Symons's
Meteorological Magazine.

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INTERNATIONAL METEOROLOGICAL MEETING IN LONDON.

September is pre-eminently a month of meetings, and in a subject which depends upon co-operation to the extent that meteorology does, we almost expect to hear of foregatherings of its representatives as Autumn draws near. This year London witnessed a meeting of two International "Commissions," appointed by the International Meteorological Committee to deal with Weather Telegraphy and Maritime Meteorology respectively. Both these bodies had held meetings in London in 1909, and a short account of their earlier proceedings appeared in the July number of this Magazine for that year. These reports were considered by the International Meteorological Committee at a meeting held in Berlin in the following year. At that meeting the Committee decided that both Commissions, which at first consisted of only a few persons, should be enlarged to include representatives of all countries interested, and become permanent. The following members of one or both Commissions were able to be present at the recent meetings:—Dr. W. N. Shaw, Director of the Meteorological Office and President of the International Committee, President of both Commissions; M. A. Angot, France; Professor Hellmann and Prof. Crossmann, Germany; Prof. Mohn, Norway; Prof. Palazzo and Commendatore Santi, Italy; Prof. van Everdingen and Dr. van der Stok, Netherlands; Captain Ryder, Denmark; General Rykatcheff, Russia; Captain M. W. C. Hepworth and Mr. R. G. K. Lempfert, Great Britain.

His Highness the Raj Rana of Jhalawar and Señor Duarte, *chef de service* of the Brazilian Service, now being re-organized, were invited to attend the meeting.

The representatives of Japan, Dr. Nakamura and Dr. Okada were prevented from coming by the death of the Mikado; and letters of regret were received from Prof. Willis Moore, U.S.A.; Mr. H. A. Hunt, Commonwealth of Australia; Rev. L. Froc, Zikawei; Mr. T. F. Claxton, Hong Kong Observatory, and others.

The question specially remitted to the Commission for Telegraphy was that of considering whether further changes should be made in the code for international weather telegrams in consequence of the

introduction of the "barometric tendency," in other words, the change of the barometer in the three hours preceding the hour of observation. The majority of telegraphic reporting stations are nowadays equipped with recording barographs, and the observation of this quantity thus presents no difficulty for the Observers. It has been included in the messages from most stations since May 1st, 1911, space having been found for it in the code by omitting the reading of the wet bulb thermometer. This omission set free three figures in the code for continental telegrams, only two of which are actually required for reporting the tendency. One of the first resolutions adopted by the Commission at its recent meeting, recommends that the dry bulb temperature at the hour of morning and evening observation should be reported in continental telegrams to the nearest whole degree Centigrade, instead of, as at present, to decimals of a degree. The omission of the tenths sets free two additional places in the code, and thus the commission found itself in a position to make proposals for utilising three vacant places in the code. It was finally agreed to suggest that one of these be assigned to reporting the "characteristic" of the barometric tendency It not infrequently happens that the barograph curve shows a change of character within the three hours preceding the observation, such as for example a change from a falling to a rising barometer. The mere statement of the amount by which the pressure had varied fails to give notice of such changes, which are of obvious importance in forecasting, and the new code is devised to meet such special cases. The second free place is to be devoted to reporting the direction of motion of upper and intermediate cloud. Hitherto cloud motion has not been included in the international telegrams, and the only information of cloud movements which the various offices have had at their disposal has been derived from reports from a few home stations. The modern development of meteorology is all in the direction of upper air study, and it was felt that the time was ripe for attempting to introduce observations of the upper air into the daily work of forecasting, by taking a step in the direction of providing material for the construction of daily maps of the atmospheric circulation at high levels. The third free place is to be assigned to giving a generalised summary of the weather experienced during the past 24 hours. The changes proposed affect, in the first instance, the code used by countries which work in millimetres and degrees centigrade, but the British representatives agreed to introduce corresponding modifications in their own code in the event of the general acceptance of the recommendations in continental countries.

A question of wide interest arose out of a communication by General Rykatcheff regarding the intentions of the Russian Weather Service. Since the beginning of this year the charts published in the Russian Daily Weather Report have embraced the whole of Siberia in addition to Russia in Europe, but at present the observations are made according to local time. Thus there is a difference of

time of more than 10 hours between the observations plotted on the two extreme ends of the map. From January 1st, 1915, it is proposed that all Russian observations shall be taken at 6 a.m. and 6 p.m. Greenwich mean time, so that we may look forward to having a daily map of the distribution of weather from the frontiers of Russia in Europe to the Pacific coast prepared at St. Petersburg before noon of each day—no mean achievement. General Rykatcheff invited his colleagues from more western countries so to modify their hours of observation that the area of simultaneous observations might be extended westward to Iceland and the Azores. At the present time the majority of western nations have fixed their hour for morning observations at 7 a.m. G.M.T., but there is no uniformity in the hour of evening observations. Several services, however, expressed a wish to extend their evening arrangements in order to be able to meet the ever increasing demands of aeronauts for forecasts based on the most recent observations. Practical considerations make observations at 6 a.m. G.M.T. difficult for the western nations, and finally it was agreed to recommend 7 a.m., 1 p.m. and 6 p.m. G.M.T. as "international" hours of observation for telegraphic purposes for regions between longitudes 30° W. and 30° E., and 6 a.m., noon, 6 p.m. G.M.T. as international hours for regions between longitudes 30° E. and 180° E. It is fortunate that 1 p.m. G.M.T. happens to be the time fixed for the morning observation over the North American Continent, viz., 8 a.m. of the time of 75° W.

Closely associated with the scheme for dealing with the meteorology of the land in a comprehensive manner, was a scheme proposed by Professor Willis Moore, for dealing with the meteorology of the sea by means of observations reported by wireless. This scheme aims at compelling all ships equipped with wireless apparatus to report observations at Greenwich noon to selected centres, and arranges for a suitable exchange of observations between the centres. The organisation of wireless observations on an international basis was welcomed, but as the scheme implies legislation it was decided, as a first step, to invite the opinion of the various Offices upon it. Some doubt was expressed as to whether Greenwich noon would prove the most suitable hour of observation for all parts of the ocean.

The Commission on Maritime Meteorology had its time mainly taken up with the question of the signals to be used at night for storm warnings. At its meeting in 1909 it had succeeded in drawing up a scheme for day signals which most countries have been able to accept in principle, though opportunities have not yet offered for introducing it in all cases. This uniformity in such matters is very desirable; it may obviously lead to difficulties if the same signal has different meanings in different countries. In the case of night signals uniformity is specially difficult to attain, as any change that is proposed may involve risk of confusion with existing harbour lights or other marine signals. The scheme for night signals, proposed by the Commission in 1909, had proved unacceptable on these grounds

in some countries. General agreement in favour of any one simple system of night signals was found to be impossible, and it was necessary to rest content with more modest proposals. The schemes before the Commission grouped themselves into proposals for the use of one, two, or three lanterns, and recommendations were finally made securing that any combination of lamps forming a storm signal shall have the same meaning in all countries.

A proposal regarding a system of day and night signals for notifying the position of atmospheric disturbances, standing in the name of Rev. L. Froc, and one for signalling the position of the centres of tropical revolving storms, brought forward by Captain Hepworth, were discussed, and it was agreed that both be circulated to the institutes for comments.

The proposals made by both Commissions will be circulated to the Meteorological Offices of all countries, and will be considered, in conjunction with the replies which may come in, by the International Meteorological Committee at a meeting which it is proposed to hold in Rome in 1913.

