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GENERAL STATION REPORT

WILKES

1964

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GENERAL STATION REPORT

WILKES

1964

MORALE

The pattern during the year loosely followed the classical curve with some adverse variation when the announcement was made that Wilkes was to be closed and a new station built. No person could give valid reasons for their objections other than the fact they were quite happy with the existing setup, and could see no reason why it should be altered. When the usual yearly painting programme was implemented, there was a general lack of enthusiasm to participate, the attitude being "why paint the place, it will be pulled down soon!" Explanation that ANARE personnel would be living in the station for another 4 years gave sufficient incentive to start the painting programme.

During the return voyage to Australia on the "Thala Dan" the party was continually observed for signs of being lethargic and generally disinterested in each other on the return journey. Contrary to this, the party was extremely ebullient with strong esprit de corps which developed to such a degree that they built up an unnecessary resentment to the supernumeraries and the Davis party. This ebullience and esprit de corps was not evident during the year; in fact the lack of these features gave the writer some concern, although in retrospect, it is possible they did exist to some degree, but were overshadowed by minor arguments and isolated displays of selfishness.

Furthermore, it is also possible that the writer was seeking the ultimate in these facets, amongst the party, this naturally being impossible.

The habit of one or two radio operators "wingeing" to their counterparts at other ANARE stations, and as usual with this type, exaggerating their stories, has led to general rumours in Melbourne that the year at Wilkes was an unhappy one. It is felt that the year was normal and that the isolated few who claim they had an unhappy year, in every instance had themselves to blame.

STORES ACCOUNTING PROCEDURE

1. Food, Fuel, etc.

On arrival at Wilkes, no Monthly Consumption or Stock Provision Sheet for 1963 were forthcoming. Also no list of the food etc. for the 1964 party was sent. This meant that a complete stock take of old and new food would be essential immediately the station was taken over - a mighty task at that time of the year when time is so short. After consultation with the Expedition Leader (Jones) he decided that in view of the circumstances, it would not be necessary to maintain these sheets, except for amenities, as long as an accurate assessment of food remaining at the end of 1964 could be made for re-ordering purposes.

2. "A" Class Inventory

A lot of unnecessary time was spent trying to locate equipment shown on this inventory, but which had either been written off, returned to Aust, or sent to another station.

A large quantity of American equipment at Wilkes is still not shown on the U.S. section of this inventory.

To bring this inventory up to a reasonable standard requires a Storeman working full time, for several months.

3. "C" Class Inventory

Very difficult to maintain due to the abundance of similar U.S. items on Station but not shown on the inventory. Also the absence on field work of the O.I.C. and others who would normally show usage of items, made this return inaccurate.

The new system of accounting for "C" class items seems to be a definite step in the right direction.

BUILDINGS

1. Maintenance

As in previous years, leaking roofs in the main station were a problem and about 5 cwt. of pitch was melted and spread over the worst sections. This appeared to have the effect of ~~not~~ altering the source of the trouble.

Approximately 3000 square feet of 3/16" masonite was fastened to the outside of the corridors early in the year when the snow level was low. According to earlier Wilkes residents (Fox and O'Shea) this reduced the drift problem considerably.

The previous plan of the O.I.C. having a bedroom to himself and 3 men in one room was discontinued and the O.I.C.'s room and the adjacent sun room was made into a 2-man bedroom.

while the O.I.C. slept in the office. This room was lined and ceiled with hardboard and painted throughout.

Painting done during the year was:-

- (i) Both sleeping blocks.
- (ii) Surgery.
- (iii) Heads and Washroom.
- (iv) Photo Lab.
- (v) Lounge.
- (vi) Ham Shack and part of Rec. Room.
- (vii) Power House.
- (viii) Radio Room.
- (ix) Tech. Library.
- (x) Transmitter Building
- (xi) Radome.
- (xii) RAOB Hut.
- (xiii) Spherics Hut.

General

Following the erection of the new balloon hut, it was necessary to move the existing hydrogen generator building and Jet heater building to the vicinity before the new building could be commissioned. Apparently the use of these buildings had not been considered in the planning of this building as no provision was made for the foundations of these auxiliaries. Several locations were tried so that the huts would not affect the drift pattern around the balloon hut. The present location appears to be the best available.

The four Jamesway stores filled with snow after the first blizzard. It was found that each had several rips which were repaired, but during the year, despite continual digging out and checks for rips, it was impossible to keep them clear of snow. These buildings are near the end of their terms, as the canvas appears to be rotting and new rips appear after each blizzard.

