first place, be remarked that as these cover no less than 600 pages, only a very brief reference can be made to each of them.

The first contribution, by the distinguished late director of the Institute, Hofrath Julius Hann, is a masterly discussion of the meteorological observations made at the Institute during the years 1852–1900. This paper brings together the monthly and yearly means of each of the meteorological elements during this period, and in two cases—namely temperature and rainfall—the data given extend back to 1775 and 1845 respectively. Such a long series of temperature observations has enabled him to investigate them for secular variations, with the result that he has found the anomalies to conform to a variation having a period of thirty-five years. It may be of interest here to mention that quite recently Hann has shown (*Kais. Akad. d. Wiss.* Jahrg. 1902, No. 1, p. 5) that the rainfalls of Mailand, Padua and Klagenfurt have also a secular variation of thirty-five years, the years of maxima and minima corresponding with Bruckner's epochs.

Next follow two papers relative to the "Föhn." The first is by Dr. Paul Czermack, in which he describes some experiments that serve to illustrate details in the behaviour and appearance of these currents. The second communication, by Dr. Robert Klein, deals with the daily variation of the meteorological elements at Tragoss due to the occurrence of the "Nordföhn," and he finds that all the elements are regularly disturbed by it, and offers an explanation for these variations.

The influence of the "Bora" on the daily period of some of the meteorological elements is discussed by Herr Eduard Mazelle. The observations were made during the years 1886–1895 at the astro-meteorological observatory in Trieste, and the results indicated that the elements changed definitely on these occasions.

A comparatively short paper, by Dr. Victor Conrad, describes the experiments and observations that he has made to investigate the water capacity of clouds and mists. In the first instance he devoted his time to the study of the "aspirationsmethode," producing artificial mists by means of a small boiler. The author then applied this method to natural clouds and mists, making his observations at elevated stations such as Schneeberg, Waxriegel (1884m.), Schafberg (1798m.), and Hohen Sonnblick (3106m.). The results are a distinct advance on earlier determinations, and, in addition, serve to explain some anomalies previously observed by other workers; thus, to take one case, the curve illustrating the relation of the water capacity to the "seeing distance" (in the mist) in metres shows clearly the difficulty of measurement of the water capacity when the seeing distance reaches about 150 metres.

We come now to two papers dealing with the daily variation of the temperatures in Austria and at Vienna (Hohe Warte), by Drs. J. Valentin and Stanislav Kostlivy respectively. Both these communications are exhaustive investigations on these meteorological elements, but even a brief reference to them must be omitted.

Dr. J. Pircher is the author of an important memoir on the hair-hygrometer. He first discusses the hair from the point of view of a hygroscopic substance, and describes in detail the features and peculiarities of different hair-hygrometers. This is next followed by a minute experimental investigation of the hair-hygrometer and its capability of indicating efficiently the phenomena it is intended to record. Comparisons of the hair-hygrometer with the condensation hygrometer of Alluard, with the psychrometer, the aspiration psychrometer of Assman, &c., are then given, concluding with deductions as to the sensitiveness of the hair-hygrometer and the influence of the action of direct sunlight upon it.

Some of the results at which the author has arrived, to put them in a few words, are, that the relative humidity can under all circumstances be measured to within five per cent., but in most cases to three per cent.; that the efficiency of the instrument is considerably decreased if it be allowed to stand for a long period of time in a room of constant humidity, it being pointed out that it is not only advisable, but necessary, to occasionally moisten the hair; and, finally, that temperature (with the exception of direct sunlight) and wind velocity have no effect on the instrument, while no variation was observed in the case of pressure.

A valuable paper by Prof. J. M. Pernter gives the results of some interesting experiments on the polarisation of light in cloudy media and their connection with the present explanation of the blueness of the sky. This investigation was undertaken to answer, if possible, the question whether the light of the sky (Himmelslicht) considered as scattered light of a cloudy medium, and the blue of the sky (Himmelsblau) as the colour of a true medium, could be more easily and, perhaps, also finally answered by the behaviour of light in relation to polarisation than by measurements of the intensity of single colours, since the latter, both with artificial cloudy media and with skylight, are connected with great experimental difficulties. Prof. Pernter used for the media different percentages of liquids coloured in such a way that he could employ all gradations of colour from the finest blue to a tone of milky white. Through these liquids he allowed rays of different colours to pass, and examined them after transmission by means of a polarimeter. In the summary of the results arrived at it will be seen that an important step in advance has been made from the experimental standpoint, and the observed facts are in harmony with the well-known theory of Lord Rayleigh.