It will be seen from the above account of the proceedings, that the meetings were devoted exclusively to the consideration of what may be called administrative work, but various social functions afforded opportunities for social intercourse, or for the informal discussion of the "scientific" aspect of meteorology. On the Monday preceding the first official meeting, Mrs. Shaw held a reception at 10, Moreton Gardens. On the Thursday they motored through Richmond Park to Kew Observatory, and after taking stock of the work of the Observatory, took tea in Kew Gardens. In the evening they were invited by Dr. Shaw, as President of the International Meteorological Committee, to dinner at Bailey's Hotel, and had opportunities of meeting representatives of our public offices and other institutions. The toast of "International Co-operation" was proposed by Dr. Shaw, and replied to by Professor Mohn, the senior member of the International Committee. Captain Ryder gave "The Highways of the Present and the Future," the responses to which were in the hands of Captain Acton Blake, the Deputy Master of the Trinity House, for the sea; Sir George Gibb, the Chairman of the Road Board, for the land, and M. Angot, the Director of the wireless signals sent out from the Eiffel Tower, for the new highway—the air. General Rykatcheff proposed the toast of the "Meteorological Office," and Professor Hellmann that of "English Science," both being suitably acknowledged by Dr. Shaw. On Friday evening, the delegates had the honour to be entertained at dinner, also at Bailey's Hotel, by His Highness the Raj Rana of Jhalawar, who had throughout shown keen interest in the proceedings. Finally, those members of the Commissions who were able to extend their stay in this country, spent a most enjoyable week-end as the guests of Mr. and Mrs. Cave, at Ditcham Park.

R.G.K.L.

RECENT METEOROLOGICAL OFFICE PUBLICATIONS.

Seventh Annual Report of the Meteorological Office to the Lords Commissioners of His Majesty's Treasury, for the year ended 31st March, 1912. London, H.M. Stationery Office. Size 9½ × 6. Pp. 174. Price 1s. 7d.

Meteorological Office. British Meteorological and Magnetic Year Book, Part III., Section 2. Geophysical Journal, 1911. Daily Values of the Meteorological and Geophysical Elements observed at the Central Observatory (Kew), Magnetic Observatory (Eskdale), and Western Observatory (Valencia), together with wind components at fixed hours at four Anemograph Stations of the Meteorological Office. London, H.M. Stationery Office. To be purchased from the Meteorological Office, Exhibition Road, London, S.W. 1912. Size 12½ × 10. Pp. 4+48. Price 5s.

Meteorological Office. Geophysical Memoirs. Size 12½ × 10.

No. 1.—*The Effect of the Labrador Current upon the surface temperature of the North Atlantic and the latter upon the temperature and pressure over the British Isles.* By M. W. CAMPBELL HEPWORTH, C.B., R.D., Marine Superintendent of the Meteorological Office. Pp. 10+9 plates. Price 9d.

No. 2.—*The Free Atmosphere in the region of the British Isles. Further contributions to the investigation of the Upper Air, comprising the vertical temperature distribution in the atmosphere over England, with some remarks on the general and local circulation; Abstract of a paper printed in* Vol. 211 of the Philosophical Transactions, Series A; *and total and partial correlation coefficients between sundry variables of the upper air,* by W. H. DINES, F.R.S., Meteorologist in charge of investigations of the upper air, for the Meteorological Office, *with a preface by* W. N. SHAW, Sc.D., F.R.S., Director of the Meteorological Office. Pp. (36). Price 1s.

No. 3.—*Graphical Construction for the Epicentre of an Earthquake.* By G. W. WALKER, M.A., A.R.C.Sc., Superintendent of the Observatory, Eskdalemuir. Pp. (4)+1 plate. Price 3d.

No. 4.—*On the Radiation records obtained in 1911 at South Kensington, together with a comparison between them and the corresponding absolute observations of radiation made at Kew Observatory.* By R. CORLESS, M.A., Secretary to the Director of the Meteorological Office. Pp. (8)+1 plate. Price 3d.

Report of the Ninth Meeting of the International Meteorological Committee and of the Sixth Meeting of the Commission for Terrestrial Magnetism and Atmospheric Electricity. Berlin, 1910. London, H.M. Stationery Office, 1912. Size 9½ × 6. Pp. 144. Price 3s.

THE annual report of the Meteorological Committee throws into prominence the immense amount of work in various departments of science which have hitherto been classified under different headings of Physics which is now carried on by the Meteorological Office. Two of the veterans who joined the staff of the Meteorological Office in Admiral Fitzroy's time have retired—Mr. Charles Harding, who was principal assistant in the Marine Branch for 37 years, and Mr. R. H. Curtis, whose work is well known to our readers. The

new Office at South Kensington is already beginning to press upon the demands for the accommodation of the printing machinery for producing the daily, weekly and monthly Reports, and for the workshops and museum space. The immemorial struggle between common sense and the stubborn, hide-bound officialism of the Post Office, which harassed the later years of Mr. Symons in connection with the postage of rainfall returns, is, we are interested to see, still raging with regard to the telegrams of the Meteorological Office. A Postmaster-General with a sense of humour would no doubt solve all the difficulties with a hearty laugh. The joke in this case is that the Postmaster-General, or the high official who discharges the office of turning his parliamentary chief into ridicule, fails to appreciate the difference between another Government Department and a mere member of the public, and is as determined to extract a few pounds from one of the pockets of the Government in order to place them in another pocket, as if he were a business man relentlessly pursuing a defaulting debtor. In any case, Dr Shaw devotes two solid pages of his report to a colourless statement in the most correct official language of the difficulties thrust upon the Meteorological Office by the Post Office. The fact that the Meteorological Office is hampered by the Post Office, both in receiving observations and sending out warnings, has not prevented it from improving the publication of the weather reports, and it is most interesting to know that both the evening and the morning weather forecasts are now distributed by wireless telegraphy to all His Majesty's ships in home waters. The Admiralty has found that these warnings are useful. In order to give an adequate telegraphic distribution on shore, the Postmaster-General demands a payment of £106,234 per annum, no reduction being allowed on taking a quantity. Incidentally in the course of this exposure of the opposition of the Post Office, the fact is mentioned that 343 out of 365 weather forecasts are more nearly right than wrong.

In connection with the publication of climatic data from health resorts, the Meteorological Committee has decided to make a charge of £4 per annum on each health resort sending voluntary records, in order to meet the expense of an annual inspection of the station. This is an eminently reasonable course to take, as the guarantee of inspection raises the value of the reports to some extent in the opinion of the public, and greatly in the estimation of meteorologists. The Meteorological Office has also undertaken the publication of the observations hitherto issued in the *Meteorological Record* of the Royal Meteorological Society; and it has taken over the supervision and collection of data from such of the stations founded by the Society as may send them in. This action will doubtless tend to greater uniformity in the meteorological observations over the country.

A "branch office" has been established at South Farnborough for the investigation of wind-structure for the Advisory Committee for Aeronautics, of which Mr. J. S. Dines is in charge, and he has been

engaged in designing a new recording anemometer and experiments with pilot balloons and tethered balloons in connection with the investigations. While observations on the upper air are being encouraged by the Meteorological Office, the grants to Observatories at Glasgow, Stonyhurst, Falmouth and Armagh have been discontinued. This, it is stated, is the result of a reconsideration of the whole question of the Observatories (First Order stations) consequent on a decision of the Royal Cornwall Polytechnic Society to discontinue the observations at the Falmouth Observatory after 1912. The observations at Kew, Valencia, and Aberdeen continue, and Eskdalemuir will be added to the number of observatories with self-recording instruments.

The periodical publications of the Office now consist of the Daily Weather Report, the Monthly Meteorological Charts of the Atlantic and Indian Oceans, and the British Meteorological and Magnetic Year Book. The last named work differs from other Year Books (which are annual in their appearance) by being composed of Parts issued at different dates. These include four parts, two of which are in two divisions, thus :—

Year Book—Part I.—The Weekly Weather Report, with 8 supplements.

Part II.—The Monthly Weather Report, with a summary for the year.

Part III. (1)—Daily Readings at stations of the First and Second Orders.

Part III. (2)—Geophysical Journal, Daily Readings in Meteorology, Solar Radiation, Seismology, Atmospheric Electricity, and Terrestrial Magnetism.

Part IV. (1)—Hourly Values, Meteorological Section (pressure, temperature, humidity, rainfall and sunshine) for Kew, Eskdalemuir and Valencia.

Part IV. (2)—Hourly Values, Geophysical Section (Terrestrial Magnetism, atmospheric electricity and meteorology) for five observatories.

It is important that the public should know in what manner the observations collected at the public expense are discussed and set forth for their information ; but it is certain that very few members of the public have any idea of what is done.

