

News and Views.

THE list of New Year honours includes the following names of men of science and others associated with scientific work:—*Privy Councillor*: Lord Bledisloe, Parliamentary Secretary to the Ministry of Agriculture and Fisheries. *Baronets*: Mr. W. W. Butler, member of Council, University of Birmingham, and Sir Robert Jones, president of the Association of Surgeons of Great Britain. *Knight Commander of the Order of St. Michael and St. George (K.C.M.G.)*: Prof. M. W. MacCallum, vice-chancellor of the University of Sydney. *Knights*: Prof. T. Hudson Beare, Regius professor of engineering, University of Edinburgh; Dr. R. A. Bolam, chairman of council, British Medical Association; Prof. J. B. Farmer, professor of botany, Imperial College of Science, South Kensington; Major A. McN. Cooper-Key, chief inspector of explosives, Home Office; and Mr. P. J. Hartog, vice-chancellor of the University of Dacca. *Companion of the Order of the Bath (C.B.) (Civil Division)*: Mr. Arthur H. Smith, late Keeper of Greek and Roman Antiquities, British Museum. *Companion of the Order of the Indian Empire (C.I.E.)*: Lieut.-Col. J. W. D. Megaw, director of the School of Tropical Medicine and Hygiene, Calcutta.

THE New South Wales Government has announced its decision to close the State Observatory, which for many years has been under the control of Prof. W. E. Cooke. Owing to the growth of Sydney, the site of the Observatory has become quite unsatisfactory and its work has suffered in consequence. The necessity for removal to a distant suburb has repeatedly been urged upon successive State Governments; but the Labour Ministry's method of dealing with the problem has come as a distinct surprise. It is unlikely that this abrupt decision will mean withdrawal of governmental support of astronomical work in New South Wales, and it may serve a very useful purpose in focussing attention upon, and possibly leading to a settlement of, the question as to whether the individual States, or the Commonwealth, should take charge of such work. Some years ago the Commonwealth accepted sole responsibility for meteorological services, and the consequent co-ordination of effort has had highly satisfactory results. The establishment of the Commonwealth Solar Observatory at Mount Stromlo, Canberra, has already provided a precedent for the entry of the major Government into astronomical work, and there are many people who strongly favour its assumption of control over all the Observatories. The New South Wales decision will not take effect immediately, and in the meantime the whole situation, as it affects all the States, will be given most careful attention. Possibly this apparently hostile act on the part of a State government may prove, in the end, to be a blessing to astronomy in Australia.

It is only a year or two ago since G. F. and G. M. Dick in the United States described an intracutaneous immunity test for scarlet fever. They used a soluble toxin elaborated by a blood-destroying streptococcus microbe which was isolated from cases of scarlet fever,

and they developed a new theory of this eruptive fever, namely, that it was really a localised disease of the throat caused by a specific streptococcus producing a toxin which, on absorption into the blood stream, gave rise to constitutional symptoms associated with a characteristic rash. Already the "Dick test" has been applied to enormous numbers of people especially in the United States, and it is now coming into prominence in the English medical Press. The *Lancet* of Dec. 26 contains three papers on the subject by Drs. Joe, of Edinburgh, Silcock, of Leicester, and O'Brien and Okell, of the Wellcome Research Laboratories. The paper of the last workers, entitled "Some Problems connected with the Dick Test," is particularly interesting, dealing as it does with the difficulties of the test and the real significance of negative and positive reactions as measures of the immunity in scarlet fever. It is known, broadly, that a negative response indicates a high degree of non-susceptibility to the disease, but Drs. O'Brien and Okell are not equally certain that a "positive" and particularly a "partial positive" reaction may not indicate some immunity. They also tentatively touch the question whether there may not be immunologically distinct types of the disease as occur in other well-known bacterial infections. Already there are some indications that the so-called streptococcus of scarlet fever may not be so specifically distinct as was believed a year back.