The last two papers in the volume, which can here only be referred to by their titles, are written by Drs. Max Margules and Wilhelm Traberto, and are on "The Value of Work (Arbeitswert) of a Pressure Distribution and on the Preservation of Pressure Differences" and "Isotherms of Austria" respectively. In the latter the author has used, whenever possible, the fifty-year means of temperature, and has employed the values obtained from 773 stations in Austria and 142 outlying places; the maps accompanying the paper illustrate the isotherms for the months of January, April, July and October, the isotherms for the whole year, together with four other maps showing the isotherms for special regions.

In bringing this necessarily brief digest of the contents of this important volume to a conclusion, one cannot but call to mind the very valuable service this Central Institute of Meteorology has rendered to meteorological science in general. The numerous voluminous publications which have issued from its doors, and the very able help it has provided and still provides in many directions, are sufficiently well known to indicate the great activity that is displayed in its various departments. The publication of the volume before us is not only a fitting outcome of such labours, but is a worthy tribute to the memory of those who have striven to place the Institute in the first rank, in which it stands to-day.

W. J. S. L.

THE OWENS COLLEGE JUBILEE.

ON March 12, 1851, the Owens College began its existence in a modest house in the centre of Manchester which had formerly been inhabited by Richard Cobden. The College was removed to its present site in Oxford Street in 1873; since that date one addition after another has been made to the buildings, which now cover an irregular area of some 240,000 square feet.

The chemical laboratories have been twice enlarged,

notably in 1895 by the addition of the Schorlemmer laboratory; the engineering laboratory was opened in 1887 and has been greatly enlarged since; the large Beyer biological laboratories and the museum buildings were completed in the same year; the medical school was extended in 1883 and doubled in size in 1894; the Christie library was opened in 1898, the new physical laboratories (on a separate site) in 1900.

The Prince of Wales inaugurated the jubilee ceremonies of the College yesterday by opening the noble Whitworth Hall, which completes the large quadrangle of the College. It will be remembered that the late Sir Joseph Whitworth left the bulk of his fortune to Lady Whitworth, Mr. R. C. Christie and Mr. R. D. Darbishire, with absolute discretion as to the disposal of the money; of this more than 120,000*l.* has been given to Owens College by the legatees, jointly or severally. The late Mr. Christie, himself for many years a professor at Owens, after presenting the College with a beautiful library building from his private purse, gave in 1897 the residue of his share of the Whitworth bequest, amounting to about 50,000*l.*, for the building of a college hall, to be named after Whitworth. This hall, designed like the rest of the main buildings of the College by Messrs. Waterhouse and Son, is in the Gothic style, and is 120 feet long and 50 feet wide. It has a beautiful and elaborate high-pitched oak roof, of which the apex is 56 feet from the floor. The principals are supported on columns of granite. The sides of the hall are of polished stone with a panelling of polished oak. At the north end is an organ (the gift of Mrs. Rylands), encased in a fine screen of carved oak, and on a level with the organ loft, and adjoining it, are galleries for a choir. Immediately in front of the organ is a daïs, a few feet above the level of the floor. The hall is lighted by a series of stained glass windows on either side, and by a great window, in the perpendicular style, at the south end, in which the arms of the founder of the College and its chief benefactors have been inserted. The floor slopes slightly upwards from north to south, and at the extreme end of the hall there is a raised platform so that all can see the north daïs. Two small galleries are placed across the south corners of the hall, each adjoined by a short lateral gallery. The hall itself seats between nine hundred and a thousand persons. It forms the first story of the Whitworth building, of which the basement contains smaller rooms, destined for university offices, &c. There are exits into the museum and library, and also three exits on to Oxford Street and Burlington Street.