The Daily Weather Report gives particulars of the weather in the units familiar to English-speaking people at 7 a.m. on the day of publication, with a map of the distribution of pressure, temperature and weather over western Europe and the eastern half of the North Atlantic. On a smaller scale are maps of pressure at 7 a.m. and 6 p.m. for the previous day. The Weekly Weather Report consists

of two parts, the first referring to the British Isles only, and consisting of a comparison of the weather for the week as a unit and for the season in the various divisions of the country with the average and with previous seasons. In this comparison definite meaning is attached to each term employed, the words *moderate, unusual, etc.*, applying to a certain range of deviation from the average. The second part consists of maps with very short letterpress explanations, and this has been greatly modified. Instead of repeating the maps of the Daily Weather Report as formerly, the Weekly Report has now maps embracing the whole Atlantic north of the tropics, with practically the whole of Canada on the west and the whole of Europe as far as the Black Sea on the east. On these maps the pressure, winds and temperature are shown; but it is only for western Europe that the isobars relate to the same hour, 7 a.m. Greenwich time. To the west and to the east the observations were made at different hours, and the maps, as a whole, consequently fail to represent the instantaneous distribution of pressure. They give, of course, a general view, but we venture to think they would be improved by representing the isobars on the area of simultaneous observation in a distinctive line, so as to distinguish them from those referring to different hours. The charts for the seven days of the week are supplemented by one showing the mean sea surface temperature for the whole week in the North Atlantic, an extremely interesting addition which enables one to study the relation between sea-surface temperature and weather. The Monthly Weather Report gives, also in the familiar units, an account of the weather for the month, and in figures the extremes and means or totals of the observations at about 300 stations in the British Isles. The illustrative maps occupy two pages, the first showing on a small scale, (1) the pressure and winds, (2) the tracks of depressions, (3) the mean temperature, and (4) the duration of bright sunshine. The second page consists of a larger-scale map of the total rainfall for the month prepared by the British Rainfall Organization.

The Weekly and Monthly Weather Reports, forming Parts I. and II. of the Year Book, are adapted for the use of the general public; an interest in the weather and the careful perusal of the explanatory statements being all the preparation required for understanding them. But the remaining parts are addressed to the student or the professional meteorologist, and in them the Meteorological Committee have introduced a new series of units which have at least this advantage over the metric system on which they are founded, that they are as unfamiliar to continental readers as to those at home, and it seems to us unlikely that the example here set will be generally followed at an early date in other countries. Our main objection to the use of the new units is that, for the present at least, they are not the units into which the instruments are graduated; that, in consequence, there is a large amount of mechanical transposition of the readings, introducing new possibilities of error which the observer

himself might not readily detect in glancing over them, as observers usually do when they receive their observations in print; and that when other scientific workers who adhere to the familiar system re-transpose the statistics to their original form, they also are liable to the introduction of errors, the detection of which greatly increases the time expended. We have felt this difficulty as a heavy tax on the limited time of a private institution anxious to utilize all published data, but restricted by an inadequate income from increasing the number of its workers. Such arguments as we have seen for the use of millibars and centigrade-degrees-absolute have not justified the innovation to our judgment. The introduction of the new notation seems to us to be an experiment which would have been more appropriately made by a learned society or a university, than by an Office supported by a grant of public money for the supply of information useful to the public. We rejoice at the happy turn in the tide of affairs which has converted the Meteorological Office into a great agency of scientific research, for we are sure that in the long run the best interests of the public will be served by it; but we feel strongly that the daily and hourly records we, as tax-payers, have helped to pay for, should be presented in a form which any investigator could employ forthwith for comparison with past records and contemporary records in other places. When the metric system becomes more familiar than the old-fashioned clumsy units of our youth, we shall support its universal application, and when it comes easier to the scientific meteorologist to think in millibars than in inches of mercury, we shall support that change also; but we feel that public departments should not run a generation ahead of our habits of thought. To lag behind is a commoner and a far worse fault, and it speaks volumes for the energy and enterprise of the Director of the Meteorological Office that the worst fault that can be found with him is that he does not tarry for those whose minds cannot move so rapidly as his. We trust that the duration of rainfall for the Observatories with automatic recording rain gauges will be stated in future reports of hourly values as well as the amount which falls in each hour.

The Geo-Physical Memoirs, but for the unwieldiness of their titles, are altogether admirable. The discussion of the Labrador Current by Captain Hepworth is singularly timely in view of the attention attracted to ice dangers in the Atlantic by the Titanic disaster. The publication of Mr. Dines's researches in the Upper Air, in a form accessible to the general public, is also a matter of great importance, and the others are welcome in their degree. British men of science and the British public may well be proud of the rapid advance and the present high position of the work of the Meteorological Office.

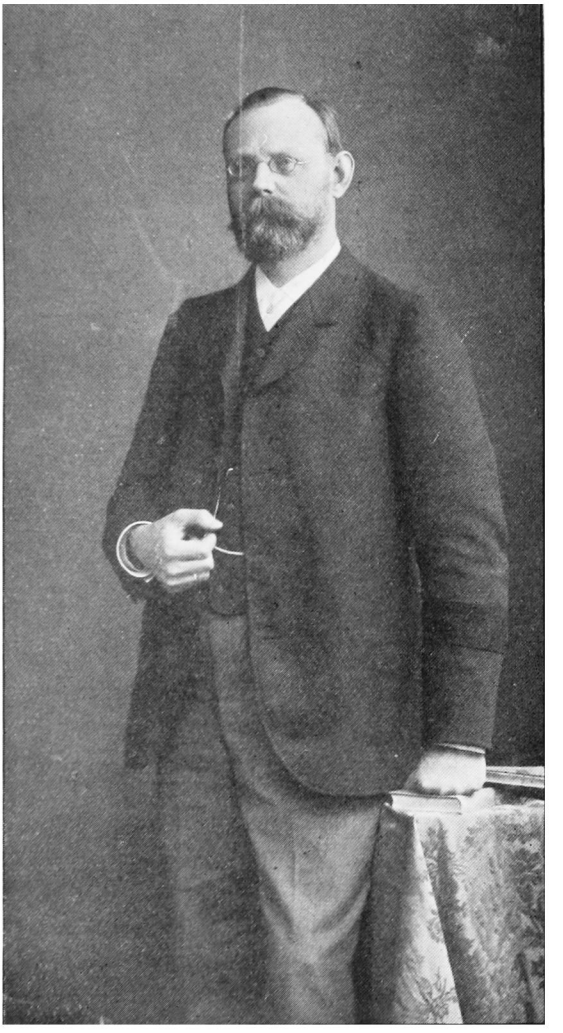
Otto Krümmel.

1854—1912.

JOHANN GOTTFRIED OTTO KRÜMMEL, the leading German oceanographer, was born at Exin in the province of Bromberg, in 1854. He was educated at the Universities of Leipzig, Berlin and Göttingen, graduating with the degree of Doctor of Philosophy at the last named, where he acted as Privat-dozent from 1878 to 1883. In 1883 he was appointed to the Professorship of Geography in the University of Kiel, and after occupying that chair for twenty-eight years he was promoted to the Chair of Geography at Marburg in 1911. Professor Krümmel was a member of the Orders of the Red Eagle and the Prussian Crown, and received the title of Privy Councillor (Geheimer-Regierungsrat) shortly before his death.

