

Bulletin No. 1 Bowdoin Coll

Col. Maine February 1, 1936

CONTENTS

The Staff
Warden's Contract
The Press
Station Equipment
Commissary Equip
Research Project
Publications 9
Bowdoin Collection (D. Potter) 0
Bird Banding Crystal '37) 2
Black Guillem L. Hyde '38)
... (H. Miller
Met gy (R. M. Orss '38)
Rad ication. (G. Cadam '38) 19
... 21
... nt 22
... 23

Directors

Donald B. MacMillan
Anton Cope

Swaine ike
... oding
... Al... ...

Direct

Dross

IGH TAT
... FUN

of Cai

College
Brunswick, Maine
February 1, 1936

To the President and Trustees
of Bowdoin College and the
Acting Directors of the
Bowdoin Biological Station

Sirs:

I have the honor to submit the first annual report of the
Bowdoin Biological Station for the year 1935 and to describe
the activities of the 1935 Bowdoin College Expedition
to the Bay of Fundy

The transfer of Ker... n draw
... r, and the p... perty all
... ge. Needs... o say, the Station will
... to the gen... ity of Mr. ...

It is with the greatest pleasure that I announce the ac-
quisition of a forty-two cabin boat, the gift of Director
Alger V. Pike. One of our greatest needs has been a su-
perior motor boat to carry parties and equipment over
the treacherous waterway from Lubec, Maine, to the

blem

THE STAFF

Since forma... ot yet been taken by the Board
of the College, a number of interested persons are serv-
ing as "Acting-Directors" of the Station during the in-
terim. Their... involved upon, it
is suggested that a suitable representative of the Can-
adian Government should be included. The officials
of that government have extended every kindness and
... of our research is being carried
... Department for research...
... Commission...
... ..

The following group makes up the present Board of Directors

"3. The undersigned... equipment which m...

responsible...

"4. The Station and the College acts committed by the undersigned by the Board of Directors

responsibility... those au... or their ag...

"5. The Station and the College assumes no responsibility for any injuries or risks incident to the undersigned in his position as warden of the station...

pr

"6. In return for these services, the station provides the undersigned with shelter throughout the year and board and various equipment from June until September of each year. The Station will pay the undersigned a sum, which is to be determined by the Board of Directors, at the end of each year beginning with the fall of 193...

"Signed: ERNEST ALBERT JOY"

Mr. Joy is making records at the island of meteorological conditions and other popular reports in the form of letters which are on file in Brunel and provides the insurance and means throughout the year...

THE DEED

Indenture made this 23rd day of January 193... of the said...

Witnessed by me of the said...

ITNESSETH, that the grantors in consideration of the sum of one dollar (\$1.00) and other good and valuable considerations to them in hand paid by the grantees, the receipt of which is hereby acknowledged, have granted, bargained, sold, aliened, conveyed and by these presents do grant, bargain, sell and convey unto the said grantees, their successors and assigns...

"All of that certain land... in the Bay of Fundy... three and four... them share of the said land... and convey...

the Pr

rand M

ick

er, one of
Agnes Beal
in the regi
mswick, on
ed in Boob

ay and shall
d shall conti
ic period fro
d every year
aid island t

erect a comfortable building, a fund of only five hundred dollars would cover the expense of building and transporting suitable houses, the "ready-built" type is not available here. The age of the buildings is not the ability to construct a building from unprepared materials, but the ability to use saved-to-fit materials.

The laboratory has been improved its have been made. A darkroom was built in the laboratory and equipment for photography, including a printing press, was installed. Large laboratory tables were built and bookshelves were erected. Four men found the quarters satisfactory sleeping quarters, and this room was finished off in wall board.

The electric light plant has been very successful in providing power for both the radio transmitter and the radio receiver. Since it is not economical to have a generator for one man, the receiver is operated on a battery. The importance of being able to communicate with the island by radio during the winter and the radio entertainment during his long eight-months vigil is very evident.

A large number of good cages are available for keeping birds in captivity. These are proving of great value in the research work. An attempt should be made to sell all of the sheep which were formerly used on the island.

When a ship was recovered by the... provisions provided...