THE rapid progress that is being made by telephony is proved by the statistics published in *Electrical Communication* last October by the International Standard Electric Corporation of New York. The problem of giving telephone service becomes more complicated every day. Every new subscriber makes the problem more difficult. In 1905 there were 300,000 telephone sets in operation in the New York metropolitan area. There are now 1,900,000, and it is estimated that by 1945 there will be at least four millions. The number of telephone stations at present is 130,26 having been added during the last year. Some of these are enormous buildings serving 100,000 subscribers, and very costly to erect. The introduction of automatic switching adds considerably to the complexity of the problem. In the United States and Canada the number of telephones for each hundred inhabitants in 1924 was 13.7 and 11 respectively. In Europe, Denmark heads the list with 8.7, Sweden comes next with 6.7, and Norway third with 6.1. Germany has 3.8, Great Britain and North Ireland 2.5, and France 1.5. Curiously Great Britain, Germany, and Switzerland have almost exactly the same number of miles of telephone wire per inhabitant. The number of telegrams per inhabitant in all countries is only a small fraction of the number of telephone conversations. In the United States, Denmark, and Sweden the fraction was less than one-hundredth in 1923, and in Great Britain and France it was less than one-twentieth. Long-distance telephony is making very satisfactory progress in the United States. The Chicago-New York cable which

was started in 1918 is practically completed. One of the most serious difficulties that had to be overcome was the effect produced by the changes of temperature occurring every twenty-four hours. This produced a thousand-fold difference in the amount of electrical energy received over the line from the same input. Automatic regulators are employed which vary the amplification introduced by the thermionic valve repeaters with the temperature of the cable conductors.

LIEUT.-COL. THE HON. CUTHBERT JAMES, president of the College of Pestology (Incorporated), sends us a long letter upon the steps which led to the conversion of the Incorporated Vermin Repression Society into the College, and the character and work of this institution, by way of comment upon the note which appeared in *NATURE* of December 12, p. 875, referring to a public appeal for twenty thousand pounds to establish a memorial to the late Prof. Maxwell Lefroy. We pointed out that the college had no connexion with the University of London and suggested that any memorial would be more appropriately associated with the Imperial College of Science, where Prof. Lefroy was professor of entomology, than with such a propagandist organisation as that of which Lieut.-Col. James is president. We do not doubt that, as he remarks, "so far as it lies in the power of the College to make it so, its affairs are arranged strictly according to Cocker," but the fact that the authorities of the Imperial College refused to take part in the meeting called by the College of Pestology to arrange for the proposed memorial is in itself sufficient to show their attitude towards the originators of the appeal and their intentions. Lieut.-Col. James informs us that his appeal committee would welcome the addition of Prof. Lefroy's scientific colleagues as members, and we are glad to make his invitation known to them and any others who may wish to support a movement to obtain by public subscription the sum of twenty thousand pounds for "a chair and centre of applied biology at the College of Pestology, Bedford Square."

A DISCUSSION was opened at the Institute of Actuaries at the end of October by Mr. F. A. A. Menzler with the hope of indicating extensions of the work of the actuarial profession. He suggested that the application of statistical methods in business may afford a useful opening for any one who has been trained to examine statistics scientifically. Unfortunately, he discounted his advocacy by saying that there is no need to know about correlation and by implying that, while the mathematics of correlation are frightening, the subject of sampling is easy. Modern work on small samples demands as much hard thinking on mathematical lines as correlation, and it seems strange that any one should approach the matter in Mr. Menzler's way before a body which has not only published a text-book dealing partly with correlation, but also examines to some extent on the subject. Apart, however, from the lack of accuracy in some of the views expressed about modern statistical methods, there is a strong case to be made for the use of all scientific machinery in practical work, and

an inefficient or out-of-date instrument is as unwise in statistics as in anything else, as is indicated in the leading article of this issue. Nobody would employ any one but a trained chemist to do chemical analysis, but many concerns will hand over statistical analysis to any one who may be on the staff instead of employing someone really qualified to do the work. Our leading article (p. 37) indicates some aspects of the subject which merit the earnest consideration of scientific workers and business men.