The order for the proceedings for the jubilee was as follows:—

Wednesday, March 12, 11.30, commemoration of the foundation of the College and opening of the Whitworth Hall, by H.R.H. the Prince of Wales (accompanied by H.R.H. the Princess of Wales); 2.15, luncheon at the Town Hall by invitation of the Lord Mayor of Manchester, and at the College by invitation of the College authorities; 8.30, reception at the College, by the president, the Duke of Devonshire, K.G., and council.

Thursday, March 13, 11.0, presentation of addresses of congratulation from universities and learned societies in the Whitworth Hall and conferring of honorary degrees by the chancellor of the Victoria University, Earl Spencer, K.G.; 7.30, dinner given by the College to delegates and to the governor and staff of the College.

Representatives from a number of foreign and colonial universities and learned societies arranged to be present, among them being the following:—Foreign universities and societies: Paris, Prof. A. Espinas; Lille, Prof. A. Angellier; Académie des Sciences (Institut de France), Prof. H. Becquerel; Munich, Prof. Hermann Breymann and Prof. K. Goebel; Göttingen, Prof. Walther Nernst; Göttingen (Royal Academy of Sciences), Prof. Voigt; Lund, Mr. Vice-Consul H. Ehrenborg; Geneva, Prof. Chodat; California, Prof. F. Slate; Western Reserve (Ohio), Prof. H. E. Bourne; Zürich Polytechnic, Dr. E. Knecht. Indian, Colonial universities and learned societies: McGill (Montreal), Lord Strathcona, G.C.M.G. (High Commissioner for Canada); Calcutta, Dr. William Booth; Bombay, Sir J. Jardine, K.C.I.E.; Madras, Mr. J. B. Bilderbeck; Cape of Good Hope, Mr. T. E. Fuller (Agent-General for Cape Colony); Adelaide, Prof. Hudson Beare. In addition delegates were sent by the universities of the United Kingdom, university colleges, and most of the learned societies.

It may be mentioned that at the opening of the College among the members of the staff, which consisted of a principal, four other professors and two teachers, were Archibald Sandeman, professor of mathematics; Dr. Edward Frankland, professor of chemistry; and W. C. Williamson, professor of natural history, botany and geology. There were sixty-two students in the first session. The staff now consists of the principal, Dr. Alfred Hopkinson, and thirty-one other professors and eighty lecturers and assistant lecturers; and the College has between a thousand and eleven hundred students in its various departments of arts, science, law and medicine.

NOTES.

WE regret to see the announcement of the death of Prof. Maxwell Simpson, F.R.S., formerly professor of chemistry in Queen's College, Cork, at the age of eighty-seven; and also of Mr. Bryan Donkin, a vice-president of the Institution of Mechanical Engineers, at the age of sixty-seven.

PROF. J. KUEHN, professor of agriculture in the University of Halle, has been elected a correspondant of the Paris Academy of Sciences, in the section of rural economy.

THE Racult memorial lecture of the Chemical Society will be delivered by Prof. van 't Hoff on Wednesday, March 26, in the lecture theatre of the Royal Institution. The annual general meeting of the Society will be held on the afternoon of the same day.

AN interesting Easter excursion to the Gower Peninsula, South Wales, has been arranged by the Geologists' Association. The party will leave London on Thursday, March 27, and will return on Wednesday, April 2. The district is rich in fine rock scenery, instructive exposures and cliff sections, and splendid views, so that those who are able to take part in the excursion may be assured of a pleasant holiday.

THE Paris Natural History Museum celebrated on Sunday last the fiftieth anniversary of the publication of the first scientific memoirs of one of the most distinguished members of its staff, M. Albert Gaudry. He was honoured, says the Paris correspondent of the *Times*, as one of the most eminent evolutionists in France, in many respects a precursor of Darwin. It is he, in the words of M. Edmond Perrier, the director of the museum, who has virtually emancipated palæontology from the swaddling clothes in which its mother science, comparative anatomy, had endeavoured so long to keep it.

PROF. MELDOLA'S address on the coming of age of the Essex Field Club, which will be given at the twenty-second annual meeting, to be held in the Essex Museum, Stratford, on Saturday, March 22, should be worth the attention of those interested in naturalists' societies or desiring to encourage their efforts. A carefully digested record of the *local* scientific work carried on by the