Camp

The station now has a guard post of... The boat given by Director Pike is a forty-two foot launch with a cabin that has sleeping quarters for four men. The pilot house is fully enclosed and has an emergency landing aid. The boat is equipped with two engines--an arrangement because it practically eliminates the danger of engine failure that would leave a single-motored boat helpless. A triangle sail is also available when needed. The gasoline tanks hold more than 100 gallons which is enough for about 300 miles. Additional equipment on hand includes a radio with lighting system and electric running lights.

For boats incl... winter as well as the... landing... A flat bot... skiff is... for rowing or... out...

This is site wharf... batch is... The main anchorage... between... It is a... haven for even fairly large vessels... would encourage... or, we would not attempt to...

The boat... anchorage should be... that will be... plans call for a 1000 pound granite...

Mr. Radeff and Alger Pike offered the... the use... the expedition... can easily be reached by... Of interest to... wild life sanctuary... operated near Lubee by...

Mr. and Mrs. very kind... supplies and equ... Mr. Wilder... the treasurer's... Mr. Gerald W... kindnesses to...

anded the exp... His assi... f mapping... his d... n thi... land... Physic... nent's fine surveying... ard enabled us to begi...

The cooperation that man... to the Station in the... equipment is... of disco... r actual gifts of... ncerely hoped that our fu... stance of these generous...

- Gallons of Gasoline - 21... Standard Oil Co. of M... 50 Gallons of Motor Oil... Radio Transmitter (\$750... Short Wave Receiver (\$6... s (\$50) Transmitter Tube... Five pairs Headph... Radio Mi... Gift of... of Trimm Company... of the Astatic Co...

Johnson Outboard Motor (\$1
Kilovath Bl... (5
Brown Dinghy-440% Old
10% Equipment (\$200)-

Johnson Motor Company
at... Co.

...also wish to knowledg... kindness of Mr. Hardin
...sifer in present very fine field glass of 18-pow
...station as a pd contribut

COMMISSION DEPARTMENT

...and ...
...during the past summer...
...
...will be...
...island this year for next...
...that seal meat made an excell
...and reg...ular seal hunting excursion
...suppl...

...em-
...getables could be ob
...canned foods. A
...
...consumption. It wa
...dition to the lar
...be arranged so the

The cooking was done on gasoline stove... he camp type. The
...was set up in a corner of the...
...did not permit of a good...
...An excellent mess... with built-in seats was made by Mr.
...--this piece... of course...
...The average... of food for each man at the island is
...a about fifty cents... days. The use of...
...in greater amount... should effect a

...Mr. James J. ...
...as in...
...bulk of...
...had cooking

...of...
...the buying of foodstuffs...
...Next year a student who he
...water came should take over
...cooking...
...work...
...ong t... the entire group.

...were obtain...
...Suppl...

...ostly...
...ada, but a number of
...gener...
...tributions to the ex
...and our heart...
...thanks for their

Nineteen cases each of Baked Beans, Brown Bread, and Coffee
Lakes--Gift of Burnham & Mor
Five cases of Evaporated Milk
four cases of "Aunt Jemima"
re: ...
Four cases of Baked Beans--C
swick, Maine.
Seventy-two pounds of "Buff
count from the P.H. Hoyt Com

RESEARCH PROJECTS

A complete survey of the general years, but a report on the station. The 1934 will serve as a basis for the population of bird populations to take a census of species.

By Mr. F. ... for this an ... ing on Gulls ... as his

will be m ... ent's Island ... wenty thousar

Life History of the Herring Gull. This bird makes it worthy of any thorough investigation. It is expected that the next four years.

The e ... nter ... air

ic imp ... ve stu ... re pu ... ed on

Henry Studies of Nesting Birds. This will be made of all islands which have not been studied in detail by ornithologists. The present program is as follows: 1934 - Black-billed Gull, Black-backed Gull, Razor-billed Gull, Sparrow; 1935 - Black-billed Gull, Black-backed Gull; 1936 - Atlantic Puffin, American Eider; 1937 - Atlantic Puffin, American Eider. The publication of these studies will be in the form of a series of papers. Information regarding any phase of the program is solicited - due credit will be given.

ves ... the ... on

sh's Pe ... Save ... usual ... Any ... any ... for ar

Olfactory Experiments. Experiments of smell in birds are being carried out.

anned with the ... with Leach's

Temperature. Experiments showing temperature variations in birds will be made of as many species as possible.

are ... ble

Invertebrates. Mr. Charles Peck of Clark University is preparing a list of the invertebrate life at the station. He plans to supplement his 1935 study with another visit during the coming season.

ssity ... and. He ... visit

Botany. A preliminary list of the plant life at West's Island may be found elsewhere in the Annual Report.