His early work was meteorological, and we believe that his first published paper was on the Rainfall of Europe, illustrated by an original rainfall map. Curiously enough he returned to meteorological studies early this year, when compelled on account of his health to stay for some months on the Riviera, and in the last letter I received from him he spoke of a paper on "Riviera Weather" with which he was occupied. The main activity of his life was in Oceanography, which he studied first at the Deutsche Seewarte in Hamburg under Professor von Neumayer, and his appointment at Kiel naturally fixed his attention on the physical geography of the sea. As a teacher he collected an admirable set of oceanographical apparatus and charts, and as an investigator he took part in the cruise of the steamer *National* in the North Atlantic in 1889. He was one of the German Delegates to the International Council for the Study of the Sea, which has its head-quarters at Copenhagen, and there my earlier friendship with him was greatly strengthened. For the first two or three years he and I shared the somewhat exacting task of editing the minutes of the proceedings in two languages, a difficult and sometimes delicate matter, for it was not always easy to secure a form of words which should convey the exact meaning of an English resolution in German, or of a German resolution in English. We also served together on the Committee of the International Geographical Congress for the terminology of sub-oceanic relief, which resulted in the Prince of Monaco's great chart of the depths of the Ocean; and here also the adjustment of an equivalent terminology in different languages brought us closely together. The English word *shelf* (in Continental Shelf), presented a stumbling-block to translation at first, but Professor Krümmel discovered that the word *Schelf* existed in the dialect of Schleswig as the name for a wooden bench outside a fisherman's cottage, and he felt justified in restoring the word to the German language for the purpose of describing the feature of shallow sea-margins. The main occupation of Professor Krümmel's time, outside the routine of his lectures, was, for many years, the compilation of his standard Handbook of Oceanography, a work which

was reviewed in our pages when it appeared (Vol. **46**, 1911, p. 97). It is not too much to say that his knowledge of the literature of oceanography was unrivalled, and the footnotes to his handbook supply an almost complete bibliography of the subject. The great strain of his ceaseless labours, and the raw damp climate of Kiel, undermined his health, and the change to the pleasanter conditions of Marburg unhappily came too late to repair the damage that had been done, and after nearly a year of illness he died suddenly while at Cologne, on 12th October, 1912.



Herz Ihr
O. Krümmel

Professor Krümmel was a constant reader of this Magazine and an occasional contributor. It was he who found in an old bookshop in Kiel the quaint French print of aerial warfare, which appeared as frontispiece to Vol. **43** (1908).

He impressed all who met him with the generous kindliness of his nature. He was always helping his colleagues, smoothing over difficulties and settling differences.

As a member of international committees or conferences he was singularly happy, as, although tenacious of his own views, he was always conciliatory, never aggressive and eminently open to reason. To all with whom he had to work he was not only a valued colleague, but a dear friend whose

companionship will be sorely missed. His letters showed marks of a generous culture born of wide reading in fields of literature with which men of science are seldom expected to be familiar, and he had a singular facility in interpreting the myths of classical geography in the light of modern knowledge. H.R.M.

Correspondence.

To the Editor of Symons's Meteorological Magazine.

RELATION BETWEEN SEASONS IN NEW ZEALAND AND GREAT BRITAIN.

We have had relatives in Auckland, New Zealand, for many years, and during that time have noticed very frequently that the particular weather they have in a season is repeated here six months later. For instance, in their summer, December, 1910—January, 1911, they had exceptional heat and drought. We had the same in our last summer, 1911. Last December and January they complained in New Zealand of one of the coldest and wettest summers they remembered. That is now being repeated here. Their last autumn was very fine; we are now hoping for the same here. Our last letters report very cold, wet weather, and snow in unaccustomed places in the New Zealand winter of 1912.

Of course, this resemblance is by no means invariable, but it has happened so very often that I think it worthy of being mentioned, and you may be able to tell me if there is anything in it.

J. R. ROBERTSON.

6, Mortonhall Road, Edinburgh, 20th August, 1912.

CURIOUS EFFECT OF A LIGHTNING STROKE.

During a heavy thunderstorm which passed over this neighbourhood between 3.45 and 5.0 p.m. on August 7th last, a shed was struck by lightning with somewhat curious effect. The shed is 20 feet long by 10 feet wide and 10 feet high, situate in an open field, and is surrounded by a wire netted enclosure 50 feet square. It is constructed of match-boarding with a galvanised iron roof painted green, the sheets of galvanised iron being 4 feet in width. At 4.23 p.m. a sheet of flame was noticed on the top of the shed, as though the paint had been fired, and for a moment it appeared as if the shed was alight. On examining the roof, no apparent damage was visible, except that

the paint had been scorched off, but on placing one's hand on the strip of sheet iron at the extreme edge a piece about 3 feet wide by 6 feet long crumbled away like tissue paper. The match-boarding on the side of the shed was not even scorched, but the wire-netted enclosure, 15 feet away, for a length of about 10 feet, had entirely disappeared, although the wooden stake supporting it was still in position.

SPENCER C. RUSSELL.

Southwater, Sussex, September 28th, 1912.

THE SUMMER OF 1912.

A GOOD deal has been written on the great contrast between last year's summer and this year's.

If we understand by a "hot summer," at Greenwich, one with 20 or more hot days (or days with 80° or more), we find it comparatively rare for one hot summer to be followed by another. There are five cases in the last 71 years, as follows:—

Hot days,	32 in 1846	.....	26 in 1847
	35 ,, 1857	.....	26 ,, 1858
	26 ,, 1858	.....	34 ,, 1859
	23 ,, 1898	.....	21 ,, 1899
	21 ,, 1899	.....	22 ,, 1900

On the other hand, fourteen cases of a hot summer followed by one not in that category. The former occurrence is thus about one in four. After the three hot summers, 1857–59, we find the very cold summer of 1860, which, as if in protest, yielded no hot days.

It will be seen that a hot summer followed by a hotter is extremely rare—only two cases, 1858–9 and 1899–1900 (26, 34 and 21, 22 hot days respectively). Coming to the recent summer, the probability was against its being hot in the above sense.

Here is another point of view. The highest number of hot days in two contiguous years at Greenwich, in the past, is 61. This was in 1857-58; (35 + 26). Thus the number in 1911-12 was much more likely to be under, than over, 61. But 1911 had 45, hence 1912 was not likely to have more than 16. The actual number appears to be 12; 15 is the average.

ALEX. B. MACDOWELL.

Kennell, Bridge of Allen, 30th September, 1912.

[We should welcome any correspondence on this method of reasoning from any reader who may be interested in it.—ED. *S.M.M.*]

HEAVY RAINFALL FOR SIX MONTHS.

THE rainfall at this station from October to March inclusive, amounted to no less than 36·07 in., or considerably more than the normal for the whole year. The rain was confined to a period of 22 weeks as practically no rain fell before October 20th, and very little after March 25th.

The rain for the first three months of this year was 16·93 in., or more than fell in the whole of last year till the middle of October. As a contrast April of this year gives us only ·19 in., the lowest I have ever taken here. In the last nine months we had three extremes, July with ·29 in. on one day, December with 10·72 in. on 28 days, and April ·19 in. on five days. The three months, July, August and September, give together only 2·66 in. on 16 days, while January, February and March together give 16·95 in. on 66 days, and October, November and December no less than 19·34 in. on 67 days. The rain for the 12 months closing March 31st amounts to 43·43 in., in spite of the very dry summer.

I should doubt if there have been many periods of 12 months with such extremes.

A. C. F. LUTTRELL.

Lea Combe House, Axminster, Devon.

