

The Soviet North Polar Station

WHEN the Soviet polar station was founded on an ice-floe near the North Pole on May 21, 1937, it was expected that the floe would drift slowly, perhaps erratically, but on the whole towards the northern coast of Greenland. The outflow of ice from the Arctic basin by the East

Service give some details. Until early November the drift was steadily southward along the meridian of Greenwich, with deviations of about seven degrees of longitude to east and west. Then during November the course became south-east towards Spitsbergen, and on November 30 the position was lat. $82^{\circ} 51' N.$, long. $7^{\circ} E.$ Thus the station is now approaching the course of the final stages of the drift of Nansen's *Fram* in 1896. The *Fram*, with a slower and less decided course, moved on the whole to the south-west from the vicinity of the New Siberian Islands to lat. $84^{\circ} N.$, long. $15^{\circ} E.$ and then southward. Thus there would appear to be a certain parallelism between the two drifts, with the suggestion that the quicker drift of the Soviet station is due to its being in the main trend of the current while the *Fram* was in the peripheral regions, where wind may at times have controlled the course.

Until November the floe with the Soviet station was moving definitely towards the East Greenland current, which is the main outlet of the ice of the Arctic Ocean. This current may well have been drawing it in that direction. The change of direction in November is more difficult to explain. Possibly wind action may be a factor of some importance as the pack approaches the periphery of the basin and there is less congestion, as is suggested regarding the *Fram's* route, or there may be eddies on the margin of the main stream.

On December 12, however, the floe was reported to be in lat. $82^{\circ} 8' N.$, long. $7^{\circ} 45' W.$, so that it is now moving towards Greenland.

If the drift continues, as seems probable, the position of I. D. Papanin, E. Krenkel, E. L. Federov and P. P. Shirshov will become one of extreme danger, although their wireless messages make light of their peril. Rumbblings in their floe indicate cracking: dissolution may quickly follow if the floe reaches the edge of the pack and feels the influence of ocean swell. That will be some time yet, but probably will occur during the winter and not as had been hoped in summer daylight. Until March there will be no daylight at the station: darkness will materially increase the difficulty of aeroplanes finding an adequate landing place for the rescue, and the explorers have no

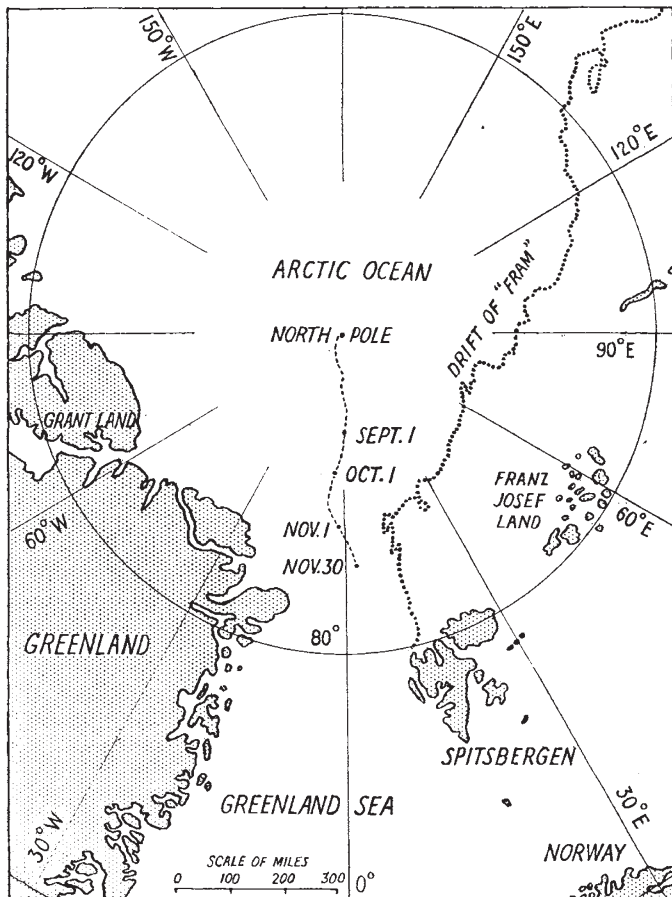


CHART SHOWING DRIFT OF THE SOVIET POLAR STATION (broken line)

Greenland current, the observed westerly drift of floes to the north of Greenland and the heavy hummocky ice off Smith Sound and Grant Land, Nares' misnamed palaeocrystic ice, all point to the probability of a more or less rotatory drift within the Arctic basin. There can be little doubt that some of the Arctic pack-ice is carried, at least at times, by such a drift, which is no doubt partly due to the earth's rotation and is assisted by the prevalent atmospheric circulation.

