the node of the periodical comet of Biela. It has been discovered quite recently that an analogy exists between the orbits of comets and meteoric showers; but in reference to this interesting part of the subject I would, however, without occupying further space, direct attention to a paper by Prof. Alexander S. Herschel, which appears in the monthly notices, R. A. S., vol. xxxii. No. 9.

Several correspondents describe an aurora borealis visible on the 27th; and it may be appropriate to note here that a very brilliant display was witnessed at Bristol on the 24th, at about 3 A.M. It was very intense at that time. On the previous and subsequent nights lightning was very frequent, and meteors more numerous than usual. WILLIAM F. DENNING

Bristol, Nov. 30

THERE was a magnificent meteor-shower here on the evening of Wednesday last, the 27th. My attention was first called to it about half-past five o'clock, and I watched it at intervals until about seven, when the sky became overcast with clouds. It really was a shower, and no mistake, the sky at times quite sparkling with meteors. Their point of origin appeared to be in the neighbourhood of Cassiopeia, and their general direction towards the west and north, though several radiated to the east and south. Some, after becoming invisible, as if passing behind some intervening cause, suddenly emerged in all their brightness and then suddenly vanished. The streak left behind was in some instances a continuous, smooth line, in others the appearance was that of a row of sparks strung together. The finest meteor, and the one of longest duration, that I noticed became visible near Cygni, and continued its course to a point a little to the south of Vega. It resembled a small rocket. On the following evening the sky was too overcast to make observations. THOMAS FAWCETT

Blencowe School, Cumberland, Nov. 30

THE splendid meteor-shower of November 27 was well seen at St. Andrews. My attention was not called to it until after the meteors had begun to decline in frequency; but they were still at about 8h. 30m. G.M.T., so numerous as to give considerable confidence in assigning their radiant point, about which they were seen shooting out in all directions. I saw at least two, whose paths were foreshortened almost to a luminous point. These appeared very close to the radiant near two stars in the right foot of Andromeda, which in the maps of the Society for the Diffusion of Useful Knowledge are numbered 51 and 54, or in about R.A. 25°, N. Decl. 48°. The sky became overcast; but about 11h. 30m., meteors were still falling in directions which confirmed my previous estimate of the position of their radiant. The sky was again clear at 1h. 30m. A.M., but I saw no more meteors.

I have since seen, in a table by Schiaparelli, from observations by Zerzioli, 1867-69, and under the date November 30, a radiant point in R.A. 17°, Decl. 48°, which agrees closely with that which I have ventured to assign to the remarkable shower of November 27. W. SWAN

St. Andrews, Nov. 30

Metamorphosis of Insects

THE description of the development of the Lepidopterous wings, and the illustrations which were included in my lecture on Insect Metamorphosis, were taken from Landois' admirable essay in Siebold and A. Kölliker's *Zeitschrift* (1871).

Nov. 25 P. MARTIN DUNCAN

PRIZES OF THE FRENCH ACADEMY OF SCIENCES

AT its annual public meeting on Nov. 25 last the French Academy of Sciences awarded its prizes for the years 1870 and 1871. M. Faye gave a brief introductory address, in which he touchingly alluded to the misfortunes to science arising from the late war, to the various preparations for the forthcoming transit of Venus, the metric commission, and other matters of scientific interest. It is on account of the war that at this annual meeting the Academy had to award prizes for two years, namely, for 1870 and 1871. The list of prizes was as follows:—

Competition of 1870.—1. The Grand Prize in the mathematical sciences this year was offered for a paper on the modification which light undergoes in its mode of transmission and in its properties, in consequence of the movement of the luminous source and the movement of the observer. This prize was not awarded, but a bonus of 2,500 francs was given to M. E. Mascart.

2. The Poncelet Prize was awarded to M. C. Jordan for his treatise on Algebraic Substitutions and Equations.

3. The Dalmont Prize was gained by M. Maurice Levy for his four memoirs on (1) Running Water, (2) The Pressure of Earths, (3) The Interior Movements of ductile Solids, (4) Curvilinear Co-ordinates.

4. The Lalande Prize in Astronomy to Mr. Huggins, for his Discoveries on the Physical Constitution of Stars, Nebulæ, Planets, and Comets. The Commissioners for this prize speak in the highest terms of Mr. Huggins' discoveries, declaring that they mark a brilliant epoch in this new branch of science.

5. The Montyon Prize in statistics, to M. A. Potiquet for his work entitled, "L'Institut de France, &c.;" and honourable mention was made of M. A. Thévenot for the agricultural part of his work entitled "General Statistics of the Canton of Ramerupt," and to M. A. Castan for his memoir on the Influence of Temperature upon Mortality in the City of Montpellier.

6. The Jecker Prize.—MM. Clermont, Gal, and Grimaux, each obtained, by way of bonus, the sum of 1,700 francs for their works on Organic Chemistry.

