

Committee had been unable to give any prize, and to which they had felt desirous to give some honourable mention, and on their representing this to the Smithsonian Institution, they had been commissioned to do so, and also to give certain medals of silver and bronze which had been subsequently placed at their disposition.

The Committee has decided that honourable mention should be made of the papers, twenty-one in number, included in the following list, which also gives the full names, titles, and addresses of the authors, and the mottoes or pseudonyms which in four instances were employed. To three of the papers a silver medal is awarded, and to six a bronze medal.

Honourable Mention with Silver Medal.

Mr. A. L. Herrera and Dr. Vergara Lopez, of the city of Mexico: "La Atmosfera de las altitudes y el bienestar del hombre."

Mr. C. L. Madsen ("Geo"), Helsingør, near Copenhagen, Denmark.

Mr. F. A. R. Russell, of London, Vice-President of the Royal Meteorological Society of Great Britain: "The Atmosphere in Relation to Human Life and 'Health.'"

Honourable Mention with Bronze Medal.

Mr. E. Deberaux-Dex and Mr. Maurice Dibos ("Spes"), of Rouen, France: "Études des courants aériens continentaux et de leur utilisation par des aérostats long-courriers."

Dr. O. Jesse, of Berlin, "Die leuchtenden Nachtwolken."

Dr. A. Loewy, of Berlin: "Untersuchungen über die Respiration und cirkulation unter verdünnter und verdichteter Sauerstoffarmer und sauerstoffreicher Luft."

Mr. Alexander McAdie ("Dalgetty"), of Washington: "The known properties of atmospheric air considered in their relationships to research in every department of natural science, and the importance of a study of the atmosphere considered in view of those relationships: the proper direction of future research in connection with the imperfections of our knowledge of atmospheric air and the conditions of that knowledge with other sciences."

Mr. Hiram S. Maxim, of Kent, England: "Natural and Artificial Flight."

Dr. Franz Oppenheimer and Dr. Carl Oppenheimer ("E pur si muove"), of Berlin, Germany: "Ueber atmosphärische Luft, ihre Eigenschaften und ihren Zusammenhang mit dem menschlichen Leben."

Honourable Mention.

Mr. E. C. C. Baly, of University College, London: "The decomposition of the two constituents of the atmosphere by means of the passage of the electric spark."

Prof. F. H. Bigelow, of Washington: "Solar and Terrestrial Magnetism and their relation to Meteorology."

Dr. J. B. Cohen, of Yorkshire College, Leeds, England: "The Air of Towns."

Dr. F. J. B. Cordeiro, of Washington:—"Hypsometry."

Prof. Emile Duclaux, of the French Institute, Paris, France: "Sur l'actinométrie atmosphérique et sur la constitution actinique de l'atmosphère."

Prof. Dr. Gieseler, of Bonn, Germany: "Mittlere Tagstemperaturen von Bonn, 1848-88."

Dr. Ludwig Ilsvay von Nagy Ilsova, Professor in the Royal Joseph Polytechnic School, Budapest, Hungary: "Ueber den unmittelbar oxydierenden Bestandtheil der Luft."

Dr. A. Magelssen, of Christiania, Norway: "Ueber den Zusammenhang und die Verwandtschaft der biologischen, meteorologischen, und kosmischen Erscheinungen."

Dr. A. Marcuse, of the Royal Observatory, Berlin, Germany: "Die atmosphärische Luft."

Prof. C. Nees, of the Polytechnic School, Copenhagen, Denmark: "The Use of Kites and Chained Air-balloons for observing the Velocity of Winds, etc."

Surgeon Charles Smart, of Washington: "An Essay on the Properties, Constitution and Impurities of Atmospheric Air, in relation to the promotion of Health and Longevity."

Dr. F. Viault, of the Faculty of Medicine, Bordeaux, France: "Découverte d'une nouvelle et importante propriété

physiologique de l'Air atmosphérique (action hématogène de l'air raréfié)."

(Signed), S. P. LANGLEY,
G. BROWN GOODE,
JOHN S. BILLINGS,
M. W. HARRINGTON.

August 9, 1895.

THE PERSEIDS OF 1895.

THE conditions have been very unfavourable for the observation of this meteoric display. The moon's presence in the firmament overpowered the smaller meteors, and unfortunately the weather was very unsettled, the first half of August being notable for its frequent rains and clouded skies.

It was intended to obtain some observations at the end of July before moonlight interfered, but the attempt failed at several stations. On July 25, however, Prof. A. S. Herschel, at Slough, availed himself of a pretty clear interval between 11h. and 12h. 40m. to watch for Aquarids and early Perseids. He found meteors rather bright and plentiful, and the chief radiants in Cassiopeia, Camelopardus, Perseus, Aquarius, and Capricornus. At 11h. 32½m. an Aquarid brighter than Jupiter was recorded in a position a few degrees north of the head of Draco, and at 11h. 55m. a bright Capricornid, equal to Jupiter, traversed a long slow course from the north-east region of Cassiopeia.

