

GEOGRAPHY

Four Russians at North Pole Get Together Once a Day

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DIFFERENT hours have been fixed for every one of us for scientific observations and work during the 24 hours of the day. We therefore sleep at different hours. We come together only at dinner time, about three o'clock in the afternoon.

I am the permanent night watchman from midnight to six o'clock in the morning. At ten minutes to six I wake Fedorov to get up for his first morning meteorological observations. He soon starts drafting his routine weather reports, kneeling before his instruments.

At 6:15 a. m. Rudolf Island demands a weather report. The switches of the radio transmitter click as usual and it hums evenly.

Meanwhile Fedorov has already boiled tea and fried a heap of sausages. We drink tea in the living tent, otherwise the frost makes the butter, caviar and cheese inedible. We soak our biscuits in tea in order that their crackling should not awake Papanin who, in his own words, sleeps like a hare.

Sometimes the morning tea is interrupted to check the chronometers or by a sudden appearance of the sun, which demands immediate astronomical observations.

After breakfast Fedorov retires to his ice "study" or remains in the tent and plunges into his notebooks, reference books and charts and becomes absorbed in calculations. A glorious time then begins for me; I crawl into the sleeping bag. About 9 a. m. Papanin and Shirshov get up. Fuel, stores, lamps and all other

details in the life of the camp form the scope of Papanin's untiring activities.

Shirshov spends whole days in his tent over the ice-hole. All smeared with grease, with hands blue from contact with the ice-cold water, he is accumulating most interesting material.

It is very hard to warm up frozen porridge and soup so that nothing is burned. Two principal demands are made of food: hotter and with the least expenditure of kerosene.

After dinner we have an hour's rest and then we continue our work.

It is very cozy in our place at our evening meal, at about 10 p. m. Fedorov is already asleep and only three of us drink tea. The principal subjects of our conversation are Spain, China, and Moscow. Everyone has a radio head-phone on. At 11:30 p. m. we regularly hear Moscow's loud and distinct broadcasts.

I go out to make my meteorological

observations. Under a clear sky the cold is particularly felt. The horizon is covered with a frost haze, there is no wind—which means that the night duty will be quiet and the question, "How is the wind?" won't resound from Papanin's sleeping bag.

Every hour I inspect the camp, I guess in the darkness the familiar heaps of ice-blocks. The antenna hangs like a thick rope covered with an extraordinarily thick layer of rime. Our dog Vessyoly whines in his sleep; apparently he has a nightmare. There is a tinkling stillness around, now and again one hears ice cracking somewhere. It seems as if everything is frozen. But the ether roars with music for all tastes, and the revolving meter lowered into the water will evidently again show, at five o'clock in the morning, a considerable drift of our ice floe to the south, despite the absence of wind.

At 5:30 in the morning, I hear a cheerful march from Moscow. I become terrified at the words of the instructor of morning exercises: "Open the window, put your shorts on." The water procedure, which he recommends, we perform in the only way possible to us—we drink hot tea.

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BOTANY

Engineering With Plants Forecast By Botanist

"PLANT engineering" as an important aid to enterprising horticulturists was forecast by Dr. Frits W. Went, botanist of the California Institute of Technology, in an address at Los Angeles.

The speaker's play on words does not refer to mechanical engineering in the common sense, however. The distinguished plant physiologist really meant literally what he said, viz., the constructive engineering of living plants, with the aim of producing more satisfactory crops. Nominally this may mean the making of big plants where only little ones have hitherto grown; but actually by indirect reaction the plan may bring improvement in quality as well.

The time-honored methods of improving on Nature's forms of vegetation, such as seed selection and hybridization, have well-known limitations. The plant breeder often produces trees with superb quality of fruit, but with poor yield, poor

resistance to pests, disease or harsh climate, and worst of all, dwarf growth habits. At this point Dr. Went proposes to use growth hormones, which are potent organic chemical compounds that may happen to be missing in the case at hand. He considers it not impossible that a vegetable dwarf of choice quality may be led to develop to unprecedented size. If hormone treatment can be made to solve the problem of size and rate of growth, then much greater freedom is allowed to the expert in pollination and hybridization.

The hormone may be administered in the manner of either soluble chemical fertilizer or spray, or by soaking parts of plants or seeds. Unlike fertilizers, the hormones are applied only in extremely dilute form. For example, the rare chemical indoleacetic acid, which has exhibited high hormone potency, may be mixed with as much as ten thousand parts of water for use in soaking cuttings which

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