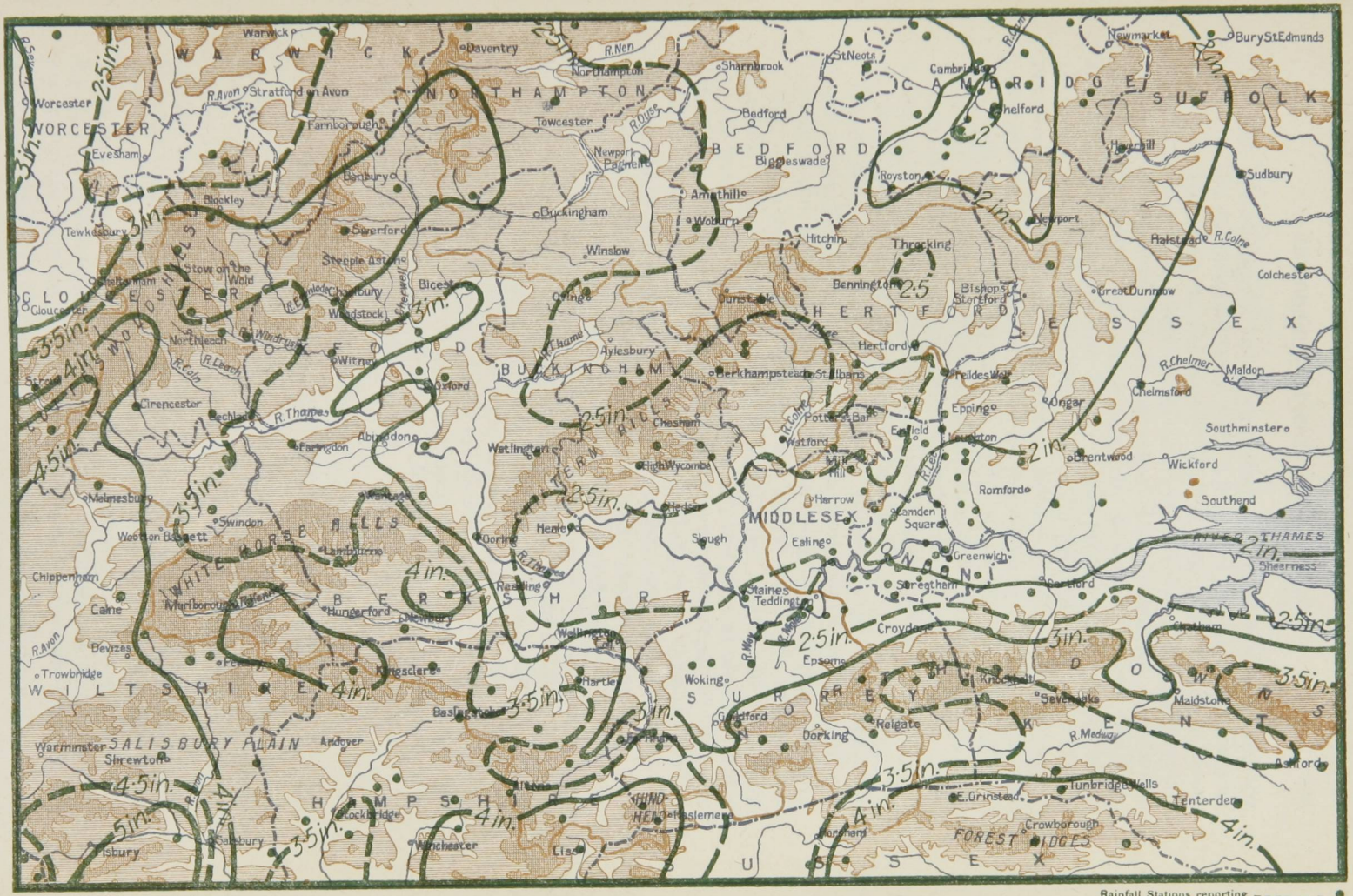
THE WEATHER OF OCTOBER.

By FRED. J. BRODIE.

THE absence of seasonable warmth which formed a leading feature in the weather of August and September was again noticeable, though in a modified degree, in the month under review. A reference to past seasons shows that in October it is no uncommon thing for the shade temperature to rise to 70° or more over a considerable portion of England. In 1886 a record October reading of 80° was registered in London, and also at Cambridge. This year there were very few places in which the thermometer reached 65°; and in the western parts of the United Kingdom there were a number of places in which it failed to touch 60°.

The type of pressure distribution last month underwent considerable modification from time to time, but in the earlier half there was a tendency over England for a recurrence of anticyclonic conditions, and at some places in the south the continued absence of rain narrowly escaped the dimensions of a drought. The warmest weather occurred, as a rule, either between the 9th and 11th, or on the 13th or 14th, the thermometer on each occasion being well above 60° over a large portion of the country. On the 10th, the thermometer rose to 65° at Gordon Castle, and to 66° at Jersey, while on the following day it reached 65° at Plymouth. On the 13th a reading of 65° was recorded at Bath and Guernsey. The nights were, however, often cold, especially between the 6th and 7th, when sharp night frosts were experienced, the sheltered thermometer on the 4th and 5th falling to 25° or less in many districts, and reaching 21° at Llangammarch Wells and 22° at Kilmarnock. On the grass the minima were in some places below 20°; a reading of 16° being recorded at Birmingham, and a reading of 17° at Newton Rigg.

THAMES VALLEY RAINFALL —OCTOBER, 1912.



Symons's Meteorological Magazine.

Watershed of River Thames above Teddington, and River Lee above Feildes Weir.

Rainfall Stations reporting

Isohyetals

In the last 10 days of the month, when the conditions were mainly cyclonic, the day temperatures were lower, and the night readings as a rule higher, than in the earlier half of the period. Few places experienced a shade temperature much above 60°, and in the north and west of Scotland the thermometer scarcely reached that level. Sharp night frosts were experienced in many districts on the 20th and 21st, and again on the 26th. Early on the 21st the sheltered thermometer at Balmoral fell to 21°, while on the 25th Cahir reported a reading of 25°. Grass minima below 20° were again observed locally, a reading of 16° being recorded at Crathes on the 21st, and at Newton Rigg on the 26th. Over the United Kingdom generally the mean temperature of the month was below the average, but in the Hebrides there was a slight excess of warmth. The deficiency was greatest in the midland and southern counties of England; at Oxford it amounted to nearly 3°.

Gales were rare and of no great severity, the chief instance occurring on the 20th and 21st, when a fresh south-westerly gale on our south and south-west coasts was followed by somewhat stronger winds from the north-westward in many parts of Ireland and England. Throughout the earlier part of the month, and in fact up to very nearly the close of the third week, the general absence of any definite wind current resulted in an unusual prevalance of fog. In London there are, on an average, only 7 days in October with a record of that phenomenon. Last month there was no fewer than 15, the largest observed since 1888, or with that exception in any October of the past 40 years. In most cases the fog was confined to the night and early morning hours, but in a few instances, and notably on the 11th and 12th, it hung about nearly all day.

Over the southern parts of the country the amount of bright sunshine was in excess of the normal, but in London, where the fog seriously affected the record, the excess was small. At Westminster the total duration, 78 hours, was only 9 above the average. In Scotland and the north and west of Ireland the duration was, as a rule, considerably below the normal.

METEOROLOGICAL NEWS AND NOTES.

NON-INSTRUMEMTAL WEATHER RECORDS have since a recent date been demanded as part of the routine duty of each of the station-masters on the staff of the North British Railway Company. Many of the most valuable rainfall records preserved by the British Rainfall Organization were compiled by the officials on the Highland Railway, but the habit of taking these observations has of late years fallen into disuse. Were the scope of the recent order extended by an almost infinitesmal degree, and a rain gauge added, as a matter of course, to the ordinary equipment of a railway station, the information gained would prove an immense boon to meteorology.

RAINFALL TABLE FOR OCTOBER, 1912.