Surveying. A base line was laid out by Messrs. Crossland and ... with the ... Physics Department.

made to ha ... rial photo rap ... taken ... The 1936 ... incl is in some ... Smbe

no has had
en are ver

teporology
oper reco
at
ril
nd
made
Stat
mun

gross was made
instruments. How
nda. and being mad
leather st
er Bureau t
supply the scrv

appl
land

PLICATIONS

pings of art
from the
Boston Her
ss Herald, B
ows, Portland Evening Express, Bang
unday Times, Portland Sunday Telogr
the following periodicals: Bowdoin
Auk

nd Even
Da: B
B: R
Bowdoin. O
us, Bird B
torial, th

ry
Her
s c th
oth

on the
Herald, and
tific societi
accentable for

Magazine
the 1935 Expedition
New York Times Mid-
Associati
Whisperi

ctrol in
Auk, Vol.
-word ill
s Island
orial dev
saphs. Mr. Wil
has published
all issu
Pir

tigat
al Histo
at
he next
a copage
Fr
one
the

with

arc
These
two t
cen sh
film has
cluding t
Union. Th

will be sen
members
parates
a sufficient number
of the th
Brunswi
llimeter motion
f different occ
Ornit

the B
c avail
of ne
rm.
ogis

LIST OF KENT ISLAND FLOERING PLANTS '35

By (Dr. David Potter

POLEMONIACEAE
 Thely americana

OSMUNDACEAE
 Osmunda

EQUISETACEAE
 Equisetum

ZOSTERACEAE
 Zostera sifolium

JUNCACEAE
 Juncus palustris

Juncus tenuis canadensis

AGROSTIDACEAE
 Agrostis alba

POACEAE
 Puccinellia

Eleocharis tenuis

Eleocharis palustris

Eleocharis ovata

Phragmites angustifolium

Cyperus dirovirens

Carex leptolepis

Carex scoparia

Carex rigida

Carex setacea

Carex Oederi var. puniloba

Carex archeri

Carex canescens var. disjuncta

Carex acuta var. rmantha

ARACEAE
 Acorus calamus

JUNCACEAE
 Juncus effusus

Juncus filiformis palustris

Juncus nodosus

IRIDACEAE
 Iris versicolor

Habenaria obtusa

BETULACEAE
 Alnus crispa

URTICACEAE
 Urtica gracilis

MONACEAE

Polygon

Rumex acetosella

Rumex crispus

CHENOPODIACEAE

Stellaria media

CARYOPHYLLACEAE

Stellaria media

Cerastium vulgatum

Stellaria media

Sagina pruriens

Spergularia

RANUNCULACEAE

Ranunculus acris

Ranunculus cymbalaria

CRUCIFERAE

Capsella bursa-pastoris

Capsella bursa-pastoris

DROSERACEAE

Drosera rotundifolia

ROSACEAE

Potentilla canadensis

Potentilla fruticosa

Potentilla fruticosa

Potentilla fruticosa

Potentilla fruticosa

Potentilla fruticosa

BALSAMINACEAE

Impatiens

HYPERICACEAE

Hypericum

ERICACEAE

Epilobium

Epilobium

Epilobium

Epilobium

Epilobium

Epilobium

Cornus canadensis

ERICACEAE

Ledum palustre

Kalmia latifolia

Mnemes uniflora

Chamaedaphne calyculata

Vaccinium oxycoccos

PRIMULACEAE

Trientalis americana

ERAGINACEAE

Mertensia maritima

HUTARICEAE

Euphrasia americana

Rhinanthus christi

PLANTAGINACEAE

Plantago Rugeli
 Plantago juncea glauca
 Plantago juncea caespitosa

RUBIACEAE

Galium triflorum

COMPOSITAE

Seriocarpus asperoides
 Solidago serotina
 Achillea b.
 Matricaria

DIN BIRD BAND
 rva (by John A. C.)

