

# Sun Spots and Short Waves

WHEN the All Blacks are performing on the sun-baked or mud-caked Rugby grounds of South Africa, from May 31 to September 17 (inclusive), many thousands of New Zealanders at home will be deeply attached to their radio receiving-sets. Results of and commentaries on the 24 matches, including the four Tests, will be followed avidly; and if the post-mortem examinations that inevitably follow New Zealand sport have a slightly depressing effect on production per man-hour, statisticians may find comfort in the thought that the All Blacks don't tour every year.

While the selectors of the team were discussing the merits of this player and that, engineers of the NZBS were also deeply (if more objectively) concerned with the tour. Their problem was radio reception of news about the team's progress in the Union. Ever since last October they have been making tests at Quartz Hill (Makara) with the object of finding the best frequencies to use, and something about the reception listeners can expect.

By accepting the invitation to go to South Africa, the 1949 All Blacks have raised one or two points of peculiar scientific interest to radio experts. Normally the receiving station of the NZBS at Makara takes short-wave broadcasts from England, Canada, India, and Australia without difficulty; but in the case of South Africa, the line of communication cuts through the southern auroral zone—and not once, but twice (see map on page 7). The engineers' task has been not only to find the channel offering

the least possible interruption from auroral phenomena, but also to find means of escaping as far as possible the effects of sunspot activity which, at peak periods, so disturbs the ionosphere in or near the auroral zone that transmission by radio is virtually impossible.

The two auroral zones circle the geomagnetic poles, and in these areas auroras are visible almost every night, in the shape of rays, bands, curtains, draperies, coronas and diffuse glows. Sunspot activity increases their boundaries, and however attractive the display may be to an observer, the radio engineer views them with distaste. The sun's activity is not constant, but varies erratically from day to day, though, broadly speaking, in cycles which, from minimum through maximum to minimum activity again, last eleven years or so. Conditions of overseas broadcasting, therefore, vary according to the prevailing degree of sunspot activity.

The main part of the radio testing work has been to keep a check on the accuracy of ionospheric frequency predictions, and so to gauge how clear a circuit can be expected for the transmission of All Black news. There has been nothing haphazard about these tests. They are carried out with meticulous care and will continue right up to the time of the first match of the tour. Already enough information has been collected to enable the engineers to say that while the circuit of approximately 7,500 miles may not be first-class—that is, of the quality of the 6.0 p.m. news from London, or a broadcast such as the Melbourne Cup—it should be sufficiently clear to make most of the broadcasting understandable.

The circuit to and from South Africa is a difficult one, and one that has not been attempted on a regular basis before, although amateur transmitters are sometimes able to communicate with the Union. By way of illustration it may be explained that when communication by radio-telephone is poor, subscribers can be advised to wait for an improvement in conditions—and that inconveniences two or three people at the most. But what the NZBS proposes to do is to give the Rugby broadcasts to listeners regularly on a pre-determined basis.

At both ends of the line of communication—Pretoria and Wellington—special directional aerials have been erected for the occasion, through the co-operation of the South African Broadcasting Corporation, the South African Post Office, and the NZBS. The South African Post Office has made transmitters available in Pretoria, and commentaries by the NZBS sports commentator (Winston McCarthy) will be relayed from the football field to Pretoria and then directed to New Zealand by short-wave. Tape-recorders will also be used for summaries and sent to New Zealand by air mail. The relays direct from the ground will be broadcast simultaneously in South Africa and New Zealand.

However the auroral zones decide to behave between May and September next, or whatever outbursts of capriciousness the sun may indulge in, the All Blacks may be depended upon to keep at least one foot on the ground, and the NZBS to give the vast concourse of New Zealand Rugby fans the best reception it can under what may be difficult conditions.



★ MARK NICHOLLS (above), vice-captain of the All Black team which toured South Africa in 1928, and one of the best-known figures in New Zealand Rugby, is to preview the matches of this year's tour for the Commercial stations. He will be heard on the eve of each game, the first broadcast being scheduled for 9.15 p.m. on Tuesday, May 31. Subsequent games will be on Wednesdays and Saturdays, and the Wednesday games will be previewed at 8.30 p.m. and the Saturday games at 9.15 p.m. The previews will be broadcast over a link of the four ZB stations.

## BACKGROUND TO THE TOUR

### Altitude Tests for All Blacks

DID you know that geographically South Africa is the loftiest of the Dominions? As a people, most South Africans practically live in the sky, a fact which the All Blacks will very quickly discover, since football at five or six thousand feet above sea level makes you a little breathless until you get used to the thinner air. They will also notice that whenever they leave a South African harbour and enter the veld (or "felt," as they call it over there), the railway starts twisting and climbing up mountains in a tortuous struggle to gain the high plateau where most of the people live and enjoy one of the finest climates in the world.

The story of South Africa—its history, climate, and peoples, its industry and farmlands, its gold and diamonds, and, above all, its sport—will be told in a series of six talks by the men who know most about the country, the South Africans themselves. The last talk in the series, *South Africa at Play*, is by Dr. Danie Craven, vice-captain of the 1937 Springbok team. The talks were recorded in South Africa and flown to New Zealand, and they will be heard

from all YA and YZ stations and 3XC Timaru. The first is from 1YA at 6.0 p.m. this Sunday. This talk, by J. A. I. Agar Hamilton, editor-in-chief of the official South African War Histories, deals with the country's history from 600 B.C. when Phoenicians sailed down its coast, until the Boer War and the formation of the Union in 1910. The second talk, *Springbuck on the Veld*, by John Bond, a well-known journalist and amateur naturalist, describes the countryside and wild life. South Africa, he says, is the southern end of the world's biggest zoo.

Diamonds and gold are the subject of the third talk by Nigel Sutherland, and he describes not only the big scientific mines, but the innumerable small diggings: "Thousands of man-made craters



DANIE CRAVEN

ers surrounded by heaps of sifted gravel stretch as far as the eye can see, and in those craters are the diggers, burnt brick-red by the sun. Each bucket of soil is washed and sieved, a pair of keen eyes looks hopefully over the wash, and then back to the pick and shovel goes

the digger, ever hopeful." He doesn't say, however, what sort of Rugby footballers these men make. The fourth talk, by W. K. Buchanan, is called *The Land and the Factory*, and the fifth, by Rene de Villiers, is simply titled *Its People*. It gives some idea of the racial problems in a population made up of a mixture of Dutch, British, French, Hottentots, Bantus, Malays, Indians, and the million "Cape Coloured" people who have resulted from intermarriage.

Station 2YA only will remain on the air to broadcast full commentaries on the Test Matches direct from South Africa (they will probably start at about 1.0 a.m., N.Z. Time), but the commentaries will be recorded and rebroadcast from the main National stations following the 9.0 a.m. weather forecast on each occasion. A five-minute summary of play will be broadcast following the News at 6.0 a.m., 7.0 a.m. and 8.0 a.m., and a 15-minute review of play will be heard at 1.40 p.m. Since the Test Matches are being played on Saturdays, these broadcasts will be made on the Sundays following the games. The radio coverage of all the other games will be confined to a five-minute summary after the News at 6.0 a.m., 7.0 a.m., and 8.0 a.m., and a 15-minute review at 9.15 a.m. on week-days and 1.40 p.m. on Sundays. All commentaries and reviews of play from the National stations will be given by the NZBS sports commentator, Winston McCarthy.

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