7. The Barbier Prize was awarded to M. Personne for his Researches upon Chloral.

8. The Desmazières Prize to M. de Notaris for his work entitled "Epilogo della Briologia Italiana"; while honourable mention was made of M. C. Roumeguère for his work entitled "Cryptogamy Illustrated; or, History of the Natural Families of the Acotyledonous Plants of Europe."

9. The Thoré Prize to M. J. C. Schiödte, for his work upon the Metamorphoses of the Coleoptera.

10. The Bordin Prize, for the Comparative Anatomy of Annelids, to M. Léon Vaillant for his works on that subject.

11. The Savigny Prize was divided between M. Issel for his work entitled "The Malacology of the Red Sea" (Italian), and Mr. MacAndrew for his researches into the Malacologic Fauna of the Red Sea.

12. The Bréant Prize. The reward of 5,000 francs, the whole of the annual interest of the legacy, was divided between M. Grimaud (of Caux), for his Researches concerning the Transmissibility of Cholera, and M. Thalorzan, for his work entitled "New Origin of Asiatic Cholera." Honourable mention was made of M. Bourgogne, jun., for his work entitled "Cholera Epidemic in the Communes of Condé, Vieux-Condé, Fresnes, and Escaupont, during the year 1866."

13. The Chaussier Prize, to M. Tardieu, for his works on Legal Medicine.

14. The Montyon Prize in Medicine and Surgery. Two prizes of 2,500 francs were awarded—(1) To MM. Lancereaux and Lackerbauer for their treatise on Pathological Anatomy; (2) To Dr. Chassagny, for his work entitled "Method of Continued Tractions. The forceps considered as an agent of prehension and traction." Bonuses of 1,200 francs were given—(1) To MM. Colze and Feltz, for their researches into Infectious Maladies, &c.; (2) To M. Jousset, for his experiments upon the Poison of the Scorpion; (3) To M. Decaisne for his memoirs upon the Temperature of Sick Children, and on the influence of Alimentation upon the composition of Female Milk; (4) To M. Despies, for his work on Ulceration and the Ulcers of the Neck of the Uterus. The works of M. V. Fumouze upon the Spectra of Absorption of the Blood of M. Bergeret, on the Changes of the Urine, and of Bile in various Diseases, were honourably mentioned.

15. The Godard Prize was awarded to M. C. Mauriac for his work entitled "Essay on the Reflex Symptomatic Neuralgias of Blenorrhagic Parastatitis."

16. The Montyon Prize, in Experimental Physiology, to M. J. Raulin, for his Chemical Studies on Vegetation.

17. The Montyon Prize, for a paper on Unhealthy Occupations, was awarded to M. Guibal for his System of Ventilation applied to the Airing of Mines.

18. The Gegner Prize to M. Duclaux.

19. The Tremont Prize to M. Leroux, who will hold it for three years.

20. The Laplace Prize was obtained by M. H. B. X. Bout-

iron, who held the first place in the Polytechnic School in 1871, and who has entered the School of Mines.

1871.

1. The Poncelet Prize, in Mechanics, to M. J. Boussinesq.

2. The Lalande Prize in Astronomy to M. Borelly for the Discovery of the Planet Lomia.

3. The Montyon Prize in Statistics to M. E. Cadet, for his work on "Marriage in France." Honourable mention was given to Dr. Ely for his work on "The Army and the Population."

4. The Jecker Prize in Chemistry to M. Schutzemberger for his works on Organic Chemistry.

5. The Barbier Prize in Botany to M. Duquesnel, for his memoir on "Crystallised Aconitine."

6. The Bordin Prize for a paper on "The part played by Stomata in the Functions of Leaves," was not awarded, and is withdrawn from competition; but a bonus was given to M. A. Barthelemy.

7. The Desmázières Prize was not awarded either, but a bonus of 500 francs was given to M. Husnot for various works on the Cryptogamic Flora of Martinique.

8. The Bréant Prize.—A sum of 5,000 francs, the whole annual interest of the legacy, was awarded to M. Chauveau for his experiments upon Virulent Virus and Maladies.

9. The Montyon Prizes in Medicine and Surgery.—Two prizes of 2,500 francs were awarded—(1) To M. Grehant for his Physiological and Medical Researches on the Respiration of Man; (2) To M. Blondlot, for a series of memoirs concerning the disputed questions of Medicine, Chemistry, and Physiology. Three sums of 1,500 francs each were awarded—(1) To M. Bérenger-Féraud for his work entitled "Treatise on the Direct Union of Osseous Fragments in Fractures;" (2) to M. Duclout for his work entitled "Account of three cases of Vesico-vaginal fistula," &c; (3) To M. Leon Colin for his Treatise on Intermittent Fevers. Honourable mention was made of (1) M. Raimbert, (2) M. Bucquory, (3) M. Hajem, (4) MM. Krishaber and Peter.