MECHANICAL EQUIPMENT AND POWER SUPPLY

1. Power Supply

(i) The reliability of the supply during the year would approach 99.8 or 99.9%. This is remarkable for this type of generating equipment when it is considered that it was virtually unattended except for hourly checks and routine maintenance.

The present method of having the power supply split into two systems is extremely wasteful of diesel fuel. It is realised that synchronisation of the two systems is not possible with the present voltage regulators, but if the overall station

load was split into 3, 4 or 5 main circuits, load change-over switches could be installed and one generative unit used for 15 to 18 hours per day instead of the present method of running two units on light load for 24 hours per day. The eventual installation of the oil fired stove will make this even more wasteful.

A conservative estimate of fuel saving per annum is 12-15000 gallons for a total installation cost of changeover switches of £400, and would be worthwhile even in view of Repstat.

(ii) Underground Cables

Early in the year trouble was experienced with the pyrotenax cables to the transmitter building puncturing at several points on three occasions. On the last occasion the de-ion circuit breakers on the CTH7 transmitter were literally blown apart by the heavy voltage surge on the circuit. The problem was eventually traced to a loose connection on the power station's auto-transformer. An earlier theory on the cause of the pyrotenax punctures was the build up of capacitance over the 1200 ft. circuit. This is one of the characteristics of pyro. and coupled with the definite indication of ice movement where the cables are laid, suggests that an alternative means of supplying the transmitter building should be sought.

An overhead line, properly designed for local conditions would solve this problem. Also a steel wire catenary on the same poles could be used to carry transmitted control circuits.

2. Mechanical Equipment

(i) Hot Water Supply. A Potterton hot water boiler had been supplied for Wilkes in 1962 to replace the U.S. type boiler. During 1964 the heat exchanger jacket collapsed and the Potterton installed. Station life was slightly dislocated during the changeover but the resultant improvement was worth the temporary inconvenience.

(ii) Building Heating. Two Jet-Heater units were replaced with Vulcan convection units during the year. The stainless steel heat exchangers cracked and were not repairable at Wilkes and it is probable the remaining Jet-Heaters will only last till 1966. This will create a problem, especially in the science block where there are numerous partitions. Unless some method can be arranged to duct the air to the various offices, the Vulcans or Preway natural convection heaters will be useless. This problem is already evident in

the lounge and mess.

VEHICLES

On arrival at Wilkes, approx. 90% of all vehicles were unserviceable. This caused some delay in moving stores from the unloading point to the storage areas until the end of the changeover.

Preparation for the autumn traverse was also extended because of the need to overhaul and modify some vehicles.

This problem will be present each year as long as the spring traverses return only a few days before the ship arrives. As result of our experience in January, 1963, time was allowed to be able to present the new party with a fleet of vehicles more or less ready to be taken into the field immediately.

(i) Snow-tracs. Much has been written and said in condemnation of these vehicles at all stations over the years. During 1964, both vehicles travelled over 4000 miles with only minor trouble, most of the trouble being caused by driver negligence or ignorance. The main problem was the pneumatic tyres which had to be checked very regularly. An instruction was given after taking over the station that the tyres were to be checked with a pressure gauge (not by kicking) each morning and visually every ten miles of travel. This had the effect of reducing damaged tyres to approx. 8 for the year. Mechanically, these vehicles are under-designed for Antarctic conditions and consequently it is necessary to carry a comprehensive range of spares, mainly suspension, on traverse.

(ii) Nodwell. This type of vehicle has a bright future if and when some of the suspension faults are removed. The Wilkes Nodwell is sufficiently large enough to be fitted out to accommodate two or 3 men with cooking facilities and limited food storage. With a towing capacity of 7-8 tons (on all types of surface) field trips up to 300 miles could easily be achieved.

To put a party of 3 men in the field for 4 weeks and 300 miles travel requires at least two weasels or similar - one to tow the fuel etc., the other to tow a small caravan and miscellaneous equipment. Admittedly a tent could replace the caravan, but efficiency drops by about 80% when living in a tent.

A Nodwell, however, has the capacity and flexibility to perform the work of both weasels with less fuel consumption. The current ANARE ruling that lone vehicles should not venture inland beyond a certain distance precludes the use of the Nodwell in this manner, but it is my opinion that if suitable survival equipment is carried remote from the vehicle, it is

of little consequence if a party is "marooned" 150-200 miles from the station with an unserviceable vehicle, providing suitable radio communications are available or else a pre-arranged rescue operation has been planned. In most instances of vehicle breakdown spares would have to be taken out from the station and fitted by mechanics, irrespective of whether or not the party had returned to the station.

