We have then the following construction.

With K as pole, AM as asymptote, and ½AC as the constant distance, describe a branch of a conchoid on the farther side of AM. Let BA cut the curve in G, then AG is the first, and KM the second mean proportional between AC and AB.

I have not been able to find any more recent accounts, but perhaps some others of your readers can tell whether the cissoid has been employed to trisect an angle, or whether it is possible to solve the problem by means of this curve. An easy solution, which is not given in Leslie's book, would be by means of the Limaçon, $r=a(1+2\cos\theta)$. D. M. Y. SOMMERVILLE.

24 Balhousie Street, Perth, August 24.

Auroræ and Meteors.

ON Tuesday, September 10, a beautiful display of the curtain Aurora Borealis was observed here at 9.30 p.m. It extended from the northern horizon to about 12°, and from north-by-east to north-north-west. The most brilliant part of the display lasted for about ten minutes after we first observed it, and then dissolved into a diffused, though vivid, glow. At 10.20 p.m. the Aurora was evidently much more distant, exhibiting itself as a brilliant glow above the north-western horizon.

At 9.52 p.m., the same evening, a brilliant meteor was observed darting towards the south-west, the line of motion passing between Corona Borealis and Hercules. The maximum brilliancy of the meteor was superior to that of Jupiter. At 10.45 p.m. a meteor was observed darting past Arcturus, which was then about 3° above the north-by-west point of the horizon. At 10.50 p.m. (Greenwich time) a brilliant meteor darted from a point within 1° of α Persei in a westerly direction, leaving a broad streak.

ALEX. C. HENDERSON.

The Manse, Rusness, Sanday, September 11.

THE INVERNESS EARTHQUAKE OF SEPTEMBER 18.

THE earthquakes of the Inverness district rank among the strongest ever felt in this country, but we must go back nearly a century to find one that surpassed the recent shock in intensity and extent of disturbed area. That of August 13, 1816, of which Sir T. Dick Lauder's brief but graphic account is the chief memorial left to us,[1] damaged several buildings in Inverness, and was felt over the whole of Scotland. After this, no shock of much consequence occurred until that of February 2, 1888, which was felt so far as Edinburgh and Glasgow and was perceptible over a district the area of which is estimated at about 15,000 square miles.[2] The earthquake of November 15, 1890, was slighter still; buildings were practically uninjured by it, and its disturbed area did not exceed 7500 square miles.[3] In all three cases the epicentre lay close to Inverness and not far from the northern boundary fault of the Highland district, and it is, therefore, natural that movements along this fault or system of faults should be held responsible for the origin of the earthquakes.

The shock of last week occurred shortly before 1.30 a.m., and thus it is possible that we may never know the full extent of its disturbed area. It does not seem to have been noticed in either Edinburgh or Glasgow, but the southern limit of the area cannot have lain many miles north of the line joining these cities, for the shock was certainly felt along the south coast of Fifeshire. Most of the rest of Scotland must have been sensibly shaken, for we have records from places as far north as Wick, in the west of Mull, and all along the east coast of Aberdeenshire.

In Inverness the damage, though never serious, is considerable in amount. There is scarcely a street in the town which has entirely escaped. In a few houses, chimney-stacks or parts of them fell down, and many chimney-cans were overthrown or displaced. For some miles round the town similar slight damage occurred. At Dochgarroch, about four miles south-west of Inverness, a long crack was formed in the north bank of the Caledonian canal. It is in the middle of the towing-path, in the hard-packed surface, and is nearly half an inch wide and about 600 yards long.

From the accounts which have appeared in the newspapers and from a few which I have already received, it is possible to draw roughly an isoseismal line corresponding to the degree 7 of the Rossi-Forel scale. This is in the form of an ellipse, with its longer axis parallel to the great fault and with the larger part of the curve lying on the south-east side of the fault. As the fault hades in this direction, it is exceedingly probable that a slip along it at no great depth gave rise to the recent earthquake.

The stronger Inverness earthquakes generally occur without the warning of preliminary shocks, but are followed for some time by weaker movements. Three at least occurred on the morning of the 18th, and it is not unlikely that for another month or so slight shocks may be felt in and around Inverness before the earth's crust there is once more brought to rest.