At the December meeting of the American Geographical Society, the following awards were announced:—The David Livingstone Centenary Medal for 1925 to Luis Riso Patrón, Director of the Oficina de Límites of Chile, for "scientific achievement in the field of geography of the southern hemisphere," in recognition of his contributions to Chilean cartography; Señor Patrón headed the first Chilean Commission to make a precise survey of the Cordillera of the Andes, and as director of the Oficina de Mensura de Tierras he was responsible for the great map of Chile on a scale of 1 : 500,000; the David Livingstone Centenary Medal for 1926 to Erich von Drygalski, of the University of Munich, for his work in the South Polar regions; Dr. von Drygalski carried out notable glaciological and other investigations in the Arctic as leader of the Greenland Expedition of the Berlin Geographical Society (1891–1893) and of the German Antarctic Expedition of 1900–1903. A Charles P. Daly Medal for 1925 to Brigadier-General David L. Brainard, in recognition of his achievements on the Lady Franklin Bay Expedition under Greely in 1881–1884; a Charles P. Daly Medal for 1925 to Captain Robert A. Bartlett, for his services to Arctic exploration; as commander of the *Roosevelt* (1905–1909) he took a leading part in Peary's expedition to the Pole; on the Canadian Arctic Expedition of 1913–1918 he commanded the *Karluk*, and in 1917, under his able seamanship, the Third Crocker Land Relief Expedition achieved success. A Cullum Geographical Medal for 1925 to Pedro C. Sanchez, Director of the Central Mexican Bureau of Geography and Climatology, in recognition of his contributions to Mexican cartography; he has been in charge of the geodetic service of Mexico since 1912; a Cullum Geographical Medal for 1925 to Harvey C. Hayes, research physicist of the United States Navy, for his invention of the sonic depth finder; a Cullum Geographical Medal for 1925 to Lucien Gallois, of the University of Paris, for his work in the advancement of geography; by notable contributions to the history of geography, and by his interpretation of the spirit of geographical science, he has extended his influence far beyond the bounds of France.

LECTURING on "Primitive Transport" at the Edinburgh and Lothians Branch of the Royal Anthropological Institute on December 15, Mr. K. G. Fenelon said that transport methods were developed in early times and among primitive peoples, and unusual modes of locomotion are frequently to be explained by the circumstances of the time or by the nature of the materials available. Thus the

passenger- and goods-carrying wheel-barrow of the Chinese has its *raison d'être* in the narrow causeway raised in the middle of bad roads; canoes in the Arctic are naturally constructed of animal products, while in other parts vegetable materials are more usually employed. The beginnings of commercial intercourse between nations or peoples were generally by land. Primitive peoples living on islands, as those in the Pacific, may develop a considerable technique of canoe-building for purposes of war or trading. In such areas, however, the natural conditions have concentrated transport development along that line of progress to the exclusion of others. Man is undoubtedly the most primitive means of transport. The next stage of development is marked by the introduction of the pack animal. The earliest forms of vehicle would appear to be the slide-car or sledge. Though the origin of the cart is lost in antiquity, there seems to be little to object to in the usual theoretical explanation that it arose from the slide-car, the stages in transition being the use of log rollers, solid drum wheels, built-up drum wheels and the spoked wheel. The simplest types of canoes are improvised from solid tree-trunks. The next stage is the dug-out canoe, planks being often added to give a greater height above water level. Bark, wicker and skins are also utilised. The outrigger canoe may have been evolved from rafts raised on floats. The sail is widely distributed, though curiously enough it seems to have been little known among the natives of North and South America.

THE *Kew Bulletin* announces that Mr. C. C. Calder, Curator of the Herbarium of the Royal Botanic Garden, Calcutta, has been appointed Director of the Botanical Survey of India and Superintendent of the Royal Botanic Garden, Calcutta, and of Cinchona Cultivation in Bengal.

PROF. F. P. SLATER, formerly head of the Physical Laboratory in the Experimental Department of the Fine Cotton Spinners and Doublers Association, Ltd., and lately professor of textiles in the University of Manchester, has been appointed chief of the Experimental Department of the Association in succession to Dr. W. Laurence Balls.

THE Ministry of Agriculture and Fisheries has re-imposed, starting on January 1, the admission fee of one penny—on other than students' days—to the Royal Botanic Gardens, Kew, which was abolished in April 1924, and previously yielded a revenue of about 5000*l.* per annum. The present admission fee of 6*d.* on students' days (Tuesdays and Fridays) will continue to be charged.

DR. G. CLARIDGE DRUCE was elected a corresponding member of the Société Botanique de Genève at the recent jubilee celebrations. Dr. Druce has just completed his account of the botany of Huntingdonshire in the "Victoria History of the Counties of England," which treats of about 800 species; he has already completed accounts of the botany of the counties of Berks, Bucks, Oxford and Northampton for this work.

A CONFERENCE on "The Growing of Lucerne" will be held at the Rothamsted Experimental Station on Wednesday, January 27, at 11.30 A.M. The chair will be taken by the Right Hon. Lord Clinton, and the speakers will include Sir E. J. Russell, Prof. R. G. Stapledon, Mr. J. Mackintosh, Mr. A. Cunningham and Mr. H. G. Thornton. Those intending to be present should notify the Secretary, Rothamsted Experimental Station, Harpenden.