During the summer of 1935-7, 101 birds were banded
 on the island of Puffin, but the razor-billed
 gull was banded at the Yellow Murr Ledge, the Arctic Tern
 at Green Island, and many of the Petrels at Easter
 land. Green Isl. Because of the large number of birds banded
 here our records have been almost confined to this bird. The
 bird returns a spread over an area which extends as far west

Dakotas, as far south as the southern coast of Florida
 and as far east as the Atlantic coast of Florida.
 The record of the bird that was banded in the
 S. Naval Air Station at Pensacola, Florida.
 The Herring Gull is proving to be a very
 difficult bird to band. It is well worth the effort
 to band them. The razor-billed gull provides
 the best evidence of all annual migration.
 The bird was banded together with

Herring Gull ----- 6804
 36 Black Petrel ----- 25
 57 Black Guillemot ----- 1
 Tree Swallow ----- 50
 Least Sandpiper ----- 25
 Red-tailed Tropicbird ----- 10
 Spotted Sandpiper ----- 115

Herring Gull ----- 50
 Least Sandpiper ----- 25
 Black Guillemot ----- 1
 Tree Swallow ----- 50
 Spotted Sandpiper ----- 115
 Black-tailed Gull ----- 25
 Puffin ----- 10

Total Recov 60
 Total Speci 34

Total 200
 Total Specimens 14

B. #B.B. Gull was a captive bird

The background
or bluish tinge.
end and smaller
shell. The large
markings were un

not

eggs of a few nes
eggs are found t
code are crea
weight regularl
raged .7 grams d

pic: determine wh
inst ces an egg
s. The longes
of 27 days
day . Ben
. Nat
hat
GO
ri
e. 23
tr
at
tin 00

ns would lead us

ring Have
Egg day:
le is Ho
mm. 4 20th
rticul part
hours, h
the hat hin
chiclar
the sh
the sh
it was

es p
erac
to ked out r
am in d
At 1:00
god
activi
this k by
the se
At egg tooth.
ng was ext
hole and w

and
nd
Si
or
Dur
arri
the
hick fr
its eve

which
nder
and this time they v
ained by a. st
alone.

rds di
3gs--a
cessfu
gh
Ke

ck

sky prom

ied. Bot
of upwa

ck hog



the bill wide open displaying
mouth.

This noise is made
when red lining is out.

in the "making time progress" stage growth of the major body and
ad hether parts is present.

Age (days)	4	8	12	16	20	25	29	33	40	Adi
Wt. gr.	192	215	240	260	280	300	320	340	360	380
mm Length	167	184	200	220	240	275	280	300	319	330
Extant	156	154	160	170	180	190	200	210	220	230
Bill	25	30	35	40	45	50	55	60	65	70
Body	45	225	230	245	255	265	275	285	295	305
Bill	12	15	16	17	18	19	20	21	22	23
Gape	22	45	46	46	46	46	46	46	46	46
Foot	9	10	11	12	13	14	15	16	17	18
Ht. Bill	6		7.2	8	8	8	8	8	8	8
Tr Toe Nail	49	3	60	64.5	66	68	70			
2nd Toe	16	18	19	20.5	22		23			
" Nail	5	6	6	7	7	7	7	6		
3rd Toe	22	28	31	34	34	34	35	35		
" Nail	5	6	6	7.5	8	8	8			
4th To	20	21	26.5	33.5	34	34				
" Nail	4	5	5	6	6	6				
6th Prim		3.5	12.5	16	38	51.5				
" Sheath			5	6	22	35				
6th Prim			15		36	49				
			7		22					
			24	28	44	47				
			14		24	35				
			5		22					
		8			9	19				
		8			9	17				
					20	32		45		50
					16	26				
		20				33		30	33	
		20				26		25	26	

Since the nesting
during the first w
der observation ha

he

101

The color of the eggs of
Herring Gull in that of
shade of Brown. The egg
Gull. Measurements were
Nest No. 1: (1) .x55.
55 mm

om that of
darker
Herring
of eggs:
gr
g
rea

u
g

5mm, 121.
mm, 105. g
Variation

of egg
were w

ag

gully to the K
incubation

The nests are composed mostly of dead grasses and an occas
twig. Dead Yarrow sta
weed, a common nest-b.
was found in these nes
from 46 to 55 mm. The
25 mm.