STATION.	COUNTY.	Lat. N.	Long. W. [*E.]	Height above Sea. ft.	RAINFALL OF MONTH. Aver. 1875—1909. in.	1912. in.
		° ′	° ′			
Camden Square	*London*	51 32	0 8	111	2·72	2·03
Tenterden	*Kent*	51 4	*0 41	190	3·48	3·88
Arundel (Patching)	*Sussex*	50 51	0 27	130	4·01	4·06
Fawley (Cadland)	*Hampshire*	50 50	1 22	52	4·07	...
Oxford (Magdalen College).	*Oxfordshire*	51 45	1 15	186	2·82	3·02
Wellingborough (Croyland Abbey).	*Northampton*	52 18	0 41	174	2·61	2·05
Shoeburyness	*Essex*	51 31	*0 48	13	2·31	1·85
Bury St. Edmunds (Westley)	*Suffolk*	52 15	*0 40	226	2·72	1·87
Geldeston [Beccles]	*Norfolk*	52 27	*1 31	38	2·84	1·50
Polapit Tamar [Launceston]	*Devon*	50 40	4 22	315	4·84	4·56
Rousdon [Lyme Regis]	,,	50 41	3 0	516	3·81	4·51
Stroud (Upfield)	*Gloucestershire*	51 44	2 13	226	3·21	3·77
Church Stretton (Wolstaston)	*Shropshire*	52 35	2 48	800	3·77	3·29
Coventry (Kingswood)	*Warwickshire*	52 24	1 30	340	3·20	2·58
Boston	*Lincolnshire*	52 58	0 1	25	2·75	1·97
Worksop (Hodsock Priory).	*Nottinghamshire*	53 22	1 5	56	2·77	2·30
Macclesfield	*Cheshire*	53 15	2 7	501	3·53	3·31
Southport (Hesketh Park)	*Lancashire*	53 38	2 59	38	3·74	4·12
Arncliffe Vicarage	*Yorkshire, W.R.*	54 8	2 6	732	6·48	5·52
Wetherby (Ribston Hall)	,, ,,	53 59	1 24	130	3·18	2·72
Hull (Pearson Park)	,, *E.R.*	53 45	0 20	6	3·19	2·70
Newcastle (Town Moor)	*Northumberland*	54 59	1 38	201	3·20	3·45
Borrowdale (Seathwaite)	*Cumberland*	54 30	3 10	423	12·71	14·53
Cardiff (Ely)	*Glamorgan*	51 29	3 13	53	4·87	5·44
Haverfordwest	*Pembroke*	51 48	4 58	95	5·51	7·24
Aberystwyth (Gogerddan)	*Cardigan*	52 26	4 1	83	5·38	6·84
Llandudno	*Carnarvon*	53 20	3 50	72	3·78	3·48
Cargen [Dumfries]	*Kirkcudbright*	55 2	3 37	80	4·45	4·52
Marchmont House	*Berwick*	55 44	2 24	498	3·83	3·42
Girvan (Pinmore)	*Ayr*	55 10	4 49	207	5·38	4·79
Glasgow (Queen's Park)	*Renfrew*	55 53	4 18	144	3·36	3·40
Inveraray (Newtown)	*Argyll*	56 14	5 4	17	6·50	8·39
Mull (Quinish)	,,	56 34	6 13	35	5·87	6·52
Dundee (Eastern Necropolis)	*Forfar*	56 28	2 57	199	2·81	3·36
Braemar	*Aberdeen*	57 0	3 24	1114	3·88	3·95
Aberdeen (Cranford)	,,	57 8	2 7	120	3·23	5·04
Cawdor	*Nairn*	57 31	3 57	250	2·95	2·10
Fort Augustus (S. Benedict's)	*E. Inverness*	57 9	4 41	68	4·14	4·85
Loch Torridon (Bendamph)	*W. Ross*	57 32	5 32	20	8·38	9·51
Dunrobin Castle	*Sutherland*	57 59	3 56	14	3·15	2·28
Wick	*Caithness*	58 26	3 6	77	3·14	2·39
Killarney (District Asylum)	*Kerry*	52 4	9 31	178	5·59	4·14
Waterford (Brook Lodge)	*Waterford*	52 15	7 7	104	4·00	3·57
Nenagh (Castle Lough)	*Tipperary*	52 54	8 24	120	3·48	3·29
Miltown Malbay	*Clare*	52 52	9 26	400	4·31	...
Gorey (Courtown House)	*Wexford*	52 40	6 13	80	3·75	2·88
Abbey Leix (Blandsfort)	*Queen's County*	52 56	7 17	532	3·53	2·41
Dublin (Fitz William Square)	*Dublin*	53 21	6 14	54	2·88	1·67
Mullingar (Belvedere)	*Westmeath*	53 29	7 22	367	3·19	2·94
Cong (The Glebe)	*Mayo*	53 33	9 16	112	4·60	3·76
Crossmolina (Enniscoe)	*Mayo*	54 4	9 16	74	5·27	3·91
Collooney (Markree Obsy.)	*Sligo*	54 11	8 27	127	4·21	4·33
Seaforde	*Down*	54 19	5 50	180	3·65	3·64
Bushmills (Dundarave)	*Antrim*	55 12	6 30	162	3·60	4·32
Omagh (Edenfel)	*Tyrone*	54 36	7 18	280	3·76	4·42

RAINFALL TABLE FOR OCTOBER, 1912—*continued.*

RAINFALL OF MONTH (*con.*)					RAINFALL FROM JAN. 1.					
Diff. from Av. in.	% of Av.	Max. in 24 hours. in.	Max. in 24 hours. Date.	No. of Days	Aver. 1875–1909. in.	1912. in.	Diff. from Aver. in.	% of Av.	Mean Annual 1875–1909. in.	STATION.
— ·69	75	·46	26	15	20·64	23·48	+2·84	114	25·11	Camden Square
+ ·40	112	·92	20	16	21·80	27·29	+5·49	125	27·64	Tenterden
+ ·05	101	·93	1	14	24·03	33·08	+9·05	137	30·48	Patching
...	...	...	...	...	25·25	...	...	...	31·87	Cadland
+ ·20	107	·60	1	13	20·27	26·06	+5·79	128	24·58	Oxford
— ·56	79	·50	26	16	20·81	25·80	+4·99	124	25·17	Croyland Abbey
— ·46	80	·42	20	19	15·48	16·84	+1·36	109	19·28	Shoeburyness
— ·85	69	·33	26	15	20·86	26·25	+5·39	126	25·40	Westley
—1·34	53	·23	20, 26	20	19·17	24·28	+5·11	127	23·73	Geldeston
— ·28	94	1·02	27	20	29·74	39·99	+10·25	134	38·27	Polapit Tamar
+ ·70	118	·87	27	15	26·35	34·90	+8·55	132	33·54	Rousdon
+ ·56	117	·70	27	16	24·33	37·77	+13·44	155	29·81	Stroud
— ·48	87	·86	26	13	26·48	32·26	+5·78	122	32·41	Wolstaston
— ·62	81	·71	26	10	23·71	32·18	+8·47	136	28·98	Coventry
— ·78	72	·44	26	16	19·42	25·48	+6·06	131	23·35	Boston
— ·47	83	·72	26	12	20·31	28·61	+8·30	141	24·46	Hodsock Priory
— ·22	94	·60	27	17	28·38	30·71	+2·33	108	34·73	Macclesfield
+ ·38	110	1·37	26	16	26·44	31·82	+5·38	120	32·70	Southport
— ·96	85	1·60	26	14	48·62	55·33	+6·71	114	61·49	Arncliffe
— ·46	85	1·00	26	13	22·26	31·67	+9·41	142	26·87	Ribston Hall
— ·49	85	·71	27	15	21·76	27·95	+6·19	128	26·42	Hull
+ ·25	108	·74	26	17	22·85	28·64	+5·79	125	27·94	Newcastle
+1·82	114	2·13	26	19	100·75	104·09	+3·34	103	129·48	Seathwaite
+ ·57	112	1·25	27	19	33·50	45·20	+11·70	135	42·28	Cardiff
+1·73	131	1·19	25	25	36·47	46·01	+9·54	126	46·81	Haverfordwest
+1·46	127	1·35	20	20	36·30	44·02	+7·72	121	45·46	Gogerddan
— ·30	92	1·05	26	13	24·33	27·11	+2·78	111	30·36	Llandudno
+ ·07	102	1·02	26	19	34·28	42·03	+7·75	123	43·47	Cargen
— ·41	89	·48	24	19	27·72	27·51	— ·21	99	33·76	Marchmont
— ·59	89	·98	15	21	39·05	41·10	+2·05	105	49·77	Girvan
+ ·04	101	·43	15	18	28·39	27·07	—1·32	95	35·97	Glasgow
+1·89	129	1·95	15	24	52·71	52·54	— ·17	100	68·67	Inveraray
+ ·65	111	·91	27	22	43·74	40·80	—2·94	93	56·57	Quinish
+ ·55	120	1·00	30	19	23·35	24·14	+ ·79	103	28·64	Dundee
+ ·07	102	·81	31	22	28·04	29·70	+1·66	106	34·93	Braemar
+1·81	156	1·54	30	19	26·01	28·45	+2·44	109	32·73	Aberdeen
— ·85	71	·58	29	11	24·20	20·56	—3·64	85	29·33	Cawdor
+ ·71	117	·76	6	21	34·40	31·87	—2·53	93	44·53	Fort Augustus
+1·13	114	1·50	6	24	65·17	57·75	—7·42	89	83·93	Bendamph
— ·87	72	·34	13	17	25·56	25·63	+ ·07	100	31·90	Dunrobin Castle
— ·75	76	·35	23	27	23·82	24·13	+ ·31	101	29·88	Wick
—1·45	74	·50	8	23	42·35	43·22	+ ·87	102	54·81	Killarney
— ·43	89	·88	26	14	31·45	36·68	+5·23	117	39·57	Waterford
— ·19	95	·66	29	18	31·21	31·48	+ ·27	101	39·43	Castle Lough
...	...	...	...	...	35·77	...	...	...	45·11	Miltown Malbay
— ·87	77	1·00	26	15	28·16	37·79	+9·63	134	34·99	Courtown Ho.
—1·12	68	·29	26	21	29·23	31·34	+2·11	107	35·92	Abbey Leix
—1·21	58	·42	26	13	22·77	24·34	+1·57	107	27·68	Dublin
— ·25	92	·35	29	18	29·38	33·70	+4·32	115	36·15	Mullingar
— ·84	82	·52	27	22	38·48	34·48	—4·01	90	48·90	Cong
—1·36	74	·45	20	24	41·01	...	...	...	52·87	Enniscoe
+ ·12	103	·61	27	20	34·35	37·42	+3·07	109	42·71	Markree
— ·01	100	·55	28	16	31·28	39·24	+7·96	125	38·91	Seaforde
+ ·72	120	·65	21	19	29·92	32·08	+2·16	107	37·56	Dundarave
+ ·66	117	·88	20	20	31·81	36·59	+4·78	115	39·38	Omagh

SUPPLEMENTARY RAINFALL, OCTOBER, 1912.