Motorised Toboggans. A toy for adults! They have a limited application in place of dog teams on day trips but otherwise are of little use on extended field trips. They require preheating, a very inconvenient chore unless supported by heavier vehicles with the necessary equipment; they overturn easily on small sastrugi and are extremely cold to ride for any length of time.

As with most vehicles they are designed for use on snow and the Antarctic conditions are too rugged for these machines.

WATER SUPPLY

The 1963 M.O. reported that the weekly use of explosives to clear the ice on the melt lake during winter possibly caused several stomach upsets.

To avoid this, the glaciologist's Sipre corer was used to bore a 4" hole through an average of 6 feet ice cover. An electric drill, supplied by the Onan generator, was adapted to drive the corer and a hole could be bored in 20 minutes.

As the method was fast and convenient, it is suggested that another corer be supplied for Wilkes, using a McCulloch two stroke chain saw type motor which is obtainable for attachment to augers etc. There would be no problem of preheating such a small motor so close to the station.

Following the breakdown of the weasel towing the water tanker sledge during a particularly cold, windy day, the water in the tank froze for 3" inwards almost immediately. The Heman Nelson heater took a day to melt the ice so that the tank could be drained.

To prevent a recurrence, the tank was housed in a 2" insulated box made of hardboard and Insulwool. The Southwind Heater of the weasel was piped into the housing and no further trouble was experienced.

FIRE PRECAUTIONS

Fire fighting facilities at Wilkes are far from adequate, and little use has been made of available equipment and water. Existing water storage available is 7000 gallons and little attempt has been made to utilise this essential of fire fighting.

A proposal for a self-draining water reticulation system plus a later development for pumping sea water was made during 1964, but apparently it was considered unnecessary in view of Repstat, as nothing further was heard.

There is still an urgent need to improve fire fighting facilities irrespective of when the station is to be vacated.

WASTE DISPOSAL

No alteration was made to the previous years' method of disposing of station waste, mainly because of the lack of suitable containers and storage areas.

The normal method was to store the filled garbage tins in the space between the two reefer units. For 8 months it was necessary to thaw the tins for emptying by pouring in petrol and igniting it at the actual rubbish dump. The same problem existed with the "honey pots", although this was overcome to some extent by lining the tins with Sisal-craft.

A proposal was submitted during 1964 for the supply of plastic lined disposable garbage bags as it was felt this was a convenient and hygienic method of disposal.

WORKS PROGRAMME

(1) Seismic Building. This building was erected during changeover 1963-64, but still required the construction of the concrete walls and instrument foundations.

For some unknown reason, this building was sited on the side of a steep rise, so that the instrument piers were 8 feet high and the surrounding concrete walls of the instrument foundations were 6'6".

Fabrication of the seismograph foundation forms were commenced in March and pouring in May. Difficulty with temperature control was experienced and after the BMR which satisfied the scientists expressed their doubt about the adherence of the concrete to the bed rock - poor adherence could affect the accuracy of the recordings - the concrete was broken up and pouring left to warmer weather.

Unlike many concreting jobs, the boxing of these foundations required labour with considerable skill in accurate carpentry. As the carpenter-plumber had returned to Australia this posed the problem of finding time for Freeman and the writer (the only persons with any idea) to do this work.

The foundations and walls were completed in December in readiness for the 1966 scientist to transfer the instruments.

Balloon Hut (Launching Ramp). The launching ramp was erected to about 80% completion before the onset of winter. The section not erected was the sloping wings on each side, and it was intended to complete these in the spring although the balloon release was handled safely without the additional grating.

After several heavy snowfalls and blizzards in the late winter, the drift beneath the ramp had reached about 7 feet in height - level with the ramp.

This build up was caused by the drop in wind velocity on the lee side of the building being so great that any scouring effect was nil. Consequently, the opinion was formed that the launching ramp would eventually be rendered useless, probably by spring 1966 and the only solution is to build the ramp at an angle to the building on the windward side.

FIELD TRIPS

Both of the major traverses have been analysed in the reports of these trips so comment will be restricted to current field work policy.

Each year at Wilkes an autumn traverse is carried out. Depending on the date of changeover and numerous other factors, these traverses last from 4 to 8 weeks. To date, the earliest a traverse has been able to leave Wilkes was the first week in March (1962) and on this occasion the vehicles were more or less loaded ready to leave by the 1961 party. In 1963 departure date was 7th April, 1964, 8th March and 1965 about 25th March.