The eggs of the Black
Hatch. The eggs were
Benjamin egg in the sh
h. The
to hatch. The egg
head is thrust
from the shell. The eye
peeps from time to time
After hatching, the
parents are absent

Black Gull require abou
nd in a...
and about 10 mm long
opening 20. mm for
ears a hole in the egg and
chick uses his feet to
are open from the first. The
throughout the process of ha
continually w

Both the male and the
of the eggs. The
from ten minute
and for observ
wing of the fls
great deal.

ema she
sit eggs for lengths or
an lf hours. A pup tent
rk ed unsatisfactorily
and distributed the b

The Black-b... Gull
the... sit
roof from the region
...
could inner
...
determine
grasses and other
owner's protests.

the king of the Gull...
nd make the other Gulls stay we
mediately around their nests. If
ch within five yards of their nest
...
saw a Black-backed Gull walk
... Herring Gull's nest and

mate.

th

During the...
leas

sing of the chicks
...

ed, both ~~xxx~~
ne--one of g
parately to
ed is always

lv ~~xxxx~~ circle anxio
f than the Herring Gul
this time and continus
their way, but they r
manner of the other G

the head of the Bay (42 feet), but it often falls to the level of the ocean, 16 to 19 feet, amounting to a rise of 16 to 19 feet.

It has a range of as much as 20 feet in the Bay. It usually amounts to about 16 to 19 feet, amounting to a rise of 16 to 19 feet.

The tidal currents are from 1 to 4 knots, causing a rise of 1 to 4 feet. The highest tides occur during the spring tides, especially when the wind and the tide are in phase. The lowest tides occur during the neap tides, especially when the wind and the tide are out of phase. The tidal currents are from 1 to 4 knots, causing a rise of 1 to 4 feet. The highest tides occur during the spring tides, especially when the wind and the tide are in phase. The lowest tides occur during the neap tides, especially when the wind and the tide are out of phase.

A table of observations for a typical week of July follows: (Week beginning July 14, 1953)

Date	Wind	Temp	Humid	Bar	Cloud	Remarks
	C.	F.	%	in.	%	
14	18.5	65.3	75	30.0	75	Clear, S.W. wind
15	19.0	66.2	75	30.0	75	Clear, S.W. wind
16	17.5	63.5	75	30.0	75	Clear, S.W. wind
17	17.5	63.5	75	30.0	75	Clear, S.W. wind
18	17.5	63.5	75	30.0	75	Clear, S.W. wind
19	17.5	63.5	75	30.0	75	Clear, S.W. wind
20	17.5	63.5	75	30.0	75	Clear, S.W. wind

The relation between wind and weather conditions can be seen clearly. The very small range of temperature with a comparatively large range of wind speed is characteristic.

The writer believes that this work should be carried out in future years especially in that it may be possible to correlate it with biological researches. Records should be kept of the temperature, wind direction, wind speed, rainfall, barometric pressure, ocean temperature, relative humidity, and dew point. A diary of any unusual meteorological phenomena should be kept. Such data should be made available to the public.

RADIO COMMUNICATION
 (by George H. Gal)

IN made near VBL:

It effected transmi
and in thirteen foreign countr
Cuba, England, xi The co, Scotlan
Jamaica, Germa WY Newfoundland
signals of VBL we IN re reported
Equally good pri PC
transmissions.

es: Spain, Hung
Holland, Swit
In, especially
to btro, e very s
ad to from the

he
9.