The Soviet station, however, has not closely followed the anticipated course. News in *The Times* and the Soviet Union Year Book Press

vessel. There are reports that the Soviet Government intends to send an ice-breaker to the rescue. This plan holds out more hope. On the other hand, the floe may continue its drift towards north-east Greenland. In that event the explorers may be able to effect their own rescue by travelling over closely packed ice, held by the land, to the safety of the shore. It is much to be hoped that these gallant men, who have risked much in the cause of scientific investigation, succeed in reaching safety.

Up to the present, their meteorological records alone have been published, but it is clear that the ocean soundings are going to prove of great interest, as showing a uniformity of depths in high latitudes and defining the width and depths of the ridge connecting Greenland and Spitsbergen. Other oceanographical discoveries were referred to in a previous article in *NATURE* (139, 990, June 12, 1937).

R. N. R. B.

Obituary Notices

Sir Jagadis Chandra Bose, C.S.I., C.I.E., F.R.S.

BY the death of Sir Jagadis Chandra Bose on November 23, a few days before his seventy-ninth birthday, India has lost one of her foremost sons and science one of its most picturesque figures. In India, and indeed elsewhere, Bose's concern for the well-being and progress of his native country has for long been widely known. His reputation as a physicist has been established for several decades. But it is at present not possible, and will not be possible for some time to come, to assess the true value of his contributions to physiology.

Bose's physiological work still remains in an isolated position in spite of decades of indefatigable work on his part, many volumes of published experimental work, and sometimes even unique facilities granted, not only in his own country, but also in Great Britain, the United States and on the Continent, to bring his results personally before the public by means of lectures and demonstrations. (In his earlier days, such facilities were not always available, and it is a tribute to his fighting instinct that he was able to obtain them in the end.)

The reasons for Bose's isolated position in the science of physiology are many and varied. Although he was a pioneer in his own field, he seldom discussed his results with those of his contemporaries. His scientific work was at times almost dramatic, with the result that even at the early stages he attracted much attention from the non-scientific world. Diplomats and high Government officials attended his discourses; Romain Rolland was loud in his praises of him; Rabindra Tagore wrote poems eulogizing his work; and Bernard Shaw was attracted to one of his lectures. Naturally, lay publicity and interest followed such distinguished example; but all this was unhealthy to Bose, the man of science, when so little of his work had received scientific confirmation.

Jagadis Chandra Bose was born in the village of Rarukhal in Vikrampur, a large area in the Dacca District, on November 30, 1858, the son of Bhagaban Chandra Bose. But Bose's father soon migrated as deputy magistrate to Faridpur, the centre of the next District, and it was there that Bose spent his childhood days. Bhagaban Chandra Bose had a profound

sense of public duty, and it was doubtless from this source that Jagadis Chandra Bose's supreme love and work for his fellow countrymen had their origin. Bose's father, too, had to grapple with the severe problem of the dacoits in his area, and his success won unstinted praise from the authorities. Such factors were no doubt operative in eliciting that note of strenuous and persistent courage in facing adversities and of untiring combativeness against every difficulty so inherent in Jagadis's character throughout his life.

By his father's wish, Bose received his primary education at the vernacular school in Faridpur, and not the English school. Thus did he at an early age come into contact with the problems of the peasant, and those problems always occupied his mind afterwards. At nine years of age he entered St. Xavier's School in Calcutta, where his taste for natural history veered round to one for physics under the influence of Father Lafont. He graduated B.A. at the age of twenty years.

At this time, his family was financially embarrassed, but chiefly through the help of his mother, Bose was enabled to leave Calcutta for the University of London to study medicine. In later years, he was never tired of describing the thrills he experienced in studying zoology for the first time under Ray Lankester. But his health forced him to leave London, and, having gained a natural science scholarship, he entered Christ's College, Cambridge, in 1881. His first year there was one of indecision, but he was an assiduous student of physiology under Michael Foster and embryology under Francis Balfour. In his second year, he settled down finally to botany under Vines and Francis Darwin, chemistry under Liveing and physics under Rayleigh. He took the Natural Sciences Tripos, obtained his B.A. and at the same time took a London B.Sc. In later years, his former teachers, Lord Rayleigh and Prof. Vines, were appreciative of his researches in physics and physiology, and were sponsors for their presentation before the Royal and Linnean Societies respectively.

Bose returned to India at the age of twenty-five years, and, after serious opposition from the Educational Service and from academic authorities, was appointed professor of physics in Presidency College,