From April onwards the available daylight hours decrease so rapidly that only 5-7 hours daily are available for work that requires good visibility i.e. surveying, navigation, instrument reading etc. In May the daylight hours are reduced to 3-5, and coupled with the poor weather encountered in autumn, plus the inevitable rush to prepare for the traverse immediately after changeover, it appears

that autumn traverses on a large scale such as in past years at Wilkes are not worthwhile. No autumn traverse from Wilkes has ever produced any significant scientific results, although part of this has been due to lack of planning, and ignorance of conditions and hurried preparation.

A more desirable policy would be to settle into station routine and carry out the complete works programme and maintenance for the year during the autumn, plus overhaul of vehicles etc. which had returned from the previous year's traverse. During 1964 up to 11 men were in the field until the end of May solely on glaciological work. On their return, conditions for working outside were too rugged for most of the time and consequently a lot of the work was left until the spring, but again 8 men were required in the field until changeover.

Depotting for the spring could still be done in the autumn without disrupting the station; only 3 men including one mechanic are necessary for these trips.

Whilst there are field scientists with completely independent programmes there will always be a problem of finding enough men, vehicles and time to assist them.

During 1964 the glaciologists programme was planned to spend 8 months in the field with no thought of the geophysicist's programme. To have completely satisfied the glaciologist's demands would have meant abandoning all other field work.

The present system of planning traverses after arrival at Wilkes leaves a lot to be desired. The writer did not have any idea other than that the autumn traverse would move around a triangular course and the spring traverse over a grid of 40 mile squares.

Both the glaciologist and the geophysicist stated their requirements and insisted that they be fully met, irrespective of the effect on other departments.

As the O.I.C. has a definite obligation to see that the scientific programme is carried out, the writer was loathe to restrict them in any way, although it was quite obvious that a lot of the work attempted, especially by Morgan, was doomed to failure, mainly because of the lack of planning.

The suggestion is that all major field programmes and traverses be planned in detail - time, number of vehicles, personnel etc. - before leaving Melbourne, by experienced people and those who will actually be doing the work. Other nations do this and with obviously successful results.