THE French Government has conferred upon Sir Robert Hadfield, Bart., the Cross of an Officer of the Legion of Honour, in recognition of his noteworthy contributions to our knowledge of metallurgy. Sir Robert was elected a corresponding member of the Paris Academy of Sciences in 1923, and recently presented a paper to the Congress of Industrial Chemistry organised in Paris by the French Society of Chemical Industry, in which he showed the great debt which metallurgy owes to French scientific workers.

THE Dyers' Research Medal for 1924-25, offered by the Society of Dyers and Colourists, has been awarded to Dr. F. M. Rowe for the paper entitled "The Identification of Insoluble Azo Colours on the Fibre and of Azo Pigments in Substance," which was published in the July 1924 issue of the Society's journal, and a Certificate awarded to the co-author, Miss Clara Levin. The Medal is offered each year by the Company for the best scientific research or technical investigation connected with the art of dyeing submitted to the Society for publication in its journal.

PROF. DAYTON C. MILLER, professor of physics in the Case School of Applied Science, Cleveland, Ohio, has been awarded the American Association Prize of 1000 dollars for his paper on "The Michelson-Morley Ether-Drift Experiment, its History and Significance," delivered at the recent Kansas City meeting of the Association. The Prize, which was founded by a member of the Association shortly before the Cincinnati meeting in 1923, is given annually for "some noteworthy contribution to scientific advancement presented at the meeting" of the Association.

THE Carnegie Trust of the United Kingdom has generously come to the assistance of the Geographical Association with a gift of 1000*l.* towards equipping the Library of the Association, especially in the matter of sets of foreign periodicals. The Carnegie Trust is specially interested in assisting isolated students and has organised the Central Library for Students, Galen Place, W.C.1, with this in view. The Library of the Geographical Association will henceforth be affiliated to that Library, and the Association hopes that its usefulness to teachers and students all over Great Britain may be thereby increased.

A MODERATELY strong earthquake was felt about 12.30 P.M. on December 23 in the island of Mull and the district around Oban. The shock lasted about five seconds and was accompanied by the usual rumbling noise. The earthquake seems to have

originated in or near the same centre as the Oban earthquakes of November 28, 1880, and January 17, 1907, which disturbed areas of about 50,000 and 3100 square miles respectively, the former being felt over nearly all Scotland and in the north-eastern counties of Ireland. If the tremor observed at Bothwell at about 12.35 P.M. and in Glasgow should prove to be connected with it, the shock was probably rather stronger than that of 1907. So far as known, no damage was caused by the earthquake.

THE sixth International Ornithological Congress will be held at Copenhagen on May 24-29 under the presidency of Dr. E. Hartert, of the Zoological Museum, Tring. The work of the Congress will be divided into five sections dealing respectively with: (1) Systematic ornithology, geographical distribution, palæontology; (2) anatomy, physiology, heredity and evolution; (3) biology, including ecology and bird migration; (4) oology, nidification; (5) bird protection and aviculture. The executive committee of the Congress includes representatives of Denmark, France, Germany, Great Britain, Sweden and the United States; the British members are Messrs. W. Sclater and H. F. Witherby. Communications for the Congress should reach the honorary secretary, Mr. P. Bovien, c/o Mr. E. Lehn Schiöler, Uraniavej, 14-16, Copenhagen, Denmark, not later than May 16.

ACCORDING to the Rome correspondent of the *Times*, the Italian cabinet has approved a bill creating an Italian Academy, the objects of which will be the "co-ordination and direction of Italian intellectual movements in the field of science, letters, and arts, the preservation in these activities of the national character according to the traditions of the race, and the encouragement of its expansion and influence abroad." The Academy will receive an annual subsidy from the State, and grants and pensions will be assigned to authors, artists, and scientific workers, inventions examined and schemes for intellectual advance instituted. Membership will be limited to sixty, the first thirty being nominated by Royal decree, on the advice of the President of the Council, and the remainder during the next ten years from a list of names preferred by the existing Academicians. Academicians will have the privileges of high State officials and will wear a special uniform.

WE learn that the beam stations for short wave radio communication which Marconi's Wireless Telegraphy Co., Ltd., is erecting for the British Government and for the Governments of the Dominions and India, are making satisfactory progress. It had been hoped that the Canadian and South African stations would be ready for working by the end of 1925, but their completion has been delayed by the illness of Senatore Marconi and Mr. Franklin. It is expected, however, that the beam services between Great Britain and Canada and South Africa will be ready for working in April next, and that the services with India and Australia will be in operation about the middle of August. A beam station is being erected at Dorchester for communica-

tion with the United States and with South America. A corresponding station is being built in Brazil for the account of the consortium of the four wireless companies operating in South America. The Company is also constructing stations connecting Portugal and her Colonies and linking up Portugal with the rest of the world. This programme of construction involves the expenditure of approximately 1,000,000l. sterling.