ELIN of originat

adiograms

two

of operation. It maintained schedules wi
of 3860k cycles: WSN ne
W Md.; and WJL at east etc Ma

radio. The adcasts were picked
broadcast bands and th
Reception at the islar

quasi, the squ
cellent, an
en disturbs

ransmit
ed. It
and 25
ctly and our tr

Polins 30FXB,
out of 200 watt
at CW transmissi

Additi
proved
ideal
the la
code w
Trim
type.

equipment
ideal f
pedition
type were
t from a

poses-
static
voice t
ic send

is of
The feat

The
VEL N was heard on a
351, 3860, 3996.5,
station used a 2
driven generator pr
mitter and receiver
pedially-butit

supplied but transmitting crystal
of the following frequencies: 1783,
392 ki, 14,000, 14,200, 14,400 cycles.
type oot voltage-fed zep f antenna
t. Was 5 feet. The kilowatt gasoline
sufficient power r the trar
power plant was
25 feet distant

Am
amateur
the St
of the
The St
A.S.
usual

dio sta
n. Thi
erest
n repor
mswi
and

Ma

e, WASI HARTI
position
free and
rs in
ag the
igla

as last summer,

To coordinate field
on researches from
transceivers, two
radio-telephones and
only, they

July 11th: Mr. and Mrs. Oli
and a night on the island.
and camped near the wharf.
for a survey; he is making
a map of the island.

18
17

July 20th: Mr. and Mrs. [redacted],
of the Maritime Provinces, [redacted]

July 23d: [redacted] and Mrs. Alfred G. [redacted]
and Mr. [redacted] of [redacted] city
in the [redacted] launch. Dr. [redacted] d Mr [redacted] era
their heads [redacted] at the laboratory on w [redacted] 1901
carried on [redacted] lent [redacted] of the life d th
respective [redacted] Mr. and Mrs. [redacted] stayed on
one residence Mr [redacted]

July 25th: Mr [redacted] [redacted] companions
his son [redacted] at [redacted] in his er-yacht,
[redacted] old [redacted] 3 da; he sta ed out [redacted]
the [redacted] and [redacted]

rs. [redacted] Car
Pike visit [redacted] Fortunately most of the sta
on a trip [redacted] island, but the visitors were
to inspect [redacted] a labor life of the i
Their pres [redacted] and other [redacted]
were highly appreci
Pike's cruiser, the

August 1st: Mr. [redacted] [redacted]
ance Cheney, the [redacted] VE
the Canadian Mov [redacted] of
[redacted] St

Mr. [redacted] Henry [redacted]
at the foot motor bo
vented however, [redacted] pre
[redacted] isle

The summer
 Canada. Messages
 service to Grand Manan
 available for radio
 radio the telegraph
 telegraph to Lubec
 willing by the

Grand Man
 there is
 accommodati
 Grand Man
 Mr. [redacted] the
 will be se
 for part:
 fifteen de

IAL STATEM

The "Kent's Island Fund" has been es
 through
 Colle office at Bowdoinge. Any contr
 ct are work of the proje payable to the
 College. The fund to 1935 expen
 Bowdo; the gifts of two alumni, the Colle

the

ceipts 1935

Summer T. Pike
 Henry Hill
 Staff 350.00
 Fees from: 720.00
 1070.00

The contr
 Pierce we
 the Seat
 financials

OR Summer T. Pike and Mr. Henry Hill
 ind work of
 nsp
 ce. ro

ne'e
 affec
 the a
 ould
 standards in the person
 or nine hundred dollars

few years will be consider
 purchase of new parts

ssible, ho
 standards in the person
 or nine hundred dollars

1936

Food 300.00
 500.00
 new equ 200.00
 Transp 75.00
 Boat M 150.00
 Insura 100.00
 Buildg Maintenance 50.00
 R Expenses 25.00
 Instal 100.00
 1500.00

has recently gained great

word

many an undergraduate during part
of the official account of the Oxford

is a statement which sounds the theme of Kent's Island:
"Such expeditions give most valuable training to their
admirals though their final purpose is scientific, the under-
lying motive for them is that their undergraduate members want to
see the appearance that they offer" The Bowdoin-MacMillan
Expedition, the Kingman-Parry Expedition and the Kent's Island Expedition of
1935 are examples of this successful exploration
that carried out by an expedition made up chiefly of college
students.

field research of all forms, and the most part,
is carried on at a strategically located station
like the establishment

Kent's Island cannot be reached from
the mainland, and the expedition is a leader
has the research, and most important, it has the support of
like Commander MacMillan.

and respectfully submit

WILLIAM A. O. CROSS,

Field Director.