the snail, it is so arranged that the snail shall give a little. The small play the snail has, the distance it can move under pressure, is sufficient to discharge the quarter rack on to its snail. In repeating work the quarter rack

is also an "all or nothing piece," for this reason, that until it is discharged the hammer which strikes the hours is hung up, and should you not press down the slide sufficiently to reach the bottom of the depression in the

FIG. 7.—Repeating mechanism.

snail no blows are struck, so it is not possible for the repeating work to give you a false answer. Fig. 7 illustrates repeating action. Clock-watches are watches which strike the hours and quarters spontaneously; their

action is exceedingly complicated, and, unless their mechanism is seen, is almost incapable of explanation.

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(To be continued.)

THE RECENT DROUGHT.

THE spell of dry weather recently experienced over the United Kingdom has been so unusually prolonged, and its effects have in many instances been so disastrous, that a brief inquiry into its history and general results may not be without interest. In the present article it is therefore proposed to take into consideration, —firstly, the conditions of barometrical pressure under which the drought occurred; and secondly, the actual deficiency of rainfall experienced in various parts of the country.

With respect to the first point it will readily be surmised by those who are in any way acquainted with the subject of our meteorological changes that the general distribution of pressure during the recent dry spell was anticyclonic. At times, and notably during the second half of June, the middle of July, and the early part of August, the anticyclonic conditions ruled supreme over the entire Kingdom. On other occasions, however, the influence of the high-pressure areas was confined to a portion of our islands, the favoured localities being usually those included within the eastern or the southern half of Great Britain. With these latter conditions the extreme western and northern districts were influenced to

a very partial extent by the anticyclone, and to a much greater extent by areas of low pressure, the centres of which were, however, in nearly all cases at a considerable distance from our shores. On a few rare occasions the main disturbances were accompanied by shallow subsidiary depressions, which advanced directly over us, and occasioned the temporary bursts of showery weather which occurred from time to time. The most important and general instances of this kind were observed during the second week of July and towards the end of the same month; but in the former case there were isolated portions of our southern and south-eastern counties which remained altogether unaffected by the disturbed weather, while in the latter instance the showers were in many districts far too insignificant to be of any real value.

Although an endeavour has thus been made briefly to account for the unusual drought which occurred, one cannot but feel that beyond and irrespective of the various pressure movements which were reported from time to time there was a distinct *tendency* for the weather to remain dry and warm. Instances were not wanting of the prevalence of very disturbed conditions of pressure without any corresponding break up in the atmospherical appearance. Of this, two recent examples may be cited. On the afternoon and evening of August 12, a depression formed

directly over England, while another appeared over Ireland. Under such circumstances a good deal of rain might naturally have been anticipated in all districts, and in ordinary seasons there can be no doubt that it would actually have fallen. As a matter of fact, however, in those parts of England which lay directly under the influence of the growing depression, the weather remained persistently fine, the appearance of the sky even giving but little indication of the atmospheric change which was in progress. On the evening of August 11 a similar though not quite so decided a movement in pressure also passed over without any rain in the districts more immediately concerned. The subtle influence which determines whether a season shall be dry or wet, hot or cold, is at present a profound mystery, but that something of the kind exists is abundantly evident to all who have endeavoured to work out the causes of our seasonal weather changes.

As regards our second point of inquiry, viz. the actual nature and extent of the recent drought, the meteorological records tell a most remarkable tale. The period embraced by the spell of dry weather began with the early part of June, and lasted in most districts until the middle of the present month, or about eleven weeks in all. I have therefore taken the trouble to abstract and total for this period the rainfall values given in the Weekly Weather Report of the Meteorological Office for 78 stations situated in various parts of the United Kingdom. The general results of the investigation are shown in the accompanying map.

A very brief examination of the map will suffice to show that during the extended period in question the aggregate rainfall was less than the average in all parts of the British Islands, with the exception of the Shetlands and a portion of Caithness. Over England (including also South Wales), the eastern and central parts of Scotland, and the southern half of Ireland, the total amount of rain was less than half the average. Over the north of England, the county of Hertfordshire, the greater part of the south-western district, comprising the counties of Somerset, Devon, and Cornwall, and a small tract of country surrounding Dublin, the aggregate amount was less than a third of the average; while in the north-east of England, in portions of Devon and Cornwall, and at Rothamsted, the rainfall did not amount to one-fourth of the average. The only exceptions to these general rules occurred over some portions of Eastern England, where, owing to heavy local thunderstorms, the aggregate was much greater than at surrounding, or even at neighbouring, stations. At Attleborough, in Norfolk—a station which is not included in the official report, and which has therefore not been employed in the preparation of the map—as much as 2·03 inches of rain were measured on July 31 in the short space of an hour and a half. A very similar local plump occurred at Ingatstone in Essex, where, during a severe thunderstorm on July 16, a fall amounting to 1·8 inch was recorded in about two hours. So far as I am aware, no local falls of anything like so heavy a nature were experienced either over our midland or our southern counties.

With regard to the frequency, or rather in the present instance to the rarity, of the summer rainfall, it appears that over the greater part of the midland, southern, and south-western districts the number of rainy days was less than 15 out of a total of 77. At Cirencester, Hastings, and Southampton, the number did not amount to more than 12, at Oxford to 11, and at Hurst Castle to 10; while at Dungeness there were only 8 days with rain, or about one-fourth of the average number. In the south-west of England the number of rainy days varied from 13 to 25, in the north-east from 15 to 23, and in the north-western district, including North Wales, from 19 to 26.

One other very important feature in connexion with

the drought has been the prevalence of unusually long periods of absolutely rainless weather. Between the early part of June and the beginning of July there were in many of the English districts as many as 25 to 28 consecutive days without rain, and in some localities these numbers were greatly exceeded. At Falmouth, for example, there was no rain between June 7 and July 7, a period of 31 days, while at Dungeness and Cullompton there were periods of 35 rainless days, lasting in the former instance from June 4 to July 8, and in the latter

Districts in which rainfall was in excess of the average...	...
„ „ was less than half the average	...
„ „ was less than one-third of the average	...
„ „ was less than one-fourth of the average	...

from June 3 to July 7. As regards the London district it appears that the drought in its absolute sense was longer than any experienced since the year 1865. Between the first week in June and the beginning of July there were in London 25 consecutive days without rain; in June 1865 the number was 26. In the period of 21 years intervening between 1865 and the present year there were only three instances of an absolute drought lasting for as long as three weeks.

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