On August 2, Mr. E. R. Blakeley, of Dewsbury, watched the sky from 11½h. to 14½h., and observed thirty-one meteors, of which seventeen, or slightly more than one-half, were Perseids with a radiant about 3° in diameter at 35½° + 52°. Mr. Blakeley regards the declination as rather uncertain; it is probably 3° S. of the real position. The brightest meteors seen were Perseids; very fine ones were noted at 13h. 33m. and 13h. 45m.

On August 7, between 10h. and 12½h., some meteors were observed at Slough, Bridgwater, and Bristol. Prof. Herschel at the former place found them very scarce, however, for though the sky was quite clear from 10h. 50m. to 12h. only four meteors were detected. Mr. Corder, at Bridgwater, noted twelve in a watch of 2½ hours. Three or four of the paths indicated a good radiant at η Persei, but others seemed to come from just below γ. At Bristol the writer recorded seven meteors in 1½h., and of these five were Perseids with a radiant at 41° + 57°, which agrees with the usual position on August 7. Three meteors were observed at more than one station, and the particulars are as follows:

10h. 12m.—A swift, streak-leaving meteor of 2-3 magnitude observed at Bridgwater and Bristol. Height at beginning 43 miles over Bromyard, Hereford, and it disappeared at an elevation of 28 miles near Crickhowell, Brecon. The real length of path was 42 miles, and the earth-point at Barnstaple, Devon. The radiant was at 45° + 47°, so that it was not a true Perseid, but a member of a well-known contemporary shower near α Persei.

11h. 4m.—A fine moderately swift meteor variously estimated as first magnitude, equal to α Lyrae, and Jupiter by observers at Bridgwater, Slough and Bristol respectively. Height at beginning 74 miles, at end 45 miles. The meteor passed from above Newport, Mon., to Gellygaer, Glam. Real length of path 33 miles. Earth-point 5 miles north of Pontardawe. Radiant at 33° + 36° in the south region of Lacerta.

11h. 29m.—A swift, streak-leaving meteor of second magnitude observed at Bridgwater and Bristol. Height at beginning 105 miles over Stratford-on-Avon, at end 63 miles over Oldbury-on-Severn. Real length of path 64 miles. Earth-point near Chumleigh, Devon. Radiant at 38° + 57°, so that the meteor was a true Perseid.

On August 9, Mr. Corder, at Bridgwater, watched from 10h. 34m. to 13h. 45m., and saw about 30 meteors, nearly all of which were Perseids. He found the radiant indefinitely marked. A certain proportion of the meteors

observed agreed with a centre at $43^{\circ} + 57^{\circ}$, but others were directed from η Persei, and others again from the cluster at χ Persei. On August 10 the writer, at Bristol, watched the eastern sky from 13h. 46m. to 15h. 17m., and saw 19 meteors, of which 17 were Perseids from a well-defined radiant at $45^{\circ} + 55^{\circ}$. This is about 2° S. of the correct place. More meteors would have been seen but for the interference of passing clouds.

On August 11, between 10h. and 11h. at Bristol, 11 meteors were observed, including 7 Perseids with radiant at $44^{\circ} + 58^{\circ}$. Clouds were again very prevalent, and greatly restricted the view.

On the same night, Prof. Herschel, at Slough, had a clear sky from 9h. 50m. to 12h., and mapped twenty-six meteors, a great majority of them being Perseids. Many of the meteors were bright, and Prof. Herschel regarded the maximum frequency as occurring on this date. "Besides Perseids, a few bright meteors diverged from Pegasus, Pisces, and the head of the Lynx. A pseudo radiant (probably) of the Perseids presented itself at $46^{\circ} + 63^{\circ}$. But the body of the Perseid radiation is very scattered—only the tail end of the shower being here recorded very likely—and a large area enclosing γ , τ , η , χ Persei and H, B, C, D Camelopardi, with its centre at about $43^{\circ} + 58^{\circ}$, near k Persei, is the best approximation that can be gathered from the tracks registered."

A fourth magnitude meteor, moving swiftly, was seen at 10h. 7m. both at Slough and Bristol. Height at beginning, 78 miles; at end, 62 miles. It passed from over Brackley (Northampton) to Farringdon (Berks). Real length of path, 30 miles; earth-point, 10 miles south-west of Portland, Dorset. The radiant was at $48^{\circ} + 60^{\circ}$, the meteor being a true Perseid.