IN referring to the report of the British Photographic Research Association (December 26, 1925, p. 944), we perhaps did not make it sufficiently clear that while the members of the staff of the Association took a very active part in the matter of the standardisation of plate-testing methods, the proposals that were placed before the sixth International Congress of Photography were drawn up by a committee appointed by the Scientific and Technical Group of the Royal Photographic Society.

WE have received the annual report and statement of accounts of Livingstone College for 1924-25. The College does a valuable work in imparting to those entering the mission field the elements of a medical training. Owing to a decrease in fees and extraordinary expenditure on making up roads adjoining the College there is a deficit on the year's working of 1340l. Subscriptions are appealed for, either for general purposes or to provide a memorial to the late Dr. Harford, the founder and first principal.

IN the notice of the Ray Society volume, "The British Hydracarina," by C. D. Soar and W. Williamson, in *NATURE* of December 26, 1925, p. 932, the bibliographic details might be taken to imply that this book was published by the British Museum (Natural History). We are asked to point out that this is not the case, and that the Ray Society has no official connexion with the British Museum apart from the fact that permission has been given for the Museum to be used as the official address of the Secretary of the Society. Messrs. Dulau and Co., Ltd., 34-36 Margaret Street, London, W.1, are the agents for the sale of the Society's publications to non-members and to the trade.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned: A professor of mycology at the Imperial College of Tropical Agriculture, Trinidad—A. Aspinall, Imperial College of Tropical Agriculture, 14 Trinity Square, E.C.3 (before end of January). A head of the Electrical Engineering department (*not engineering* as advertised in *NATURE* of January 2) of the L.C.C. Hackney Institute—Education Officer (T. (1) (a)), County Hall, Westminster Bridge, S.E.1 (January 18). A borough analyst and Corporation chemist for the County Borough of Salford—Medical Officer of Health, 143 Regent Road, Salford (January 20). A demonstrator in inorganic and physical chemistry at King's College, London—The Secretary (January 20). A Secretary to the Queen's University, Belfast—The Vice-Chancellor (January 30). A senior lecturer (male) in zoology in the University of the Witwatersrand, Johannesburg—The Secretary, Office of the High Commissioner for the

Union of South Africa, Trafalgar Square, W.C.2 (February 15). A dairy bacteriologist at the Harper Adams Agricultural College, Newport, Salop—The Principal. A junior professional assistant in the Meteorological Office—The Secretary (S.2), Air Ministry, Adastral House, W.C.2. A research assistant

in the physiology department of the Middlesex Hospital Medical School—The School Secretary, Middlesex Hospital Medical School, London, W.1. A temporary lecturer in mathematics at the University College of Swansea—The Registrar, University College of Swansea, Singleton Park, Swansea.

Our Astronomical Column.

COMET ENSOR.—A little more information has come to hand about this comet, which raises hopes that it may be an object of considerable interest next February and March. A telegram from the Cape Observatory was circulated by the I.A.U. Bureau on Dec. 18; it gave the position on Dec. 14 at 18^h 30^m U.T. as R.A. 3^h 38^m, S. Decl. 61° 12'; daily motion minus 12 minutes of time, south 24'. A further telegram from S. Africa appeared in the *Times* of Dec. 19, stating that an orbit had been deduced which indicated Feb. 12 as the date of perihelion, and some thirty million miles as the perihelion distance. These facts, with the above position and motion, have enabled Dr. A. C. D. Crommelin to deduce the following rough orbit:

$T = 1926$, Feb. 12.5 (assumed).

$\omega = 5^\circ 16'$

$\Omega = 284 \quad 17$

$i = 123 \quad 13$

$\log q = 9.4072$

An ephemeris from this orbit shows that the comet may be expected to be visible in England about Feb. 16, when it will be a morning star 1° east of the sun, and 4° north of it; it may then be visible in the twilight and have a considerable tail (it had one 15' long at discovery). It continues its northward course, and by March 4 will be 35° north of the sun; it will rise 4½ hours before sunrise, and will thus be visible on a dark sky; it will afterwards become circumpolar, but will fade rapidly. This forecast should only be taken as giving a general idea of the course of the comet, the data being rough. But it may be expected to be the brightest comet since Mellish's of 1917.