Div.	STATION.	Rain inches	Div.	STATION.	Rain inches.
II.	Warlingham, Redvers Road..	3·46	XI.	Lligwy	4·94
,,	Ramsgate	3·00	,,	Douglas	4·67
,,	Hailsham	5·05	XII.	Stoneykirk, Ardwell House...	4·82
,,	Totland Bay, Aston House...	3·45	,,	Dalry, The Old Garroch.....	6·07
,,	Stockbridge, Ashley..	3·45	,,	Langholm, Drove Road	7·55
,,	Grayshott	4·58	,,	Beattock, Kinnelhead	5·27
,,	Caversham, Rectory Road ...	1·97	XIII.	St. Mary's Loch, Cramilt Ldge	4·50
III.	Harrow Weald, Hill House...	2·52	,,	North Berwick Reservoir.....	2·90
,,	Pitsford, Sedgebrook.....	2·30	,,	Edinburgh, Royal Observaty.	2·49
,,	Woburn, Milton Bryant.....	2·61	XIV.	Maybole, Knockdon Farm ...	3·78
,,	Chatteris, The Priory.....	1·94	XV.	Campbeltown, Witchburn ..	5·73
IV.	Colchester, Lexden	1·54	,,	Holy Loch, Ardnadam.....	9·10
,,	Newport.....	1·91	,,	Ballachulish House	7·55
,,	Ipswich, Copdock	1·53	,,	Islay, Eallabus	6·94
,,	Blakeney.....	1·71	,,	Tiree, Cornaigmore	7·19
,,	Swaffham	2·41	XVI.	Dollar Academy	4·45
V.	Bishops Cannings	3·94	,,	Balquhidder, Stronvar.....	8·20
,,	Winterbourne Steepleton.....	5·35	,,	Coupar Angus	3·73
,,	Ashburton, Druid House.....	8·38	,,	Glenlyon, Meggernie Castle..	5·93
,,	Cullompton	5·24	,,	Blair Athol	1·85
,,	Lynmouth, Rock House	6·33	,,	Montrose, Sunnyside Asylum.	4·32
,,	Okehampton, Oaklands.....	6·15	XVII.	Alford, Lynturk Manse	4·63
,,	Hartland Abbey.....	4·96	,,	Fyvie Castle	3·77
,,	Probus, Lamellyn.....	4·07	,,	Keith Station	4·05
,,	North Cadbury Rectory.....	3·91	XVIII.	Skye, Dunvegan	10·26
VI.	Clifton, Pembroke Road.....	4·57	,,	N. Uist, Lochmaddy	6·10
,,	Ross, The Graig	3·32	,,	Glenquoich, Loan.....	19·80
,,	Shifnal, Hatton Grange.....	2·74	,,	Alvey Manse.....	2·26
,,	Droitwich.....	2·71	,,	Loch Ness, Drumnadrochit...	3·46
,,	Blockley, Upton Wold.....	3·02	,,	Glencarron Lodge	8·84
VII.	Market Overton.....	2·81	XIX.	Invershin	2·07
,,	Market Rasen.....	2·62	,,	Loch Stack, Ardchullin	6·77
,,	Bawtry, Hesley Hall	2·44	,,	Melvich	3·54
,,	Derby, Midland Railway.....	2·99	XX.	Skibbereen Rectory.....	6·03
,,	Buxton	4·51	,,	Dunmanway, The Rectory ..	6·61
VIII.	Nantwich, Dorfold Hall	2·49	,,	Glanmire, Lota Lodge.....	3·01
,,	Chatburn, Middlewood	5·01	,,	Mitchelstown Castle.....	3·27
,,	Cartmel, Flookburgh	6·30	,,	Darrynane Abbey.....	6·31
IX.	Langsett Moor, Up. Midhope	3·70	,,	Clonmel, Bruce Villa	1·82
,,	Scarborough, Scalby	4·10	,,	Newmarket-on-Fergus, Fenloe	3·59
,,	Ingleby Greenhow	3·24	XXI.	Laragh, Glendalough	4·37
,,	Mickleton	3·10	,,	Ballycumber, Moorock Lodge	2·10
X.	Bellingham, High Green Manor	3·61	,,	Balbriggan, Ardgillan	1·88
,,	Ilderton, Lilburn Cottage ...	3·65	XXII.	Woodlawn	3·19
,,	Keswick, The Bank.....	6·26	,,	Westport, St. Helens	3·63
XI.	Llanfrechfa Grange	6·08	,,	Achill Island, Dugort	5·96
,,	Treherbert, Tyn-y-waun	9·57	,,	Mohill, The Rectory	2·82
,,	Carmarthen, The Friary	5·62	XXIII.	Enniskillen, Portora.....	3·62
,,	Castle Malgwyn [Llechryd]...	4·90	,,	Dartrey [Cootehill]	2·47
,,	Crickhowell, Tal-y-maes.....	5·30	,,	Warrenpoint, Manor House ..	3·34
,,	New Radnor, Ednol	5·30	,,	Banbridge, Milltown	1·93
,,	Rhayader, Tyrmynydd	6·87	,,	Belfast, Cave Hill Road	4·44
,,	Lake Vyrnwy	6·29	,,	Glenarm Castle.....	4·14
,,	Llangyhanfal, Plâs Draw.....	3·24	,,	Londonderry, Creggan Res...	3·53
,,	Dolgelly, Bryntirion.....	6·14	,,	Killybegs	6·04
,,	Bettws-y-Coed, Tyn-y-bryn...	7·60	,,	Horn Head	3·57

METEOROLOGICAL NOTES ON OCTOBER, 1912.

ABBREVIATIONS.—Bar. for Barometer; Ther. for Thermometer; Temp. for Temperature; Max. for Maximum; Min. for Minimum; T for Thunder; L for Lightning; TS for Thunderstorm; R for Rain; H for Hail; S for Snow; F for number of days Frost in Screen; f on Grass.

LONDON, CAMDEN SQUARE.—The conditions throughout were of a dull, cold and showery character, with frequent fogs at night and in the early morning hours. Mean temp. 47°·1, or 3°·0 below the average. Duration of sunshine 88·5* hours, and of R 32·1 hours. Evaporation ·39 in. Shade max. 64°·8 on 1st; min. 30°·8 on 5th. F 3, f 6.

TENTERDEN.—Duration of sunshine 171·0† hours. Shade max. 63°·0 on 13th; min. 31°·0 on 11th and 12th. F 5, f 14.

TOTLAND BAY.—Springs were running at more than double the rate of October, 1911, and 68 per cent. stronger than the average. Duration of sunshine 142·3* hours. Shade max., 60°·0 on 10th; min., 35°·7 on 4th. F 0, f 13.

PITSFORD.—Mean temp. 45°·9. Shade max. 62°·5 on 14th; min. 24°·4 on 5th. F 11.

IPSWICH, COPDOCK.—A brilliant and dry month until the last 6 days, when cyclonic conditions prevailed. The duration of sunshine, 154·3† hours, was the largest amount ever recorded here in October. Mean temp. 46°·8. Shade max. 61°·0 on 14th; min. 29°·0 on 25th. F 5, f 20.