W. Lemp

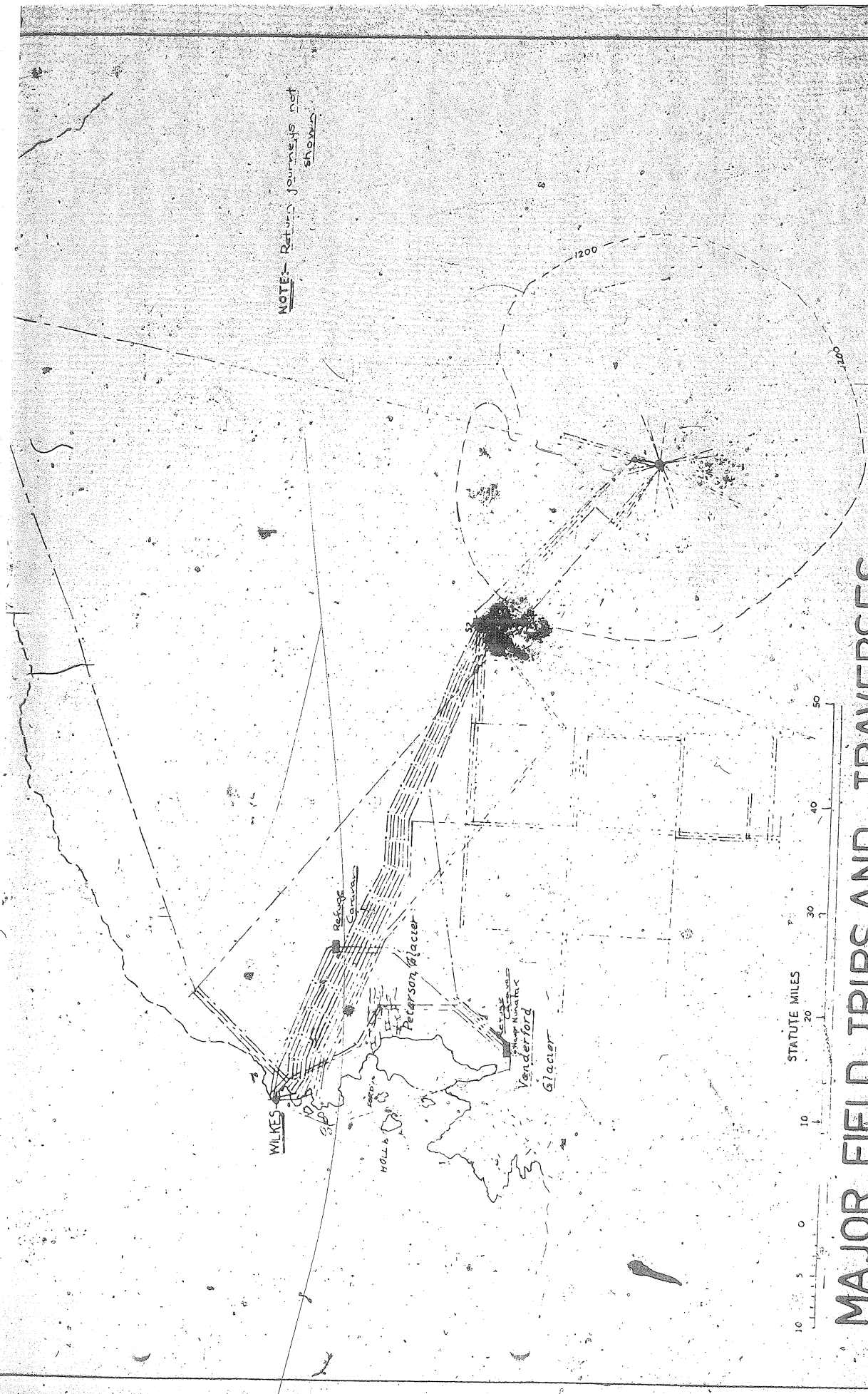
NOTE- Return journeys not shown

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STATUTE MILES

MAJOR FIELD TRIPS AND TRAVERSES

FROM WILKES - 1964 - schematic only