CHARLES DAVISON.

[1] Quoted by D. Milne, *Edin. New Phil. Journ.*, vol. xxxi. 1841, pp. 116-117.

[2] C. A. Stevenson, *Edin. Roy. Soc. Proc.*, 1888, pp. 260-266.

[3] *Quart. Journ. Geol. Soc.*, vol. xlvii. 1891, pp. 618-632.

DR. J. L. W. THUDICUM.

THE death of Dr. Thudicum removes from our midst the living equivalent of a very familiar name. As a worker, to the younger generation of men of science he was not known, but some of his numerous communications upon topics extraordinarily varied can scarcely have escaped the observation, and have most probably received the serious attention, of almost every one interested in the medical sciences. More than half a century ago he graduated in medicine at Giessen. Almost immediately afterwards, stimulated by the work and magic influence of the great Liebig, who had attracted to the quiet and secluded university a bevy of young men eager to become adept in methods which, in the hands of their great master, had forced Nature to yield up truths of such momentous importance to physiology, Thudicum began to work at physiological chemistry.

Shortly afterwards he settled in this country, took a medical qualification and began to practise. It must be admitted that he established himself in London at an opportune moment. The application of exact chemical method to physiological, and certainly to pathological, phenomena was then in its infancy. The pupil of Liebig, trained in the methods of the Giessen laboratory and possessed of a practical knowledge of disease, had acres of virgin soil to cultivate. His power was soon appreciated; in 1856 he became physician to the St. Pancras Dispensary, and in 1858 lecturer to the Grosvenor Place School of Medicine. In 1865 he was appointed lecturer on pathological chemistry at St. Thomas' Hospital and director of a newly founded chemical and pathological laboratory there, obviously a position with immense opportunities.

His studies soon received official recognition, in that Sir John Simon, the principal medical officer to the Privy Council, engaged him in 1864 to undertake a series of researches upon pathological chemistry. Thudicum's results were embodied in reports which were published as appendices to the reports of the medical officers of the Privy Council and Local Government Board, and continued to appear at various dates down to 1882. Although no doubt a mass of constant work was embodied in these reports, they were not so fruitful in practical results as was anticipated, or perhaps it would be fairer to say, the tremendous achievements shortly afterwards of bacteriology in this department o

hygiene, rendered them relatively insignificant. Further, these reports gave rise to a very considerable polemic, other workers in this field not accepting Thudicum's results, or, *a fortiori*, the theories founded upon them.

In 1871 Dr. Thudicum published conjointly with Dr. Dupré his most copious work, a book of 700 odd pages, on the origin, nature and varieties of wine. His views upon this subject have also not received general acceptance. In 1872 he published a manual of chemical physiology. His last work of note appeared in 1886 and consisted of a treatise on the chemical constitution of the brain.

Although Thudicum's life-study must be regarded as physiological chemistry, he from time to time wrote upon exclusively practical medical subjects, *inter alia* diseases of the nose, the curative value of electricity in medicine, &c., and consistently with this he made and kept together a large medical practice, being successful as a physician and greatly esteemed by his patients.

Thudicum's mind was one of problems, and whenever a problem esented itself to him he did his best—often, it is true, with imperfect methods—to solve it; even if, as in many cases must be admitted, his work has not yielded results of first importance, by his death medical science has lost at least an honest and indefatigable investigator and many men and women a sincere friend.

NOTES.

