These results, when compared with the previous determinations for these same instruments, would seem to show that a somewhat better result is obtained when the exhaustion is carried on more slowly, and hence that the corrections depend, to a considerable extent, on the nature of the treatment received. No. 8 seems to be more constant under different treatment than No. 9.

From all these experiments we may perhaps conclude as follows:—

(1) A good aneroid of large size may be corrected for temperature by an optician, so that the residual correction shall be very small.

(2 α) If an aneroid correct, to commence with, be used for a balloon or mountain ascent, it will be tolerably correct for a decrease of about 6 inches of pressure.

(2 β) A large aneroid is more likely to be correct than a small one.

(2 γ) The range of correctness of an instrument used for mountain ascents may be increased by a previous verification, a table of corrections being thus obtained.

(3 α) If an aneroid have remained some time at the top of a mountain, and be supposed correct to start with, then it will give good results for about 8 inches of increase of pressure.

(3 β) A large aneroid is more likely to be correct than a small one.

(3 γ) If the aneroid has been previously verified, it is likely to give a better result.

(4) After being subjected to sudden changes of pressure the zero of an aneroid gradually changes, so that under such circumstances it ought only to be used as a differential and not as an absolute instrument, that is to say, used to determine the distance ascended, making it correct to begin with, or to ascertain the distance descended, making it correct to begin with, it being understood that the instrument ought to be quiescent for some time before the change of pressure is made.

Before concluding I ought to mention that most of the experiments herein described were undertaken and executed in a very careful manner by Mr. T. W. Baker.

XVI. "Contributions to Terrestrial Magnetism, No. XI." By General Sabine, R.A., P.R.S., &c. Received June 18, 1868.

(Abstract.)

This number of the Contributions of Terrestrial Magnetism contains the completion of the Magnetical Survey of the South Polar Regions, undertaken by Her Majesty's Government in 1840–1845 at the joint instance of the Royal Society and the British Association for the Advancement of Science. The observations themselves, and their provisional discussion, have already been given in the previous numbers, V., VI., VIII., and X. of the Contributions. The present number contains a general review of

the whole survey, and is accompanied by three maps, which have been prepared, with the permission of the Hydrographer, Captain Richards, R.N., F.R.S., under the careful superintendence of the Assistant Hydrographer, Captain Frederick John Evans, R.N., F.R.S., one map being allotted to each of the three magnetic elements, viz. the Declination, Inclination, and Intensity of the Magnetic Force. In these maps the Isogonic, Isoclinal, and Isodynamic lines have been drawn, by the author of the paper, conformably with the observations around the circumference of the globe between the parallel of 30° S. and the South Pole. The paper also contains Tables, prepared with a view to the revision of the calculations of Gauss's 'Allgemeine Theorie des Erdmagnetismus.' They give the values of each of the three magnetic elements at the intersections of every fifth degree of latitude between 40° of south latitude and the South Pole, and every tenth degree of longitude between 0 and 360°.

"On the Spectrum of Comet II., 1868." By WILLIAM HUGGINS, F.R.S. Received July 2, 1868.

(Abstract.)

The author describes the appearance of the comet in the telescope on June 22 to consist of a nearly circular coma, which became rather suddenly brighter towards the centre, where there was a nearly round spot of light. A tail was traced for nearly a degree.

He found the light of the comet, when examined with a spectroscope, furnished with two prisms of 60°, to be resolved into three broad bright bands.

The brightest band commences at about *b*, and extends nearly to F. Another band begins at a distance beyond F, rather greater than half the interval between *b* and F. The third band occurs about midway between D and E. In the two more refrangible of these bands the light was brightest at the less refrangible end, and gradually diminished towards the other limit of the bands. The least refrangible of the three bands did not exhibit a similar gradation of brightness.

These bands could not be resolved into lines, nor was any light seen beyond the bands towards the violet and the red.

The measures of these bands are given, and a diagram of their appearance.

The author found this cometic spectrum to agree exactly with a form of the spectrum of carbon which he had observed and measured in 1864. When an induction spark, with Leyden jars intercalated, is taken in a current of olefiant gas, the highly heated vapour of carbon exhibits a spectrum which is somewhat modified from that which may be regarded as typical of carbon. The light is of the same refrangibilities, but the separate strong lines are not to be distinguished. The shading, composed of