The following elements have been telegraphed to the I.A.U. Bureau, Copenhagen; they were computed by Mr. H. E. Wood, of the Union Observatory, Johannesburg, from observations made there on Dec. 14 to 16 (about):

$T = 1926$, Feb. 12.41 U.T.

$\omega = 353^\circ 44'$

$\Omega = 282 \quad 17$

$i = 122 \quad 52$

$\log q = 9.5250$

EPHEMERIS FOR 0^h.

	R.A.	Decl.	$\log r$.	$\log \Delta$.
Jan. 31	21 ^h 31 ^m 39 ^s	30° 40' S.	9.6476	0.1139
Feb. 16	21 2 8	13 31 S.	9.5384	0.0892
Mar. 4	20 59 24	18 10 N.	9.8028	9.9777
" 20	21 58 56	55 4 N.	9.9846	9.9620
Apr. 5	1 58 43	76 19 N.	0.1049	0.0696

NAKED-EYE SUNSPOTS.—On the few days during the past three weeks when observations of the sun were possible, a number of sunspots were visible. Two of these were so large that they were obvious naked-eye objects. The first of the two groups, consisting of a pair of large spots, was south of the sun's equator, and crossed the central meridian on Christmas day. The other group, made up largely of one great spot, was in north latitude 23° and was on the meridian three days later. It is the largest group of spots seen as yet this cycle, and is comparable with the largest groups of the preceding cycle, such as the great spot of August 1917 or the long stream of March 1920.

Of the three large spots noted in these columns in the issue of December 9, the third group (Nov. 18-30,

latitude 17° N.) lasted long enough to cross the disc again. The leader spot of the stream was alone represented, however, but though the train had died out, its position was marked by an extensive region of bright faculae clearly seen near the east and west limbs of the sun.

The following table continues the information of naked-eye sunspots given in two previous numbers:

Date on Disc (1925-26).	Central Meridian Passage.	Latitude.	Maximum Area.
Dec. 19-31	Dec. 25.4	20° S.	1/550
Dec. 22-Jan. 3	Dec. 28.3	23° N.	1/400

(Areas express the proportion covered of the sun's hemisphere.)

On December 27 and 28, two moderate magnetic disturbances were registered at Greenwich, the time corresponding roughly to that of the transit of the large northern spot. The movements shown by the magnets were, however, much inferior to those of a "magnetic storm." There have been no other recent magnetic disturbances of any consequence.

The year 1925 has shown a pronounced increase in the number and size of sunspots, especially during the latter half of the year; but the average latitude (about 20°) in which the spots have appeared indicates, from their corresponding latitude and frequency in previous cycles, that their maximum occurrence will be nearly two years hence.

THE DECEMBER METEORS.—Mr. W. F. Denning writes: "This shower was unusually strong this year on several nights, especially on December 12 and 13, and the time of greatest abundance appears to have been observed on December 12 at about 20^h new G.M.T. Mr. R. M. Dole of Lansing, Michigan (Lat. 43½° N., Long. 85° W.), says: 'The Geminids were magnificent this year. The rate on December 10 was 30-40 per hour from a point about 2° W. of Castor. On December 12 the radiant was between α and β Geminorum 1/5 the distance from α to β .' He watched the shower between 7^h 45^m P.M. on the latter night and 2^h 3^m A.M. (local time) December 13. The hourly rate at about 10 P.M. was 60, and this went on increasing so that at 2 A.M. the rate was more than 240 per hour. They were short, swift, red; very few left trails. A great number were about 6-7 magnitude. At about 1.50 A.M. several bright ones were seen, mostly dark red. It is possible that the maximum may have been after 2 A.M. The display seems to have been nearly equal to that witnessed on December 13, 1920, in the early morning, by two ladies at Bournemouth, when at the lowest estimate 5 per minute were counted, or 150 in half an hour's record, though the sky was partially cloudy.

"The meteors were also seen at their recent return by Mr. A. King, in Lincolnshire, who obtained a very successful series of observations on the nights December 10-14. He did not witness the same abundance as that reported from the United States, but conditions were not so favourable. On the early evening of December 13, meteors were casually observed to be surprisingly numerous by Mr. J. Johnson and some friends from the Devonshire moors.

"The writer pointed out the probability of a rich return of these meteors on December 12, 20^h (new G.M.T.), in *Monthly Notices, Roy. Ast. Soc.*, vol. 84, p. 178. Mr. Dole's observation has proved that it occurred at the time and in the strength expected."