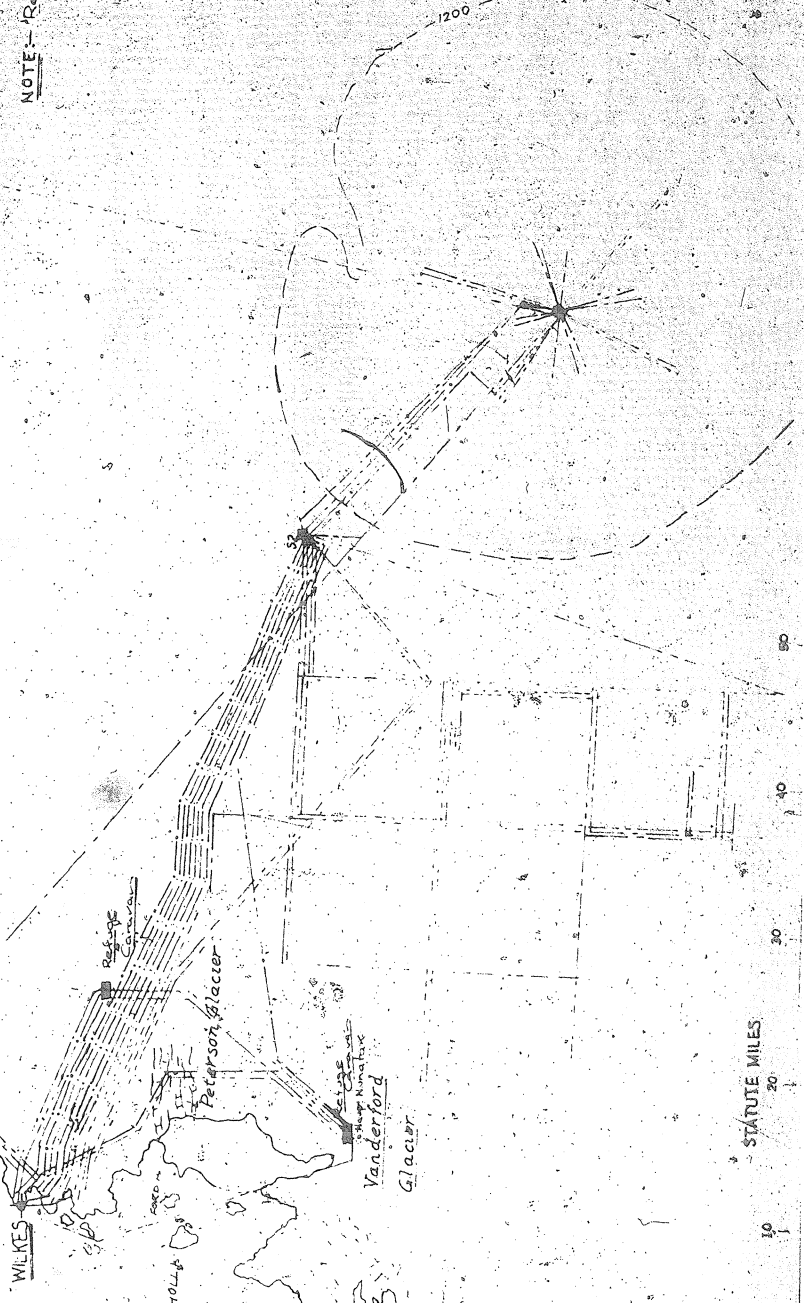
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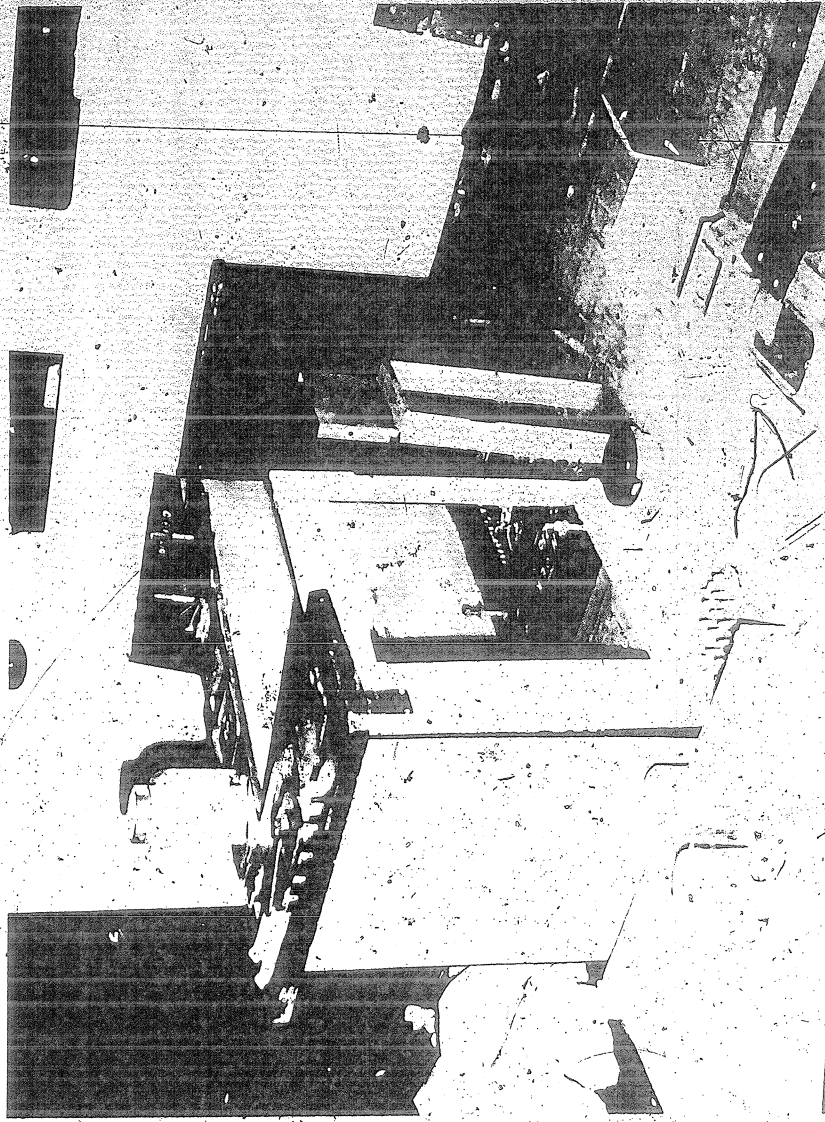
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Cape Prince of Wales

