in conjunction with similar data gathered by the forty-six other co-operating countries with the view of obtaining fuller insight into the synchronous large-scale events in meteorology, magnetism and aurora, over the earth and in the atmosphere up and into the conducting layers. A large amount of material is also available for the study of the interrelationships among the varied phenomena observed and recorded during the year's activities.

The New Coast-line of Antarctica

FURTHER information has come to hand concerning Consul L. Christensen's discoveries in the Antarctic referred to in NATURE of March 17, p. 409. Princess Astrid Land, as it was named, is now reported in the *Times* to lie in about long. 86° 45′ E. and a little south of the Antarctic Circle. This is to the west of and adjoining Kaiser Wilhelm Land, discovered by Dr. E. von Drygalski in 1902, and east of Princess Elizabeth Land, discovered by Sir Douglas Mawson in 1931. The land was sighted from an aeroplane from a distance and reported to rise for a distance of about 150 miles. It is further reported that the Douglas Islands, off MacRobertson Land, do not exist. Consul Christensen then took the *Thorshavn* eastward and reports that in lat. 71° 44′ S., long. 134° 11′ E. (? W.) his seaplane could find no land to the south. Proceeding via Peter Island, the ship rounded Cape Horn, discovering a new bank to the south, and made for Montevideo. A number of soundings were taken in hitherto uncharted waters.

Early Science in Poland

A STUDY of the development and position of science in Poland up to the end of the sixteenth century is given by Prof. Kazimierz Dobrowolski in the recent issue of *Nauka Polska* (vol. 17 ; 1933), an annual publication devoted to the organisation and progress of science in Poland. Prof. Dobrowolski's account (132 pages) of Poland's contributions to early science is especially detailed for the sixteenth century itself and is well documented throughout. It refers not only to the natural sciences, so far as they had then developed, but includes also incursions into theology, philosophy, logic, law and history. It is evident that 'science' as understood in Poland, and in Europe generally for that matter, up to the seventeenth century was closely associated with alchemy, astrology and occult practices. But towards the close of the period under review, Prof. Dobrowolski points out that real scientific inquiries were being prosecuted in Polish centres of learning, so far as political upheavals permitted. The work of Copernicus is not only important in itself but also because it was followed by that of Francis Bacon, Galileo, Descartes and others. Early English and French contributions to scientific knowledge, for example, Roger Bacon's discoveries and writings and those attributed to Thomas Aquinas, had reached Poland and exerted some influence upon thought there. The same volume of *Nauka Polska* contains some notes by Dr. M. Wolfke on certain recent developments in pure and applied physics and another contributor describes life in scientific circles at Lodz.

High-Voltage Testing Equipment

ECONOMICAL considerations are leading electrical engineers to use very high voltages for transmitting electrical energy over long distances. The accessories used with high-voltage cables or overhead lines require to be specially tested. This has made it necessary to build high-voltage laboratories and to design insulating devices which will withstand these high pressures. In the early days of testing, the perfection of a testing set was judged mainly by the length and appearance of the spark and the loudness of the noise it made. Nowadays these measurements have to be made with high accuracy in accordance with stringent specifications. On the result of the acceptance tests, errors of a few per cent may turn the scale for rejection, leading to losses of thousands of pounds to the manufacturer. In certain cases discrepancies of ten per cent are shown in the results obtained in different laboratories, leading to considerable dissatisfaction.

IN a paper on high-voltage testing read on December 21 to the Institution of Electrical Engineers by B. L. Goodlet, of the Metropolitan Vickers Electrical Co., Ltd., it is shown that the discrepancies are mainly due to badly designed equipment and insufficient knowledge of the performance of the testing set under various conditions. They also arise sometimes from differences in the technique used in testing. Single units for testing purposes are usually built for a million volts, but it is often more advantageous to utilise the well-known cascade connexion which produces the required total voltage by adding up the individual voltages of several smaller units. The high voltage and low power rating of these transformers lead to difficulties in designing them. The authors illustrate this by showing oscillographic records of the distorted wave forms of the current and voltage sometimes obtained. In the third part of the paper a complete mathematical and experimental discussion is given of the impulse generator.

Economic Survey of Agriculture in the East of England

AN excellent economic survey, the second of the series, based on a sample of more than a thousand farms, has recently been published (University of Cambridge : Department of Agriculture, Farm Economics Branch. Report No. 21 : "An Economic Survey of Agriculture in the Eastern Counties of England, 1932". Pp. vi + 89. Cambridge : School of Agriculture, 1933. 2*s*. 6*d*. net). As a record of what is actually happening to the individual units of agriculture in the eastern counties of England, it could scarcely be bettered. Reality is an excellent antidote to indiscriminate theorising in any subject ; surveys such as this enable the hard facts of an industry of small units like agriculture to be ascertained. Without a factual basis of this type there can be no sound future planning or adequate criticism of past planning.

THE broad facts revealed by the survey are sufficiently disquieting. The depression of agriculture