THE profound grief expressed by the British Association when news of the assassination of the late President of the United States was received, was described in last week's NATURE. We have now received a copy of the letter sent to Mr. Choate, the American Ambassador, by Prof. Rücker, president of the Association, and of the reply. The letter sent was as follows:—"To his Excellency the Hon. J. H. Choate, Ambassador of the United States of America. Sir,—The General Committee of the British Association for the Advancement of Science, assembled this year in Glasgow, desire me to express to you the horror with which they heard of the attack upon the late President of the United States, and their deep sorrow at his death. On the first day of the meeting in Glasgow the Association telegraphed to Mr. McKinley the assurance of their sympathy and of their earnest hopes for his recovery. These hopes have not been fulfilled, and it is now my sad duty to inform you that the tragic fate of the President of the United States has cast a deep shadow over our meeting. Together with all our fellow countrymen we share in the sorrow of the great sister-nation which you represent; and we desire, through you, to inform the men of science of America that the members of the British Association are bound to them not only by ties of blood, not only by the links which unite all students of Nature, but by the deeper feelings which draw together those who are partners in a common sorrow, and mourn one of the leaders of our common race.—I am, sir, your obedient servant, A. W. Rücker." In reply, the American Ambassador wrote:—"Sir,—I have received with heartfelt gratitude the kind expression of condolence and sympathy at the death of President McKinley which you have forwarded to me on behalf of the General Committee of the British Association for the Advancement of Science. I shall duly advise my Government of its receipt, and it will be highly appreciated by them and by Mrs. McKinley. Your kind message and hundreds of other similar communications from all parts of the British Dominions, carry an assurance of national friendship and goodwill which will be most welcome to the American people.—Yours sincerely, Joseph H. Choate."

MANY men of science will sympathise with Dr. Henry Woodward, F.R.S., at the sad death of his younger son, Mr. Martin Fountain Woodward, demonstrator in biology, Royal College of Science, South Kensington, London. Mr. Woodward was drowned on the night of September 15 by the capsizing of a boat at Moyard, near Letterfrack, co. Galway, Ireland, where he was in charge of the Marine Biological Laboratory of the Fisheries Board for Ireland, during the long vacation. He was in his thirty-sixth year.

DR. A. C. HADDON, F.R.S., sailed by the *Campania* on September 21 for a ten weeks' visit to the United States, for the purpose of studying the ethnological museums and the methods of instruction and research in ethnology in the States.

THE Swiney lectures this year will be delivered by Dr. J. S. Flett, on the "Geological Evidences of Former Geographical Conditions." The lectures will be delivered at the Victoria and Albert Museum, South Kensington, and will commence on Monday, October 7.

THE programme of the National Home-Reading Union for the thirteenth reading session, 1901–1902, includes nature-study among the subjects upon which advice will be given as to suitable books to read, and helpful articles will be contributed to the Society's magazine. Nature is, of course, the best teacher, but books are valuable in directing attention to her attractions. The address of the Society is Surrey House, Victoria Embankment, London, W.C.

WE regret to record the death of Dr. Edward Waller Claypole, B.A., F.G.S., of the Throop Polytechnic Institute, California, and previously professor at Antioch College, Yellow Springs, and at Buchtel College, Akron, in Ohio. In 1878 he drew attention to the discovery of the oldest known fossil tree from the Upper Silurian of Eaton, Ohio, and he named the specimen *Glyptodendron eatonense*. Since that date he contributed many papers to American journals on the geology and palæontology of the United States, giving a good deal of attento fossil fishes, but dealing with all branches of geological investigation.

ON Sunday, September 22, a solemn festival was held in the small Swedish island of Hveen. The occasion was the approaching 300th anniversary of the death of Tycho Brahe, the celebrated astronomer, who lived and worked on the island and spent his happiest years there. The festival was held among the few remains of Brahe's once imposing observatory at Uranienborg. The Copenhagen correspondent of the *Times* states that, early in the morning, guests from Denmark and Sweden, including representatives of the Universities, arrived in steamers. Outside the small harbour the Swedish ship *Drott* was at anchor with King Oscar on board. The King landed with the other guests and drove to Uranienborg. After Divine service, conducted by Bishop Billing, of Sweden, Dr. Hillebrandt, of Sweden, delivered a long speech, ending with the following words:—"We congratulate Denmark upon the neverdying memory of this man. This spot is now Swedish; therefore the King of Sweden is here to-day to honour the memory of Denmark's great and noble son." The party then walked through the ruins, which were decorated with the Swedish and Danish flags. The monument of Tycho Brahe, erected by Swedes, was decorated with the Danish colours.

PROF. ENGLER has returned from the Canary Islands with a large collection of plants for the Botanical Garden and Museum at Berlin.

MR. T. MEEHAN has an interesting paper, in the *Proceedings* of the Academy of Natural Sciences of Philadelphia, on the bending of branches in mature trees. The "weeping" habit is, according to him, always the result of diminished vitality in the tree.