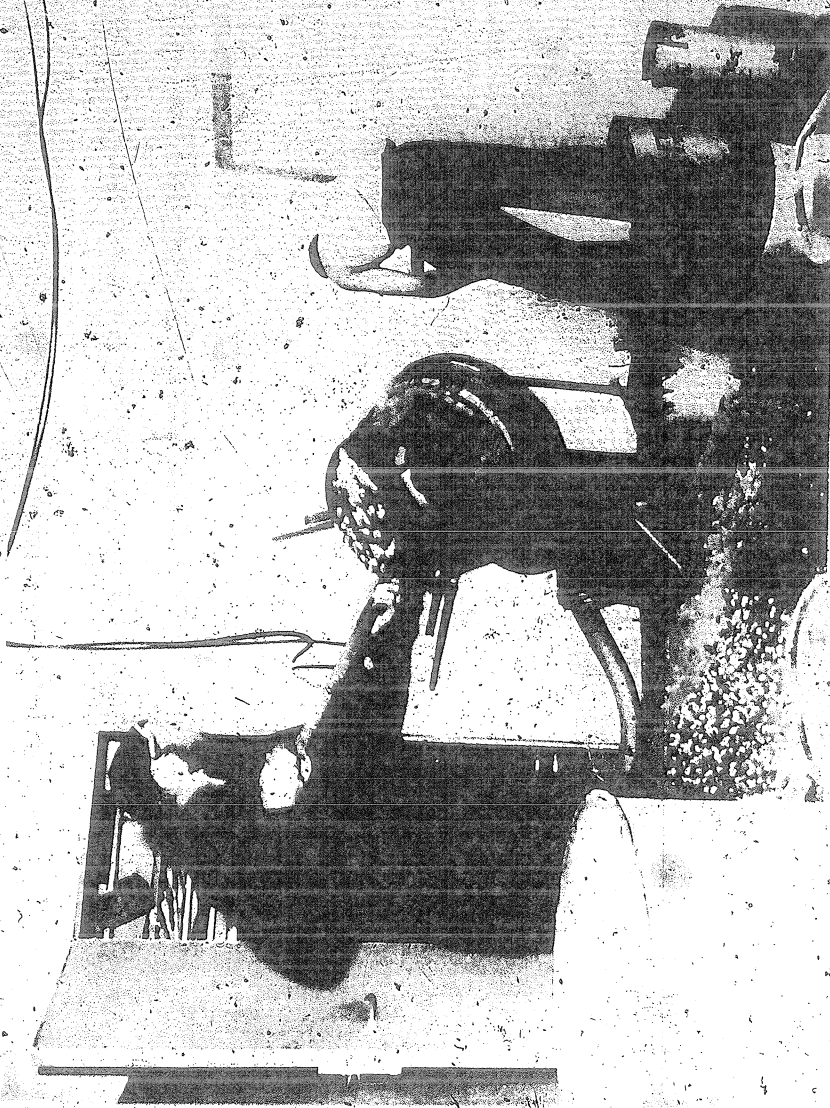
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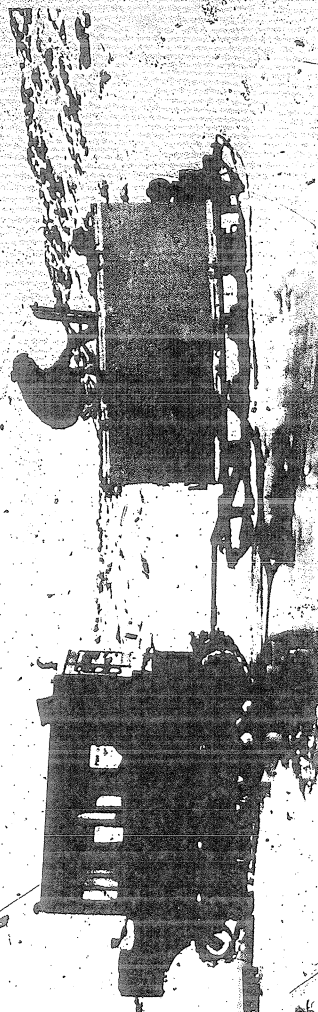
STATUTE MILES



Oil-fired stove partially assembled but not completed due to lack of parts

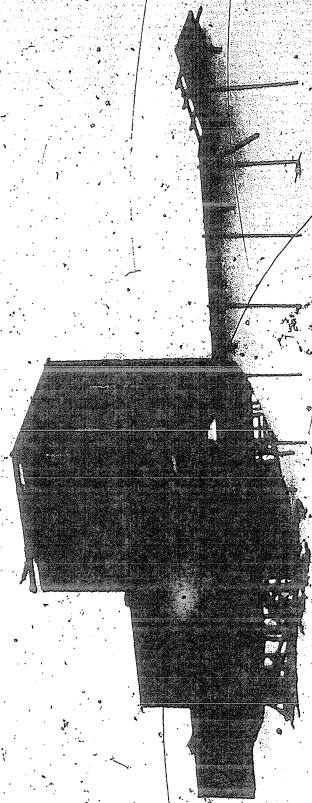


Mixing concrete inside seismic building for instrument piers.

