NEWS and VIEWS

Nobel Prize to Blackett

The highest honor in physics, the Nobel prize, was awarded for 1948 to Patrick M. S. Blackett for his work in perfecting the Wilson cloud chamber to detect cosmic radiation. Like Arne Tiselius, the Swedish professor who won the 1948 chemistry prize for developing the electrophoretic method of protein study (involving the movement through a solution of large molecules in an electric field), Blackett was recognized for his mastery of technique. But his hypothesis, announced in 1947, that every large rotating body is a magnet—an assumption based on astronomical observations—marks him a theoretician as well.

Blackett is 51, tall, darkhaired, and energetic. He married Constanza Bayon in 1924 and they have a son and daughter. He has been Langworthy professor of physics at Manchester University since 1937, when he succeeded Sir Lawrence Bragg in the post. During the first world war he served with the Navy, having been educated at Osborne and Dartmouth Naval Colleges. In 1919, when he was 22, he went to Cambridge where he took his degree. He was made a fellow of King's College and from 1923 to 1933 worked at Lord Rutherford's Cavendish Laboratory where he became interested in the work of C. T. R. Wilson, inventor of the cloud chamber. In 1924 Blackett succeeded in making the first cloud chamber photograph of the artificial transmutation of a nucleus, Rutherford's famous experiment showing that nitrogen nuclei, bombarded with alpha particles, break up into oxygen and protons. He later wrote, in a paper entitled "The Craft of Experimental Physics": "A thousand repetitions will not tire the interest in the sight of the sudden flashing out on the black background of the bright trails that mark the tracks of single atomic particles."

In 1933 Blackett, this time working with the Italian physicist G. P. S. Occhialini, again improved cloud chamber technique so that cosmic rays could take their own pictures. This was accomplished by a set of Geiger-Müller counters which triggered expansion of the chamber whenever the cosmic rays passed through. One result of the new photographic technique was to confirm the existence of free positive electrons, or positrons. These particles, first discovered by C. D. Anderson, were shown in the Blackett-Occhialini photographs as being emitted from atoms struck by cosmic rays. This proof of nuclear disintegration by cosmic rays served to underscore the usefulness of cosmic radiation in the field of nuclear research. At Birbeck College (the College of London University offering evening lectures for working people), where he became physics professor in 1933, Blackett set up a cosmic ray laboratory in a disused subway station, a hundred feet below the London streets. He continued his research there until 1937, when he went to Manchester.

When the Allies started work on the atomic bomb in 1940 Blackett was a logical choice for membership on the Atomic Advisory Committee. He was also scientific advisor to the British military forces—the Anti-Aircraft Command, where his work reduced the figure of twenty thousand rounds for one enemy aircraft destroyed to well under five thousand, and the Admiralty, where he introduced the mathematical treatment of strategic problems with notable success in revising procedures for attacking U-boats, for example. These methods, now known as operational research, made it possible to conduct operations according to facts, as Blackett pointed out, and not "on gusts of emotion." He received the U. S. Medal for Merit for this accomplishment.

Because he has always thought of science as a tool for human betterment, Blackett advocates applying operational research to peacetime problems—production and distribution in particular. He is a practical scientist, as J. B. S. Haldane has remarked: "Like Rutherford, he has a mind which seems to be much happier with real things, which he can count and measure, than with the more abstract forms, such as systems of waves or even mathematical symbols, which some physicists wish to put in the place of matter. What is more, he finds the things he is looking for." But he is a practical scientist whose interests extend far beyond the laboratory. He has been a leader of the Association of Scientific Workers for a number of years. He recently returned from India, where he has been advising Pandit Nehru on Indian defense organization. He has frequently been consulted by the Labor Government, although politically he is farther to the left than many of its leaders. His recent book, "The Military and Political Consequences of Atomic Energy," defends Russia's rejection of the American plan for atomic control and has stirred up considerable controversy.

National Academy

The National Academy of Sciences last met at Berkeley in November of 1930. At that time, G. W. Lewis introduced a paper by a young physicist, E. O. Lawrence, and one of his graduate students, N. E. Edlefsen, entitled "The Production of High Speed Protons." Now, eighteen years later, Professor Lawrence presented a paper entitled "The Cyclotron: A Progress Report." This progress is familiar to most physicists, and will therefore not be recounted here. Slides were shown of all the Berkeley cyclotrons from the first 5-inch model, through the 12-inch, 28½-inch, 37-inch, 60-inch, and 184-inch and including the projected 100-foot "bevatron." In another talk, McMillan told of recent work with the 184-inch cyclotron. He concentrated on two phases of the work: the ninety-Mev neutron-proton scattering, and the recent meson experiments. In the latter, Gardner and Lattes have refined their mass measurements of the two meson types; the values are meson pi: 286 electron masses, and meson mu: 217 electron masses. The value of the ratio of the mass of meson pi to the mass of meson mu is such that no neutral meson is now needed to explain the energetics of the pi-mu decay; the undetected neutral particle