From the various reports already received, it appears certain that this year's display has been far from presenting a conspicuous character. This has probably not proceeded from any special weakness in the shower itself, but from the unsuitable circumstances which have attended its return. Moonlight is a most serious obstacle in the way of meteoric work, and when, added to this, the observer is confronted with skies more or less clouded, the chances of success become very remote. But, in spite of these untoward conditions, the shower has by no means passed unobserved; many of its brilliant meteors have been recorded, and the radiant point has been determined on several nights. Some of the chief contemporary systems have made their presence known by some fine objects, and the results on the whole may be regarded as very satisfactory.

W. F. DENNING.

SIR JOHN TOMES, F.R.S.

ANOTHER of the small band of histologists, who took up the subject when the field was almost untrodden, has passed away, at the age of eighty.

Sir John Tomes, after serving an apprenticeship to a medical man at Evesham, came to London in 1836, and entered at King's College and at the Middlesex Hospital, being at the former a class-mate with the late Sir William Bowman, with whom a life-long friendship thus began.

For two years (1839-40) he resided in the Middlesex Hospital as house-surgeon; and even at this early stage in his career his attention became turned towards the histology of bone and teeth, and we find him feeding a nest of young sparrows and a sucking-pig upon madder. From a somewhat fragmentary diary which he kept, we find, too, that he then bought from Powell (afterwards Powell and Leland) a microscope, and that he was often spending his evenings with Bowman, Quekett, Kiernan, Todd, Carpenter, and Edward Forbes.

He was an early member of the Microscopical Society, and over a long series of years his contributions to the histology of the hard tissues were numerous. Amongst

his more important papers in the *Phil. Trans.* were those on bone (in conjunction with the late Campbell de Morgan), on the dental tissues of marsupials, of rodents, and upon the structure of dentine, this last establishing the existence in dentine of the soft fibrils, ever since known as "Tomes' fibrils."

Like that of his friend Bowman, almost all of his work has stood the test of time, and to this day remains undisturbed. A strong bent towards mechanical invention led him, while still house-surgeon, to revolutionise the construction of tooth forceps, which thenceforward supplanted the old "key" instrument; and at the advice of the late Sir Thomas Watson, he determined to devote himself to the practice of dental surgery, in which the busiest years of his life were spent.

Dr. Morton, a dentist of Boston, Mass., having introduced the use of ether in 1846, we find from Sir John's diary that he was early in the field as an experimenter with this anæsthetic. After sundry experiences with it for tooth extraction at the Middlesex Hospital, some successful and some not, we read: "Gave ether to Arnott's case of lithotomy eight minutes, and insensibility came—the operation then commenced and lasted twelve minutes." (Jan. 14, 1847.) And after notes of many administrations: "Gave ether to eight patients for operations with great success. Earl of Cadogan (a governor of the hospital) and many others present." (Feb. 23, 1847.)

His lectures on dental physiology and surgery were perhaps the first in which the subject was treated from a true scientific standpoint, and when published became quite a classic. But it is curious to read in his diary a resolve that he really will not deliver any more lectures unless he has a class of at least six students.

In 1883 the College of Surgeons, exercising their right to confer honorary fellowships of the College, elected Sir John Tomes and the late Prof. Huxley.

In 1886 he obtained the honour of knighthood, in recognition of his great services to the cause of dental education, and to the establishment of a dental diploma and its recognition by Parliament, his unbroken success in all that he undertook being largely due to his excellent business capacity, and to the respect, trust, and liking which he inspired in all with whom he came in contact.

NOTES.

WE understand that a Civil List pension of £200 has been granted to Mrs. Huxley.

THE following have been elected Associates and Correspondents of the Reale Accademia dei Lincei:—National Associates, Prof. L. Luciani and Prof. G. Tizzoni; Correspondents, Prof. E. Cesàro, Prof. A. Ricco, and Prof. Carlo de Stefani; Foreign Associates in Mathematics, Prof. C. Jordan and Dr. G. Salmon; in Astronomy, Prof. Simon Newcomb; in Physics, Prof. H. J. Wild; in Morphology, Prof. A. Kölliker.

The following are among the recent appointments abroad:—Dr. R. Behrend to be Professor of Chemistry in the Technische Hochschule of Hanover; Dr. X. Siefert to be Professor of Forestry at the Technische Hochschule of Karlsruhe; Dr. F. Richarz to be Professor of Physics in the University of Griefswald; Dr. P. Stäckel to be Assistant Professor of Mathematics in Königsberg University; Dr. O. Wiener to be Professor of Physics in the University of Giessen.

REUTER'S correspondent at Wellington reports that a severe earthquake shock was felt at Taupo, in the district of Tauranga, and at some other places in New Zealand, on Saturday last. An earthquake was also felt over the greater part of Peru, but principally in the south, on Monday.

WE learn from *Das Wetter* that the efforts which have been made during the last fifteen years for the re-establishment of a