POLAPIT TAMAR.—On the whole a seasonable month, though the latter half was decidedly wet and rather stormy. Shade max. 63°·0 on 11th; min. 25°·8 on 4th. F 8, f 14.

NORTH CADBURY.—Excepting October, 1905, it was the coldest October in 16 years, but with no extremes of temp. Shade max. 64°·8 on 11th; min. 29°·0 on 4th. F 2, f 18.

ROSS.—Shade max. 62°·5 on 14th; min. 27°·3 on 5th. F 7.

HODSOCK PRIORY.—Fine up to 25th with unusually cold nights, but not much sunshine. Most of the R fell from 26th to 28th. Shade max. 65°·4 on 14th; min. 29°·2 on 5th. F 8, f 19.

SOUTHPORT.—Duration of sunshine 102·2* hours, and of R 62·7 hours. Evaporation ·88 in. Mean temp. 48°·1, or 0°·9 below the average. Shade max. 62°·0 on 12th; min. 31°·0 on 25th. F 2, f 16.

HULL.—Fine generally to 13th, then R on most days to the end. Dense fogs on 12th, 25th, and 26th. Duration of sunshine 72·0 hours. Shade max. 62°·1 on 8th; min. 31°·0 on 4th. F 1, f 13.

HAVERFORDWEST.—Duration of sunshine 106·7* hours. Shade max. 59°·8 on 1st; min. 31°·8 on 4th.

BETTWS-Y-COED.—Very fine in the first half and very wet in the last half. Shade max. 64°·0 on 12th; min. 29°·0 on 1st. F 4, f 8.

CARGEN.—Fine dry weather until 12th, wet and unsettled after. The fine weather in the commencement of the month, succeeding an ideal September, permitted the close of the best harvest for many years. Shade max. 62°·0 on 7th; min. 26°·5 on 4th. F 6.

EDINBURGH.—Shade max. 64°·4 on 10th; min. 33°·0 on 21st, F 0, f 6.

COUPAR ANGUS.—The weather was all that could be desired in the first half, but the second half was continuous R and cloudy skies. R fell on 17 days, terminating in a flood on 30th. Mean temp. 45°·9. Shade max. 59°·0 on 8th; min. 27°·0 on 21st.

LOCH STACK.—Duration of sunshine 60·0* hours.

DUNMANWAY.—A mild month. Many bright warm days alternated with heavy R, chiefly at night.

WATERFORD.—Shade max. 60°·5 on 10th; min. 26°·0 on 25th. F 3.

DUBLIN.—First half was dry anticyclonic weather and the second half very unsettled and cyclonic conditions of atmospheric pressure. Mean temp. 48°·9. Shade max. 62°·6 on 13th; min. 32°·1 on 4th. F 2, f 4.

OMAGH.—With the exception of the first 10 days, which were fine and bright, the month was wet and cold.

* Campbell-Stokes. † Jordan.

Climatological Table for the British Empire, May, 1912.

STATIONS. (*Those in italics are South of the Equator.*)	Absolute. Maximum. Temp.	Date.	Absolute. Minimum. Temp.	Date.	Average. Max.	Min.	Dew Point.	Humidity.	Absolute. Max. in Sun.	Min. on Grass.	Total Rain Depth.	Days.	Aver. Cloud.
	°		°		°	°	°	0-100	d	d	inches		
London, Camden Square	81·2	11	38·5	25	68·0	48·2	48·9	74	125·7	33·4	1·08	9	6·4
Malta	82·0	16	51·8	3	71·2	60·9	57·1	75	145·0	.	1·66	3	3·8
Lagos	91·6	19	71·0	29	88·6	76·9	74·7	72	156·0	69·0	7·54	11	...
Natal, Durban ...	96·4	21	53·8	9	76·8	61·3	58·7	69	141·3	...	4·03	6	3·1
Johannesburg	73·5	18*	36·2	4	66·2	47·9	44·1	70	129·9	35·5	·60	3	3·2
Mauritius	81·5	25	62·3	30	79·0	68·8	66·8	81	144·4	55·3	6·41	17	5·6
Bloemfontein	75·9	18	31·8	10	67·1	43·3	42·3	72	...	...	·58	3	3·7
Calcutta...	102·2	6	70·8	15	95·1	78·1	75·9	75	...	69·5	4·84	7	4·8
Bombay...	95·0	5	78·1	29	92·2	81·1	76·3	72	134·0	73·7	·43	1	3·4
Madras	111·6	19	76·4	1	100·2	82·5	77·1	72	148·3	75·5	·00	0	2·6
Kodaikanal	77·3	19	52·8	28	70·8	55·3	53·3	75	148·8	45·1	5·95	18	5·8
Colombo, Ceylon ...	90·3	2	73·6	24	87·6	77·2	75·2	79	154·8	68·2	12·30	29	7·4
Hongkong	89·5	25	70·1	5	83·2	75·8	73·8	84	142·1	...	3·94	18	7·9
Sydney	69·0	18	45·2	30	64·0	50·7	48·3	78	120·9	36·2	3·22	29	4·6
Melbourne	75·0	8	34·6	20	62·6	43·8	42·4	64	115·1	...	1·35	15	4·7
Adelaide	86·3	8	40·9	24	69·7	50·7	44·1	52	136·5	29·6	·84	7	3·9
Perth	87·8	1	40·0	28	69·8	53·0	50·6	67	132·0	31·8	2·67	12	4·9
Coolgardie	84·1	21	35·0	29	70·6	49·9	42·8	48	142·5	30·6	1·45	7	4·5
Hobart, Tasmania ...	72·0	8	35·0	23+	57·7	43·1	40·7	67	118·4	28·8	1·11	16	5·8
Wellington	62·0	29	38·2	25	56·1	46·4	43·4	73	104·0	29·0	3·40	17	7·7
Auckland	65·0	20	41·5	24	60·8	48·6	49·4	82	125·0	38·0	1·56	16	5·3
Jamaica, Kingston ...	89·9	2	70·4	1	87·9	72·9	70·8	71	...	...	·27	3	4·5
Grenada	87·0	sev.	75·0	sev.	84·8	77·1	...	75	139·0	...	3·64	12	6·0
Toronto	82·0	23	31·7	14	64·9	45·6	...	...	138·0	25·3	5·92	16	6·0
Fredericton	83·0	27	28·0	1, 6	64·7	39·8	...	67	...	...	2·60	6	5·8
St. John, N.B. ...	67·6	19	34·3	6	55·4	42·4	...	...	...	...	7·49	13	6·4
Edmonton, Alta. ...	87·5	14	28·5	5, 12	65·5	40·3	...	51	142·0	18·5	2·01	14	4·8
Victoria, B.C.	84·2	13	37·9	1	64·9	47·1	...	68	...	...	1·56	6	5·0
Dawson	76·0	22	24·0	4	62·4	35·1	...	...	...	...	·38	3	3·9

* And 23. † And 29.

MALTA.—Mean temp. of air 65°·8. Average bright sunshine 10·6 hours per day.

Johannesburg.—Bright sunshine 272·7 hours.

Mauritius.—R 3·14 in. above average. Mean hourly velocity of wind 11·9 miles.

KODAIKANAL.—Bright sunshine 202 hours ; TSS on 24 days.

COLOMBO.—Mean temp. of air 82°·4, or 0°·2 above, of dewpoint 0°·1 below, and R 1·34 in. above, averages. Mean hourly velocity of wind 6·4 miles. TSS on 17 days.

HONGKONG.—Mean temp. of air 78°·9. Bright sunshine 178·0 hours. Mean hourly velocity of wind 12·7 miles.

Sydney.—Mean temp. of air 1°·1 above, and R 1·70 in. below, averages.

Adelaide.—Mean temp. of air 2°·5 above, and R 1·96 in. below, averages.

Perth—Mean temp. of air 0°·8 above, and R 2·27 in. below, averages.

Coolgardie.—Mean temp. of air 2°·7 above, and R normal.

Hobart.—Mean temp. of air about the average, and R ·81 below average.

Wellington.—R 1·45 below average. Bright sunshine 117·8 hours.