibetan Blacknecked Crane were also obtained.

and all but 5 over 16000 ft. None of the territory
explored ~~was~~^{is} under 9500 ft and much over 14000 ft.
The Vegetation is striking. Grass ripens at 15000 ft. in places and
exquisitely fragrant, showy flowers abundant on the peaks to elevations
of 18000 and 19000 ft. These are not dwarfed alpine stunted
plants but often a foot or two in height.

Such as one usually finds in alpine zones

.22 Caliber rifle 20 boxes long cartridges

10.75 mm. Mauser 30 boxes
Smokeless

410 Shotgun	No 10 or 8	8 boxes
	No 6	5 boxes

12 gauge Shotgun	No. 9	12 boxes
	No. 6	12 boxes
	No. 4	12 boxes
	Ball	2 boxes
	Buckshot	2 boxes

.22 Caliber rifle Shot cartridges 10 boxes.

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Botanical Collecting Case

Overall 1 ft 7"

Width ca 8 1/2"

Important that case should have
small end compartment for
mosses & labels, — — —

Provided with straps for
carrying. Heavy tin.

11/VII

Saturday 6 pm.

Mel's by letter tonight.

Rain started in

Enclosed 3 letters which
I am tonight.

2 for D. P. de R.

1 for L. Ming.

A letter passed this P.O.
address to Col. Mah of Madrid.
perhaps I shall hear
from him tomorrow. I am
sending him a letter
telling him that I
shall wait at the P.O.
for news from at 8:30
for his news.

BOUGHT OF

MESSRS. **BUKSH ELAHEE & CO.,**
THE MALL, LAHORE.

14

Date.

Articles Purchased.

12 box 20 R. for C.
22 shot 3-8 " "

Raspberries.

Full Address _____

Name _____

Designation _____

Bungalow No. _____

License No. _____

There is also a moral
lesson. If you have a
settling house, house
monks for 20
is

(moral after)

unkind
unpleasant
unwise
unpleasant

mouse
mice

Noun — ^eman, de
men

Adjective — blue

adverb — fast, v

verb — run

2 boxes of paper a piece of paper 5 1/2 x 7 1/2 inches a box of paper 10 x 12 inches 16
Dear Mother: We have arrived at a point
back of the peak with the old fort that you can
see from the house. We have been in the bottom
of the Kassar Nulla and have found the Shim
Nulla to be, except that we have not been into
its bottom. That is reserved for a better season
since it has nothing of particular interest but
the northern farms which we had from Labul &
which are now in poor fur. Beside to go into it
with shees one must pay a goat to the presiding
duty, so we were informed at its mouth and
if I gave a goat I should stay until I had out
something, which might be July and then I couldn't
go to Ladakh. — We have some very nice things, all
new to the collection or but meagerly represented. This
locality seems favorable so that we shall stay here
for 4 days after today. — Please send for 3 days
food: a tin of milk, a tin of butter, 3 lbs. rice, 3 lbs.
ata, 3 cakes chocolate, a cake of soap. I am
also sending a bundle of plants to be dried. The
Jamadar is only to give them fresh blotters daily
& keep them ^(the bundle) out in the sun. He knows, I presume
that the straps should be kept tight. Please send back
the frames & straps and 3 inches of blotters. Newspaper
I have — The foxgloves are fine and so are the, we are
sitting under the shelter of a big rock. — I hope Mum R.
is well and that Prof. R. has been spared writing with the others —

What do you want
What do you want

Present

Now I see it

Do you see it?
I do not ever see him.
Why do you not see him?
I am reading it now.

Past

I saw it yesterday

Did you see it?

I didn't see it.
I was reading it when he came.

Perfect

I have ^{never} seen anything like it.

I haven't seen him ~~for~~ all day.

I have seen all India.

Phuput had seen him before he died.
If I had seen him, I would have told him.

Future

If I see him, I will tell him.

Conditional

If you ~~see~~ saw him, would you tell him?

regrets that the rest of your bag into the house.
— the purple rhododendrons are flowering in the peaks
and I think we shall soon find them at no doubt.
There is a magnificent view from the peaks in this valley
— better than that one because you can see the Shw. peaks. Regret.