10. The Godard Prize to Mr. J. Jolly for his work on Cancer of the Prostate; honourable mention being made of M. Puech.

11. The Montyon Prize in Experimental Physiology was divided between M. Chantran for his Observations on the Natural History of Crabs, and M. A. Gris for his Memoir on the P th of Ligneous Plants. Honourable mention was given to M. Mehay for his Essay on Beet-Root Sugar, and a bonus to MM. Chéron and Gonjon for their Researches on the Functional Properties of the Nerves and Muscles during the intra-uterine life.

12. The Montyon Prize for Works, &c., bearing on unhealthy occupations. Of this, 2,500 francs were awarded to M. Goldenberg for the methods adopted by him for securing the healthiness of his Manufactories. A bonus of 2,000 francs was given to Mdlle. C. Garcin and to M. Adam for their Automatic Sewing Machine; and a similar sum to M. Louvel for his process of preserving grains *in vacuo*.

13. The Tremont Prize was awarded in 1869 to M. Le Roux, who holds it for three years.

14. The Laplace Prize was awarded to M. L. A. E. Sauvage, dux in 1870 of the Polytechnic School, and who has entered the School of Mines.

MRS. SOMERVILLE

MARY SOMERVILLE (born Fairfax), long ago known for her scientific researches and long well known for her popular and educational scientific works, died in the neighbourhood of Naples, where she has lived for some years, on Friday, November 29, aged nearly 92 years, having been born on December 26, 1780. She belonged to a good Scotch family, her father having been the late Vice-Admiral Sir William George Fairfax, was a great reader, learned Euclid surreptitiously while quite a girl, and at the same period got up a knowledge of Latin in order to be able to read Newton's *Principia*, and was educated at a school in Musselburgh, near Edinburgh.

Her first important contribution to science was made in 1826, when she presented to the Royal Society a paper on the magnetising powers of the more refrangible solar rays, the object of which was to prove that these rays of the solar spectrum have a strong magnetic influence. This paper led to much discussion, which was not set at rest till the researches of Riess and Moser showed that the action upon the magnetic needle was not caused by the violet rays.

Mrs. Somerville's first work of any extent was her "Mechanism of the Heavens" (1831), written at first at the request of Lord Brougham, as one of the series of publications by the Society for the Diffusion of Useful Knowledge. As, however, the work was on too large a scale, and, according to Sir John Herschel, to whom the MS. was submitted, as it was written for posterity, and not for the class whom the society designed to instruct, it was published as an independent work, eliciting from all quarters the highest encomiums, especially as being the work of a woman. It was founded to some extent on La Place's treatise, though the authoress exercised her own judgment in the acceptance or rejection of his theories.

Her next work "On the Connection of the Physical Sciences," was published in 1834, and was referred to by Humboldt as "the generally so exact and admirable treatise."

In 1848 appeared the work by which, perhaps, she is most generally known, her "Physical Geography," which, along with some of her other works, has passed through many editions, been reprinted frequently in America, and translated into several foreign languages. Notwithstanding the numerous works on the same subject that have since appeared, Mrs. Somerville's book still holds place as a first authority, even with the initiated.

In 1869 appeared her last work, "On Molecular and Microscopic Science," which, to quote a writer in the *Edinburgh Review*, "contains a complete conspectus of some of the most recent and most abstruse researches of modern science, and describes admirably not only the discoveries of our day in the field of physics and chemistry, but more especially the revelations of the microscope in the vegetable and animal worlds." The fact that Mrs. Somerville was close on her 90th year when she published this work, in which is contained a *résumé* of the most interesting results of recent scientific investigations, may give one some idea of the undying vigour and clearness of her mind, as well as of her intense love of science.

So long ago as 1835 Government recognised Mrs. Somerville's great merits, by bestowing upon her a literary pension of 300*l.*; and in the same year she was made an honorary member of the Royal Astronomical Society, the only other lady on whom this honour was conferred having been Miss Caroline Herschel. The Geographical Society awarded Mrs. Somerville the Patron or Victoria Medal in 1869, and about thirty years earlier the Fellows of the Royal Society subscribed for her bust, which was executed by Chantrey, and now adorns the Society's library. She certainly deserved all the honours she obtained, for during her long life she has done very much to raise the standard of scientific text-books, and to spread among general readers the accurate results of scientific research.

Dr. William Somerville was his wife's second husband, her first husband having been Captain Greig, a naval officer, fond of mathematics, and who took pleasure in giving his wife instruction in his favourite subject, thus probably giving her mind a bent towards science which has led to important results.

NOTES

ONE of the most cheering Ministerial outcomes that we have read for a long time is to be found in Mr. Gladstone's speech, on Tuesday, at the Society of Biblical Archæology, an outcome which indicates, we take it, on the part of the Government, that the lamentable condition of research in England has at length forced itself upon them, and that the policy which has done such