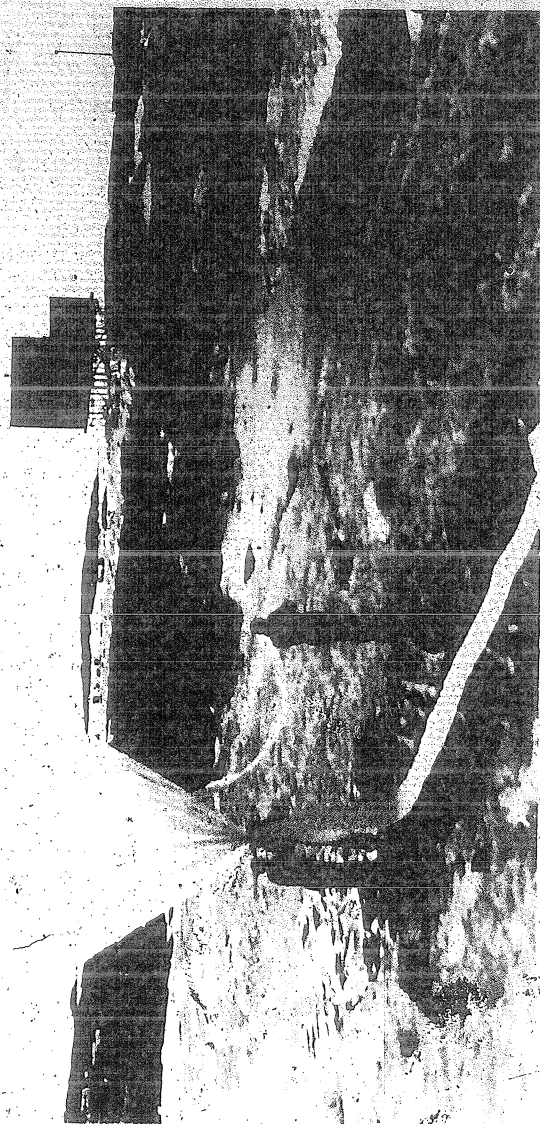


Insulated water tanker housing constructed 1964.

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P111 build-up beneath balloonhut launching ramp 6 months after erection.



One of several 6000 cubic foot upper atmosphere research balloons launched.

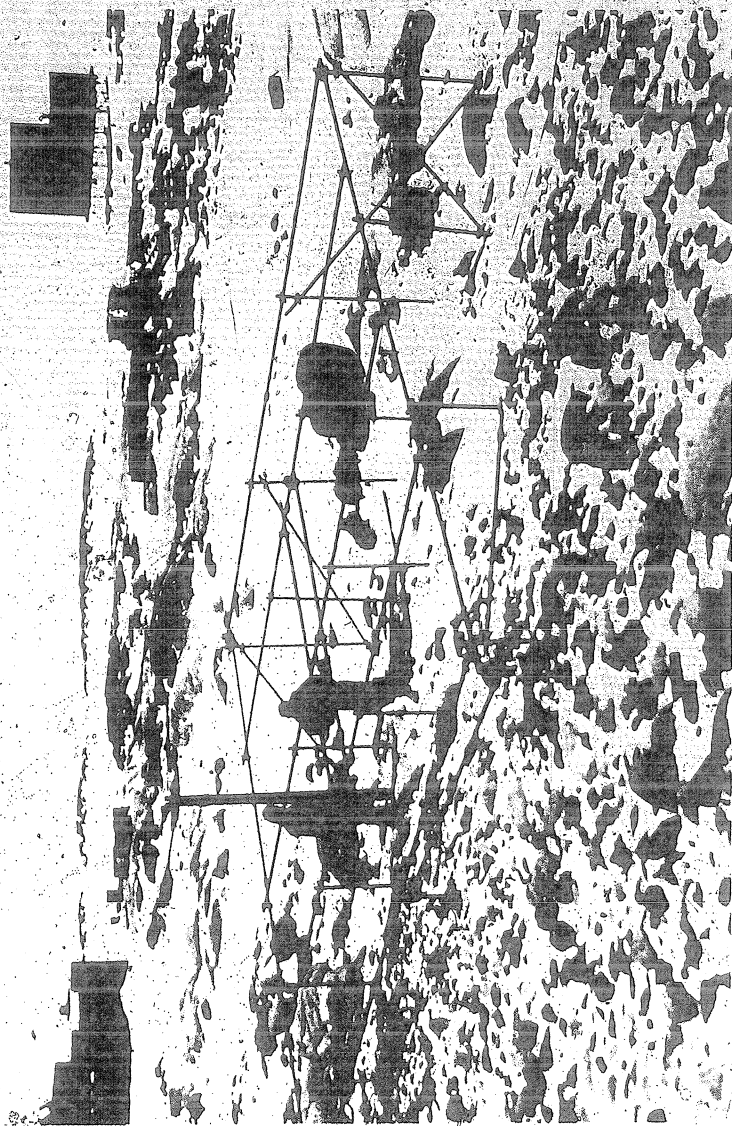
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Biometer aerial erected April 1964.

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